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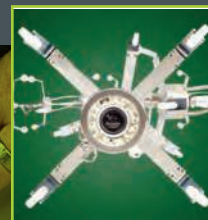
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Randy Hromyak is executive vice president of Florida Pipe-Lining Solutions. The company does about \$4 million in business annually, specializing in CIPP lining and epoxy coating. (Photography by Amanda Mueller)

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Kayla Bisnette Jim Koshuta

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It's a Community

Good people and new technology continue to push the industry forward

The technology in this industry is impressive.

It was the first thing that struck me when I took over *Cleaner* in 2011. Like many of your customers, I had no idea processes like CIPP lining and pipe bursting even existed. I don't think I'd ever seen a jet/vac truck, and if I had, I certainly didn't know what it was. I thought drains were cleaned with cables and old pipes were replaced with new pipes. Both are certainly still true in some instances, but that doesn't begin to cover what you do.

Over the past seven years, the technological advances have continued to impress. Jetters, nozzles, inspection systems, lining equipment, robotic cutters — all are playing a role in the advancement of the wastewater industry.



Luke Laggis

Of course, the greatest technology is useless without the right people to maximize its potential, and the people — you — are perhaps the most impressive part of this industry. It wasn't as immediately obvious as the incredible assortment of new tools and equipment, but it became more and more apparent with each person I met and talked to on the phone. It didn't take long to realize *Cleaner* isn't a magazine; it's a community.

This month's Tech Perspective digs into a root question for many drain cleaners: sectional or drum machines? The two styles of drain cleaning machines each have their advantages, as well as their champions, but many people use both depending on the situation. If you've always used one style versus the other, simply because that's what you were trained on, it's worth a read.

The two companies profiled in this issue are great examples of how implementing new technology, and bringing the right people on board to guide its use, can lead to growth and success.

Atlantic Pipe Services has only been in business for a little over a year, but it's made a big mark in the Florida market in that brief amount of time. The company is already running three jet/vac trucks, three television trucks and a pressure-grouting truck. Equally as important as the equipment has been the company's push to bring on an experienced workforce. That includes Allan Cagle, company president, who brought with him 22 years of experience in the pipe rehab field.

Florida Pipe-Lining Solutions is the other company profiled in this issue. The company has been in business far longer than Atlantic Pipe Services, but it similarly owes its success to its people and the technology they put to use every day. The company is the only one in its area offering both CIPP and epoxy lining. And a team of highly trained technicians make sure every installation meets the customer's needs.

Good equipment and good work — it's a simple concept, and if you can put them together, you'll have a good chance of running a successful company. I hope these stories provide some insight that helps you in your own quest for success.

Enjoy this month's issue. **c**

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FINDING NEW BUSINESS

Contractors Share Tactics For Building a Customer Base

Attracting new customers is a goal of any company, but how exactly to achieve that can take many different forms. In this online exclusive, contractors share stories about the ways they've been successful bringing in new business. Maybe their experiences can spark an idea you can implement at your own company. [»cleaner.com/featured](http://cleaner.com/featured)



CLEANER UPDATE

Company Thrives With Hydrodemolition Niche

In this online exclusive, we check in with Premium Hydro Solutions, a Michigan-based company last featured in the magazine in 2010. At that time, the company was experiencing success focusing on a specialized service — concrete removal using high-pressure waterblasting — but was also only two years into the venture. Read more about how the company is doing today. [»cleaner.com/featured](http://cleaner.com/featured)



LOST & FOUND

Missing Wedding Ring Turns Up During Sewer Cleaning

Every so often this industry provides an opportunity to make someone's day by returning a valued personal item assumed to be lost forever. If you're a sucker for such stories, you'll want to check out this one about a public works employee in Minnesota who discovered a wedding ring during routine sewer cleaning and was able to reunite it with its owner. [»cleaner.com/featured](http://cleaner.com/featured)

“Ride-alongs (or sit-alongs) are great for developing empathy and opening those lines of communication. Once your employees can walk a mile in the other position's shoes, they are going to see that the job is never as easy as they think or assume.”

— Fostering a Good Relationship Between Office and Field Staff
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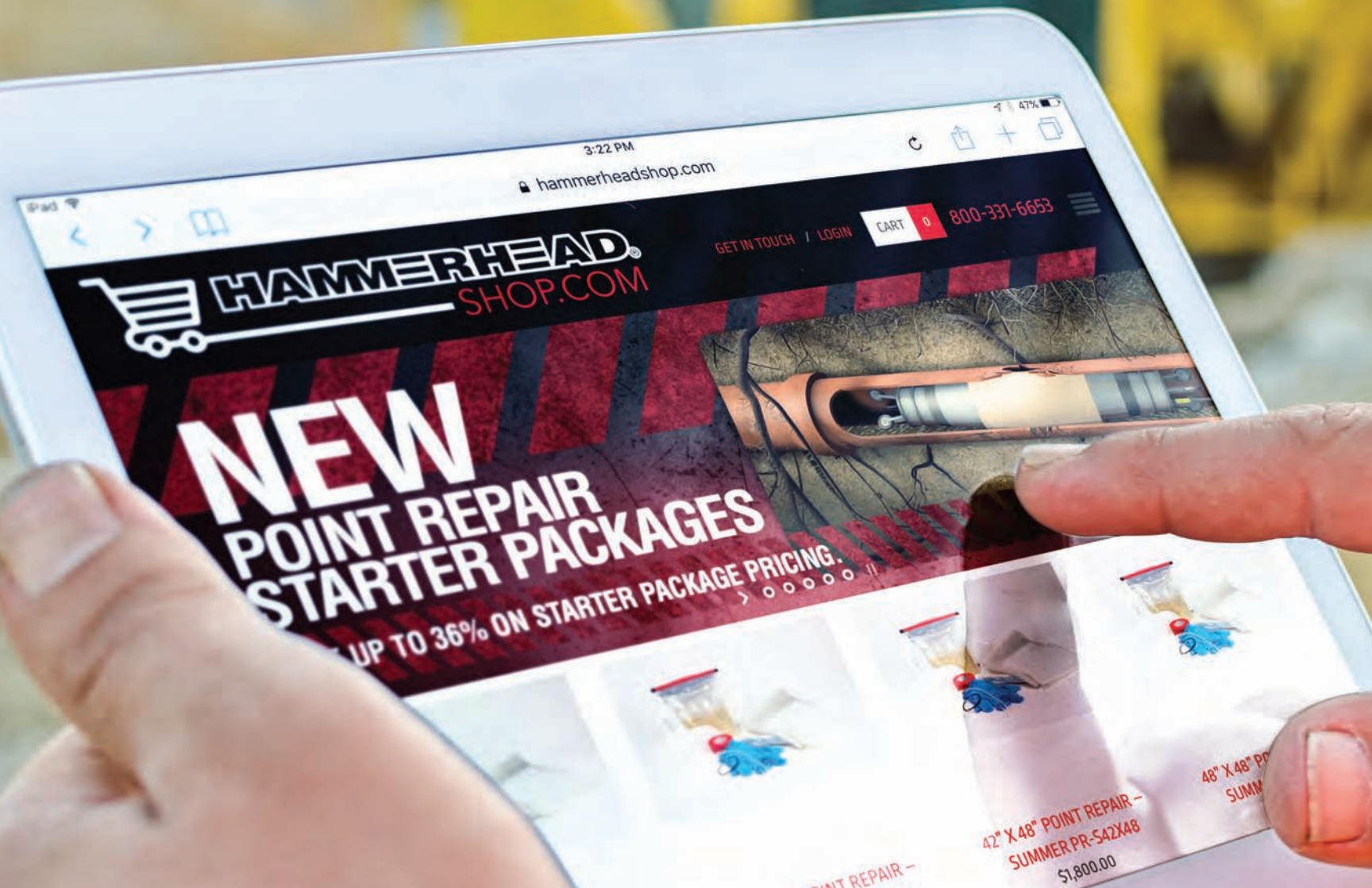
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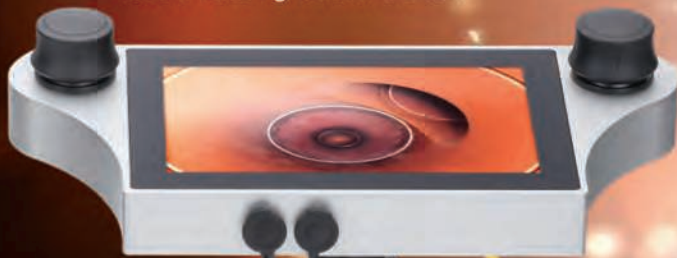
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Tech-Savvy SERVICE

Contractor relies on the latest and greatest technology to provide a range of options for customers' problems

By Ken Wysocky

Photography by Rob Herrera



» Atlantic Pipe Services TV truck operator Wallace Lowery prepares the EnviroSight-equipped CCTV truck for a sewer line inspection.

It's often said that success in selling real estate depends primarily on three things: location, location, location. Similarly, the quick growth of Atlantic Pipe Services stems mainly from three factors: technology, technology, technology.

Of course, other things also fueled the Sanford, Florida-based company's rapid expansion, which is vividly reflected in the size of its equipment fleet after just one year in business — three vacuum trucks, three television trucks and a pressure-grouting truck. An experienced workforce, a spend-money-to-make-money philosophy and an emphasis on using equipment as marketing vehicles certainly helped prompt the growth spurt.

▼ The crew at Atlantic Pipe Services in Sanford, Florida.



But in the end, an emphasis on technology — both in the office and out in the field — has proved to be a big market differentiator.

“As a new company that wants to stay ahead of competitors, we need to be on the cutting edge,” says Allan Cagle, president of the firm established in 2017 and owned by venture capitalists Jon Hall Jr. and Keith Carson. “We never want to miss an opportunity to gain a new client, nor do we want to send a prospective client to a competitor. As such, we want to be able to offer clients the best repair for a particular application.”

To accomplish that, Cagle fashioned the company from the get-go as a diversified, full-service business that offers clients an array of trenchless pipe rehab services. About 85 to 90 percent of its business stems from new construction of sewer pipes, working for either municipalities or engineering firms. Its main services include cleaning, televising, laser profiling, and cleaning newly laid pipes in residential and commercial

developments before they go live. But the company also does rehab work using chemical-grout injection and installation of CIP sectional pipe liners.

“We inspect storm sewers to find things such as debris, pipe sags and infiltration in laterals,” Cagle explains. “And all plastic pipes need to be laser-profiled to check their ovality before any roads are built.

“Nobody’s perfect — we’re all human,” he continues. “Things happen — joints don’t get filled properly or pipes crack. Each problem has a different level of severity. We might be able to pressure-grout a leaky joint, but a pipe with structural cracks might warrant (sectional) pipe lining. And sometimes the problem is so severe that all the tools in my tool bag aren’t sufficient. Then it’s a dig-out job, which I sub out to companies I trust.

“As an independent contractor, I have to be able to offer all pertinent services related to our line of work,” he adds. “I have to be a one-stop shop. At the end of the day, I don’t want to give work away and lose money.”



