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KOKO DRAINS HAS EARNED A REPUTATION
FOR GOOD SERVICE, WITH A WORK ETHIC
THAT CAN ONLY LEAD TO GROWTH / 16

WORKING
WITHOUT LIMITS
KEEPING UP ON NEW
TOOLS TO TACKLE
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PRODUCT FOCUS

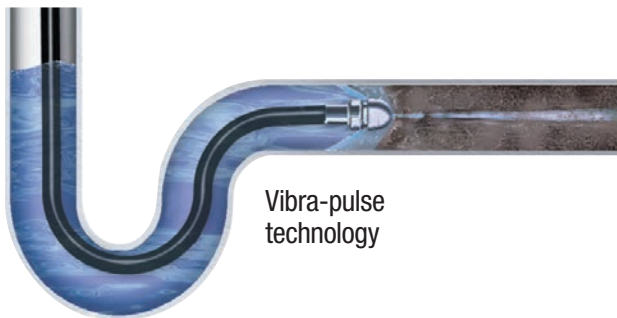
RESIDENTIAL & COMMERCIAL SEWER & PIPE MAINTENANCE / 66





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PROfile

NuFlow Certified Contractor

When John Perry and his dad, Harley, decided to add pipe lining to their plumbing business, they took their time evaluating partners.

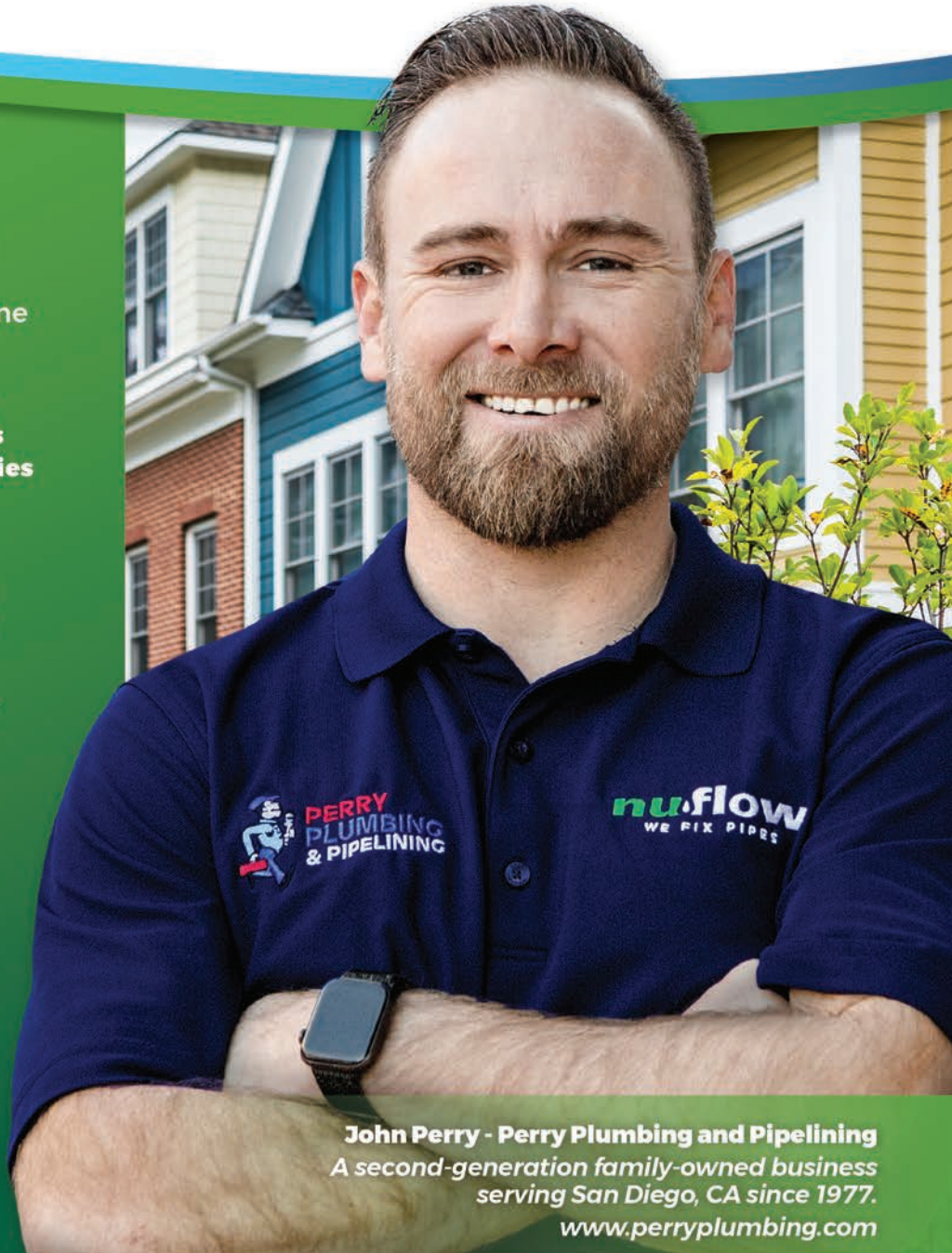
"We decided on NuFlow because of the quality of the product. Their product is far superior than all the other companies out there."

When John attended a NuFlow Annual Summit and met other NuFlow Certified Contractors it was a turning point for his business.

"After the summit we designated a crew specifically to pipe lining. Eventually, we had to rebuild our entire plumbing business because our pipe lining took off."

John still keeps in touch with the NuFlow team and the network of NuFlow Certified Contractors.

"Anytime one of us has a question about a job, we can reach out to see what other people have done. The NuFlow crew is experienced and knowledgeable. We make a great team!"



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ON THE COVER // The first time Koko Chiranian witnessed a drain cleaning job while helping at his father's plumbing business as a teenager, he knew he preferred that to plumbing. He built a reputation while working for another company, then started his own business, Koko Drains in Pasadena, California. Chiranian now employs two technicians but plans to keep growing; his goal is to have an office in every state. (Photography by Matt Dayka)



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coming next month: June 2021

focus: Location and Leak Detection, Drainline TV Inspection Equipment

Money Machines: Flotation device for bypass-free inspection // Tech Perspective: High-efficiency jetter nozzles clean better // Money Manager: Low-interest loan considerations

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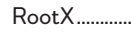
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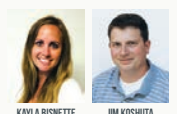
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SHARE WHAT YOU KNOW

Connecting with other companies on social media is a way to share information and elevate the industry

DO YOU HAVE A FRIEND in the drain cleaning industry? Another drain technician or business owner, someone who you can bounce ideas off of, get equipment recommendations from, and talk to about your business goals?

It's so beneficial to have someone you trust for these types of conversations — and if that person is in your industry, dealing with the same types of problems you face, they can provide you with insight that even the most well-meaning layperson just can't offer.

Any good friend can listen to you vent about a customer who won't pay their bill and hash out something that's been bothering you, but if that person isn't also out there jetting drainlines and inspecting laterals they probably won't truly understand the challenges you face. Any topic on the technical side of things will be out of their wheelhouse. But your drain cleaner buddy who just bought the new jetter you've been eyeing can be a valuable resource.

If you're in a small market, you might not want to get too chummy with your direct competitor — throwing business each other's way once in a while is one thing, but discussing new equipment or a service you want to add might be pushing it if you're talking to the only other service company in town.

Instagram and Facebook are both tools you can use to connect to the industry at large. Social media can have its downsides, but it's also a great way to reach out and learn from people you wouldn't necessarily ever meet or have access to "in real life."

I've heard firsthand from a couple drain cleaners who use Instagram to reach both customers and others in the industry. They use videos to take their customers along on jobs, showcase the work they do and how they solved problems for others. It's a great marketing tool. You won't find a better, more easily accessible way to show a prospective customer how you can help them than by showing a video of you solving a similar problem for someone else. Providing visual proof that you can do the same for them is well worth the time it takes to create a short video.

Instagram is also a great tool to connect with others in the industry. The drain cleaners I've talked to about this all mention how great it is to talk to others across the country, and sometimes even from other countries. They ask each other questions and give advice, sharing information that they probably couldn't get from a competitor in their area.

I love to hear about the collaboration and camaraderie. That friendliness and willingness to help each other out makes individuals better at their jobs and also works to elevate the industry as a whole.

That's what we're doing here at *Cleaner*, too — helping you connect to the rest of the industry. It's good to be in it with you.

I hope you enjoy this month's issue. **c**

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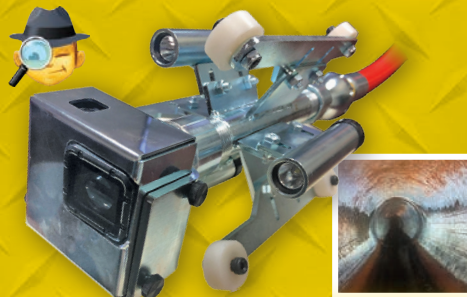
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SHYK-1 NEW Puma Standard Kit

Puma Kit comes with HD 3/16" thick concave saws and skids for 6" - 12" lines. Cutter holds flows 40 - 80 GPM and pressures 1500 - 3000 PSI. It is rated up to 225 ftlb. of torque, and 195 ftlb. of continuous torque. Kit comes with SHYM-1 Puma Motor; 1" Hub; 6", 8", 10", 12" HD Concave Saw Blade; 6", 8" Cage Skid Single Size; New Set Of 10" and 12" Fin



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SRRK-1H Super Red Hot Kit

New improved larger front steel bearing on the Red Hot Motor increases life, reduces maintenance and makes this motor able to withstand the shock produced by heavy cleaning. Round profile of this cutter allows it to enter lines from 4" and up.

40 - 80 GPM and pressures 2000 - 3000 PSI. Produces 225 ftlb. of torque, and 175 ftlb. continuous. Kit comes with SRRK-1H Red Hot Motor; 1" Saw Blade Hub; 6", 8", 10", 12" HD Concave Saw Blade; 6", 8" Cage Skid Single Size; new Set of 10" & 12" Fins



SRRK-1 Super Green Meanie Green Kit

The round profile allows the cutter to enter sewer lines 4" and up. Motor handles flows from 40 - 80 GPM and pressures 2000 - 3000 PSI. Rated up to 235 ftlb. of torque, and 175 ftlb. of continuous torque. Kit comes with SRRK-1P Super Green Motor; 1" Saw Blade Hub; 6", 8", 10", 12" HD Concave Saw Blade; 6", 8" Cage Skid Single Size; Set Of 10" & 12" Fins. Motor fits Green wheeled skids you may have.



SRRK-4-15W Super Green Meanie Citizen Kit

Large Range Kit gives you saws and skids for 4" to 15" pipe sizes. Cutter handles flows 40 - 80 GPM and pressures 2000 - 3000 PSI. Rated up to maximum 235 ftlb. of torque, and 175 ftlb. of continuous torque.

Kit comes with SRRK-1P Super Green Motor; 1" Saw Blade Hub; 4", 6", 8", 10", 12", 15" HD Concave Saw Blade; Set of 4" Steel Rings; 6" Cage Skid; 8"-10" Adjustable Wheel Skid; 12"-15" Adjustable Wheel Skid; Allen Wrench and Screws

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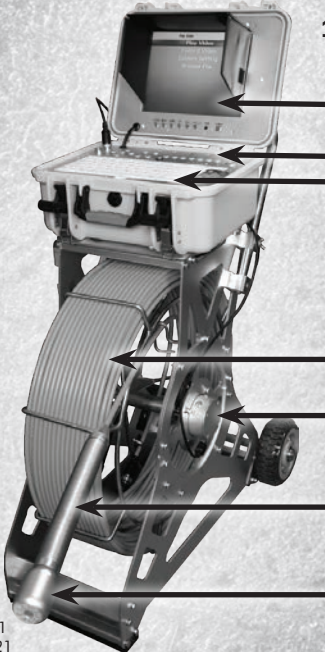


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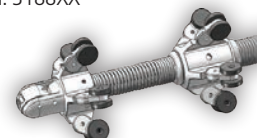
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HERE TO

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✔ Koko Drains owner Krikor “Koko” Chiranian cleans out a drain with a US Jetting 4018 trailer jetter while using a RIDGID SeeSnake CS12X and Mini Reel to record a confirmation video for the customer. Technician Stefano Assenza assists.



Photography by Matt Dayka

KOKO DRAINS HAS EARNED
A REPUTATION FOR GOOD
SERVICE, WITH A WORK
ETHIC THAT CAN ONLY
LEAD TO GROWTH

// By Giles Lambertson



Koko Drains

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All right, world. Koko is at your service.

For a small Los Angeles plumbing and drain cleaning company to use such a slogan might seem a bit over the top; but it reflects both the ambition and the work ethic of the man who started Koko Drains.

Krikor Chiranian is realistic. He knows what he's doing and where he's headed. The son of a plumber and veteran of 17 years in the industry, Chiranian — everyone calls him Koko — has exhibited vision and a sense of purpose from the beginning of his working life.

Helping his father as a teenager on a summertime plumbing call, he met Ole Bugarin on the job site. Bugarin was a drain cleaner and that day unclogged a line by inserting a snake through a clean-out. Chiranian watched and was immediately drawn to the work.

“Right then I knew,” he recalls. “I knew I wanted to clean drains instead of plumbing. I told Ole, ‘I may want to get a job. Are you hiring?’ He said that as a matter of fact, he had just started his company and was looking for help.”

Chiranian worked at Bugarin's American Rooter for nearly 10 years and set his sights on eventually serving the world.

BUILDING A FOUNDATION

Chiranian became adept at unclogging sewer and drainpipes, priding himself on overcoming whatever blockage he discovered. He was satisfied with his position at American Rooter right up until the day he had a conversation with A.J., a childhood friend. “Is this all you're going to do the rest of your life? You just want to work for a company cleaning drains?”



« Koko Chiranian (left) takes a look at the RIDGID SeeSnake monitor while Stefano Assenza operates the camera.

His friend touched a nerve Chiranian didn't even know he had. "That conversation opened my mind," he says. He began to dive into self-development literature, including such classics as *The Laws of Subtraction*, *The Science of Success* and *The Secret of the Ages: A Master Code to Abundance and Achievement*.

"Growing up, I had a rough childhood," he says. "I got these books and I read them over and over and over. Repetition burns it in the mind." From them, he learned to think big and to lay a foundation of rules and habits to build upon, including always giving your best effort.

"You should take pride in everything you do. People always are looking at you. I tell myself God is watching so I should always do the best I can. You never know who else is watching, too."

In 2013, Koko Drains opened its doors. Chiranian was still studying for his C36 plumbing license, so his work mostly was drain cleaning using mechanical snakes. He had a ready customer base because of his time with American Rooter.

"While working with Ole, I was making a reputation for myself," he

» Chiranian operates a US Jetting trailer jetter to clean out a drain on a residential job site in Pasadena.



"YOU SHOULD TAKE PRIDE IN EVERYTHING YOU DO. PEOPLE ALWAYS ARE LOOKING AT YOU."

KRIKOR "KOKO" CHIRANIAN

says. “Customers got to know me and the kind of work I did and after eight or nine years they started asking me why I didn’t start my own business. I was kind of forced to start my business.”

Once licensed, he added household plumbing — toilets, sinks, sump pumps — to his repertoire. When a clogged line was especially resistant to mechanical snaking or needed a thorough cleaning, Chiranian subcontracted the needed jetting work. However, jetting was in so much demand, he soon invested in a U.S. Jetting unit and now does the work in-house.

COMMITTED TO GROW

He’s gone from being a one-man outfit to splitting work between him and two technicians and is looking for a third. David Fox came to Koko Drains as an experienced hand, having worked for five years for an LA franchise, Mike Diamond Plumbing & Drain Cleaning. His other technician, Stefano Assenza, was a drain cleaning rookie.

Chiranian’s training of Assenza was hands-on — having the new employee ride along with the boss for six months. The first month, Assenza watched. Then he was given the opportunity to undertake one task or another under Chiranian’s supervision.

“Finally, when I could see that Stefano could do a job and was comfortable taking on new jobs, I gave him a truck and sent him on his way,” he says. “They are both young guys and always are happy to come to work. I get a lot of compliments about them.”

The trio go on service calls in plain gray

trucks that are unmarked by logos or the name Koko Drains. Chiranian does this in deference to plumbers who have called him to clear a drain for one of their customers. “I like to be loyal to the plumbers who give me work. If I come in with a truck with my name on it to help a plumber and the next time the customer calls me directly, it’s sort of stepping on the plumber’s toes.”

In fact, Koko Drains at this stage is a little-advertised company. No logos on trucks, no ads in the paper or on social media, just some posts on an Instagram account. “We have a Facebook page



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« Owner Koko Chiranian (left) and technicians David Fox (middle) and Stefano Assenza make up the current Koko Drains team. Chiranian is looking for a third technician to continue growing the business.

and a website but there's not much evidence anyone looks at them. It's mostly word of mouth and referrals."

That marketing plan will change, though, Chiranian says. "Because we work for so many plumbing contractors, it sort of prevents me from advertising. But I told my wife when the day comes that plumbers don't need me, I'll start advertising more." That day may not be far off: He already has noticed a decline in calls from plumbers as more of them get into drain cleaning.

TOOLS OF THE TRADE

The business continues to evolve. Because Chiranian repairs and replaces failed sewer and drainpipes, he opted to acquire a TRIC Tools

X30 pipe bursting system. The X30 has almost 30 tons of pulling force and an 8 gpm hydraulic flow rate. It readily accomplishes the company's bursting and replacing of 4-inch and 6-inch laterals.

His longest bursting job so far replaced 80 feet of 4-inch pipe. "We don't burst pipe that frequently," Chiranian says, and that's partly by design. "I don't try to sell the pipe bursting as much right

"CUSTOMERS GOT TO KNOW ME AND THE KIND OF WORK I DID AND AFTER EIGHT OR NINE YEARS THEY STARTED ASKING ME WHY I DIDN'T START MY OWN BUSINESS."

KRIKOR "KOKO" CHIRANIAN

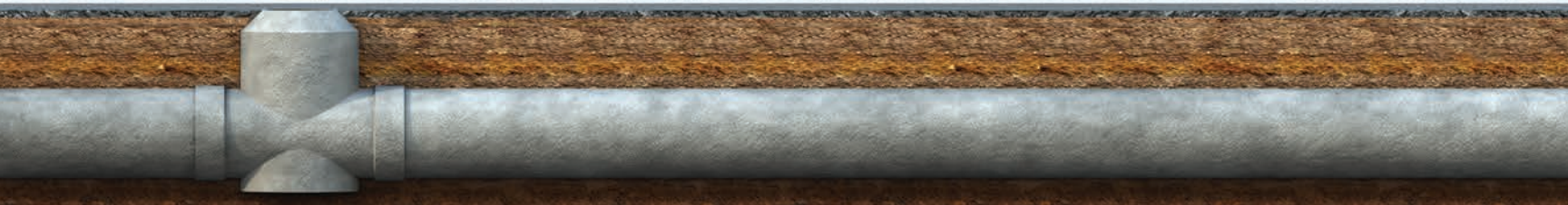
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DIVERSE ORIGINS

now because whenever I do a job, I have to empty my work van of other tools and fill it up with bursting equipment. I'm getting a new box truck I ordered in August and I'm going to turn that into my trenchless truck."

Koko Drains fixes short sections of failed pipe using an APS Versa-Patch product that inserts a resin-sided liner where a pipe is broken and inflates it with a bladder until the liner affixes itself to the pipe. Chiranian currently subs out longer lining work, but by the end of the year, he plans to invest in a cured-in-place lining system.

He jets pipe with a US Jetting 4018 model, which produces 4,000 psi and pushes out 18 gpm. His choice of jetters reflects his commitment to growth and best service. "People at several companies told me to get a small cart jetter, but a lot of jobs a cart jetter can't do. The 4018 can work on pipe up to 24 inches in diameter. I decided I would

Los Angeles is a diverse city, as coastal metropolitan areas often are. Koko Drains reflects this diversity in the ancestry and nationality of company employees.

Company owner Krikor Chiranian is a second-generation Armenian American. His father was a native of Armenia who moved to Los Angeles 40 years ago from Beirut, Lebanon. Chiranian's one-person office staff, his wife, Arpi, also is of Armenian heritage.

One of Chiranian's two service techs is Stefano Assenza, a native of Italy.

"I first came to know Stefano on a service call," Chiranian says. "I was working on the job and one of the residents of the home said he had a friend who just came to America from Italy and was looking for work. He said the man worked on boilers in Italy and wondered if I would be interested in talking to him about a job. I told him I was interested."

He hired Assenza and made the new employee his helper, training him on the job. After a few months as an apprentice employee, Chiranian put Assenza to work with his own service truck.

Chiranian is grateful to have stumbled upon Assenza. He says he has found that not too many Americans whose families have lived in the country for multiple generations are interested in plumbing work.

Chiranian's father learned the plumbing trade in Beirut. There, he told his son, the work is a little different because there are relatively few buildings constructed of wood. Instead, they are built of bricks and cement. So, running a pipe for a plumber in Beirut meant chipping holes in cement blocks and plastering the ragged openings after the pipe was in place. Installing a pipe in a wall formed of fir studs and drywall sounds pretty easy by comparison.

After he came to the U.S., Chiranian's father continued plumbing, introducing the craft to his children. Besides the Koko Drains owner, one other son is also a plumber. It's a family tradition.

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invest a little more upfront and get the best machine so I can be confident going into every job that I'll be able to clear the pipe."

He relies on a couple of jetter heads — a bullet nozzle and ball nozzle — along with a warthog nozzle to break through grease jams. He runs his inspection camera simultaneously with the nozzles to ensure a pipe is thoroughly cleaned. Because he guarantees his cleaning work, the camera is instrumental in warranting the work.

His cameras of choice are RIDGID SeeSnake mini reels, and his newest units boast a high dynamic range that lets him see 4 feet ahead instead of 1 foot. They also incorporate tilt technology for changes of elevation in a line. Besides cleaning, the cameras are used for real estate transaction inspections. At least once a day, Koko Drains receives calls from LA-area Realtors.

For mechanical pipe cleaning, Chiranian pulls out Gorlitz Sewer & Drain cable equipment. His Gorlitz GO 68HD features 150 feet of 11/16-inch cable powered by a 3/4 hp reversible motor. "It's a very powerful machine. It does not stop. It is not made for an amateur drain cleaner."

He doesn't own a mini-excavator or other powered digger. Because most lines are laid pretty shallow in Southern California properties, "we do all our digging by hand. The only time you need an excavator is when you are digging in the street and I'm not licensed for street-digging."

GROWTH MINDSET

Half to three-quarters of his drain and sewer work is for residential customers. He's called frequently by commercial clients — fast-food restaurants and property management companies — and he is open to more commercial work. Recently, Chiranian completed a job under a 30-unit condo building, replacing 40 feet of 4-inch sewer line.

Repair and replacement of pipes is where Koko Drains can make the most money, he says. Yet drain cleaning keeps the company busy and requires less overhead. Some pipe in the Los Angeles area dates back 100 years, so there's plenty of potential work for the company. Aging pipe and tree roots keep him busy, too. Chinese elm and oak trees, among other varieties, are "tearing the pipes apart," Chiranian says.

Koko Drains has a one-person office staff — Chiranian's wife, Arpi. When he started his company, he did the books along with



"A MAJOR GOAL OF MINE IS TO HAVE AN OFFICE IN EVERY STATE, AND MAYBE ONE DAY BE A WORLDWIDE COMPANY. THAT'S THE KIND OF GROWTH MINDSET WE HAVE."

KRIKOR "KOKO" CHIRANIAN

« Chiranian gets a Picote Mini Miller machine ready to clean out a drain on a residential service call.

everything else. His wife — then his girlfriend — worked for a tax firm. She didn't especially enjoy the overall environment of the work — liens on property, tax payments and so on.

"So I asked her to come work for me and she did. It was the best decision we ever made and now I can focus on the work and on growing the company."

Chiranian looks back to the beginning of his drain cleaning career and gives his first boss lots of credit. "Ole Bugarin was an honest man and taught me everything he knew. He was the hard job specialist. When others couldn't clear a line, he would. I learned that from working under him."

He has plans. He formed his company under the corporate banner of Right-a-Way Rooter — "When customers call, I tell them we'll have someone there right away." — but operates for now as Koko Drains. If the company expands and franchises, as Chiranian plans for it to do, he will pivot to the Right-a-Way name.

"A major goal of mine is to have an office in every state, and maybe one day be a worldwide company. That's

the kind of growth mindset we have. Whether it happens, we'll see. I just know that if you shoot for the stars, you might be able to grab the moon." c

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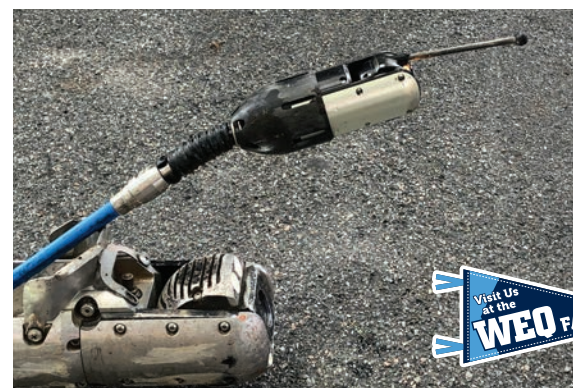
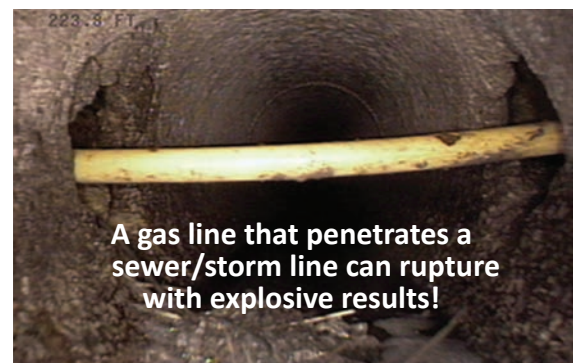


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INDUSTRIAL-STRENGTH SOLUTION

Robotic hydrodemolition equipment provides big benefits in many industrial cleaning applications

// By Keith Armishaw

INDUSTRIAL FACILITIES RELY on high-pressure water-jetting machines for a number of specialized cleaning and removal applications to keep equipment operating at full potential. Enhancing efficiency for each task — from surface cleaning and preparation, to heat exchanger applications to refractory removal — is vital for maintaining productivity and profitability.

To help keep facilities running smoothly and optimize scheduled downtime, industrial cleaning contractors employ a variety of hand-held and automated waterblasting equipment designed for these challenging applications. However, what these tools provide in terms of efficiency — and long-term benefit to the contractor — depends on many factors. Selecting the right equipment goes beyond how fast crews can get the job done. It must include considerations for safety as well as productivity. Additionally, equipment that allows an operation

to expand service offerings without further investment is the best choice for continued growth and overall stability.

This has led a number of industrial cleaning contractors to invest in robotic hydrodemolition equipment from original equipment manufacturers. These cutting-edge machines offer a number of safety and productivity benefits compared to hand-held equipment or homemade systems and increase contractor flexibility over highly specialized, single-application options.

IMPROVED SAFETY

Industrial cleaning applications come with a number of inherent dangers. Limiting crew exposure to these hazardous conditions is a primary concern for contractors and has led to the development of numerous automated options. The extent to which these solutions keep workers out of harm's way varies, as does the amount of personal protection equipment required. Due to the specialized nature of

FOR MANY CONTRACTORS, ADDING ADVANCED HYDRODEMOLITION ROBOTS TO THEIR FLEET NOT ONLY INCREASES PRODUCTIVITY AND SAFETY FOR INDUSTRIAL CLEANING APPLICATIONS, BUT OPENS THE DOOR TO INCREASED SERVICE OFFERINGS AND LONG-TERM COMPANY GROWTH.



« Using advanced hydrodemolition robots for industrial cleaning allows workers to remain at a safe distance and operate the unit via remote. While this does not eliminate the need for PPE, it allows workers to safely complete the cleaning without donning full body suits or breathing apparatus, saving time, resources and discomfort.

industrial cleaning applications, the use of automated equipment might be limited in some situations, leaving contractors to rely on more manual solutions — unless they have access to powerful robotic equipment.

For example, a contractor might be able to perform a basic tank cleaning application with an automated system, such as a rotating jet lowered from the top of the tank. But what if the project requires a more thorough cleaning or the removal of materials such as paint, coating or concrete? To achieve the necessary power for this type of cleaning, contractors often employ crews in full PPE wielding hand lances.

This method significantly increases the safety risks for crews. Because they must constantly resist back thrust, hand lances cause workers to fatigue quickly. A worker using a 40,000 psi hand lance must constantly fight up to 52 pounds of thrust (at a flow of 5 gpm) for normal operation. The Waterjet Technology Association recommends that, in ideal conditions, a single worker should not be required to withstand back thrust of more than one-third their body weight for an extended period of time. In poor conditions, such as low light, uneven or slippery footing, and confined spaces found in industrial cleaning applications, even less back thrust is recommended.

And, like all hand-held equipment, hand lances also come with increased risk of hand, wrist, shoulder and back injuries since they require workers' bodies to absorb the shock of the cleaning or removal process. Even more dangerous is the risk of water jet-related accidents. Improperly controlled high-pressure water jets can cause serious foot and leg injuries and have even contributed to fatalities.

On the other hand, using advanced hydrodemolition robots for this same tank cleaning task allows workers to remain at a safe distance and operate the unit via remote — even from outside the tank in some cases. While this increased area of operation does not eliminate the need for PPE, it allows workers to safely complete the cleaning without donning full body

suits or breathing apparatus, saving time, resources and discomfort.

Compact units from OEMs offer further increases to job site safety by eliminating the need for workers to enter confined spaces

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▲ For removing concrete, paint or other coatings, powerful hydrodemolition equipment provides maximum productivity compared to hand lances, due to the robot's ability to handle the higher water flow rates and reaction forces.

such as tanks and pipes. Some advanced models can easily be broken down into smaller components — a third of their original size — that can enter these tight and inhospitable environments.

Advanced systems from OEMs can also reduce or even eliminate the need for scaffolding — another common safety risk for industrial cleaning specialists. Remote operation allows workers to stay safely on the ground and away from ledges or fall hazards and eliminating the need to erect scaffolding or fall protections increases overall productivity.

One type of innovative system features a lightweight, compact control unit and robotic power head with high-pressure lance that attaches to and robotically moves along standard scaffolding pipes. This setup is ideal for quickly covering large areas without requiring crews to work at height. Larger hydrodemolition robots are another option. These advanced units feature an innovative steel mast section with a reach of up to 23 feet that can eliminate the need for scaffolding all together. Additional mast sections can be employed to extend reach for larger projects, as well.