Atlantic Pipe Services

LOCATION: Sanford, Florida

OWNERS: Jon Hall Jr. and Keith Carson

FOUNDED: 2017

EMPLOYEES: 16

SERVICES: Stormwater and sewer line cleaning, inspections (camera and laser profiling), and pipeline rehabilitation/repairs

SERVICE AREA: 100-mile radius around Sanford

WEBSITE: www.atlanticpipe.us

DEEP ROOTS

Cagle got into the pipe rehab field 22 years ago when he started working for his father-in-law, who owns a similar company in nearby Edgewater. "I started working for him right out of college," he says, noting he earned a business administration degree at a two-year community college. "I was his first employee."

But stymied by the lack of growth opportunities at a smaller, family-run company, Cagle left in February 2015. After a brief stint as a director of operations at another company, he got a call from Hall and Carson and agreed to build a new company from scratch.

"We grew very, very quickly," Cagle says. "I had a lot of contacts in the industry to help establish a client base. I literally started the company with one vac truck operator and me performing all the work. Then we added Ryan Clayton, our administrative manager. After that, things really took off — we just kept getting busier and busier."

In August 2017, APS bought its first water-recycling combination vacuum truck from Vacall - Gradall Industries, reinforcing its stance as a high-tech company. The company bought a second truck in November.

"Keith and Jon are equity investors," Cagle says, explaining how the company could afford so much expensive equipment in such a short time. "They don't micromanage at all. They're almost like silent partners."

While word-of-mouth referrals spurred growth, so did the company's use of equipment as marketing tools. All of APS' vehicles are outfitted with vinyl wraps made by Media 1/Wrap This. The wraps aren't inexpensive; a vacuum-truck wrap might run as high as \$5,000. But the return on investment makes them a worthwhile expenditure, Cagle says.

"They're all large vehicles — big moving billboards," he says. "Why wouldn't I want to put as much information about our company on them as I can so people can see it as the trucks are driving along the road? If I pick up two or three jobs, the wraps pay for themselves. And we do get calls from people who see them."

"Why wouldn't I want to put as much information about our company on them as I can so people can see it as the trucks are driving along the road?"

If I pick up two or three jobs, the wraps pay for themselves."

Allan Cagle

MIGHTY FLEET

Providing a range of services requires an array of equipment. As such, APS owns a Vactor 2100 Plus combination sewer vac truck, built on a 2017 Freightliner 114SD chassis with a 15-cubic-yard debris tank, a 1,500-gallon water tank and a blower manufactured by Howden Roots. It also invested in two Vacall - Gradall Industries AllJetVac combination sewer vac trucks,

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✓ Vac truck operators David Reyes and Gene Morgan of Atlantic Pipe Services use a Vacall combination truck to clean an 8-inch sewer line in Ocoee, Florida.



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each equipped with an AllClean water-recycling package. The trucks feature 2018 Freightliner 114SD chassis outfitted with a 12-cubic-yard debris tank, a 1,500-gallon water tank and a Howden Roots blower.

The company also owns three camera trucks. Two were outfitted by Enviro-sight on Ford F-550 four-wheel-drive trucks with Rovver X robotic cameras; one also carries a Rovver X SAT lateral-launch camera. The other camera truck also is a Ford F-550, but it's outfitted by RauschUSA with an M-Series KS 135 laser-profiling robotic camera. "It's the Cadillac of laser profiling, plus it also can do traditional camera work," Cagle notes. All three trucks also carry push cameras made by both Enviro-sight and RauschUSA.

To carry grouting equipment, the company owns a 14-foot enclosed trailer made by Lark United. The company uses Graco pumps to inject chemical grout in stormwater and sewer lines, manholes, and lift stations. The company uses De Neef Construction Chemicals chemical grout from GCP Applied Technologies, a De Neef Construction Chemicals pump for urethane grouting, and mainline packers made by Logiball.

For trenchless pipe repairs, the company also relies on a sectional joint repair system from Infrastructure Repair Systems, HydraTite mechanical joint seals made by HydraTech Engineered Products, and Quick-Lock rehab sleeves made by Pipeline Renewal Technologies for 8- to 24-inch-diameter joint repairs and circumferential cracks.

Not all the technology is focused on pipe rehab and repairs, however. The company developed its own cloud-based data service that allows technicians to quickly upload pipeline inspection videos and get them to customers within one day. The company's internal information technology department designed and maintains the service, he says.

"That's been huge in the new-construction market — another way we've stayed ahead of our competition," Cagle says. "I use it as a marketing and sales tool. Fast and efficient communication with clients is huge. They're very pleased about not having to wait days and days for us to put an inspection video on a thumb drive and mail it to them."

Speed is essential because often times, the cost of fixing a problem in a sewer line grows the longer it takes to bring it to the clients' attention. For instance, there are times when field workers don't communicate a problem right away to a general contractor, a situation that could be exacerbated if a video takes awhile to mail. "We try to catch those problems on both ends, saying something verbally to the guy in the field and to someone in his office," Cagle says.

In addition, the in-house cloud system positions APS as a professional outfit that stays on the cutting edge of technology and anticipates clients' needs. "Bridging that time gap makes us look even better and once again keeps us a step ahead of our competition," he adds.

Company focuses on treating workers right

Attracting workers in a tight labor market is difficult for contractors these days. And often enough, retaining them is just as difficult, as other companies try to poach good employees.

Atlantic Pipe Services does its level best to keep employees from heading for the proverbial greener grass by offering them good benefits, treating them like family, paying cash bonuses and promoting from within, says Allan Cagle, president of the company, based in Sanford, Florida.

"I've been down this road myself where companies try to work someone into a supervisory position, but then decide they can't afford to take a good worker off a TV or vac truck," he explains. "Then they bring in someone from the outside to be a supervisor. Then morale gets shot because employees feel that all they hear are a lot of empty promises.

"I try my best to figure out ways to bring guys up," he continues. "Not everyone has the capabilities to be a supervisor, but our goal is to try to promote from within."

Cagle also believes that the company's emphasis on investing in new and technologically advanced equipment also is a good selling point for attracting and retaining good employees. Working with older machines that regularly break down is a morale-killer. Moreover, Cagle thinks that employees are more apt to take better care of new equipment.

"We encourage our employees to treat equipment as if it's their own," he notes. "We emphasize that they have to take care of equipment because the equipment takes care of us."

When APS completes a lucrative job, Cagle says the company pays bonuses "here and there." They also periodically hold events such as Friday afternoon steak cookouts to show that the company appreciates the work they do.

"I'm a firm believer that employees are what make or break a company," he says. "So I let them know as much as I can how much we appreciate what they do."



« Allan Cagle,
president of
Atlantic Pipe
Services.

AGGRESSIVE GOALS

Cagle says the company continues to set aggressive goals for more growth. In January 2017, he set goals for revenue as well as equipment — two vac trucks and two camera trucks. “And we exceeded that,” he says. By the end of 2018, he’d like to invest in another vacuum truck, a grout truck and a camera truck. “I’ve always been very goal-oriented — setting the bar higher and higher,” he says.

A construction boom in central Florida only solidifies his belief that the goal is doable. He’d also like to broaden the company’s geographic reach with satellite offices and invest in a full-scale pipe lining system instead of focusing just on spot or sectional repairs.

“We’ve been very lucky in terms of finding good employees,” he says, noting another critical ingredient in the company’s growth. “They have good attitudes and bring good vibes to work. We also run a tight ship in terms of maintaining good lines of

“Fast and efficient communication with clients is huge.

They’re very pleased about not having to wait days and days for us to put an inspection video on a thumb drive and mail it to them.”

Allan Cagle

« CCTV truck operator Angel Gutierrez uses a Rausch USA inspection system to laser profile a storm pipe.



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« David Reyes operates the Vacall truck while cleaning a sewer line.

communication with clients. Right now we're in a position where we have a good core we can build off of. The work definitely is out there right now — it's just a question of having good competent employees, good equipment and getting the word out.

"I'm out there knocking on doors trying to keep work in front of us," he concludes. "If I get one shot (at a client), it's usually a done deal. The word gets out fast once they see what we bring to the table — things like quality work, great communication with clients, and good equipment and new technology that doesn't break down all the time. That all opens up a lot of doors." **c**

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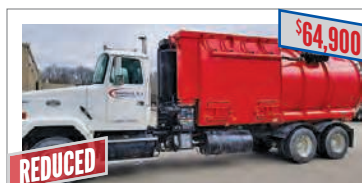
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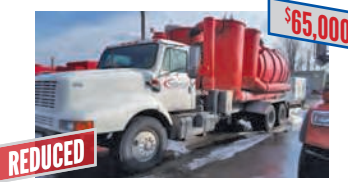
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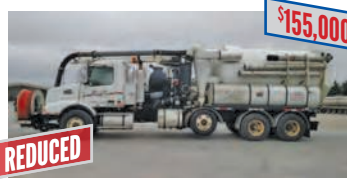
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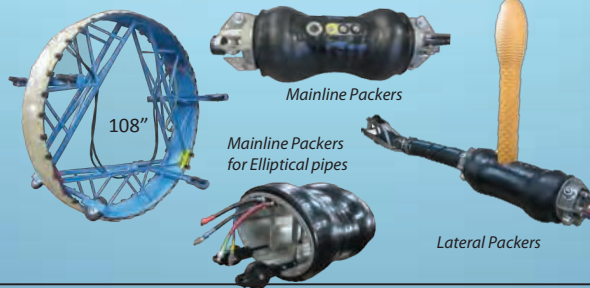
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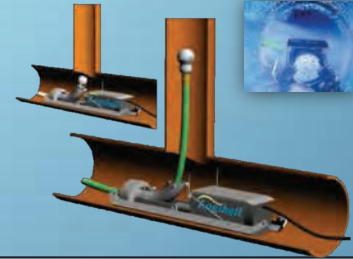
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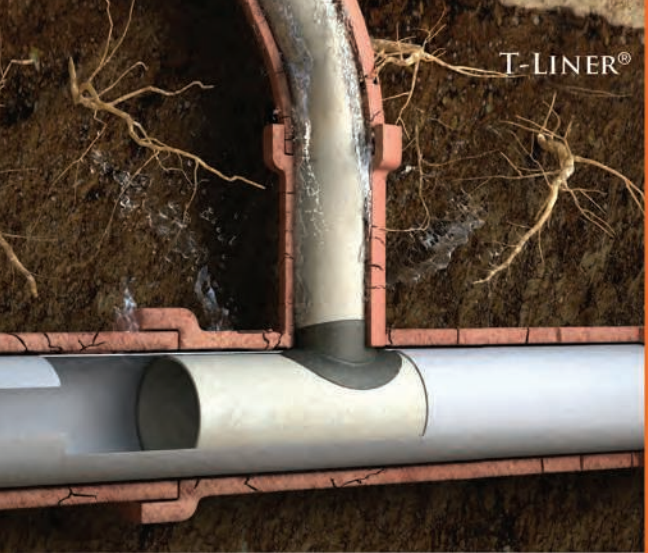
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You'll Never Hear It Coming

One of the most common risks around heavy equipment is hearing loss, but there are tools out there to keep you and your crews safe

By Jared Raney

Industry veteran and Jarvis Septic & Drain owner Gene Morris can attest to the dangers of noise exposure over time: "I'm 56, and my hearing above 2,000 hertz is gone. It's just from not wearing hearing protection in my younger days."

It's a common trend among older operators and contractors. Despite regulations for hearing protection, this safety issue struggles for recognition and enforcement.

"We as young men think we're Superman, and we're never going to have those kinds of issues," Morris says. "I do think the noise coming off the equipment, and even in general — the years and years and years of riding in the trucks — does take its toll on the hearing of the driver."

"Most of those older gentlemen who have experienced some hearing loss realize, 'Oh, I better do something before it's completely gone.' I certainly think it's something that needs to be addressed by the business owners to protect their employees because there is definite hearing loss associated with the industry."

"We as young men think we're Superman, and we're never going to have those kinds of issues. I do think the noise coming off the equipment, and even in general — **the years and years and years of riding in the trucks - does take its toll on the hearing of the driver.**"

Gene Morris

INDUSTRY REGULATIONS

Risk of damage to your hearing is a combination of how loud the sound is, how close you are to the source of the noise, and how long you're exposed to that noise. "It isn't a solid, continuous sound at a particular level. The measurement that they require is what they call a time-weighted average," says Julie Steding, marketing manager for Sonetics.



It's easy to overlook the risk of hearing loss until it's too late. Using active protection, like headsets that reduce the amount of noise you're exposed to, is a smart upgrade from passive protection, like basic foam earplugs.



Normal conversation is around 60 dB. OSHA guidelines require mitigation when sound reaches 90 dB over an eight-hour shift.

Though that seems like a small difference, "The decibel scale is logarithmic; it's not linear. A 1 dB increase is a tenfold increase in the actual level of sound, so it scales up very quickly," Steding says. "The difference between 60 and 90 is very noticeable. There's no mistaking that there's loud noise going on."

At 100 dB, the allowable time frame for exposure is 2 hours. At 115 dB, OSHA guidelines show damage can occur after only 15 minutes of exposure or less.

"If you stand at the back of a vacuum truck and you open the valve and let the air free flow into the vacuum truck, you're looking at the equivalent

of a jet engine,” Morris says. “We’re in excess of 120 dB standing at the back of the truck.”

The burden is on business owners to provide mitigation when sound passes the OSHA threshold, meaning owners are also responsible for monitoring sound levels at their facilities and job sites. Fortunately, there are many ways to reduce noise for employees.

“What the regulation specifies is simply a noise level at which sound attenuation is required, or some sort of noise mitigation effort is required, and that’s one thing that I think people overlook sometimes; it doesn’t necessarily have to be exclusively or only hearing protection devices that you employ to try to mitigate the sound,” Steding says.

Sound mitigation falls into three categories: isolation, passive protection, and active protection.

SOUND ISOLATION

Noise mitigation efforts may begin by trying to isolate the source of the noise from the general population. “So you put loud equipment in a quiet room with extra sound insulation to protect the rest of the facility from the noise of that equipment,” Steding says.

This sound isolation can be an important factor when choosing equipment. Many manufacturers, such as Imperial Industries, consider sound level in their product design.

“On our vane pumps, we locate the oil catch muffler on the other side of the truck, and with the blower, typically we locate the silencer on the opposite side of the truck as well. That helps bring down the noise,” says Kyle Haase, Imperial Industries commercial sales manager.

Remote-controlled rigs are another option, allowing operators plenty of distance from the equipment.

“Remote is the big push on our end,” Haase says. “You’re not directly in front of the pump when you’re operating. Usually you’re at the actual lid or the hole, and that’s where you’re doing all of your operations with the wireless remote, so the end user is not standing directly in front of the pump.”

If a particular manufacturer doesn’t have sound-mitigating options, there are ways for contractors to limit noise on their own.

“I have found that some of the camlock fittings we use on our hoses produce a different decibel of sound,” Morris says. “I stumbled on it by accident, and I’ve actually switched all my hose couplings.”

CONTINUED >>

“If you stand at the back of a vacuum truck and you open the valve and let the air free flow into the vacuum truck, you’re looking at the equivalent of a jet engine.”

Gene Morris



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The configuration of the coupling makes a difference on the airflow, changing the pitch. Morris also recently changed his vacuum truck over from a vane pump to a blower, which he thinks is quieter — but it may not be as simple as one being quieter than the other.

“A lot of our units use the National Vacuum Equipment blowers, and they’re fully enclosed in a cabinet that is all insulated as well, so that helps reduce the noise,” Haase says.

PASSIVE VS. ACTIVE

Even when doing everything possible on the equipment side, it’s still heavy machinery. At a certain point, the focus needs to shift onto operators, and the simplest solution comes down to earplugs and earmuffs, which OSHA defines as passive protection.

“Passive noise attenuation is a reduction in the sound pressure level that reaches your eardrums,” Steding says. “So earplugs and earmuffs tend to be passive noise attenuation, meaning they work by virtue of covering up your ears, or plugging up your ear canal. They are not employing any kind of active strategy.”

There are different levels of protection even within this basic category.

“Depending on the manufacturer and the style, they have differing amounts of noise attenuation, or sound reduction that goes on,” Steding says, but contractors need to use them properly. “I emphasize wearing them properly because there’s a way to wear them improperly that will reduce their effectiveness. You don’t want to just hand someone a hearing protector without any kind of instruction.”

Going one step further, an active attempt for hearing safety would be some sort of technology in the hearing protector that further reduces the amount of noise a contractor is exposed to. This kind of upgrade provides added safety and communication efficiency on top of noise attenuation.

For example, Sonetics’ wireless communication headsets provide 20 dB of passive protection, also incorporating “listen-through technology.” It is an adjustable noise control technology that lets in certain amounts of outside sound to balance protection and awareness on any particular job site.

KEEP YOUR HEARING

In industries saturated with rules and regulations — like excavation and construction — it can be easy to overlook something as seemingly innocuous as hearing safety. Contractors who have been around long enough can tell you it’s worth keeping in mind — and not just for the benefit of employees.

“Hearing protection should be provided. It should be mandatory that it be worn,” Morris says. “Even though it’s not popular, if the employee is not using the hearing protection, the business owner should write them up, in order to protect themselves from a possible OSHA violation.”

As the invisible threat, its effects can take a long time to manifest, as Morris and many contractors like him are lamenting in their later years.

“It’s something that young men need to realize — that you can lose your hearing around this type of work,” Morris says. “Like I said, in our younger days we think we’re Superman and we’re invincible. Reality catches up with you, but by the time it does, it’s too late.” **c**



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A collage of various plumbing and drain cleaning tools and equipment. At the top, there's a green hose with a brass fitting, a metal spring, and a red RIDGID handheld device. Below these are various cables, hoses, and fittings. In the center, there's a red RIDGID impact wrench, a yellow and orange RIDGID diagnostic kit with a screen, and a blue RIDGID reel. To the right, there's a white bottle of EN-ZIP cleaner and a blue RIDGID reel. At the bottom, there's a red Super-Vee tool, a blue funnel, and various other tools and parts. The background is white, and the tools are arranged in a somewhat chaotic but organized manner.

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DISPELLING Doubts

Florida contractor provides replacement alternatives for ailing waterlines and sewer lines

By Giles Lambertson //
Photography by Amanda Mueller



▲ The crew at Florida Pipe Lining Solutions in Sarasota, Florida, includes (from left) Nick Decos, William White, Ryan Fisher, Mike Strong, Randy Hromyak, Jose Barandon, Tristan Bourdier, Christian Perez, Javier Macias, Yacheslav Shabunin and Mike Larson.

Pipe rehabilitation has been around for decades. Long enough that the alternative of tearing into walls and floors to rip out old plumbing and inserting new pipe seems antiquated.

Restoration is the neater, simpler choice; and epoxy coating and CIPP lining are the go-to methods. Florida Pipe-Lining Solutions in Sarasota offers both systems and caters to people who need their plumbing upgraded, prefer to spend less doing it and want to be minimally inconvenienced in the process.

“Restoration is about 30 percent cheaper, if you look at the whole picture,” says Randy Hromyak, executive vice president of Florida Pipe-Lining Solutions. “The whole picture means digging up or tearing out the old pipe, putting in new pipe and then putting everything back together again. It’s about 30 percent cheaper to restore the existing pipes than do all that.”

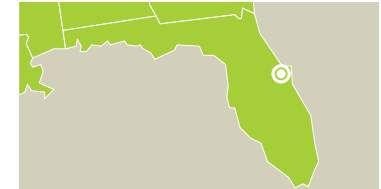
The Florida company is 14 years old and began as a franchised epoxy-lining firm offering the patented ACE DuraFlo/ePIPE system for potable waterlines. Rod Coddington and a partner started the company. Today, Coddington is sole owner. Hromyak was brought on 3 1/2 years ago to handle day-to-day administration of the company.

Coddington has diversified the company beyond its ePipe origins and now offers CIP relining of drains and sewer pipes along with CCTV inspections. CIPP has, in fact, overtaken ePipe as the company’s primary offering, with CIP clients claiming about 60 percent of orders.

Florida Pipe-Lining Solutions now has 26 employees and the company does about \$4 million in business annually. Work contracts have come so fast that the company is pausing to catch its breath: Business volume has grown about \$500,000 per year for each of the last three years, Hromyak says, and 2018 is being dedicated to consolidating those gains before pushing ahead.



« Technicians Tristan Bourdier and Ryan Fisher, foreman Christian Perez, and technician Javier Macias (from left) operate the Ace DuraFlo header during an ePIPE project at Thonotossa Elementary School.



“We are the only company that can provide waterline and storm drain rehabilitation. No other contractors are doing both,” says David Baker, the company’s vice president of operations. The epoxy coating technique can be utilized in pipes up to 12 inches in diameter, though most of the work is on lines 1/2 to 4 inches in diameter. Company technicians use CIPP liners in drainpipes up to 36 inches in diameter.

HIGHLY SKILLED

Baker is a trenchless technology veteran. A certified plumber for almost half a century, he began working with “exotic plumbing” in Florida in 1995 when he turned a small jetter unit and a CCTV camera into a pipeline service business. When Baker cashed it out in 2004, the business had grown to five hydrovac trucks, five camera trucks, and 40 employees, and it was certified to work across the southeastern U.S.

Florida Pipe-Lining Solutions
LOCATION: Sarasota, Florida
OWNER: Rod Coddington
ESTABLISHED: 2004
EMPLOYEES: 26
SPECIALTIES: CIP and epoxy pipe lining
WEBSITE: www.fixmyleaks.com



➤ Technician Javier Martinez checks an AtlasCopco compressor during an ePIPE restoration project.

➤ Tristan Bourdier connects ePIPE fittings to an ACE DuraFlo manifold.



He began work at Florida Pipe-Lining Solutions in 2005, a year after the company was incorporated, and supervises eight crews who are cross-trained to work in both potable water systems and sewer and drain lines. Trenchless technology is less about joining pipes and turning wrenches than it is about calculating epoxy shots and operating compressors and injectors.

“Our techs are, first of all, excellent plumbers,” Baker says. “A lot of them started out not knowing anything about the technology and became skilled epoxy-coaters. They learned how to locate pipe, determine pipe sizes and do the necessary mathematical equations. They are consummate technicians. They can tell you how many shots of sand were used, what the air pressure was, the volume of air, how much epoxy went in the pipe and what the flow rate was afterward.”

The accomplished crews work in communities across Florida, most often restoring pipes 1/2 inch to 6 inches in diameter, according to Hromyak. Some restoration jobs are on high-profile commercial and institutional properties like Bank of America buildings, the University of South Florida campus, Universal Studios and the Walt Disney World Resort. The Florida company sometimes ventures far from its Sarasota home base to restore pipes in places like New Orleans and Houston.