MAXIMUM PRODUCTIVITY

Increased worker safety is only part of the equation when it comes to overall equipment effectiveness. For industrial facilities, routine maintenance and cleaning is a necessary but costly undertaking. Minimizing the customers' downtime must be a top priority for successful industrial cleaning contractors.

Among automated options, robotic hydrodemolition equipment has proven to provide optimal efficiency, where applicable. Specialized equipment for applications such as tank, scrubber or heat exchanger shell cleaning are widely used across the industry, removing workers from some of the most dangerous and challenging jobs. But these still require support crews that vary in size. A hydrodemolition robot, on the other hand, can perform many of the same applications with a single operator. This allows contractors to better utilize crews and maximize productivity across the job site.

Operating at pressures up to 40,000 psi, hydrodemolition robots also provide more productivity compared to hand lances and other automated options. For example, when used on a routine scrubber application at a pulp and paper mill, one contractor was able to increase productivity 80%, completing a job that usually took 30 hours in just five.

For removing concrete, paint or other coatings, powerful hydrodemolition equipment again provides maximum productivity compared to hand lances, due to the robot's ability to handle the higher water flow rates and reaction forces necessary for successful material removal. At 40,000 psi, hand lances can only safely offer 5-6 gpm for reaction forces up to 62 pounds-thrust, whereas a compact hydrodemolition robot can easily handle 30 gpm for up to 312 pounds-thrust of reaction force. So while a hand lance might be used to remove refractory concrete, the process would be far more time and labor intensive with removal rates of just 0.5 to 1.0 cubic feet per hour. Compare that to a compact hydrodemolition robot, which can remove concrete at rates of 10 cubic feet per hour — almost 10 times faster.

The increased productivity offered by robotic hydrodemolition equipment means industrial cleaning specialists can optimize operations during scheduled downtime. Contractors are able to complete cleaning applications faster and with less labor, leaving them free to move on to the next job while the facilities can restart production more quickly.

SERVICE FLEXIBILITY

But what exactly is the next job? For many contractors, adding advanced hydrodemolition robots to their fleet not only increases productivity and safety for industrial cleaning applications, but

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opens the door to increased service offerings and long-term company growth. The power and precision of these machines allows them to branch out from surface preparation to full concrete demolition, as well as concrete or steel tunnel rehabilitation and repair tasks, refractory removal and much more.

Thanks to a variety of attachments from innovative OEMs, contractors can tailor hydrodemolition equipment packages to fit the current — and future — needs of their operation. For example, a number of OEM attachments exist that allow for more efficient concrete or material removal in tunnels and pipes. In conjunction with the robotic equipment, these tools allow for consistent cleaning or material removal on uneven or oval-shaped passageways, making them ideal for applications such as penstock cleaning, dam work and sewer rehabilitation. Other attachments enable removal of concrete, paint, rust and coatings along an entire section of horizontal, vertical or inclined tunnels and pipes for applications such as removal of refractory concrete in risers and transfer lines.

In addition to attachments, hydrodemolition OEMs also provide support equipment that can increase efficiency for industrial cleaning applications as well as open up new revenue opportunities. A silent running high-pressure pump/engine combination was recently unveiled that provides the necessary pressure for industrial cleaning applications but is quiet and compact enough for any urban job site, allowing for growth into new markets, such as demolition, road and bridge repair and refractory removal. This system is available at up

to 700 hp and features integrated auto start/stop technology that improves fuel consumption — saving as much as 6.6 gallons of fuel a day — while operating at up to 43,511 psi and under 65 dB.

INDUSTRIOUS PARTNERS

Capitalizing on industrial cleaning safety, productivity and growth potential starts with investing in the right tools. There are a number of specialized industrial cleaning mechanisms available that provide an automated solution to help limit worker exposure in the most hazardous conditions. But for forward-thinking contractors, these methods fall short when compared to the power, versatility and safety offered by compact hydrodemolition equipment. Working with reputable OEMs to customize hydrodemolition equipment packages that meet current and future business goals can help ensure long-term success. **c**

ABOUT THE AUTHOR

Keith Armishaw is the business development manager for Aquajet's North American subsidiary. He has more than 25 years of industry and leadership experience.

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BE A DISRUPTOR

Five keys to making positive change in your business and your industry

// By Shelley Armato

EVERYONE HAS THE POTENTIAL to be an industry leader. These leaders are the ones who transform the world — who disrupt their industry and launch massive and positive change.

The challenge is that too many people are comfortable and complacent with where they are. They've settled into the pattern of reacting to disruptions rather than causing them. Think about your own industry and how it's changed over the years. Who initiated the biggest changes? Who were the disruptors? Were they the people who sat on the sidelines — or the ones who took bold action?

Contrary to popular belief, having access to large amounts of money isn't what makes someone a disruptor. Money alone isn't what makes change happen. In reality, tenacity and courage are all you need. Don't blame other people or outside circumstances for limiting your ability to enact change. By using the internal resources you already have, you can take action today.

CONTRARY TO POPULAR BELIEF, HAVING ACCESS TO LARGE AMOUNTS OF MONEY ISN'T WHAT MAKES SOMEONE A DISRUPTOR.

If you're ready to lead your industry to new heights, here are the five keys that will help shift your mindset so you can be the disruptor others react to.

1. GET COMFORTABLE WITH CHANGE.

Disruption is all about change. Any company that survives long-term has changed over the years. Whether they added new products or services, catered to a different market, or totally reinvented themselves, they had the courage to morph in some way. Unfortunately, many people get stuck in the vision of what their company was in the past, rather than what it could be in the future. This mindset forces them to always be reactive to the changes others make — they are never

the disruptors themselves because they are too tied to the past. To transform your industry, you have to be future-oriented and ready to make a change at a moment's notice. If you're not nimble, you'll never be the leader. Remember that everything is different today than it was just a few years ago, and that has to include you and your company.

2. LOOK FOR THE COMMON CHALLENGES IN YOUR INDUSTRY.

You need to always be looking to solve challenges — at work as well as at home. In other words, problem-solving must become a way of life, not just something you do when times are tough. Look around and ask yourself, "What can I do differently and better?" Realize that if you think something is challenging or in need of change, chances are that others think that too. Ask your customers and employees what changes they wish would transpire. Then really listen to their answers. Insight leads to change.

3. RESEARCH EVERYTHING.

In order to find the problems and the solutions, you need to know what's going on in your industry at all times. Research solutions that others have tried to introduce. Sometimes disruption isn't about reinventing the wheel; it's about making the existing solutions better. Often, even a small degree of improvement can make massive progress. Additionally, do research for your emotional wellness, because when you're emotionally healthy, you can take on anything. Broaden your research to encompass all aspects of yourself, your business and your industry.

4. BE RESILIENT IN YOUR ABILITY TO SOLVE PROBLEMS.

Being a disruptor means being resilient. To build your resilience, refrain from asking disempowering questions like "How am I going to do this?" A better question is "Why am I going to do this?" "Why" leads to "when," and then "when" becomes "how." With your "why" and "when" already mapped out, the "how" becomes much easier and you're more apt to take that first step. Along the way, you'll run into roadblocks and rejection. That's okay. Learn from any setbacks

and then harness your resilience to bounce back and keep going. One important step is to decide ahead of time what type of challenges you will allow to disrupt you emotionally. This way, when you face a challenge, you can determine if you're making decisions emotionally or if you simply need to look at a situation differently. From there you can take action.

5. FIND THE EAGLES IN YOUR LIFE.

The people in your life can either lift you up or pull you down. We all have people in our life who love hearing our problems and then telling us all the things we shouldn't do. But if you let these people dictate your decisions, you'll never be a disruptor. Instead, you have to find the eagles. During storms, eagles soar higher because they know the crosswinds will help them gain altitude. In other words, during challenges they rise. Those are the kind of people you want in your inner circle. Realize that the eagles in your life don't have to be your friends. They can be coaches or mentors you hire or only see in a professional capacity. Ultimately, their goal is to help you soar higher, not encourage you to back off when things get tough. When you rely on those people for support and advice, you can see problems in a new light and come up with solutions that will transform your world.

BE THE CHANGE

Regardless of your past successes or failures, you can initiate industry change. So why settle for always reacting to the disruptions? Have the courage to take action. Be the disruptor that leads your industry to new heights — and your company to even greater success. **c**

ABOUT THE AUTHOR

Shelley Armato is CEO at MySmartPlans, a provider of SaaS construction technology that eliminates risk, creates transparency and protects the budget. She provides professional construction services to some of the most prestigious business owners in the healthcare, scholastic, government, and commercial market sectors throughout the United States. Contact her at www.mysmartplans.com.



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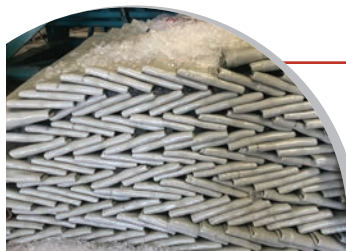
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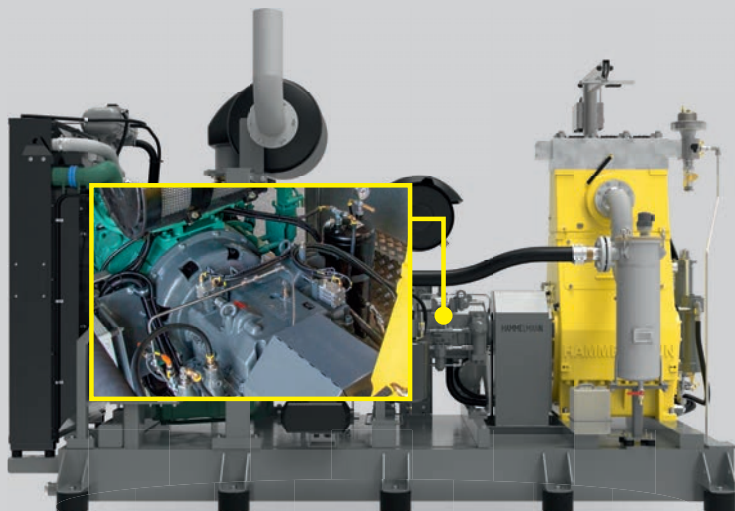
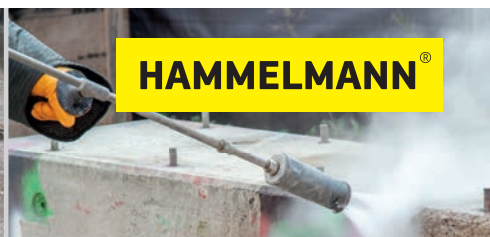


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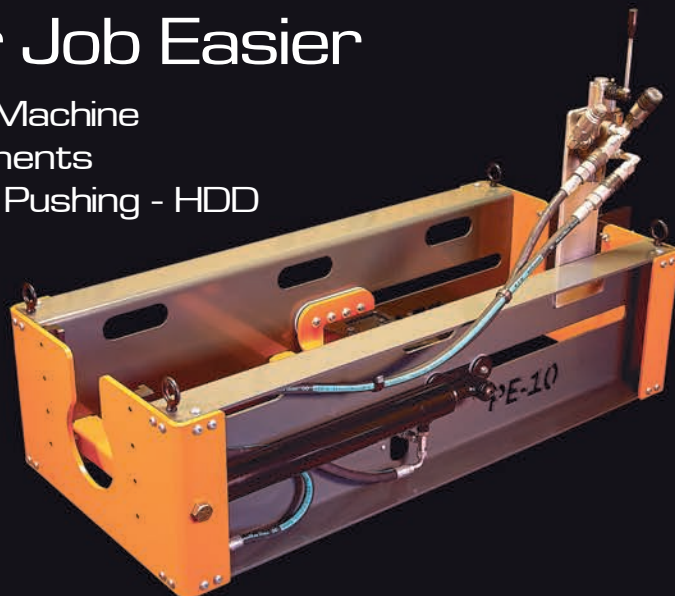
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KEEPING UP ON NEW TOOLS AND TECHNOLOGY GIVES CLEANING
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By Ken Wysocky



▲ ESP&P Industrial Services technician Andrew Davis adjusts the pressure controls of a GapVax HV56 vacuum truck.

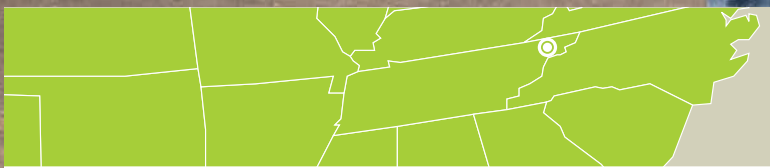
As Ian Stewart and his brother, Stuart, began charting a course for their new company, ESP&P Industrial Services, a simple but effective business philosophy served as their North Star: A multilegged stool is much more stable than a stool with just one leg.

“The more kinds of work you can do, the better,” Ian Stewart says of the company the brothers established in 2011 in Jonesborough in northeastern Tennessee, branching off from their father’s plumbing and industrial cleaning business. “Disney World has more than just one kind of roller-coaster ride, right?”

As a result, on any given day, the company’s work crews might be using a remote-controlled triple lance machine to scour bundles of tubes in a power plant heat exchanger, a hydroblasting unit to flush coal ash out of a process sewer line, a skid-steer to remove lime mud from a 1 million-gallon tank in a paper mill or a combination vacuum truck to clear a clogged culvert in a dam by a hydroelectric plant.

“Our work is never boring, that’s for sure,” Stewart says.

Another central philosophy also shaped the company’s growth and direction: Invest in cutting-edge technology that can be applied to more than just one market sector.



ESP&P Industrial Services LLC

JONESBOROUGH, TENNESSEE

OWNERS Ian and Stuart Stewart

FOUNDED 2011

EMPLOYEES 15

SERVICES Industrial vacuuming/hydroblasting services, cleaning sewer lines

SERVICE AREA 150-mile radius around Jonesborough

WEBSITE www.espindustrialservices.com

» Brothers Ian (left) and Stuart Stewart own and operate ESP&P Industrial Services together in Jonesborough, Tennessee.



» Technicians Dustin McMurray (left) and Andrew Davis clean a stormwater line with a GapVax jet/vac truck.

» Ian Stewart makes adjustments to a Visual Imaging Resources Proteus crawler camera before an inspection job.



“If you have only one tool in the box, you’re just not as useful to customers,” Stewart explains. “We invest in different kinds of equipment that can play multiple roles in multiple markets.”

As an example, Stewart cites the company’s four vacuum trucks, made by GapVax, Super Products and Guzzler Mfg. (a subsidiary of Federal Signal Corp.).

“We can use a vac truck to clean everything from a sewer mainline to a chemical tank to a sludge lagoon,” he says. “This hammer isn’t made for just one kind of nail. We use some of them for hydroexcavation, too.”

EASING DOWNTURNS

Furthermore, the ability to serve customers in different market sectors helps shield the company from cyclical downturns.

“They all may be somewhat interconnected, but each of those markets can sustain itself as well,” Stewart says. “So if one sector of the market slows down, our employees are multifaceted and multi-trained, so we can go work in another sector.”

Industrial cleaning for the chemical, utility, papermaking and mining industries, to name a few, generates about 60% of the company’s revenue. The balance is provided by hydroexcavation work; applying industrial coatings; and cleaning and inspecting sewer lines for a range of customers, including municipalities, big-box retailers and apartment complexes.

The industrial coatings capability underscores the company’s ability to react to customers’ needs by providing services that complement its core services. The company started applying high-performance paints and chemical coatings in 2016.