“And I do a lot of work for plumbing contractors,” Baker says. “A plumber will get into a situation where they recognize restoring the pipes makes sense. They know they can trust me, that I am not going to take advantage and try to steal their customer.” He adds that subbing out the restoration work is a good business decision for the plumbers. “They are smart not to get into this technology. If you don’t do it every day, you are not going to be successful. It is a hard enough trade that you have to have repetition to master it. Some contractors will get enamored of it and buy a machine and then end up not getting enough work.”



“If you don’t do it every day,
you are not going to be successful.
**It is a hard enough trade that you have
to have repetition to master it.”**

David Baker

⚡ Existing water service lines are exposed for connection.

» Existing plumbing fixtures attached to the manifold during the pipe restoration process.

SATISFIED CLIENTS

Customers are steadily being converted to the idea of coating and lining their pipes rather than replacing them. Testimonies of satisfied clients are piling up. “The internet is our best-selling tool,” Hromyak says. “Potential customers can watch videos and read testimonies and educate themselves. They can see for themselves that it’s a good alternative solution.”

Evidence of the restoration products’ durability is dispelling doubts. The ePipe process comes with a 25-year leak warranty and failure is rare. “Usually a leak is the consequence of some ancillary thing, like a kinked pipe,” Baker says. “And kinked pipes are hard to find. Our callback ratio in the last 14 years is 1 percent.”

While CIPP is the more familiar trenchless restoration method, epoxy is a reliable option also. It involves three steps. A line is tapped through an existing access point, such as a shut-off valve, and infused with drying air. Then an aluminum oxide cleaning agent is introduced to smooth and remove corroded surfaces inside the pipe. Finally,

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School's out ... for restoration

When Florida Pipe-Lining Solutions began restoring pipes in 2004, homes were targeted. After all, there are nearly 7.5 million homes in the state, and many of them are connected to deteriorated pipe. But in the intervening years, the company has expanded its trenchless offerings and its customer base. Today, fully 65 percent of business is with commercial and institutional customers.

In the summertime, a particular customer base is served: school campuses. The pipe restoration process is particularly appealing to school districts because, with minimal construction fuss, old pipe systems are turned into safer conduits for drinking water at all those school hallway fountains.

Lead content in old water systems is a constant worry for school boards and administrators, and the ACE DuraFlo/ePIPE and CIPP restoration products of Florida Pipe-Lining Solutions resolve the worry. The freshly lined pipes seal off the old copper or galvanized pipe so that the lead in joined segments of pipe can no longer leach into the water.

Thirteen school districts have contracted with the company to restore pipe on several elementary, middle and high school campuses over the next five years. "We're introducing the ePipe product into five schools this summer, which is about what we have done each summer for the last few years," says Randy Hromyak, executive vice president. "How many schools we can take on depends upon the size of the campus. Some have multiple buildings needing pipes restored."

For example, Thonotosassa Elementary School in the city of the same name contracted with the company to restore pipes in 12 buildings. The seven-week project included the challenge of locating more than 600 feet of water pipe.

Schools with ready funding haven't hesitated to contract with the company, which is the only one certified by the state of Florida to coat pipes with the epoxy sealant.



« Ryan Fisher and Javier Macias monitor the Ace Duraflo header. The ePIPE project at Thonotosassa Elementary School took seven weeks and the team restored pipes in 12 buildings.

a calculated amount of the epoxy resin is injected, thinly coating the entire interior of a system. Pinholes are quickly sealed by the resin. In larger-diameter pipe, leak points up to 1/4 inch in diameter can be filled and firmly sealed. Within a couple hours, the resin is set and the system flushed and ready to use.

The whole process is designed to minimize messes inside a house or office. Compressed air and injection machines are set up outside or in a garage with hoses running into the living area of a structure and connecting to the plumbing system. On one project at a Florida retirement home, the ePipe lines were connected at some 3,600 points. "We connected through 300 toilets, 600 lavatories, 600 showers, plus main valves and bedpan washers," Baker says. "We were there about 15 months. We still do work there and have never had a callback."

The process is the same, whether in a multistory building or a home. The only real variable is the amount of epoxy utilized, Baker says. "It is a mathematical equation based on the size of pipe and length of system, each situation taking so many shots of epoxy. That's how we measure it, in shots. A mathematical formula determines the amount of material. In a 2,500-square-foot house probably 2 gallons will be installed in the system."

Verticality is not a problem. Pipes running up and down between several stories of a building can be coated without difficulty. Baker makes it sound easy. "We've shot 17- or 18-story

"We came in on a Monday, cleaned the pipes on Tuesday and Wednesday, and went in and shot the pipes on Thursday. On Friday, everything was changed over, and Saturday we pulled everything out."

David Baker

buildings using a big compressor to push the epoxy up. It's like shooting stuff out of a cannon. The coat is gorgeous," he says. "By the time you go up an elevator to the floor above, you have a nice coat at the top."

BIG ACCOMPLISHMENTS

On another project, the crew lined a 90-foot sewer line in the basement of a 300-unit retirement center. Lining the extensive network of 8-inch sewer lines in the center's basement had daunted some other plumbing companies considering the job. The possibility of stressing the center's senior population during an intrusive plumbing repair project had further heightened contractors' concerns. In the end, Baker's crew did the job without any trouble.

"We came in on a Monday, cleaned the pipes on Tuesday and Wednesday, and went in and shot the pipes on Thursday. On Friday, everything was changed over, and Saturday we

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pulled everything out," Baker says.

He makes it sound simple, but in the course of the week some 240 gallons of resin were used to impregnate the LMK Technologies CIPP liner. Equipment from United Rentals was used to provide bypass pumping, and a jetter from Mongoose Jetters by Sewer Equipment and vacuum unit from Vermeer were moved to the work site for the cleaning and lining stages of the restoration project.

Restoration of the sewer line was all accomplished with virtually no disruption in the rhythm of retirement center life, Baker says. "If we hadn't had a pumper in the parking lot, they never would have known we were there.

"It is exciting to me that we can go out into the community and accomplish jobs like that." **c**

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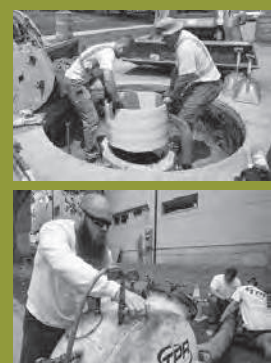
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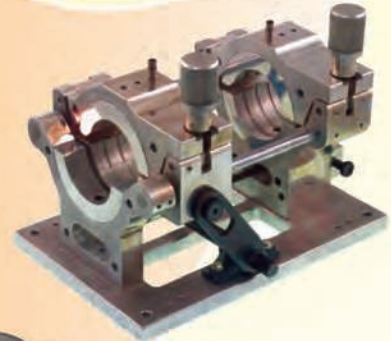


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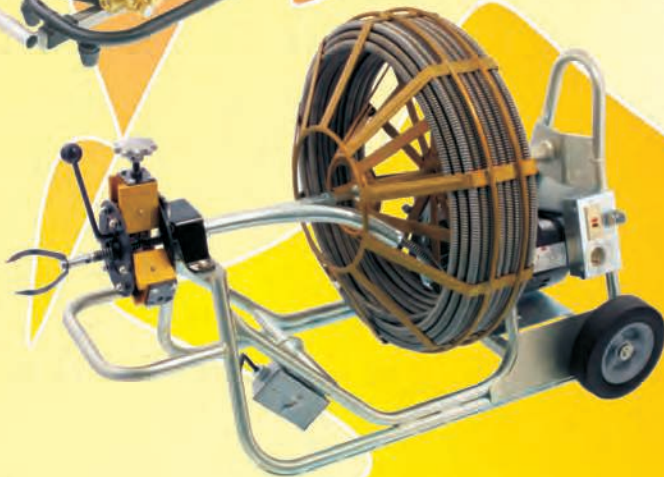


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Slow Payments Present a Big Risk

Read the details in commercial contracts and keep enough coin in the piggy bank for common cash-flow issues

By Neil Feldman

Maintaining cash reserves and cash flow are challenging for many contractors, particularly those working in the commercial arena, where payment is typically issued after the work has been performed.

The waiting is the hardest part, as general contractors and property owners can take 45 to 60 days or more to issue payment. Meanwhile, payroll needs to be issued weekly or biweekly and your vendors often refuse to wait more than 30 days to receive their money. So managing all this can be taxing.

But, according to construction industry experts, lackluster project management and failing to be in front of the fine details associated with commercial work is a major contributing factor impacting cash flow and, thus, cash reserves for cleaning contractors.

“General contractors are programmed to withhold money from subcontractors if everything is not done just right,” says Fritz Marth, senior managing consultant at Greyhawk, a New Jersey-based project management and consulting firm. “On public projects in particular, there’s normally a substantial amount of paperwork, and having a firm grasp on the flow of the paperwork and the timeliness of submitting it is important to timely payments.”

STAY ON THEIR CASE

Even if contractual paperwork is submitted appropriately and timely, it is wise to follow up in writing after each submission to ensure the general contractor or property owner has received it and it is complete. Having everything documented protects you should a customer come back subsequently and say they didn’t receive something in a timely order.

Commercial projects typically have the same due date each month for invoices. If a document is missing or wasn’t submitted on time, you run the risk of missing that month’s cycle and not receiving payment for another 30 days.

While the paperwork requirements vary from project to project, typical required documents include the signed contract or purchase order, insurance forms, schedule of values, submittals, schedules, lien releases, warranty documents, and labor rate forms.

Ensuring projects are complete and punch list items are promptly addressed is critical to maintaining healthy cash flow. “Contracts in the

construction industry are written largely to protect and benefit the general contractors issuing them,” says Tina Ray, project manager at Amento Group, a Seattle-based construction industry consulting and dispute resolution firm.

“Many contracts are written such that a substantial amount of money can be withheld if the work to be invoiced is not fully complete.” What that means, Ray explains, is that a lot more than 1 percent can be withheld if 99 percent of the work is complete. “It’s important to understand the contract terms and conditions when it comes to payments and substantial completion so you don’t get caught by surprise when it comes to release of funds.”

ROOM TO NEGOTIATE

Working with a small group of suppliers and maintaining good relationships is another way to help cash flow. While standard terms from most suppliers and manufacturers are net-30, some suppliers and manufacturers will work with you and be flexible if you are a loyal customer. Fostering a good, lasting relationship with both sales and credit reps can help substantially when negotiating more flexible terms. The objective, naturally, is to pay vendors once your payment has been received on that particular project.

Subcontracts and purchase orders are written with terms and conditions that help general contractors, but there’s often room to negotiate to help with cash flow. When evaluating a new contract, Seth Schimmel, a Tampa, Florida-based construction law attorney with Phelps Dunbar, advises focusing on a couple of terms and not redlining every item you have a small issue with. “If you start bringing up too many issues, general contractors are going to be less likely to work with you because a lot of subcontractors are willing to take on a substantial amount of liability,” he says. “But if you carefully address a couple of items, then most general contractors will be open to work with you if you are competitive and have a good reputation.”

One item Schimmel suggests trying to negotiate on commercial contracts is retainage, the contractual term that withholds a portion of each progress payment earned by a contractor until a construction project is complete. Retainage is calculated as a percentage of each progress payment, typically 5 to 10 percent. The problem, however, is loose ends on a construction project can remain untied for months, and that can hold up retainage payments for every contractor working on the project.

“It’s typically better to take a few points less on the overall contract than it is to get a higher number but have retainage included,” Schimmel says. Retainage of 10 percent can equate to 30 or 40 percent of the profit,

“You need to be able to maintain payroll and sleep well at night in the event a big customer doesn’t pay your invoice or sales decline considerably during a recession.

Unexpected events are not uncommon, and a sufficient reserve will help you weather the storm.”

Tina Ray



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and then you have to devote time to following up and chasing down that money. It puts you in a better cash flow position normally to give up a couple percentage points to ensure the full invoice will be paid when it's due.

A COMFORTABLE CUSHION

A healthy cash flow is directly related to the amount of cash reserves a given business needs for a comfortable cushion. While there is no hard and fast rule to determine the magic number, it's a good idea to strive for a six-month reserve to account for industry volatility and payment delays.

"You need to be able to maintain payroll and sleep well at night in the event a big customer doesn't pay your invoice or sales decline considerably during a recession," Ray says. "Unexpected events are not uncommon, and a sufficient reserve will help you weather the storm long enough to make appropriate adjustments to your business."

Relying on a line of credit to maintain basic obligations like payroll and vendor payments is a red flag that a company is not in good financial health. "A line of credit should never be a go-to tool for keeping the lights on," she says.

At the same time, there is a point where a company can have too much in cash reserves and that's not wise either. In general, liquidity that exceeds a reasonable safety net won't hurt the business, Ray says, but she has seen companies flush with cash also overspend. She notes large sums of cash sitting on the sidelines for extended periods won't help a company grow because some capital should be invested in the business.

"It's a delicate balance between having a good safety net of cash and having too much capital," she says. "Often only the business owner and senior management really know where that sweet spot is." **c**



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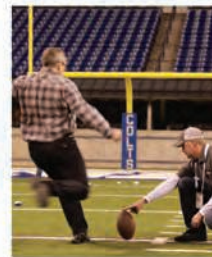
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The Best Machine for the Job

Despite industry trend toward drum machines, there's still a place for sectionals

By Jared Raney

A drain cleaning machine is the most essential asset a cleaner possesses, but it also brings with it one of the most polarizing issues in the industry: drum versus sectional.

"As you talk to contractors, you'll find they're very committed to a style. They don't want to change," says Marty Silverman, vice president of marketing for General Pipe Cleaners/General Wire Spring. "Oftentimes trying to convince someone to change is like trying to change someone's religion."

But when you look at the benefits of each piece of equipment, each has benefits depending on the situation.

While sectional machines are lighter and offer stronger performance on long runs, drum machines are simple and versatile packages.

"There are advantages of each, so I see why some people like one style and some people like another," Silverman says. General Pipe Cleaners offers both drum and sectional machines. "It's just a different way of clearing the lines. Both do a good job of clearing the line; each has advantages on what it'll do."

JOBTYPE

Silverman says he would ask someone what types of jobs they plan to do before recommending which machine they should use. "Both machines can handle roots and heavy stoppages. Both are very good at that," he says. "It really comes down to the length of the line that has to be cleared. A sectional does a much better job on particular applications, especially long runs."

Drum cables are enclosed and must be pushed through the line, while sectional cables are open-coil springs — the coil acts almost like a screw, actually pulling the cable forward on its own.

Most drum-style machines have the option for an automatic feeding system, but even that isn't a silver bullet.

"You're going to get yourself in trouble if you don't realize you can only feed the cable forward as fast as it's moving through the line. If you push it in too fast, it'll tangle up," Silverman says. "Even with automatic-feed drum machines, there's a certain learning curve to make sure you do it right."

JOB CONSTRAINTS

A job is as much about where the drain is located as it is about what's in the line. While sectional machines work fine outdoors and in applications where space isn't an issue, drum machines take the edge in tight spots where even 4- or 8-foot cable segments are difficult.

"We like the drum machines versus the sectionals. I've used them both. They both work well, but I prefer drum because so much of our work, half of our work I'd say, is inside," says Hugh McLaughlin, owner of Quality Drain Service in Tucson, Arizona. "When you're trying to do a sectional machine in somebody's kitchen or right outside their bathroom in the hallway, they tend to be a little bit messier. I think outside they're fine, but when you've got to go inside a house or inside a restaurant, working with the sections is a little more involved.

"The setup is almost instantaneous with a drum machine versus a sectional machine. There's a bit of involved setup to get the sectional in place and start working with it."

CONTINUED >>

"There are advantages of each, so I see why some people like one style and some people like another. It's just a different way of clearing the lines.

Both do a good job of clearing the line; each has advantages on what it'll do."

Marty Silverman



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⚡ Whether it's residential or commercial, indoor or outdoor, basement or rooftop, the bulk of your cleaning work will determine which machine fits the bill.

» While drum machines require some extra maintenance because water and grime pool in the drum, the benefit of keeping that mess internal is making less of a mess in the customer's home.

Both machines come in a variety of sizes and models, but even the largest drum machines can be more maneuverable than sectional machines.

"The advantage of drum-type machines is you have everything in one package," Silverman says.

That being said, there are also locations where the all-in-one system is a detriment, such as rooftops of multistory buildings. Because sectional machines come to the job site in parts, the machine itself is lighter for lugging up stairs, and breaking the weight up can sometimes be easier.

Drum cables are about a pound a foot, so a hundred-foot drum can be weighty cargo. If you know you only have 20 feet to clean, two 10-foot cable sections are lighter than having to carry the whole drum.

MAINTENANCE

"Cables are made of steel; they go in the water; they're going to rust. So this applies to both — that you want to keep the cables clean and oiled. A light-grade motor oil will do to keep the rust from developing," Silverman says.

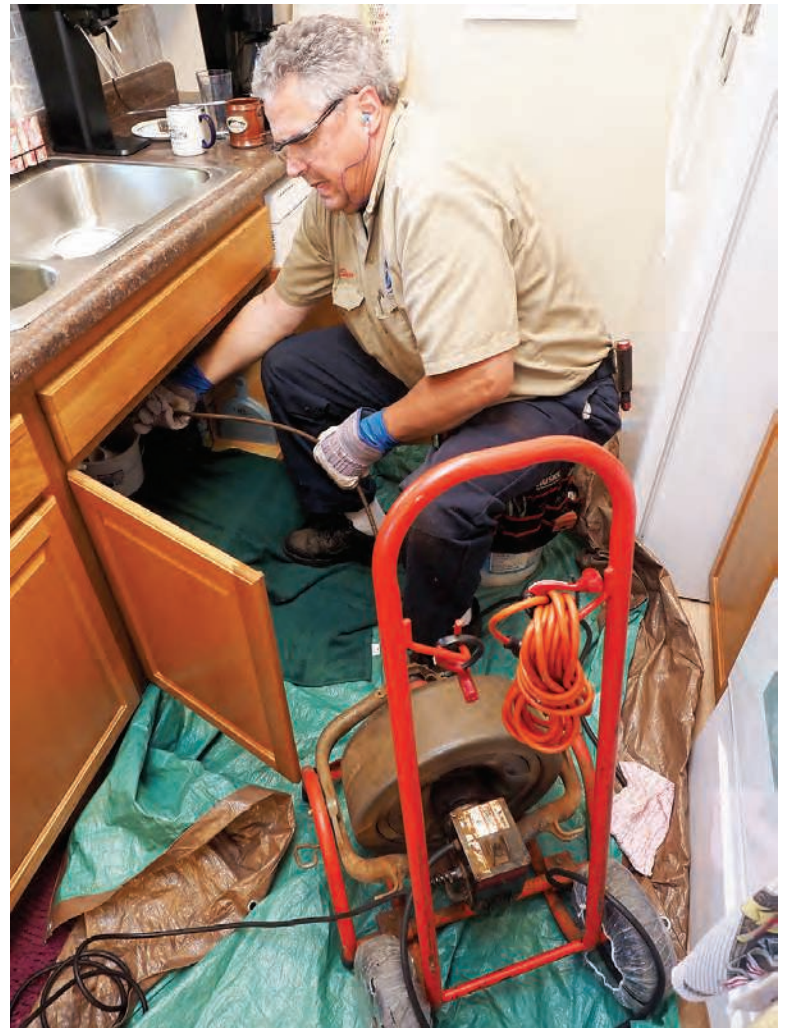
General Pipe Cleaners and most other manufacturers carry special rust-inhibiting oil products designed for this application.

"Drum machines have an additional issue that the water will pool at the bottom of the drum, from the cable. So it's even more important to put the oil in the drum and spin the drum a few times to get the whole thing lubricated, to keep the cable from rusting, and to help the drum last longer as well," Silverman notes.

Because they are enclosed along with much of the water and grime from the traps they clean, drum cables can have more issues depending on the use.

"If you're a company that uses it once in a while, maybe once a week or once every couple weeks, yes, you need to stretch the snakes out and loosen them up and oil them. Otherwise they will start to form in their coiled position," McLaughlin says. "Our snakes get used 15 to 20 times every single day, six days a week, so they're really just routine maintenance items."

By that same token, the benefit of drums keeping the mess internal is that they decrease the chances of splattering muck in a customer's home.



REGIONALITY

Preference and benefit can vary by region as well. For example, Florida doesn't have many basements, so accessing roof drains is often necessary.

"It's a lot easier to carry a sectional machine up on the roof than it is a drum-type machine. So there's a lot of popularity in that area," Silverman says. "There are certain parts of the country where sectional started many years ago, and then they kind of got used to that style as their first drain cleaning machine and stick with it, so that's the reason they might have that design."

Often this is also the deciding factor for many contractors: Whatever they were trained on tends to be the equipment they gravitate toward. McLaughlin was an exception, switching to drum machines after learning on sectionals. To a large extent, it comes down to what a particular contractor or operator is comfortable with.

COMFORT

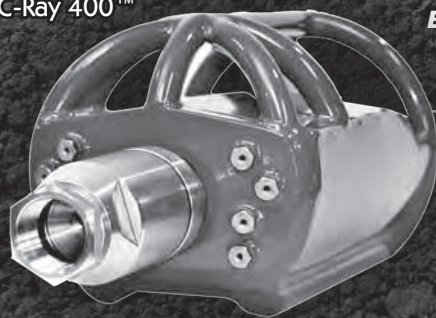
"When I first started working with drum machines, I felt personally it was so much easier to operate, so much easier to manipulate through a house, but I have other friends who are in my industry who have used both, and they're really sold on the sectional machines," McLaughlin says.

"I like the clean efficiency of the drum machines. I just find that when you're unlogging a drain in a customer's home, it can be a messy situation to begin with. I don't think that the drum machine adds to the messes, whereas I think a sectional can contribute to more mess."

On the whole, either machine could probably be used with varying effectiveness in just about any scenario, so it's not just about the job, it's also about the operator.

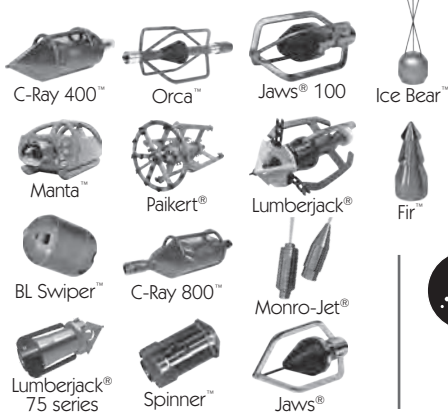
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“It’s just a matter of what method you’re accustomed to,” Silverman says. “Now, we have seen a gradual shift from sectional toward drum-type machines across the industry. Some manufacturers that made nothing but sectional machines years ago now make both styles to address the market.”