The company already was doing a lot of cleaning and prep work on tanks, pipelines and so forth, but customers also needed those surfaces painted or chemically coated.

“So they asked us if we could just do the whole thing — be a one-stop shop for them,” Stewart says. “And that allowed us to branch into a lot of different avenues.”

For painting and coating, ESP&P uses products made by Blome International, Sherwin Williams and Carboline. Most painting and coating is done by hand in a three- to five-step process, but the company uses a Graco King pneumatic airless sprayer for some applications.

BUILT-IN BRANDING

The company's name reflects that additional service; ESP&P stands for Essential Services, Pressure-washing and Painting. But it also plays off the acronym for the company founded by Stewart's father, Ed: ESP, which stands for Ed Stewart Plumbing, a business that also did smaller-scale industrial cleaning.

The brothers worked for their father for about 15 years before striking out on their own.

"We learned everything we know from him," Stewart says of his father, now retired at age 81. "But we wanted to expand and broaden the company's services, and he was happy doing what he was doing.

"You sort of reach a bubble point where you're not growing ... we wanted to expand into larger industries and into a larger service area. But he didn't want to deal with all the additional headaches that come with more employees, more overhead costs and so on."

The example set by their hardworking father left a lasting impression on the brothers.

"I'm not afraid to work and neither is my brother," Stewart says. "We're very proud of the work we do — we're very emotionally attached to our jobs.

"Our dad was a real hard-ass ... but he taught us a lot about striving to be the best because there's always someone new coming up behind you. He also showed us how important it is to be passionate about what you do for a living. I know it sounds kind of like a BS cliché, but it's true.

"If you get up every day and hate what you do, you're not going to provide a good service."

VALUABLE INVESTMENTS

To serve different markets requires investments in different kinds of equipment, such as the four vac trucks: one from GapVax, two made by Super Products and one built by Guzzler (a brand built by Vactor).

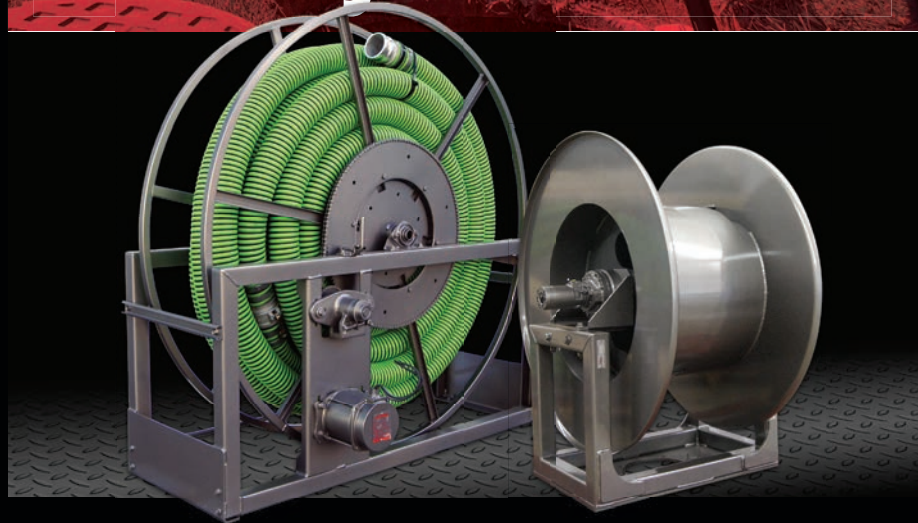
The GapVax unit features a 2020 Peterbilt tri-axle chassis with a 15-cubic-yard debris tank, a 1,200-gallon water tank and a 5,200 cfm Roots blower (a brand owned by the Howden Group). The Super Products trucks were built on 2017 and 2018 Freightliner chassis with 12-cubic-yard carbon steel debris tanks, 1,000-gallon water tanks and 4,500 cfm Roots blowers.

"IF YOU HAVE ONLY ONE TOOL IN THE BOX, YOU'RE JUST NOT AS USEFUL TO CUSTOMERS. WE INVEST IN DIFFERENT KINDS OF EQUIPMENT THAT CAN PLAY MULTIPLE ROLES IN MULTIPLE MARKETS."

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▲ Stuart Stewart checks over a 20,000 psi NLB hydroblaster before heading out on a cleaning job.

“I don’t like little blowers,” Stewart says. “I try to overpower everything. We do a fair amount of work 500 feet from the truck, so we need that kind of power to pull material.”

The Guzzler unit is built on a 2015 Kenworth chassis with a 15-cubic-yard carbon steel debris tank and a Roots blower (5,200 cfm).

The company also owns 13 trailer-mounted hydroblasting units. Four were built by Hammelmann Corp. Three of them feature water pumps that generate pressure of 40,000 psi and flow of up to 5.5 gpm and one that delivers 15,000 psi at 50 gpm.

“We use the three bigger hydroblasters for larger stripping and descaling jobs and the smaller one for descaling and tank cleaning,” Stewart explains. “Sometimes you need to cut material but not move it while other times you need to cut material and move it.

“A butcher owns more than one knife. You can’t use a paring knife for slaughtering.”

ESP&P also owns four hydroblasters built by NLB Corp. (two that generate 20,000 psi at 30 gpm and two that produce 22,000 psi at 18 gpm); three from Jetstream of Houston (15,000 psi at 13 gpm); one manufactured by Aquadyne Industrial Pump Systems (10,000 psi at 40 gpm); and one made by Butterworth (10,000 psi at 40 gpm).

In addition, for long vacuum pulls of thick solids on job sites that are inaccessible for vacuum trucks, the company relies on Sludge Master plunger pumps built by Wastecorp Pumps.

For pipeline inspections, the company owns a push camera made by MyTana as well as a Proteus crawler camera system by Visual Imaging Resources and pole cameras built by Mini-Cam (a Halma company).

For excavation, ESP&P also owns a mini-excavator and several track-loaders made by Bobcat and a Freightliner dump truck with a 15-cubic-yard dump bed made by Ox Bodies.

Furthermore, the company invested in a remote-controlled, triple-lance tube-cleaning machine built by Peinemann Mobilift Groep B.V. The company also owns three hot-water pressure washers made by Alkota Cleaning Systems (4,500 psi at 6 gpm).

CONTINUED >>

A TALL ORDER

an Stewart truly enjoys coming up with outside-the-box solutions that solve customers’ problems. In fact, it’s one of the things he likes most about running ESP&P Industrial Services, the Jonesborough, Tennessee-based business he co-owns with his brother, Stuart.

“Problem-solving is the most fun part of my job,” Stewart says. “That’s the real thrill — finding that next challenge we can take on and solve for our customers.”

The company faced such a challenge about two years ago at a paper mill in Tennessee. The problem: A broken auger located at the base of a huge silo used to store wood dust from the papermaking process.

The silo was about 60 feet in diameter and roughly 60 feet tall. The auger — about the size of a dump truck — needed to be repaired, but the silo was about 75% full of wood dust, a byproduct of the papermaking process.

“We had to get inside it to clean it out because we couldn’t do much from the outside,” Stewart explains.

The only access to the silo’s interior was via a roughly 24-inch-wide manway located about 30 feet up, which was surrounded by a larger maintenance door — think of it as a smaller door inside a larger door. But opening the larger door to provide enough room for entry would have put employees at risk if the debris inside collapsed as it was opened, he says. The only other alternative was cutting into the silo, which would’ve ruined the structure.

Stewart got to work on a solution. It started with building scaffolding up to the manway. Then employees pushed the material away from the manway with an NLB Corp. hydroblaster. At the same time, they used a Guzzler vacuum truck (built by Vactor) to remove the material.

“The wood dust was very compacted, so we had to use a hydroblaster to bust it loose,” he says. “When that dust sits around like that, with all that weight on it, it likes to turn back into a tree.

“It was like hydroexcavating wood dust. We removed enough material to relieve any pressure on the larger maintenance door and eliminate the hazard of that material collapsing when we opened it.”

Next, employees built a long wooden ramp about 150 feet long and 60 feet wide up to the manway. Then an operator “drove” a remote-controlled Bobcat skid-steer up the ramp and through the maintenance door and began removing the wood dust. The skid-steer dropped its loads on the ramp, where workers shoveled it onto the ground for collection by skid loaders, Stewart says.

“That Bobcat allowed us to do the work safely, without any confined-space entry that would put employees at risk.”

It took about four days of around-the-clock work to remove all the material.

“We had to get it done as quickly as possible,” Stewart says. “Downtime costs customers money. So we did what we always do: develop solutions using a risk-versus-gain formula.”

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« The brothers' wives are also key parts of the operation of ESP&P: (from left) office manager Adrienne Stewart, Ian Stewart, Stuart Stewart, and project estimator Sunnie Stewart.

“You know how when moms tell their kids to clean their bedrooms and they throw everything under the bed? Well, a lot of companies have that mentality, instead of doing the right thing and leaving a job with a clear conscience. They get too big and everything becomes just a procedure and work suffers.”

DRIVEN TO THRIVE

Countering that mentality requires hiring people who are just as proud of the company as the owners, Stewart says. And while he admits he has no magic formula for figuring out which prospective employees have that intangible quality and which ones don't, he says the ones that do generally have one common denominator: They either have strong sports backgrounds or come out of the military.

“People who have that athletic drive also tend to have a good work attitude,” he says. “Most of our guys played sports — they're in good physical shape, embrace challenges, are open to coaching and love to win.”

“You can't hire people based just on that, but a sports background helps. It's much the same for ex-military people. They've already made it through big challenges and are self-disciplined.”

That's not to say the company doesn't have good employees who never played sports or joined the military, Stewart notes. But those that thrive understand that hard work and long hours come with the territory.

“If you like a fixed schedule and want to know exactly when you're going to get off work every day, this job ain't for you,” he says.

To help attract and retain quality employees, the company offers above-average salaries, pays performance bonuses and also quickly promotes high-performing workers. The company also will pay for specialized training classes and other educational opportunities for employees that are highly motivated and have a strong desire to learn more, Stewart says.

“Those kinds of employees — people who ask questions and want to take on more responsibilities without always asking for a pay raise — are like unicorns. So you need to feed that motivation and internal drive.”

CONTINUED >>

“OUR DAD WAS A REAL HARD-ASS ... BUT HE TAUGHT US A LOT ABOUT STRIVING TO BE THE BEST BECAUSE THERE'S ALWAYS SOMEONE NEW COMING UP BEHIND YOU.”

IAN STEWART

GAME-CHANGING TECHNOLOGY

Part of the company's success stems from investing in equipment that boosts productivity, improves employee safety and provides customers with peace of mind. A good example is the triple-lancing machine from Peinemann, which Stewart says was a game-changing investment.

Because it can be controlled from a distance, the \$50,000 machine is significantly safer. This benefits employees while also qualifying ESP&P for projects at companies that demand top-tier safety records, he says.

Moreover, the machine reduced manpower needs on job sites from 12 to just two people. “So we can take all those other people and put them on different jobs, which increases revenue. Plus it gives customers peace of mind because they know we're a company that puts safety first.

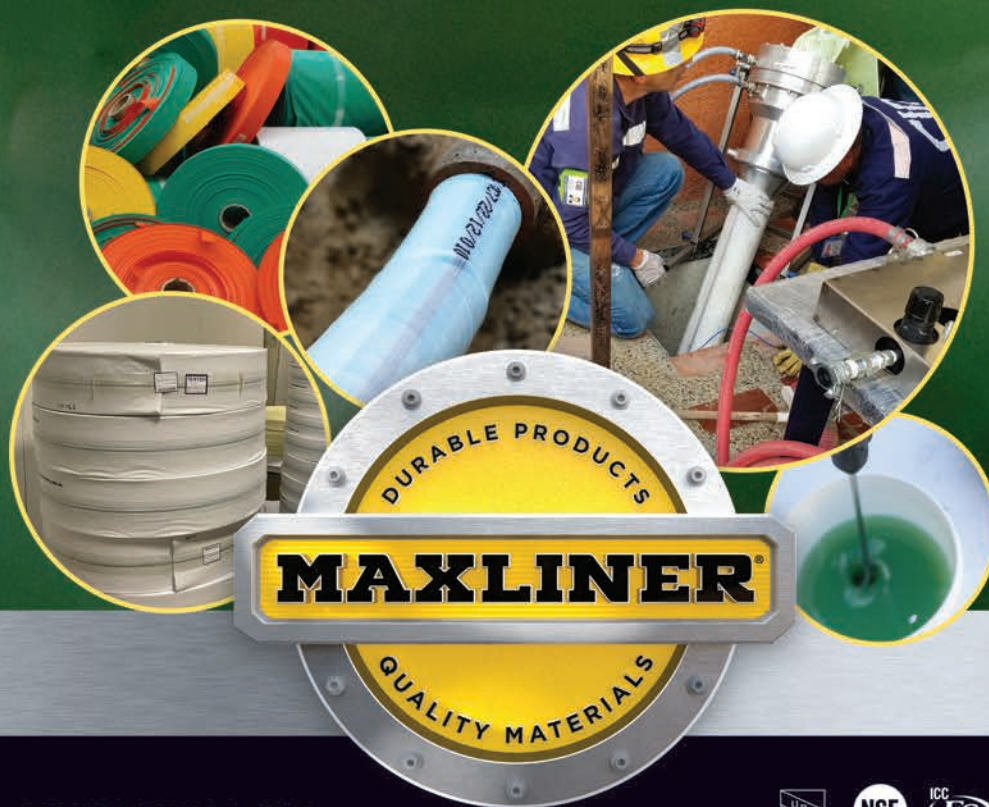
“Any time you can invest in technology that removes people from hazardous situations, makes work easier on employees, increases efficiency and keeps customers happy, it's really worthwhile.”

Stewart sums up a primary key to the company's success in two words: “We care.”

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IAN STEWART

Stewart also says his wife, Adrienne, the company's office manager, along with his brother, Stuart, and his wife, Sunnie, are key forces behind the company's success.

"Stuart works his ass off every day," he says. "Sunnie manages all of our coating jobs, government-project bids and department of transportation compliance.

"And Adrienne is the glue that keeps it all together. She stays remarkably calm under pressure, which is a magic ability. I would be lost without her."

FOOT ON THE GAS

There was a time when Stewart wasn't entirely amped about constantly growing bigger. But now he's overcome any concerns about that.

"It's like having kids," he says. "You might initially be hesitant, but after the third one, you're not afraid anymore."

As such, the brothers plan to keep pressing down on the gas pedal. Stewart believes that for successful companies, getting bigger is a necessity because it requires the company to keep its competitive edge sharp.



Andrew Davis uses a Sonetics headset to communicate with his crew member while preparing to send a Proteus crawler camera into a line to inspect it after cleaning.

"We plan to keep building a skilled workforce and stay up to date on technology — keep moving with the times," he says. "We all might be going to work on hoverboards five or 10 years from now; who knows what's coming next in terms of technology?"

"I sure don't. All I know is that five years from now, I'd like to have another conversation and talk about how we took things to the next level. If you don't have any kind of plan, you're not going anywhere at all." **c**

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HEAVY HITTER

For clearing drainline clogs, this easy-to-carry water jetter punches above its weight

// By Ken Wysocky

WHEN BEN THOMAS BOUGHT a lightweight Drain Invader water jetter from Jetters Northwest about a year ago, the general manager of 1-Hour Drain in San Jose, California, figured he'd buy more if it worked as advertised.