“If you don’t have an allegiance or experience with one style versus another, the industry has shown that people tend to go toward the drum-type machines, as just being more compact. Usually people starting out without a preference will lean toward the drum machines.”

CONSIDER YOUR OPTIONS

It’s important to take all factors into account when buying a big piece of equipment, including the state of your business.

“If you’re just trying to get started on a wing and a prayer, buy whatever you can afford,” McLaughlin says. “If you’re in it for long term and you have the money, buy once, buy right. Buy the better-quality equipment.”

Whether it’s residential or commercial, indoor or outdoor, basement or rooftop, the bulk of your cleaning work will determine which machine fits the bill.

“It’s asking what kinds of jobs you anticipate doing, before you decide which kind of machine to buy,” Silverman says. **c**

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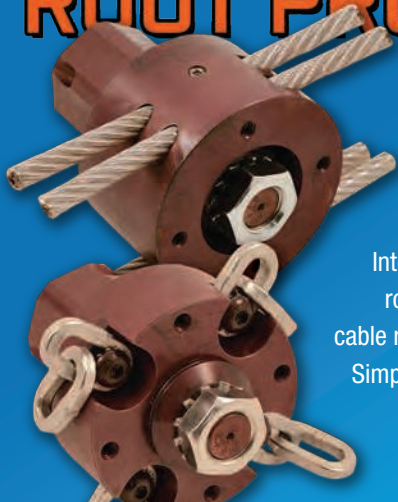


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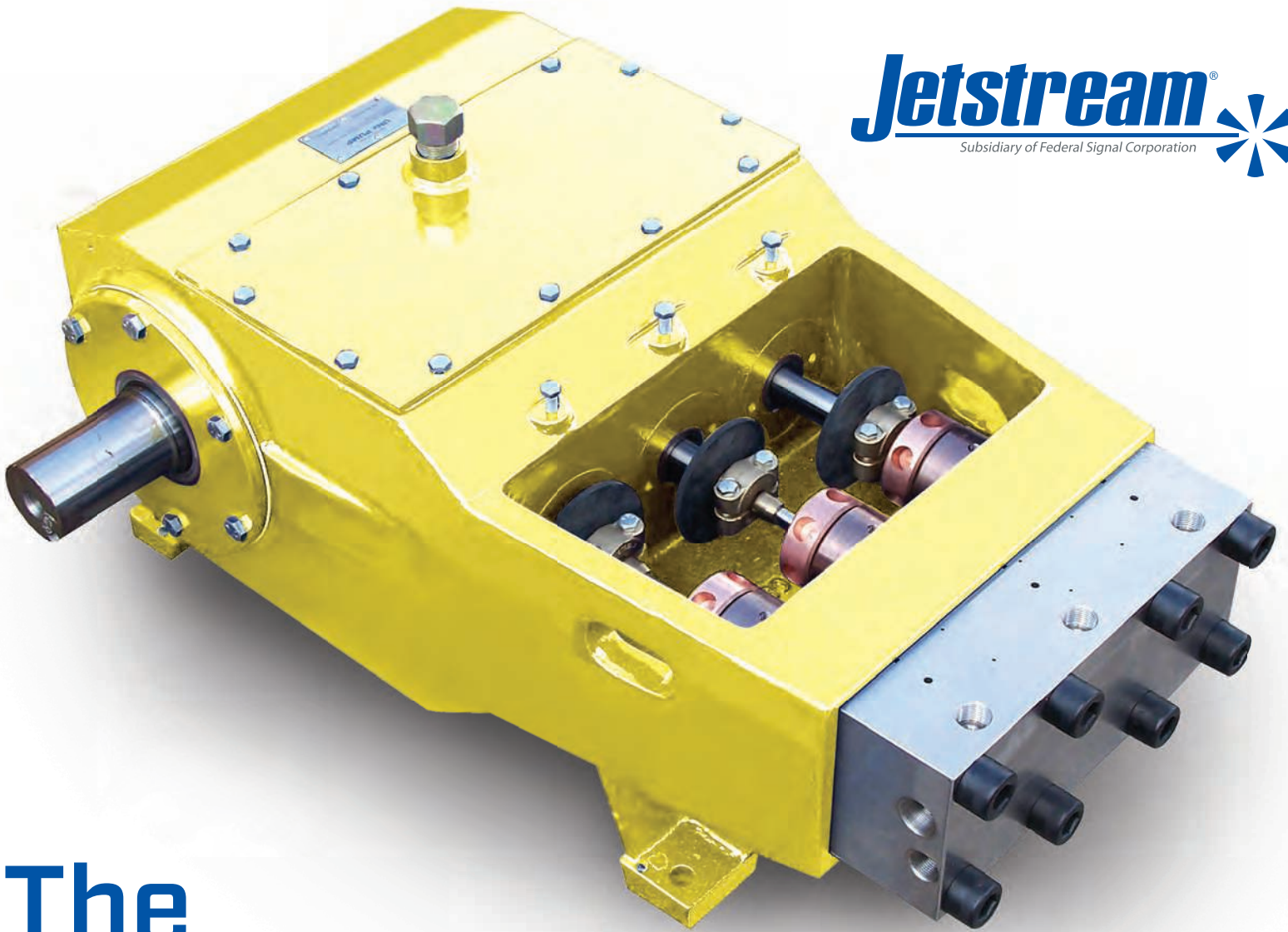
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Annual Reviews Aren't Enough Anymore

Frequent conversations with employees about performance and plans for the future will help your company

By Kate Zabriskie

Not so long ago, most people in the workplace received feedback once a year during a performance review. An employee didn't expect a development plan, a career track, or anyone to take an interest in his or her professional growth. That responsibility was often a solo activity. In fact, as recently as a couple of decades ago, there wasn't a great deal of help on the road to career success, and most people didn't complain. It simply was what it was.

But times change, and norms evolve. The practice of once-a-year feedback is fast becoming an anachronism and out of place in the modern business setting. The reason the average worker has evolved to expect a steady diet of attention and conversation is debatable and perhaps worth

scholarly inquiry. In the meantime, however, a demand for dialogue exists and must be answered.

So, why should sewer and drain cleaning company owners and managers take action? What does it take to establish and maintain an ongoing give-and-take? How can you balance the constant conversation with their own workplace responsibilities?

For some, accepting the new reality means moving past the fact that they came along when life was hard. Sorry, it's time to get with the times, and get over it. Practices have evolved. First-class organizations have career paths, they invest in employee development, and managers engage

Very little builds engagement as well as a manager who seems to genuinely care for people, promotes their success, and has the ability to develop them.

This is not an annual affair.

in regular dialogue with their employees. Bottom line: If you want a top-notch worker, you better start acting like you know what to do with one.

START TALKING

Once you've bought into the notion that routine conversation is a must, the next step is knowing how to guide interactions. First, take an interest. Very little builds engagement as well as a manager who seems to genuinely care for people, promotes their success, and has the ability to develop them. This is not an annual affair. Rather, you've got to have a range of formal and informal conversations throughout the year. To get started, ask questions, and pay attention to the answers.

"What are you working on that's exciting to you?"

"What aspects of your job do you enjoy the most?"

"If you could eliminate parts of your work, what would you stop doing?"

"If you could try something new with limited chance for failure, what risks would you take?"

"Tell me a little about what first attracted you to this job. Has anything changed about how you feel about your work here?"

"How do you feel about our interactions? Do I give your development the right amount of attention, and do you receive the right amount of feedback?"

There is no limit to the questions you could ask. The key is showing a sincere interest in the answers, withholding judgment about what you're told, and taking action when you can.

Secondly, be observant. As a manager, your job is to focus on the work that gets done and how it gets done. When you pay attention and are specific with your feedback, you show you've spent time to notice what's working and where opportunities exist. In other words, it's important to communicate to people that they matter to you.

FINDING THE TIME

There is no clock fairy or magic solution to time management and fitting feedback and development conversations into a regular workload. It's an effort that requires discipline. To ensure planned dialogue happens, you need to put formal meetings on a calendar, schedule them at regular intervals, show up on time, and put the smartphone away.

While increased levels of informal feedback and scheduled conversation can seem overwhelming at first, the more often a manager engages, the easier it is, the franker the discussions become, and the greater the understanding between the employee and the manager grows. **c**

ABOUT THE AUTHOR

Kate Zabriskie is president of Business Training Works, a Maryland-based talent development firm. Reach her at www.businesstrainingworks.com.



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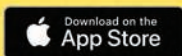


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Wash, Rinse, Recover

Eco-friendly Steel Eagle surface-cleaning machines help New Mexico contractor get the job done efficiently – and profitably

By Ken Wysocky

At A CleanSlate in Albuquerque, New Mexico, crews typically clean anywhere from 800,000 to 1 million square feet of concrete surfaces a month, which provides a compelling case for investing in reliable equipment that makes short work of tough jobs.

That's where Steel Eagle Clean and Capture Systems step in and enhance productivity, as well as recover used water, giving owner Steve Slater an eco-friendly marketing angle to win over water conservation-minded customers.

The company cleans a wide variety of flat surfaces — think gas-station pavement covered with gas, oil, coffee, and soda spills; strip mall sidewalks and parking lots; dumpster pads; and factory floors covered with grease and grime. Other markets include pressure-cleaning vehicle fleets, as well as hood vents in restaurants and other cooking facilities.

“When we're cleaning that kind of surface volume a month, we want to work as fast and efficiently as we can,” says Slater, who established the company in 2003 and serves customers in about a 60-mile radius around Albuquerque. A CleanSlate employs 15 to 20 people and runs three trucks: two GMC 5500 box trucks with 16-foot bodies and a Ford LCF cab-forward 20-foot flatbed truck.

“Whether we're doing flat-surface cleaning or washing some 3,800 vehicles a month ... the Steel Eagle systems make our crews faster and more efficient,” he says.

To clean flat surfaces, the company's crews typically use a 24-inch-diameter Steel Eagle Clean and Capture unit that's powered by a hot-water power washer and connected to



A CLEANSLATE

LOCATION: Albuquerque, New Mexico

MACHINES: Clean and Capture cleaning machines with Fury vacuum units from Steel Eagle

FUNCTION: Flat-surface industrial cleaning

FEATURES: Cleaning units with 24-inch-diameter cleaning paths; dual water jets (4,000 psi at 5.5 to 8 gpm); stainless steel deck; weighs 52 pounds. Vacuum unit equipped with belt-driven Tuthill positive displacement blower (475 cfm) and a MagnaFlow silencer. Hydro Tek - Cleaning Equipment Mfg. SC3500 hot-water pressure washers deliver pressure and flow of 3,500 psi at 5.5 gpm.

COST: Around \$16,000 for 24-inch cleaning machine and 2400SE Fury vacuum unit combined

WEBSITE: www.acleanslatenm.com

➤ The 24-inch-diameter Steel Eagle Clean and Capture systems aid A CleanSlate crews in recovering dirty water so it doesn't run off into stormwater drains during cleaning jobs.

◀ A CleanSlate technician Chris Chavez with one of the Steel Eagle Clean and Capture units connected to a Fury 2400SE vacuum unit.