It did — and Thomas now plans to eventually put a Drain Invader in each of the company's 12 service vehicles, a mix of Nissan NV 2500s and Ford and Chevrolet vans.

"Initially, I thought it would work really well for the kind of work we do, which is primarily unclogging smaller drainlines in homes



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OWNER Robert Gallaher

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and apartment complexes," Thomas says. Owner Robert Gallaher established the company in 2011; it employs 22 people, including 16 technicians.

"Having a portable jetter that you can hand-carry into someone's apartment or house has been really a game-changer for our guys," Thomas says. "It's so easy to bring it in and out of places."

Moreover, the 18-pound unit (28 pounds when used with the two-wheeled detachable cart that comes with it) is small enough to hang on the wall of a service vehicle. That way it doesn't occupy valuable floor space in already cramped cargo areas. (An optional wall-mount unit is also available.)

« Technician Francisco Escoto of 1-Hour Drain in San Jose, California, uses a Drain Invader from Jetters Northwest to clean out a 1 1/2-inch-diameter bathroom sink drainline.

While the Drain Invader may be light, it doesn't lack power. Thomas says he recently encountered a bad stoppage in a 2-inch-diameter kitchen drainline in an apartment complex. The clog was between a clean-out and a mainline and snaking it wasn't getting the job done.

"We couldn't get through the clog with our snake, so we put the jetter in there with a 'knucklehead' nozzle," he says. "And in about 15 minutes or less, we cleared the clog, which was mostly grease and food debris."

BETTER EFFICIENCY

It's not that Thomas doesn't have other jetters and drain machines at his disposal. 1-Hour Drain has invested in two trailer jetters from Jetters Northwest, as well as a Brute cart jetter, and drum cable machines built by RIDGID and Milwaukee Tool.

But accessibility is frequently an issue with large machines.

"WE TRY TO STAY ON TOP OF THE BEST PRODUCTS OUT THERE THAT CAN HELP OUR GUYS BE AS EFFICIENT AS POSSIBLE AND NOT BREAK THEIR BACKS. AT THIS PRICE-POINT, WHY WOULDN'T I HAVE ONE ON EACH TRUCK?"

BEN THOMAS

A trailer jetter doesn't always work if an apartment is, say, 500 feet away from the nearest parking lot. And that's where the Drain Invader's portability pays big dividends, Thomas says.

"About 70% of the stoppages we run across are drain clogs in multifamily units. As a result, we have a lot of back-to-back jobs because the units are stacked on top of each other and more than one is affected by the clog.

"The Drain Invaders allow us to get into those units quickly and efficiently, without the setup time required to run our trailer jetters. We can run a 3/16-inch-diameter hose through the line that's very flexible and easy to get into the pipe.

CONTINUED >>

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"In addition, a jetter will clear a clog, as opposed to just punching a hole in it," he adds. "Even if we use cable machines to clear a stoppage, we'll also jet it, just to be sure."

AMPED UP

The electric-powered Drain Invader is designed to clear indoor drains up to 3 inches in diameter. It comes with a 25-foot power cord with a two-prong plug and can run off a standard, 15-amp, 110-volt electrical outlet.

The machine produces pressure of 2,050 psi at 1.4 gpm and comes with three nozzles — one for flushing, one for penetrating clogs, and a knucklehead trap nozzle to better navigate P-traps and other tight bends.

Hose options include a 1/8-inch-diameter, 50-foot-long poly hose from Piranha Hose Products or a 3/16-inch-diameter, braided stainless steel hose available in 25-, 50-, 75- or 100-foot lengths.

The Drain Invader also features an auto-stop and auto-start function aimed at enhancing motor longevity because it only runs during actual jetting. "That's a really nice feature," Thomas says.

The machine is also very easy to operate. "We show our guys once how to use it and they're good to go. If you can operate a pressure washer with a wand on it, you can easily operate this machine."

REVENUE GENERATOR

So how does the Drain Invader help Thomas increase revenue? Better productivity. Taking less time to unclog lines means technicians can clean more lines per week, which boosts revenue and profitability, Thomas says.

Furthermore, profit-killing callbacks diminish significantly when employees use a jetter. Thomas says he even offers a 30-day warranty for lines the company jets (except under extenuating circumstances).

"Plus, if we provide faster and better service, customers will give us word-of-mouth referrals or call us back the next time they need service. And if we throw in a courtesy jetting after we use a cable machine, it makes customers feel good."

At a base price of \$795, Thomas says the Drain Invader provides a great return on investment. It also fits in well with his business philosophy about continually investing in new technology — the more arrows in the quiver to handle various situations, the better.

"We try to stay on top of the best products out there that can help our guys be as efficient as possible and not break their backs," he says. "At this price point, why wouldn't I have one on each truck?"

"I highly recommend this machine. For the price, it's a mistake to not have one of these in your van." **c**

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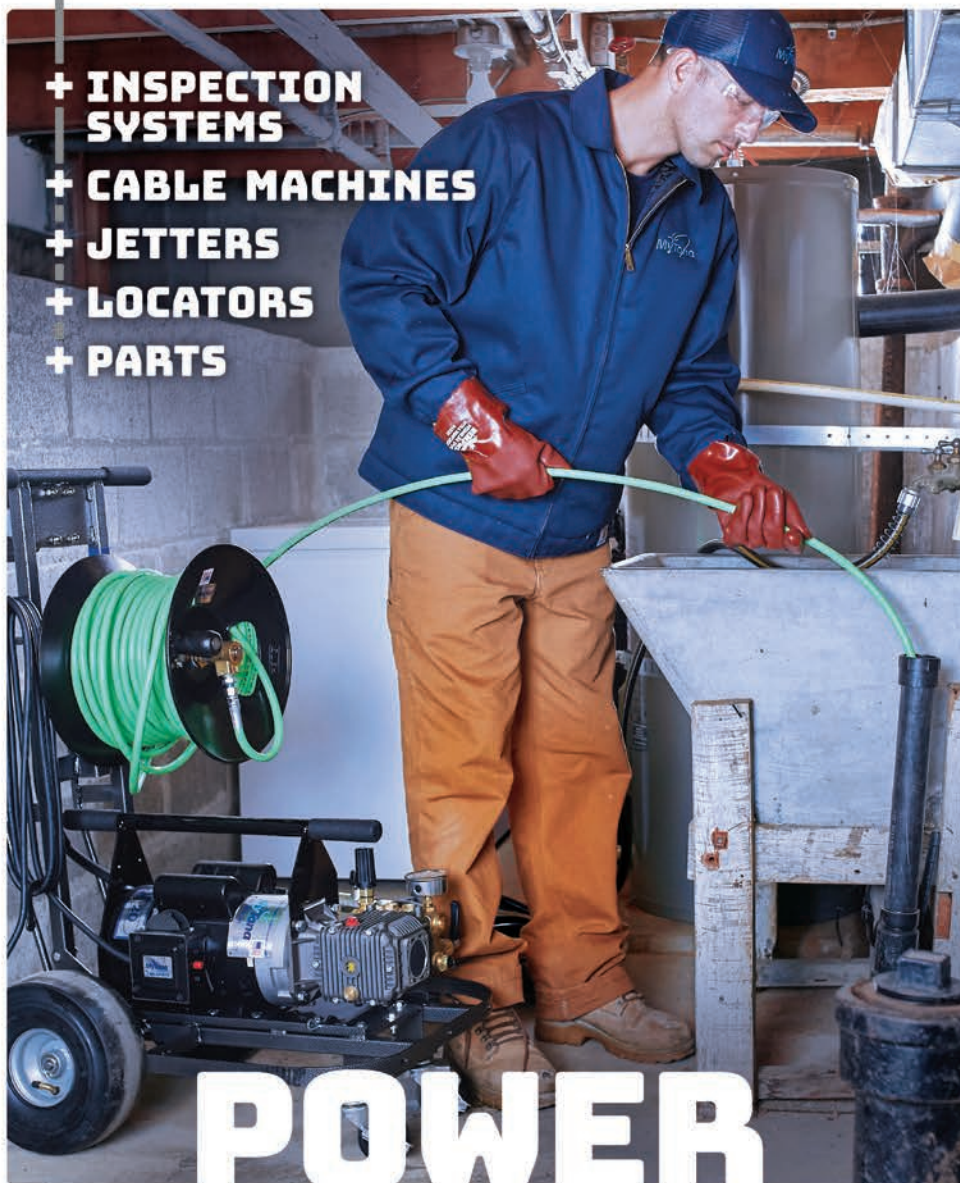
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	AJ51T2040	24"	4000	20	74HP Kohler			X		500'	YES	YES
	AJ58S1140	12"	4000	11	37HP Kohler			X		500'	YES	YES
	AJ51T3040	30"	4000	30	111HP Kohler			X		500'	YES	YES
	AJ51T1850	20"	5000	18	97.5HP Kohler			X		500'		
 CAM SPRAY 520 Brooks Rd., Iowa Falls, IA 50126 800-648-5011 • 641-648-5011 • (f) 641-648-5013 www.camspray.com • sales@camspray.com See ad on page 49	STB2712H	10"	2700	12	Honda 690CC			X		400'		YES
	STB2511H-HOT	10"	2500	11	Honda 690CC			X		400'		
	TT4018HZ4-375	18"	4000	18	7.4 HP Turbo Hatz			X		500'	YES	
	TT4025-750	24"	4000	25	7.4 HP Turbo Hatz			X		500'	YES	
	GW2540-750	24"	2500	40	7.4 HP Turbo Hatz			X		500'	YES	
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	KJ-1750	4"	1750	1.4			X			200'		
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	EZJ20400-MOBILE	8" to 20"	2000	40	58HP Kubota Diesel			X		Up to 500'	YES	
	EZJ38206-2-MOBILE	8" to 18"	3850	20	38HP Kohler			X		300'	YES	
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24"
12"
12"
24"

4000
4000
4000
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4000

10
18
9.5
10
18

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24.8HP Kubota
35HP Vanguard
70HP Vanguard (twin)

X
X
X
X
X

300'
500'
300'
300'
500'

YES
YES
YES
YES
YES

YES
YES
YES
YES
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Model 184
Model 254
Model 402
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12"
24"
36"
48"

3000
4000
4000
2000
2000

12
18
25
40
65

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Gas/Diesel Options
Gas/Diesel Options
Gas/Diesel Options
Gas/Diesel Options

X
X
X
X
X

X
X
X
X
X

200'
500'
500'
500'
1000'

YES
YES
YES
YES
YES

YES
YES
YES
YES
YES

M20T
M20
M30
MS / MV80

2"
4"
6"
10"

1500
1500
3000
3000

2
2
4.5
8

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2HP Electric
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X

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4.4

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X

X

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727
738
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1500
3000
2000
1500

2.2
4
12
1.4

2HP Electric
Gas
Gas w/electric start
1.5HP Electric

X

X
X

X

X

115'
200'
250'
30'

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/ Electric Start
29HP Kawasaki Liquid Cooled
31HP Kawasaki Liquid Cooled
50HP Cat Diesel

X
X




X
X
X
X

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800'

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 <p>EPL SOLUTIONS, INC. 1330 W Collins Ave., Orange, CA 92867 714-453-9760 www.epls-usa.com • sales@epls-usa.com See ad on page 82</p>				Duracable Manufacturing, General Pipe Cleaners, Spartan Tool
 <p>GENERAL PIPE CLEANERS 1101 Thompson Ave., Mc Kees Rocks, PA 15136-3818 800-245-6200 • 412-771-6300 www.drainbrain.com • info@drainbrain.com See ad on page 2</p>	Super-Vee Mini-Rooter XP Power-Vee Speedroooter92 Maxi-Rooter Mini-Rooter Pro Sewerooter T-4 Speedroooter XL	50' x 1/4" or 5/16", 35' x 3/8" 75' x 3/8", 50' x 1/2" 50' x 1/4" or 5/16", 35' x 3/8" 100' x 3/4" or 5/8" 125' x 3/4" or 150' x 5/8" 75' x 3/8", 50' x 1/2" 100' x 9/16", 75' x 5/8" 100' x 3/4" or 5/8"	1 1/4" to 3" 1 1/4" to 4" 1 1/4" to 3" 3" to 10" 3" to 10" 1 1/4" to 4" 3" to 6" 3" to 10"	
<p>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 27</p>	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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 <p>KEN-WAY CORPORATION 930 Roberts Rd., Sparta, WI 54656 800-533-0551 • 608-269-3752 • (f) 608-269-8129 www.ken-way.com • keith@ken-way.com See ad on page 62</p>	Ken-Way Junior KEN-WAY 400	3/8 x 75' 3/4" x 100'	1 1/4" to 2" 6"	

CABLE MACHINE MANUFACTURER/DISTRIBUTOR	MANUFACTURER MODEL	DRUM CAPACITY	PIPE DIAMETER	DISTRIBUTOR OF
MYTANA LLC 746 Selby Ave., St. Paul, MN 55104 800-328-8170 www.mytana.com • mytana@mytana.com See ad on page 51	M500 M661 M745 M81 M888	50' 100' 100' 125' 125'	1" to 2" 1 1/5" to 4" 1.5" to 6" 3" to 10" 3" to 10"	
 PICOTE SOLUTIONS 8350 Dancing Waters Ln., St. John, IN 46373 www.picotesolutions.com See ad on page 47	Mini Cleaner Mini Miller Super Midi Miller Maxi Miller Maxi Miller Power Plus	50' 50' 66' 100' 65'	1 1/4" to 3" 2" to 4" 3" to 6" 3" to 10" 4" to 12"	
 PIPE LINING SUPPLY 2790 E La Palma Ave., Anaheim, CA 92806 888-354-6464 www.pipeliningssupply.com info@pipeliningssupply.com See ad on page 8				Renssi
 SPARTAN TOOL 1618 Terminal Rd., Niles, MI 49120 800-435-3866 www.SpartanTool.com JShoemaker@SpartanTool.com See ad on page 88	718 81 100 300 1065	35' 50' 100' 107' 250'	1 1/4" to 2 1/2" 1 1/4" to 3" 1 1/4" to 4" 3" to 6" 3" to 10"	
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 ads on pages 10, 45				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 83	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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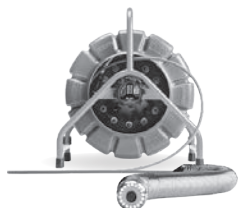
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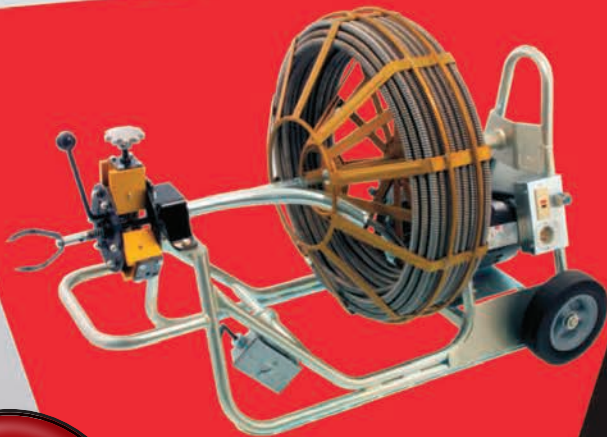
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MEETING DEMAND

Petersen Products takes on pipe lining challenges and creates the products to solve them // By Kim Peterson

IT'S NOT EVERY COMPANY that provides tools, accessories and fittings to industries ranging from plumbing to aerospace engineering. But Petersen Products Co. has been providing products and solutions for the plumbing and pipe lining industries for decades, as well as working on engineering solutions for NASA and a wide range of other industries.

The founder's first patent was issued in 1916, and since then, the company has continuously improved its skill and capacity to provide a steady flow of new product and service solutions for its customers.

Cleaner recently spoke with Tom Muldoon, president of Petersen Products, about the company's products and their applications, customizing solutions for customers, and what's to come in the pipe lining industry.

CLEANER: Tell us a little about the history of Petersen Products.

Muldoon: Petersen Products is a generational family business started over 100 years ago. The Drain Flusher was its founding product and while the business has entered and exited several industries since, it has developed a deep knowledge base in engineering solutions for the pipe lining and plumbing industries.

CLEANER: What differentiates your pipe lining products from the competition?

Muldoon: Petersen Products holds a unique market position as the company that fulfills customers' most demanding product and service requirements. We support product excellence with world-class customer care, quick delivery and complete solutions. Our solutions include industry firsts such as the High Pressure Inflatable Flow Stop, and midmarket plugging solutions, like the Multi-Flex inflatable plugs and a range of low-to-high pressure mechanical plugs.

Our patented and founding product lines, the Drain Flushers and Sewer Cleaning Tools, have stood the test of time. Not only has



^ Petersen Products was issued its first patent in 1916 and the company has been designing and manufacturing its own products for the drain cleaning industry ever since.

Petersen been manufacturing them since 1916, but each flusher is highly durable and long lasting.

CLEANER: What sort of needs do they address? Tell us about the plugs, packers, and flushers and what applications they best serve.

Muldoon: Our products were developed in response to customer demand over the years. We offer pipe plugs and packers for most size, pressure, chemical and temperature requirements. The Multi-Flex inflatable plugs work very well in high expansion applications: they are made from flexible, highly durable industrial material and have a small-deflated diameter so that they can navigate small openings. They conform to most pipe shapes and take up little storage space.

Petersen's mechanical high-pressure test plugs are often applied to force and water mains, lift stations, nuclear cooling lines, fire protection lines and many other projects where isolation is required for testing and construction. These plugs may be manufactured for almost any pressure and for rectangular or other shaped openings. These plugs offer easy installation, replaceable seals, and positive seal, and are engineered to restrain rated pipeline pressure.

Our Multi-Flex Point & Sectional Repair Inflatable Packers are often used in air, water and steam lining applications. Customers like the light weight compared to molded rubber styles and the quick insertion possibilities with the product's small-deflated diameter and high flexibility. Petersen packers conform to most pipe shapes and bends. The ports on both ends of the inflatable packer allow steam condensate to discharge from either end. Lastly, our packers need little space for storage when not in use.

Petersen's Drainjet and hydraulic sewer flushers are often used to open clogged drains and sewers with powerful jet action and a high flow rate. They offer a much greater flow rate than rubber bulb-type flushers that require much of the pressure just to expand the rubber. Our products put all the water flow and pressure to work and allow easy installation even around bends and elbows.

CLEANER: What are some recommendations for customers shopping for pipe lining products?

Muldoon: For customers shopping pipe lining products, our Multi-Flex Repair Inflatable Packers are definitely worth looking at. They can be manufactured to most size, chemical and temperature requirements, and configurations can be provided for most relining requirements.

CLEANER: You offer custom design/build solutions for customers. What sort of customization do you do?

Muldoon: Beyond our catalog of products, we also offer custom engineering and manufacturing for customers. We like to take on engineering challenges others haven't been able to solve. Petersen creates standard and custom mechanical and inflatable solutions for industries including pipeline, power, chemical, oil and gas, refining, wastewater, municipal water, and aerospace. We have a deep engineering team for a small company and have provided solutions for large to small companies.

Specifically, our packers are custom built to the customer's required diameter and length. If the job requires a 15-foot or 20-foot length of pipe to be rehabilitated, we can build a packer to that length. If the liner that customer prefers comes in 4 feet widths, we can build a packer to that contact length so that the inflation and deflation can be done quicker. We also offer the Steam Packer



^ Petersen Products has a wide range of manufacturing capabilities and can create custom solutions for unique, challenging applications.

option for any of our packers, where the packer can be inflated with steam to speed up the cure time of the epoxy so that the pipeline may be returned to service more quickly. We also offer "T" packers at 90 and 45 degrees when it is required to rehabilitate a lateral to main joint in any size combination.

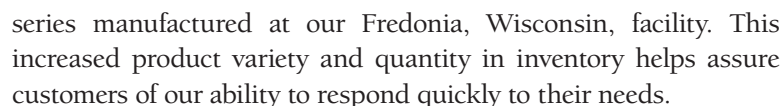
CLEANER: How do you see the pipe lining industry evolving?

Muldoon: With greater infrastructure spending expected the industry should do very well in 2021 and beyond. There will continue to be innovative designs in the pipe lining market as certain aspects of the lining market are commoditized and competitive specialty areas will have growth. We are working with several of our customers on specialty design projects in areas of point repairs and delivery navigating difficult piping systems. Other innovative areas are in lining larger sections of pipe with innovative materials.

CLEANER: What's new for Petersen Products in 2021? What can customers expect out of Petersen Products in the future?

Muldoon: Petersen continues to offer high-quality engineered solutions and will have a more robust e-commerce platform for an easier and more user-friendly web and account interface. Part of this is a strong solutions-based engineering team to help us respond quickly to customer requests for technical support. We are also working on several game-changing solutions utilizing our inflatable and mechanical technologies and will launch several new product

BEHIND THE GEAR



Muldoon: At Petersen Products Co., we provide the engineered plugging solutions that do what others can't. We make the line stopping plugs that allow contractors to make pipeline repairs. From medical devices to mining tunnels to spacecraft, our engineered solutions can tackle challenging applications others can't. Our reliable professional grade drain flushers provide the highest cleaning capabilities of any drain flusher and our inflatable line stops are recognized around the world. We also provide an online platform and the technical expertise to re-sell and distribute products for our partners.

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Vermeer enters distribution agreement with BRON

Vermeer signed a distribution agreement with BRON that gives the manufacturer of utility track plows and plow attachments the rights to sell its products through Vermeer industrial dealers worldwide. The agreement establishes Vermeer dealerships as the exclusive distributor for two of BRON's tracked utility plows in the 200 hp and 300 hp class and provides them the ability to sell the line of BRON utility plow attachments.

NuFlow welcomes VP of product development

NuFlow Technologies welcomed Jim Foresi as NuFlow's vice president of product development. Foresi was most recently VP of product development at TriLumina. Previous positions include roles at Sandia National Laboratories and Emcore. Foresi has a Ph.D. in materials science and engineering from the Massachusetts Institute of Technology, in addition to a Bachelor of Science degree in electrical engineering from Boston University and a master's degree in electrical engineering from the University of Michigan.

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W.E. Rawson adds Joiner as marketing services manager

Jennifer Joiner has joined W.E. Rawson's group of companies Applied Felts, MaxLiner USA and FerraTex Solutions as marketing services manager. In this new role, her responsibilities will be market development, new product promotion and maintaining a positive experience with current and prospective customers. She brings over 13 years' experience in CIPP for the water and wastewater pipeline rehabilitation industry. She has a Bachelor of Science degree in accounting with a minor in business management and is a licensed commercial and residential general contractor.



Jennifer Joiner

Vac-Con manufactures its 9,000th unit

Vac-Con announced it manufactured its 9,000th truck build since its founding in 1986. The milestone came just before the close of 2020 and is a source of pride for the approximately 300 employee-owners at the operation. In honor of the accomplishment, a custom T9K — Truck 9,000 — logo was created and will be used throughout 2021 on various employee and marketing pieces.

Neighborly experiences network growth in 2020

Neighborly, a franchisor of 28 home-service brands, ended 2020 with 382 new franchise agreements awarded, setting new records for signed agreements in three quarters. Neighborly's presence consists of 4,500 franchises representing 28 total brands across nine countries.

HammerHead Trenchless announces leadership transition

Jeff Gabrielse has been named managing director of HammerHead Trenchless, assuming leadership of the HammerHead brand within the newly formed Rehabilitation and Replacement division of The Toro Co. Gabrielse will be overseeing the HammerHead R&R business, continuing its focus on delivering innovative trenchless equipment and solutions for the water, wastewater and gas markets.



Jeff Gabrielse

c

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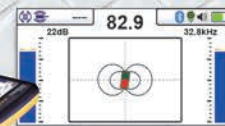
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By Craig Mandli

» CABLE MACHINES

1 // ELECTRIC EEL MODEL N

An enlarged drum on the Model N drain cleaning machine from Electric Eel holds 75 feet of Dualmatic or 100 feet of continuous cable. Cable is available in convenient 5-foot Dualmatic sections with self-feeding action for maximum flexibility and lower maintenance, or 1/2-inch-diameter certified music wire with genuine galvanized aircraft-wire inner core for longer life. It has a built-in slip clutch consisting of dual-fiber discs, providing overload protection for cable and cleaning tools. A cast aluminum inner drum and cable guide eliminates tangling in the drum. Its heavy-duty frame permits it to operate from either a 45-degree or horizontal position. A 1/3 hp motor delivers plenty of speed cleaning power. It is available with an optional two-wheel cart for easy transport, 10-inch-diameter wheels and an adjustable handle. It can be used to clean household drains, industrial waste lines, vents and downspouts from 1 1/4 to 3 inches in diameter. 800-833-1212; www.electriceel.com



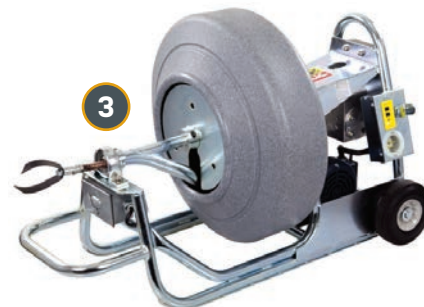
2 // DURACABLE DURAFLEX

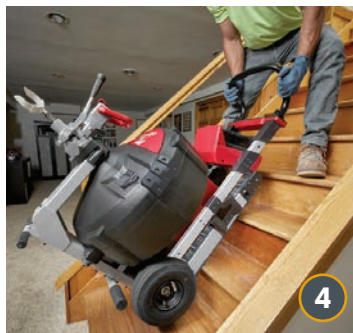
Hair clogs, wadded paper towels and grease buildup are enough to stop up a drain; tree roots are another challenge. DuraFlex cables from Duracable can help solve these problems. The cables, which are manufactured in the U.S., provide a balance between strength, hardness and flexibility, whether a sturdy 100-foot inner-core cable for tree roots or a hollow-core 50-foot drain cable is required. Duracable offers a full line of drain machines to put the drain snakes to proper use. Blades and accessories are available. 800-247-4081; www.duracable.com



3 // GORLITZ SEWER & DRAIN MODEL GO 62HD SERIES

The Model GO 62HD Series machine from Gorlitz Sewer & Drain is a mirror image of the larger Model GO 68HD. Its smaller size, low profile and lighter weight make it suitable for getting into tight spaces or through narrow doorways and basements. It is available in a variety of reel and/or drum combinations. With a quick turn of an Allen wrench, the machine can be broken down into separate frame and reel components for easy transportation or adding an additional cable reel for extended reach. It includes a ball bearing 1/3 hp reversible motor and aluminum gearbox that develops approximately 100 pounds of torque and cleans sewer lines and drainlines from 2 to 4 inches in diameter up to 200 feet long. The machine comes equipped with a standard hollow-core 5/8-inch-diameter cable with slip-joint connectors. An electric foot switch is provided for safe operation of the machine. 877-446-7548; www.gorlitz.com





4 // MILWAUKEE TOOL MX FUEL SEWER DRUM MACHINE

Milwaukee Tool's MX FUEL Sewer Drum Machine has POWERREDZ lift-assist technology, which makes it easier for one person to transport the machine up and down stairs and in and out of service vans. The machine has the power to clear roots 200 feet out while containing the mess with a fully enclosed drum. The POWERSTATE brushless motor provides full power at the maximum capacity of the machine, the REDLINK PLUS intelligence improves control with an integrated drum brake, and the MX FUEL REDLITHIUM battery pack can power through multiple jobs on a single charge, delivering the easiest setup and transport. 800-729-3878; www.milwaukeetool.com



5 // PICOTE SOLUTIONS MINI CLEANER

The Mini Cleaner from Picote Solutions is a high-speed pipeline cleaning system aimed at the domestic drainage and plumbing markets. The unit has a flexible two-part shaft with a rotating inner core where the cleaning heads are attached. The stationary outer casing ensures the operator's hands do not make contact with rotating parts during the cleaning operation, improving safety and flexibility. The outer casing is durable and also flame, abrasion and chemical resistant with a high continuous service temperature. The whole unit weighs in at 58 pounds so it can be easily transported. It also has the flexibility to handle multiple 90-degree bends, even in smaller-diameter pipes. 219-440-1404; www.picotesolutions.com



6 // PIPE LINING SUPPLY RENSSI HIGH-SPEED CABLE MACHINE

Renssi high-speed cable machines and individual cables from Pipe Lining Supply are driven by the technician's existing power source. The machines come in three cable sizes, including 5/16, 3/8 and 1/2 inch. The unit offers cable speeds of up to 3,500 rpm and cuts cleaning time to minutes. Machines come in 50-, 82- and 118-foot cable lengths. In addition to the machines, customers can purchase the cables independently in a variety of sizes and perform drain cleaning with separate cables. By adding a camera option, the operator can see what needs cleaning and attack those areas instead of dragging a cleaning head through the pipe where it might not be needed. 888-354-6464; www.pipeliningssupply.com

» CLEANING NOZZLES

7 // ENZ BULLDOG



The Enz 37mm Bulldog has been redesigned for low-flow jetter units. Going as low as 5.5 gpm, this nozzle can aggressively remove tree roots, grease and hard deposits. It's suitable for accessing mainline blockages from a 2-inch toilet roof vent and wall clean-out. The small size allows it to easily maneuver pipe bends. An integrated oil-free braking system results in low wear and tear operation, resulting in low upkeep and virtually no maintenance. This nozzle can be used with both recycled and freshwater. Flow rates can range from 5.5 up to 18 gpm, depending on the output of the jetter unit. It is available in 3/8- and 1/2-inch connecting threads. It can be used to clean 1 1/2- to 6-inch pipe. 877-369-8721; www.enz.com

8 // HYDRA-FLEX REAPER

The **Reaper** rotating jetting nozzle from **Hydra-Flex** has a rotating front jet that provides a 0-degree, straight water stream that blasts at up to 4,000 psi while rotating. Optimized stream quality results in greater impingement, allowing the technician to use one tool for various applications, including cutting, cleaning and removal. Its four rear jets create a 20-degree angle for maximum thrusting and pulling power. This heavy-duty, high-impact nozzle is constructed with a stainless steel housing and tungsten carbide wear surfaces to withstand harsh environments and provide long life. 952-808-3640; www.hydraflexinc.com



9 // USB-USA TURBO CHAIN CUTTER SERIES

The heavy-duty **Turbo Chain Cutter Series** from **USB-USA** continuously adjusts from 8- to 15-inches (Turbo S200) or 12- to 24-inches (Turbo S600) and easily fits into the pipe. Turbine technology powers the durable chain retainer on a robust body to remove roots, concrete, calcium deposits, hardened grease and tuberculation from sewer lines. They are designed to be aggressive on the hardest materials. They are robust and have double the amount of turbine driving water jets as previous models, generating high cutting power. Easily adjust the cutter to within 1/16 inch by spinning the rear to make it larger or smaller. Internal 3D fluid mechanics in conjunction with one-piece ceramic nozzle inserts allow the cutter to be used with recycled or clean water. 844-285-5770; www.usb-usa.com