“Whether we’re doing flat-surface cleaning or washing some 3,800 vehicles a month ... **the Steel Eagle systems make our crews faster and more efficient.**”

Steve Slater

a Steel Eagle Fury 2400SE vacuum unit. The company relies on six SC3500 hot-water power washers made by Hydro Tek - Cleaning Equipment Mfg. (3,500 psi at 5.5 gpm).

The Steel Eagle systems ensure that crews can wash, rinse and instantly recover dirty water so it doesn’t run off into stormwater systems. This helps the company bid on jobs that require water recovery. The system recovers 98 percent of the water used, according to the Steel

Eagle website. The water usually is pumped into a 300-gallon holding tank (located in a service truck), then put into sanitary sewer lines for municipal treatment, Slater says.

The Clean and Capture tool looks similar to a very thin lawn mower. It comes in three cleaning-path diameters — 24, 16 or 11 inches. The deck is made of stainless steel with a powder-coated finish. Water flow is controlled by a trigger on one of the unit’s two handles.

Through two jets on the underside, the units deliver maximum pressure of 4,000 psi with flow ranging from 5.5 to 8 gpm, depending on the cleaning-path diameter. The largest machine weighs 52 pounds; the smaller units weigh 35 and 14 pounds, respectively.

The Fury vacuum unit is compact, but powerful and features a belt-driven, positive displacement Tuthill blower (475 cfm), equipped with a MagnaFlow silencer, and a 50-foot vacuum hose. The heavy-duty frame measures 25 by 36 by 29 inches.

Slater first heard about the Steel Eagle system a couple years after he started his business. He concedes he was a bit skeptical, but was quickly won over by the performance of the first unit he bought. The company now owns six cleaning units and three Fury vacuum units, with two more complete systems on order, he says.

“We love the fact that the recovered water goes through a 55-gallon primary separation tank, where solids fall to the bottom,” he explains. “Then the water gets skimmed off into another filter-bag system, then immediately pumped into a 300-gallon holding tank. So the water gets skimmed and filtered twice.”

Much of the company’s work is contractual in nature, typically requiring weekly, biweekly, monthly or quarterly cleaning. To sell customers on the company, its employees, and equipment, Slater takes the somewhat unusual step of inviting them to the company’s headquarters for an equipment demo and to meet employees and tour the facilities. “They get a sense for our reliability through the equipment we use,” he notes.

Moreover, when customers see the entire scope of the company’s operation, including the investments in equipment, they better understand its rate structure. “We’re not the cheapest and we don’t want to be,” Slater says, noting that all three machines in the system — the power washer,

cleaning unit and vacuum unit — operate on either diesel fuel or gasoline, which adds cost to projects. “But by the time we’re finished showing people around, most clients understand our process. They see why it costs more money to operate our business this way.”

Reliable equipment is critical to the company’s profitability. Slater often runs crews on three shifts a day, seven days a week. “A Fury might run for 12 hours a day,” he says. “Our equipment has to be operational for the next crew, so reliability is key.” Employees perform oil changes on a weekly basis, which helps keep the units up and running smoothly. And when issues arise, Steel Eagle machines are simple to work on, Slater adds.

“I need professional-grade equipment where you turn the key and it fires up and runs efficiently, as designed,” he concludes. “Our Steel Eagle equipment allows us to service clients more quickly and get more jobs done per week.” **C**

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CIPP Lining Methods and Projects

By Craig Mandli



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HYDROEXCAVATION

1 / DITCH WITCH HX30

The **Ditch Witch HX30** vacuum excavation trailer offers a 24.8 hp Kubota diesel engine designed for performance and productivity on midsized potholing, soft-excitation or cleanup tasks. The low-profile machine reduces unit height without compromising ground clearance. It is available with a 500- or 800-gallon debris tank and in a light or heavy version. Also available are advanced optional boom designs to improve ease of use. With advanced sound-reducing technology, it creates minimal disturbance in noise-sensitive areas. An optional reverse-flow feature allows quick and easy spoil off-loading for improved productivity. **800-654-6481; www.ditchwitch.com.**

2 / ENZ USA CUTTING BALL

The water-driven cutting ball nozzle from **Enz USA** is available in 3- and 4-inch sizes; and it can move easily around curves in 3- to 6-inch polyethylene, steel or concrete pipes while safely removing roots and mineral deposits, resulting in no damage to the pipe. It works without impact but has the ability to switch to a vibrating nozzle. It comes with a hard metal front blade for pipes that are more than 50 percent clogged. The side blades are self-sharpening and maintain their sharpness over their entire service life. The cutting ball operates with controlled rotation speed and is capable of running on recycled water. It is leak-free. **877-362-8721; www.enzusainc.com.**

3 / GAPVAX HV33

Designed to safely transport water and debris in urban areas, the **GapVax HV33** is shorter, smaller and more compact than its predecessor. It is 30 feet long overall on a medium-duty chassis and includes a 600-gallon water tank, 6-cubic-yard debris body, a 14- to 17-foot 6-inch boom in

8 or 6 inches, 4,000 cfm of power, and an inverted full-opening tailgate. **888-442-7829; www.gapvax.com.**

4 / HYDRA-FLEX RIPSAW

The **Ripsaw** rotating turbo nozzle from **Hydra-Flex** blasts a 0-degree water stream at up to 3,200 psi while rotating at a high speed to provide an 18-degree cone of coverage. Its cone-shaped flow pattern is ideal for potholing applications. The heavy-duty, high-impact nozzles are constructed with stainless steel housings and tungsten carbide wear surfaces to withstand harsh environments and provide long life. Repair kits are available. Select from traditional coating (blue) or upgrade to the heavy-duty coating (green), a formulation designed for use in extreme environments. Greater impingement allows users to complete jobs faster or use a smaller nozzle size while getting the same impact as nozzles with higher flow rates. **952-808-3640; www.hydrflexinc.com.**

5 / NOZZTEQ MONRO-JET

The **MONRO-JET** hydroexcavation nozzle from **NozzTeq** combines the power of a solid-stream pencil jet with the large coverage of a fan jet, according to the maker. An orbital design increases performance at a lower gallons-per-minute rate and pressures as high as 36,250 psi, allowing the operator to move faster when hydroexcavating, surface cleaning or cleaning sewer lines. It can be used for other types of surface cleaning such as concrete, steel, castings and large surface areas including line removal from runways. It can be modified for internal cleaning of sewers and pipes of all types. **866-620-5915; www.nozzteq.com.**

6 / RIVAL HYDROVAC T7

The **T7** from **Rival Hydrovac** is a road-legal unit engineered to work primarily in urban settings. It offers a 7-cubic-yard debris body, 800 gallons of freshwater storage, and hoist and “pressure off” off-loading capabilities,



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allowing it to pressure loads into other vessels, vehicles, or tanks in minutes, according to the maker. Its RAPTORLOCK dump door system allows the door to hold a seal under vacuum or pressure without use of manual wing nuts. It includes a Robuschi USA ROBOX enclosed blower system with quiet operation and 2,650 cfm at full vacuum. It comes with a 12-volt boiler system, 14 gpm water system and winterization features. Its 6-inch boom offers full rotation and is extendable to 20 feet. An Aarcomm Systems remote system controls the boom, water, and vacuum, and it displays real-time truck weight. A full safety package includes a safety railing atop the truck, engineered D-ring tie-offs, and boom cradle sensors to prevent driving with the boom deployed. 403-550-7997; www.rivalhydrovac.com.

7 / SOIL SURGEON HYDROEXCAVATING TOOL

The **Soil Surgeon** hydroexcavating tool fits any sewer combination truck equipped with a telescoping 6- or 8-inch boom. The tool has a 1-inch water connection. The operator controls water pressure and power through truck controls. It has a 6-foot Tuff Tube with handles to guide the unit down for potholing or side to side for trenching. Six jets boring inward cut the soil, while six boring outward bring the tube down. 949-363-1401; www.soilsurgeoninc.com.

8 / STONEAGE HXR-300 ROTARY HYDRO-X

The **HXR-300 Rotary Hydro-X** nozzle from **StoneAge** uses an angled rotating jet pattern that's designed to decrease jet dwell time and reduce undercutting for effective work around utilities. Users can save labor hours and heavy-equipment costs, all while avoiding the risk of damage to buried utilities. It is fully rebuildable, allowing the operator to reduce cost of ownership by extending the life of the tool with minimal, low-cost maintenance. There are three jetting options available for a variety of applications: higher flow for harder surfaces, intermediate flow for general use, and lower flow for water savings. It handles pressures up to 5,000 psi and flow rates from 3.5 to 10 gpm. 866-795-1586; www.stoneagetools.com.

9 / SUPER PRODUCTS MUD DOG 1200

The **Mud Dog 1200** 12-yard-debris-capacity hydroexcavator from **Super Products** has a rear-mounted boom capable of a 19- to 27-foot reach,

335-degree rotation, 45-degree upward and 25-degree downward pivot. This range of boom motion allows crews to achieve greater work area access and deeper digging without halting production to reposition the trunk. Easy-to-use ejector plate unloading technology provides fast, thorough and safe debris removal, according to the maker. A tilt-unloading feature ensures liquids in the debris tank are cleared efficiently, even when unloading in an up-slope/nose-down position. Options include the Acculevel load-sensor system for precise debris tank level measurement. 800-837-9711; www.superproductsllc.com.

10 / SUTTNER AMERICA 1/2-INCH INLINE HYDRO EXCAVATION SPRAY GUN

The **1/2-inch Inline Hydro Excavation Spray Gun** from **Suttner America** has a horizontal flow-through design and an impact-resistant trigger guard. It offers flow ratings up to 16 gpm and pressure ratings up to 3,200 psi. 800-831-0660; www.suttner.com.

11 / TORNADO GLOBAL HYDROVACS F4 ECOLITE

The **F4 ECOLITE** from **Tornado Global Hydrovacs** has a 12-cubic-yard mud tank and holds 1,400 gallons of freshwater. This unit is over 7,000 pounds lighter than the company's older models and offers more than double the payload. The boom has a 342-degree rotation and a 26-foot reach. The smaller **F3 ECOLITE** is a 10-cubic-yard, 1,200-gallon tandem-axle unit that also more than doubles older payload capacities. It features an 8-inch boom and a 3,800 cfm blower. 877-340-8141; www.tornadotrucks.com.

12 / VAC-CON X-CAVATOR

The **X-Cavator** from **Vac-Con** is designed to be powerful, durable and easy to operate. It features a hydrostatic drive that uses the chassis engine for the vacuum, creating a more efficient system that eliminates the need for power takeoff, clutch and gearbox operation. It is available with water systems up to 4,000 psi and a mobile, wireless remote-control system controlling chassis engine revolutions per minute, boom, automatic vacuum breaker, dump controls and hydraulic door locks from up to a half-mile away. The boom rotates 270 degrees. 904-284-4200; www.vac-con.com.



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13 / VACALL - GRADALL INDUSTRIES ALLEXCAVATE COLD WEATHER PACKAGE

Vacall - Gradall Industries offers a step-in compartment on its AllExcavate hydroexcavators to provide operators with warmth and protection from inclement weather. The standard heated compartment has enough space for an operator to change out of wet and muddy boots and clothing. The compartment has floor drainage, racks to hang dry clothing and another rack to store the high-pressure handgun and extensions. Larger compartments with extra room are available. Along with new LED lighting, the cold weather package includes extra insulation, heated cabinets for the hose reel and water pumps, and boilers that can heat water for more effective hydroexcavation in frozen ground. 330-339-2211; www.vacall.com.