>> GREASE TRAP MAINTENANCE

10 // 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 after being crushed without kinking. 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



>> HOSE REELS

11 // BUCHER MUNICIPAL NORTH AMERICA REMOTE REEL

The **Remote Reel** from **Bucher Municipal North America** lets users reach where sewer cleaner units can't. It allows for easy and safe access to those difficult jetting tasks. Its smart design allows the user to go off-road and even handle stairs. It is designed to be an extension and helper for the sewer cleaning truck. This compact, sturdy and off-road unit will help finish those jobs that couldn't be done before due to low accessibility. It includes a hydraulically operated hose reel with variable speed, 656 feet of 1-inch jetting hose, a Hinowa caterpillar track crawler with adjustable width, a Honda 11.7 hp gasoline engine, and a rear operator platform with easy steering and controls. 704-658-1333; www.buchermunicipal.com





12

12 // COXREELS 1125 SERIES

COXREELS 1125 Series reels have a sturdy one-piece all welded “A” frame base, a low-profile outlet riser and an open-drum slot design that provides a non-crimping, flat, smooth hose wrap. It features professional heavy-duty grade steel construction, rolled edges and ribbed discs, and a long-lasting chip-resistant powder coated finish. Two upgraded swivel options include medium pressure (up to 4,000 psi — solid brass) and high pressure (up to 5,000 psi — super swivel). They are available in hand crank, bevel crank and air/electric/hydraulic motor. The motor-driven hose reel is operated by a reliable, direct gear drive providing for a quiet and smooth retraction. The gear drive provides a multitude of added safety features, including a simple drive system with fewer moving parts and pieces, minimizing workplace injury. 800-269-7335; www.coxreels.com



13

13 // HANNAY REELS H16-14-16 PORTABLE HOSE REEL

The H16-14-16 Portable Hose Reel from Hannay Reels is lightweight and suitable for use in pipe cleaning, drain cleaning and high-pressure applications in both residential and light commercial environments. Its easy-to-use carry handle and manual rewind make it suitable for use in hard-to-reach areas. Designed with a quality swivel joint, the reel can accommodate pressures up to 5,000 psi. It includes a tension brake, one twist-tie-to-hold hose and all-steel construction. 877-467-3357; www.hannay.com



14

14 // REELCRAFT INDUSTRIES SERIES PW7000

Series PW7000 hose reels from Reelcraft Industries are fitted with a nickel-plated, carbon steel AFLAS-sealed swivel specifically for pressure-wash applications. The reel holds up to 50 feet of 3/8-inch I.D. hose. Its rigidity, compact design and powder-coat finish make it suitable for outdoor, all-weather and truck-mount applications. The guide arm adjusts to seven positions for ceiling, wall, truck, bench or pit mounting. The reel comes in standard red, but several other colors are available upon request. 800-444-3134; www.reelcraft.com

» JET/VAC COMBO UNIT

15 // SUPER PRODUCTS CAMEL MAX SERIES

The versatile Camel Max Series combination sewer cleaner from Super Products comes in a variety of model configurations: 900 Dump, 1200 Dump, 1200 Eject and 1200 Wastewater Recycle. All three 1200 models come standard with a high-dump subframe, eliminating the need to back up a ramp for debris removal. The 1200 Eject model 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 model enables operators to clean sewers without the use of freshwater — capable of cleaning nearly 3,000 feet of sewer pipe per day and saving 60,000 gallons of water per week. Optional features offer increased performance capabilities, such as a hydroexcavation package that allows operators to jet, vacuum and excavate continuously, or a pusher axle that allows for increased legal payload. 800-837-9711; www.superproductsllc.com



15

PRODUCT FOCUS

» PORTABLE JETTERS

16 // GENERAL PIPE CLEANERS JM-1000 MINI-JET

The JM-1000 Mini-Jet from General Pipe Cleaners includes a high-performance, stainless steel braid jet hose for drain cleaning power and performance in a small package. The stainless steel braid/Teflon core hoses are available in a variety of lengths and are also optimized for the JM-1450 electric jet. The Mini-Jet can clear grease, sand and ice from small lines, sinks and laundry drains with 1,500 psi, high-pressure water spray. Its diamond-plate metal case safely shields the pump and motor assembly from job site abuse. The hose smoothly slides the jet nozzle down 1 1/2- to 3-inch drainlines, navigating tight bends. The 3/16-inch Teflon core also reduces flow resistance, improving small-line cleaning power. The package includes a four-piece nozzle set, water supply hose, shut-off valve and universal faucet adapter. 800-245-6200; www.drainbrain.com



17 // JETTERS NORTHWEST DRAIN INVADER

The Drain Invader electric hand-carry jetter from Jetters Northwest is only 18 pounds. It is capable of 2,050 psi while running off a 15 amp circuit, and is designed to jet indoor drains up 3 inches. This jetter also features an auto-start/stop function specifically designed to enhance the life of the unit, as the motor only runs when jetting the line. It can be used as either a lightweight hand-carry jetter or as a two-wheel cart jetter, depending on needs. It also has an optional wall-mount system that allows it to be mounted in a shop or on a rig. It comes with a three-nozzle kit. The company recommends upgrading to the stainless trap-hose for optimum performance. 877-901-1936; www.jettersnorthwest.com



18 // PATRIOT SEWER EQUIPMENT & REPAIR 1776 HEAVY-DUTY EDITION

The 1776 Heavy-Duty Edition from Patriot Sewer Equipment & Repair generates 3,500 psi at 11 gpm. Standard equipment includes a Piranha 3/8-inch, 300-foot, red jetter hose and remote start for one-man operation. A portable 100-gallon water tank with autofill valve and stainless steel nozzle set is custom-engineered to work at max pounds per square inch and gallons per minute. It can be used to clean 4- to 6-inch sewer pipes with ease. Propane or gas models are available. It includes an all-stainless steel reel and frame. All units are built to order. 888-318-9888; www.patriot.us



» PUSH TV CAMERA SYSTEMS

19 // CUES MPLUS+ XL

The CUES MPlus+ XL push system is designed for easy operation and flexibility with an all-in-one setup and quick removal of the control unit, which can be used separately. It includes a coiler configuration and pan-and-tilt camera for mainline and larger pipeline applications up to 500 feet. It integrates video observation coding, observation coding interface and digital recording. The lightweight system includes large, durable wheels for portability and a balanced footprint for stability. It is manufactured to handle rigorous field use. 800-327-7791; www.cuesinc.com





20 // ENVIROSIGHT VERISIGHT PRO+

The Verisight Pro+ from EnviroSight includes a stainless self-leveling camera with shadowless, variable LED illumination to capture crisp video footage, regardless of pipe material. With supplied centering devices, it inspects lines 2 inches and up, and snakes through multiple bends for maximum range. An integral tri-band sonde (33 kHz, 512 Hz, 640 Hz) works with most any locator. Its rugged welded-steel coiler comes with 130, 200 or 330 feet of pushrod. The entire system runs continuously for six hours off internal rechargeable lithium-ion batteries, or off mains or vehicle power. Its multi-language controller displays footage on an 8-inch TFT LCD and captures up to 90 hours of MPEG 4 video on an SD/SDHC card (up to 32 GB) or USB stick (up to 128 GB). It lets you zoom 3X and capture images in JPEG format from both live and recorded video, and offers a 16-page text-writer with full-QWERTY keyboard. 866-838-3763; www.envirosight.com



21 // EPL SOLUTIONS GVISION

The Gvision camera system from EPL Solutions offers a rugged, compact solution for inspecting pipelines 3 to 12 inches in diameter. Available with 200 to 400 feet of pushrod, the reel has a stiff, yet flexible fiberglass cable that is optimized for farther pushes through turns and bends. The color camera is self-leveling and includes a powerful, convenient, always-on 512 Hz transmitter for quick and precise area determination. The antiglare LCD monitor delivers a clear, crisp picture even in direct sunlight. To record video inspections, connect a USB storage device or Apple mobile device directly into the USB port. The DVR outputs HD-quality videos, which can be stored and shared from a mobile device. 714-453-9760; www.epls-usa.com

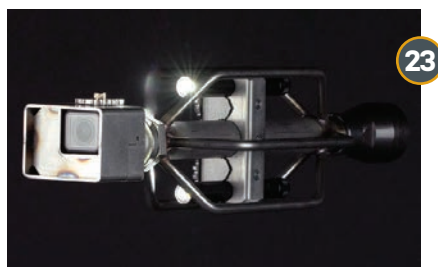


22 // FORBEST PRODUCTS FB-PIC3388MT-200

The FB-PIC3388MT-200 from Forbest Products has a 1.5-inch self-leveling camera head (512Hz built-in sonde transmitter in the spring kit), 200-foot of pushrod, and a portable control station with a 10-inch LCD screen. It is suitable for lines from 4 to 8 inches. It has a detachable and interchangeable design that allows the user to easily screw on or off parts for upgrading or repair. 877-369-1199; www.forbestusa.net

23 // GP SEWER CAM

The GP Sewer Cam is made to be dropped. The heart of the jet-powered system is its durable and simple-to-use GoPro Hero 7 Black camera. Not only is GoPro camera technology affordable, but its durability guarantee has made it the go-to camera to document extreme sports, where it takes a physical beating. The skid unit is compatible with 6- to 18-inch pipe and is constructed from Type 304 stainless steel. Custom skids are available for larger pipe. GP Sewer Cam has teamed up with Arthur Products so every GP Sewer Cam comes with a custom-drilled (to buyer's jetting specs) nozzle. The unit is 4 1/2 pounds, has three screws, one moving part, and is completely made in the U.S. 310-774-9468; www.gpsewercam.com



24 // HATHORN WI-FI DURASCOPE

Hathorn's Wi-Fi DuraSCOPE inspection cameras offer the convenience of streaming video inspections to an Apple or Android mobile device using the free PipeSTREAM app. It can be used to take screenshots, overlay voice commentary and share videos with up to four devices. It has the choice of DuraCAM self-leveling or straight-view camera heads in multiples sizes and an on-screen footage counter. Municipal-grade camera reels are built tough, with butt-welded steel-frame construction, stainless steel camera heads, and a choice of HDPE premium pushrod sizes allows the user to push far and remain in the field longer. It has 512 Hz sonde control and external 18-volt Milwaukee battery compatibility for quick swap outs and longer time in the field. 866-428-4676; www.hathorncorp.com



25 // 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 recording 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-, 3/4- or 1-inch diameter. 905-660-7072; www.ratech-electronics.com



26 // RIDGID SEESNAKE COMPACT C40 WITH CS6X VERSA CAMERA SYSTEM

The RIDGID SeeSnake Compact C40 with CS6x Versa Camera System features a 25 mm self-leveling camera head and 131 feet of flexible push cable that is suitable for small/restricted branch lines with tight turns and shorter runs in main laterals. It includes a high dynamic range image sensor, Tiltsense inclinometer and integrated TruSense technology. Its quick-release docking system makes it suitable for pairing with the CS6x Versa digital reporting monitor. An ergonomic, all-in-one solution for capturing media, the monitor has a 5.7-inch daylight-viewable display that provides a crisp, clear in-pipe image. It offers multiple mounting positions with an adjustable kickstand to suit job site conditions and can be tilted to the desired viewing angle while docked or removed for convenient placement. 800-474-3443; www.ridgid.com



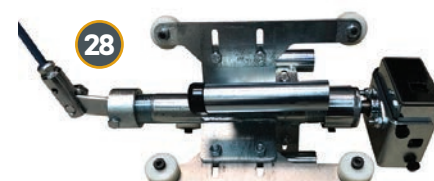
27 // SECON EXTREME SERIES

Extreme Series cordless sewer cameras from SECON come with two 20-volt DeWALT batteries and a charging station. An 18-volt power supply is included for plug-in operation. They have SD card recording and Wi-Fi connection to view inspections in real time on personal smart devices. The unit includes a 7-inch color LCD monitor, 512Hz sonde/transmitter and a stainless steel camera head. They are available with 100 to 300 feet of push cable and are capable of viewing 1 1/2- to 12-inch pipe. 702-527-5100; www.seconv.com



28 // SOUTHLAND TOOL ST-PRO CAM

The ST-Pro Cam from Southland Tool combines the GoPro camera in a self-leveling camera housing that has adjustable skids and integrated lights. When combined with 6-foot pushrods, the user can inspect lines from 6 to 12 inches in distances to 500 feet. The camera will also connect to your jetter hoses from 1/2 to 1 inch. The GoPro camera is enclosed in a stainless steel case that rotates to assure the view is always up. The camera slides easily down the line with nylon wheeled skids. The user can record on the camera and when finished upload the footage to a tablet and view right away. 714-632-8198; www.southlandtool.com





29

29 // SPARTAN TOOL EXPLORER

The Explorer modular camera system from Spartan Tool has a control box that is compatible with five different pushrods up to 400 feet in length, letting the user quickly adapt to any environment. Included WinCan software allows the user to map full plumbing systems for future reference, and files can be saved to a WinCan account, the cloud, external USB drives and the system's internal storage. The stainless steel camera head provides a crisp, color picture to the superbright, sunlight-readable LCD. Change out reels to create a system that provides the ability to tackle any size job. 800-435-3866; www.spartantool.com



30

» TRUCK/TRAILER JETTERS

30 // AMERICAN JETTER HOT JETTER

Hot Jetters from American Jetter include a water-heating system that uses efficient dual-coil burners. Burner exhaust temperatures are reduced from 400 F to around 127 F, effectively releasing less heat into the atmosphere. This is coupled with 20% or more fuel savings from the optional Kohler 19 to 38 hp EFI engines. The increased fuel savings will provide longer runtimes. 866-944-3569; www.americanjetter.com



31

31 // CAM SPRAY CV SERIES

The CV Series cargo van drain jet from Cam Spray offers diesel-fired hot water for additional jetting power. Several models are available up to 4,000 psi and 12 gpm. A triplex plunger pump with power pulse valve provides an extra push when needed. Air purge and recirculation to the tank are provided for freeze protection. A 5-gallon fuel tank provides hours of runtime. It comes with a heavily built, powder-coated frame with full deck and 130-gallon water capacity; a 12-volt DC reel with 2-to-1 clutch drive allowing for free spooling; and a powered hose return. It is controlled by a push button or foot switch. Accessories include a four-nozzle set, storage box, tip cleaner, tiger tail, safety shield, rubber gloves, high-visibility safety vest, 50-foot washdown hose and trigger gun. 800-648-5011; www.camspray.com



32

32 // EASY KLEEN PRESSURE SYSTEMS GROUNDHOG JETTER

The Groundhog Jetter from Easy Kleen Pressure Systems is designed to blast through clogged pipes with a 35 hp Vanguard engine providing 12 gpm at 3,500 psi. It is compact and can be transported in a pickup truck or van, with trailer options available. It includes a fully welded, powder-coated, 2-inch steel tube frame, drilled and tapped, which houses the 200-gallon water tank. It comes with an accessible breather and 10-gallon fuel tank, General Pump with gearbox drive, 12-volt-powered hose reel with 300 feet of 3/8-inch jetter hose, hose guides, a super swivel and foot-pedal control, emergency shut-off valve and hour meter. Optional remote features include hose reel-in, motor off/speed control and pressure on/off. 800-315-5533; www.easykleen.com



33

33 // GAPVAX GJET

The GJet truck jetter from GapVax offers 500- to 3,000-gallon stainless steel water tank options and 40 to 100 gpm water pump options along with a front-mounted hose reel, various toolbox options, room for a vice or crane, and 10-foot tube trays. 888-442-7829; www.gapvax.com

34 // HOTJET USA HOTJET II

The HotJet USA HotJet II trailer-mounted jetter is now available with hydraulic hose reels and 37 hp Vanguard fuel-injection engine. Operating with hot or cold water, it runs 12 gpm at 4,000 psi, cleaning 2- to 12-inch lines. The fuel-injected unit is a good alternative between the small output and larger output machines. It comes ready to operate upon delivery with a 330-gallon water tank, detergent tanks and full power-washing capabilities for cleaning, disinfecting and sanitizing after the job. It is mounted on a 7,000-pound-rated tandem-axle trailer (single-axle units are also available). It has a rear control panel and remote control, two HD diamond plate side toolboxes and a front toolbox. 800-624-8186; www.hotjetusa.com



35 // MONGOOSE JETTERS BY SEWER EQUIPMENT MODEL 184

The Mongoose Jetters by Sewer Equipment Model 184 comes with a run-dry pump offering 18 gpm at 4,000 psi, a tubular steel frame, corrosion-resistant prepainted subassemblies, state-of-the-art controls, strong hose reel and high-quality gas engine. It is suitable for drain cleaning and sewer jetting, remote access locations, mainlines up to 12 inches in diameter, and commercial and industrial lines. The trailer unit comes with a water tank capacity of 300 gallons and standard hose reel capacity of 600 feet of 1/2-inch hose. The trailer setup consists of a 6,000-pound-rated single-axle trailer, and the addition of a wireless remote-control system makes this equipment a true one-man operation. It is also available as a van pack or truck-mounted unit. 877-735-4640; www.sewerequipment.com



36 // MYTANA COMPACT JETTERS

MyTana's compact skid- or truck-mounted jetters are suitable for unblocking and cleaning house connections and sewer lines, providing the flexibility to take on residential jobs and light industrial work. They can be customized with many options to choose from. The Compact Pro is suitable for work in lines up to 20 inches. It includes 270 feet of 1/2-inch hose on a hydraulic reel, and delivers water flow up to 18 gpm or cleaning pressure up to 3,000 psi. The Economic fits medium-duty commercial vehicles for work in lines up to 24 inches, with water flow up to 26 gpm or pressure up to 3,000 psi. A hydraulic hose reel swivels 225 degrees and holds 400 feet of 1/2-inch hose. The units are built by ROM. 800-328-8170; www.mytana.com



37 // SEWER EQUIPMENT MODEL 800 SERIES IV

The Model 800 Series IV truck jet from Sewer Equipment has fully baffled Duraprolene water tanks, an eco-friendly operating system, 190-degree rotation of the hose reel and an insulated, heated enclosure housing all water components. This all-weather truck's rear door closes fully while the hose reel is extended, keeping heat inside the enclosure where water components are stored. It offers wintertime recirculation of the water system at highway speeds, a retractable canopy for sun and inclement weather, and a boiler to provide onboard hot water for cold-weather applications. The dual-reel configuration touts two hose reels in one location, with the secondary reel allowing for the addition of a televising jet pod or small-line sewer hose, giving operators the ability to perform multiple applications using one truck. It includes ergonomic controls, an operator station situated between hose reels in a dual-hose-reel configuration and a secondary operator's station at midship. 888-477-7611; www.sewerequipment.com





38 // US JETTING 4018 VAN PACK

The 4018 Van Pack enclosed jetting unit from US Jetting is kept out of the weather either in a van or customized trailer. This 4,000 psi, 18 gpm diesel-powered unit can come with 200 or 300 gallons of water storage, and a slide-out hydraulic reel that can hold 500 feet of 1/2-inch jetting hose. Water storage capacity is determined by the gross vehicle weight. High cube vans are ideal for extra hose and camera storage, and doors that fold back give good access for the slide-out pivoting hydraulic hose reel to line up with the work area. Units are also available as a 4,000 psi 12 gpm unit with a gas engine and electric rewind hose reel. 770-740-9917; www.usjetting.com



39 // VAC-CON HOT SHOT

The Hot Shot high-pressure water jet machine from Vac-Con is designed for removing stones, bottles, cans, grease, sludge and other debris from sanitary sewer and storm lines. Engineered for one-person operation, all high-pressure water and hose reel controls are located at the front of the machine for ease of operation and increased safety. Models are available with 1,000- and 1,600-gallon water tanks. Options include variable flow, articulating hose reel, polyethylene water tanks, 30 gpm at 3,000 psi water pump system, auxiliary engine or hydrostatic drive, cold-weather recirculation system, side-mounted toolboxes, air purge system, hose footage counter, arrow board, strobe lights, inspector cam, high-pressure spray bar, hose rewind guide, 600 psi handgun system with 25 feet of hose, and a selection of nozzles. 888-920-2945; www.vac-con.com



40 // VACTOR RAMJET

Vactor's Ramjet truck-mounted jetter offers IntuiTouch technology that delivers improved operating ease, quick accessibility to key information and greater control on jobs. IntuiTouch in-cab controls provide PTO activation at the touch of a button. Outside, operators can use the IntuiTouch ergonomic control station that features a simple, up/down adjusting control panel for all cleaning system functions. It also offers improved water plumbing, allowing for greater storage options. Other features, including a Jet Rodder water pump and Park-N-Clean technology, come standard. It also includes a cold-weather package that separates wet and dry items and a rear hose reel with optional integral aluminum shroud for optimal performance in cooler environments. 800-627-3171; www.vactor.com c

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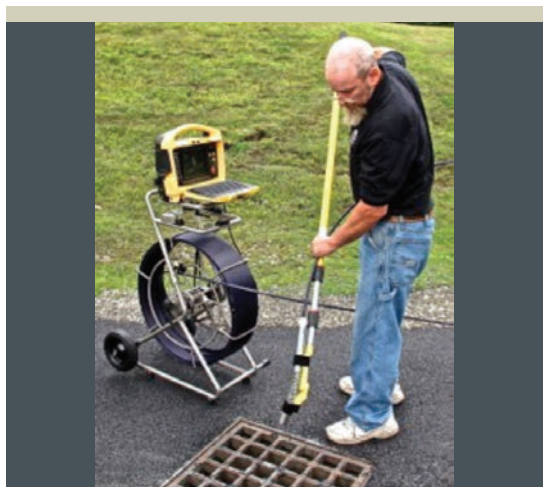
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RESIDENTIAL AND COMMERCIAL SEWER AND PIPE MAINTENANCE

// By Craig Mandli

PUSH CAMERA AND ROLLER SKID SAVES TIME AND MONEY



PROBLEM / By the time a plumber showed up at a home in Valatie, New York, the customer was excited and stressed because the sewer pipe was backing up. No amount of plunging by the customer had worked and professional help was needed. An access plug in the pipe leading to the septic tank was easily accessible. Once removed, several buckets were used to collect sewage.

SOLUTION / The plumber installed the CPI Products Trapmaster to get a 1.5-inch push camera into the 4-inch pipe and was able to pass by the remaining debris to view the blockage and determine exactly where it was. It turned out to be the last remaining section of a more than 30-year-old asphalt-coated paper pipe that had collapsed. They were able to pinpoint this by using the push camera with the roller skid.

RESULT / The collapsed section was easily accessed, and it saved time since digging up the entire pipeline wasn't necessary. The repair was completed quickly, and the customer has a proper line all the way to the septic tank. 413-443-0925; www.cplproducts.com

LINING SYSTEM USED TO FIX ROOT-INFESTED SEWER PIPE



PROBLEM / Mr. Rooter of Western Washington was called to help fix a root-infested sewer pipe on a nearly 100-year-old, two-family home in Seattle. The root infestation caused breaks in the lateral pipe and sewer backups in the basement. The multidiameter lateral, consisting of 4-inch cast iron for the first one-third of the pipe and 6-inch clay for the remainder, was approximately 85 feet from the basement clean-out to the city sewer main.

SOLUTION / A tailored, 4- to 6-inch polyester Transition Scrim Liner from Paramount Pipe Lining Products was used because it creates a smooth, seamless transition in pipes with multiple diameters. The five-step process involved removing roots from the pipe, mixing the epoxy, wetting out the liner, using air pressure to insert the liner into the pipe, and using a hot-water curing process. The liner was cured in less than two hours using the Hornet hot-water curing system.

RESULT / The entire sewer line from the basement out to the city sewer was effectively relined, forming a watertight barrier impenetrable by root intrusions. In less than two hours, the cracked and defective pipes were like new and 100% flow capacity was restored. "It's important for homeowners to understand they have options to tearing up their landscape when it comes to fixing their deteriorated pipes," says Vinnie Sposari, owner of Mr. Rooter of Western Washington. 833-663-2477; www.paramountcipp.com **c**

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PRODUCT SPOTLIGHT

CAMERA SYSTEM LETS TECHS BRING THEIR OWN SCREEN

By Craig Mandli

The monitor is one of the pricier components of an inspection camera system. But with Wi-Fi now at everyone's fingertips on a mobile device, the fixed monitor may soon be a tool of the past. RIDGID recently introduced a flexible, bring-your-own-screen inspection solution, the SeeSnake CSx Via.

It provides a convenient means to stream, capture and share inspection images using an iOS, Android or Windows device, giving end users another option in the toolbox. CSx Via enables reels with an interconnect port to be Wi-Fi enabled and utilizes the free RIDGID HQx Live app to remotely control the camera functions and features. The user simply docks in the CSx Via Wi-Fi control device to unlock all camera functions with just a mobile screen — including TruSense, distance counter and sonde.

"It is a true camera control device that has all the same technology and innovation as our RIDGID SeeSnake X Series monitors," says Amy Moneypenny, global product manager, underground technologies at RIDGID. "It features instant connect, so end users never touch the power key, and has three power modes: on, standby and deep sleep. Via slips into standby when the user leaves the HQx Live app to conserve and save battery and will turn itself off after five minutes, if not connected to the app."

CSx Via connects with the RIDGID SeeSnake microDrain, microReel, nanoReel, Compact C40, Compact M40, Compact 2 and the rM200 camera reels. It is also compatible with TruSense SeeSnake systems and will enable TruSense features in the app.



The CSx Via can be paired with the RIDGID HQx Dock to hold and protect personal devices. The dock is designed to deliver a flexible, convenient way to mount a tablet when using the SeeSnake HQx Live app. Featuring a spring-loaded tablet holder, double ball and socket arm, and pivoting kickstand, it can hold most tablets and is adjustable for optimal viewing at the job site.

"Our customers are loving the ease, convenience, flexibility and professionalism it provides them," Moneypenny says. "They appreciate that it gives them various tool solutions to meet their needs, with the idea that their businesses and the job applications they perform are not all alike. It's another tool in their arsenal to identify issues quickly and increase productivity." 800-474-3443; www.ridgid.com

1 // SUPERIOR 5E ELECTRIC SMOKER FINDS FAULTS, ODORS, LEAKS AND INFLOW

When testing laterals, building plumbing, or pumping or inspecting septic tanks, smoke testing is a quick and effective way to find plumbing faults that lead to odors, leaks and inflow. Superior Signal Company's Superior 5E Electric Smoker easily connects to any clean-out, port or vent to smoke test the entire system in just a few minutes. The Superior 5E Electric Smoker gently pushes smoke throughout a system to find cracks or leaks and quickly identify problems. Made in the U.S., the durable Superior 5E Electric Smoker is competitively priced and comes complete with 8 feet of industrial grade hose. Used with Superior Smoke Candles, this costeffective solution is ideal for hard-to-find odors, leaks and other faults in commercial, residential and municipal facilities. 732-251-0800; www.superiorsignal.com/CL5





2

2 // MILWAUKEE TOOL PACKOUT RACKING SOLUTIONS

Milwaukee Tool expanded its PACKOUT Modular Storage System with two new racking solutions: a PACKOUT 2-Shelf Racking Kit and a PACKOUT Racking Shelf. For more versatile mounting options, the PACKOUT Racking Shelf attaches to E-Track, allowing users to place the shelf in any location or onto any surface E-Track can be mounted. To keep contents secure during transport, the shelf features integrated tie down points and an anti-rattle screw. A 50-pound weight capacity, metal-reinforced frame and impact-resistant body provides maximum durability. The shelf will be available on its own or in a kit with two racking shelves and two 20-inch lengths of vertical E-Track. 800-729-3878; www.milwaukeetool.com



3

3 // ARIES INDUSTRIES LASER PROFILER

Aries Industries' Laser Profiler is a new video inspection solution offering speedy diagnoses of the condition and ovality of pipelines. Able to analyze pipes from 6 to 96 inches, the Laser Profiler connects to Aries Industries' Pathfinder and Badger transporters to inspect and provide immediate video results. Integrating with a variety of Pipeline Assessment Certification Program software, the device quickly verifies the condition of existing, new or relined pipe. The Laser Profiler detects and measures ovality, deflection, debris and cavities. Joints, offsets and connections are also detected. When used with advanced data gathering PACP software, the Laser Profiler confirms that installation of new pipe meets ovality specifications. 800-234-7205; www.ariesindustries.com



4

4 // BRASS KNUCKLE SMARTCUT BKCR303 GLOVES

Brass Knuckle's SmartCut BKCR303 gloves succeed on three fronts by providing dexterity, grip and ANSI cut level A2 protection. This is accomplished with a glass fiber and ultra-high-molecular-weight polyethylene shell, a composite yarn that has a strength-to-weight ratio eight to 15 times greater than steel, and polyurethane coating. The thinner, 13-gauge material delivers deftness without trading away its inherent cut-resistance. The nonsticky polyurethane coating on the palm and fingers features excellent grip, even against oils, fats and greases, and can deliver enhanced puncture protection and abrasion resistance, all without adding bulk or reducing touch sensitivity. The glove's uncoated back and wrist improves ventilation, and a seamless and stretchable full-knit wrist provides a snug fit and prevents dirt, debris and cold from getting inside glove. 770-674-8930; www.brassknuckleprotection.com



5

5 // PERMA-LINER LIGHTWAY LR3 UV REPAIR SYSTEM

Waterline Renewal Technology's new LightRay LR3, from Perma-Liner Industries, incorporates the latest in UV trenchless technology, reducing curing time during installations. A modular design and enhanced electrical connections for rapid packer attachment and removal are among the key highlights. Transitions, cast iron and vertical stacks can all be serviced by LightRay LR3, which easily navigates 45- and 90-degree bends. Its non-VOC resin is pre-impregnated into the high-performance fiberglass liner and shipped ready to install for no-dig, small-diameter pipe infrastructure repairs. Once the install site is prepped, casting times in less than 10 minutes can be achieved, eliminating the risk of premature or prolonged curing times due to temperature variations. 866-336-2568; www.perma-liner.com c



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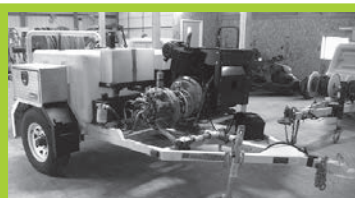


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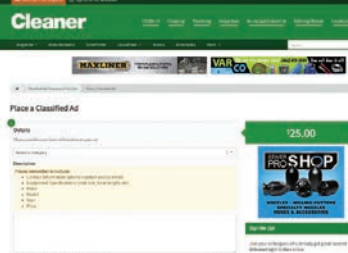


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