14 / VACTOR HXX QX

The Vactor HXX QX vacuum excavator offers improvements in payload capacity, weight distribution, operation and performance. The placement of the debris body and water tank on the chassis ensures equal distribution of the payload on the axles, regardless of how much water is in the tanks, according to the manufacturer. Each component is placed to ensure the entire chassis gross vehicle weight rating is used. A PrecisionFlow water pump features a single-piston design. The truck comes with a QuietPak sound-damping system with a Robuschi USA positive displacement blower rated for 6,176 cfm and 28 inches Hg. The system delivers higher airflow and quieter operation, with a decibel rating of less than 90 dBA throughout the revolutions per minute range. It has a Park-N-Dig quick operation design, which reduces setup and tear-down time between jobs, and a 7-inch display with real-time operational and performance information feedback. 800-627-3171; www.vactor.com.

15 / VECTOR TECHNOLOGIES MUDSLINGER

The Mudslinger line of compact trailer-mounted hydroexcavation vacuums from Vac-Con, in cooperation with Vector Technologies, uses a 66.8 hp Kubota diesel engine with a 1,200 cfm at 16 inches Hg positive displacement blower and comes with a 535- or 845-gallon debris tank with 55-degree hydraulic dump hoist and a hydraulic door. The water system is 4 gpm at 4,000 psi with

50 inches of 3/8-inch hose and comes with a 225- or 325-gallon HDPE water tank. A 9-foot boom with 24 inches of hydraulic extension, hydraulic up/down and 270 degrees of manual rotation is also available. It is mounted on a heavy-duty welded tube steel trailer. 800-832-4010; www.vector-vacuums.com.

16 / WESTECH VAC SYSTEMS WOLF

The Wolf noncode hydrovac truck from Westech Vac Systems is designed to work in extreme conditions. The debris body is positioned in the optimal spot of the chassis to ensure the payload is proportionately distributed across all axles simultaneously, maximizing legal payload and improving efficiency, according to the maker. The side-mounted water tanks reduce weight by more than 40 percent, lowering overall cost of the truck. The 1,500-gallon capacity ensures ample water storage for large or remote jobs. A top-mounted, no-touch water fill system is easily accessible from the passenger side of the vehicle. The debris body is lifted using a telescoping, dual-acting hydraulic cylinder capable of 36,000 pounds of force. When fully extended, the debris body exceeds a 45-degree dump angle for efficient off-loading. To help in off-loading, a heavy-duty, hydraulically powered tank vibrator is mounted to the belly of the debris body. 780-955-3030; www.westechvac.com.

REINSTATEMENT CUTTER

17 / CUES KANGAROO CUTTERS

CUES small and large Kangaroo Cutters are designed to reinstate wastewater service laterals, remove protruding taps, and brush-finish existing cuts. The cutters function in a range of 6- through 30-inch pipe, are equally effective in CIPP or fold-and-form liners, and can be installed on any CCTV manufacturer's truck-mounted system. A 0.9 hp air motor for the small Kangaroo Cutter line provides more power, increased productivity and a smoother cut when operating in 8- to 12-inch relined pipe. Kits are available to retrofit existing cutters, and service kits can be purchased for regular maintenance intervals on existing motors. 800-327-7791; www.cuesinc.com.

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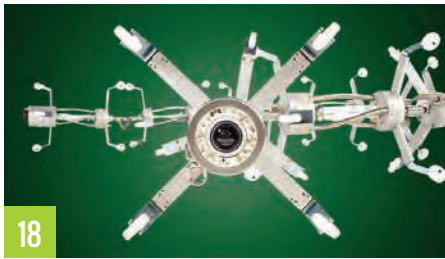
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RELINING AND REHABILITATION SYSTEMS/ACCESSORIES - CIPP

18 / ARIES INDUSTRIES ANACONDA UV CURING SYSTEM

The **Anaconda UV Curing System** from **Aries Industries** provides consistent lining installation, with one-third less curing time than steam-cured processes. CCTV inspection before and during the cure allows any sags and wrinkles to be corrected. UV curing requires less equipment, less setup, and smaller crews, which reduces service disruptions. No hot-water usage eliminates the steam truck for less fuel consumption. Lingering odor and downstream contamination are prevented. Portable UV-curing units are available for 6- to 12-inch-diameter pipe, or a vehicle-mounted system is available for 6- to 60-inch-diameter pipe. **800-234-7205; www.ariesindustries.com.**

19 / AVANTI INTERNATIONAL AV-100

AV-100 acrylamide from **Avanti International** is a chemically reactive gel that has similar viscosity to water. It can permeate anywhere water can travel and has adjustable cure times from five seconds to more than 10 hours. It can be used to rehabilitate and sustain sanitary collections systems by eliminating infiltration in manholes, sewer mainlines, joints, laterals, and before and after various forms of CIPP lining. After lining, the chemical grout can be used to reinstate laterals. It creates an effective, long-lasting water barrier while providing soil stabilization. **800-877-2570; www.avantigrout.com.**

20 / DUKE'S ROOT CONTROL RAZEROOTER II

Diquat-based **Razerooter II** root-control herbicide from **Duke's Root Control** is registered by the U.S. Environmental Protection Agency for controlling nuisance tree roots in sanitary sewer collections systems. It kills roots and eliminates mainline stoppages caused by live tree roots. **800-447-6687; www.dukes.com.**

21 / EASY-KLEEN PRESSURE SYSTEMS DRY STEAM GENERATOR

Dry steam generators from **Easy-Kleen Pressure Systems** are used

for a wide variety of applications. They are extensively used for curing municipal pipes and relining systems with excellent results. They run on a 2 hp, 110-volt electric motor putting out up to 2 million Btus and can be plugged into a generator, maximizing portability. They include all-welded, powder-coated frames, as well as heavy-duty triplex plunger pumps and oil-fired burners, complete with adjustable thermostats. Safety features include electronic thermostats with deviation control, a safety valve and flow control. There are multiple options available, including complete trailer packages. **800-315-5533; www.easykleen.com.**

22 / EMAGINEERED SOLUTIONS THE SHOOTER

THE SHOOTER from **Emagineered Solutions** is a continuous air-inversion machine for CIPP. Two fast and reliable models are available: the mobile SHOOTER 12 with built-in lubrication system and knife gate for after the tail passes for 6- to 12-inch pipe, and the trailer-mounted SHOOTER 24 for 15- to 24-inch lines. An optional conversion kit for the SHOOTER 12 inverts 15-inch liner, and one for the SHOOTER 24 inverts 6- to 12-inch liners using the larger machine. A water-cure flange is also available. The new lubrication system includes an oil overspray guard that keeps operators dry. The fully adjustable, structurally reinforced LIPs are robust and are available in 4 through 24 inches. **541-504-0416; www.theshootercipp.com.**

23 / HAMMERHEAD TRENCHLESS POINT REPAIR KIT

HammerHead Trenchless offers a sectional point repair system for rehabilitating sewer and stormwater pipe with circular or oval cross-sections 3 to 60 inches in diameter. It is an environmentally friendly CIPP point or sectional repair solution available in custom kits based on customers' specific project requirements. The point repair kit offers plumbers and other contractors the important benefit of a longer working time combined with a shorter cure time. The working time of silicate resins is much longer than that of thermosetting epoxies. Resins cure under ambient sewer conditions with very low shrinkage, even underwater. The resin is odor-free, styrene-free, VOC-free and presents no hazards to the environment or human health. **800-331-6653; www.hammerheadshop.com.**

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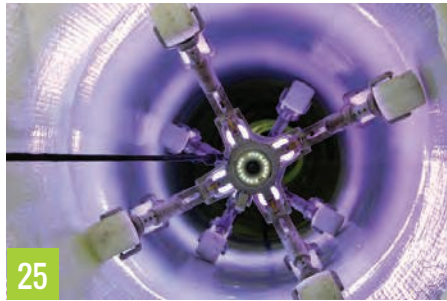
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24 / INFRASTRUCTURE REPAIR SYSTEMS POINT REPAIR SYSTEM

The point repair system from **Infrastructure Repair Systems** is a no-dig, ambient cure, permanent solution to repair any size pipe with minimal interruption of service. The complete, user-friendly point repair kit includes an easy-to-wrap sewn fiberglass and felt liner that stays in place and creates a permanent watertight seal without O-rings. Point repair kits are made to specified lengths, size, and thickness, along with custom transition and elbow kits. It stops root infiltration and seals cracks, leaks, and holes without any shrink or creep over time. It is available in four liner options with pre-measured epoxy formulated for summer or winter environments. 877-327-4216; www.irsi.net.

25 / INLINER TECHNOLOGIES STX

STX UV-light-cured liner from **Inliner Technologies** combines a woven fiberglass tube with a light-cured resin to produce a high-strength product, resulting in a thinner wall design. CIPP from Inliner Technologies allows for the renewal of damaged underground pipes without excavation. Licensees are contracted by municipalities and manufacturing-based industrial facilities to renew storm, waste and process sewer piping that has been damaged by corrosion and/or structural deterioration. The product combines a nonwoven engineered tube or liner with an array of thermosetting resins determined by the pipeline problem and surrounding environment. The technology can span pipe from 4 to 120 inches in diameter; renew pipes with bends, diameter changes or noncircular geometries; and be used in gravity and pressure applications. 812-723-0704; www.inliner.com.

26 / LMK TECHNOLOGIES T-LINER

The **T-Liner** from **LMK Technologies** is a one-piece main to lateral connection system with Insignia hydrophilic gasket sealing technology. It is fully compliant with ASTM F2561, and the full circle CIPP mainline portion creates a 50-year structural repair while the lateral portion simultaneously renews the lateral up to 150 feet. It uses ASTM F3240-compliant Insignia O-ring gaskets at the lateral termination and a connection hat, both made of hydrophilic rubber, at the main-to-lateral connection, creating a long-term watertight seal to match the structural life. This system can be installed with

either polyester or epoxy resin in lined or unlined mainlines. 815-640-9302; www.lmktechnologies.com.

27 / MAXLINER USA APP

The **MaxLiner USA** app is a virtual trainer for technical support on the job site. It includes everything needed in the field to succeed in CIPP relining, including a resin calculator, installation log, estimated cure times, the ability to save and store job data, an install checklist, technical documents for easy reference, and iPhone-enabled Geo Locate. It is available for Android and iOS, and it can help streamline work, saving time and increasing the quality and profitability of jobs. 877-426-5948; www.maxlinerusa.com.

28 / NU FLOW TECHNOLOGIES VERTICAL AND HORIZONTAL CIPP CONNECTION LINER

The **Vertical and Horizontal CIPP Connection Liner** from **Nu Flow Technologies** is designed for vertical and horizontal small-diameter T and Y connections for the most common sizes in the system. It can be easily installed from upstream or downstream access with a two-man crew, allowing rehabilitation of the entire fitting structurally with no worries of reinstating or coating failure. It has a reusable silicone bladder for multiple installations. Installation times are between 1 to 1 1/2 hours per connection, allowing technicians to install six per day. 800-834-9597; www.nuflowtechnologies.com.

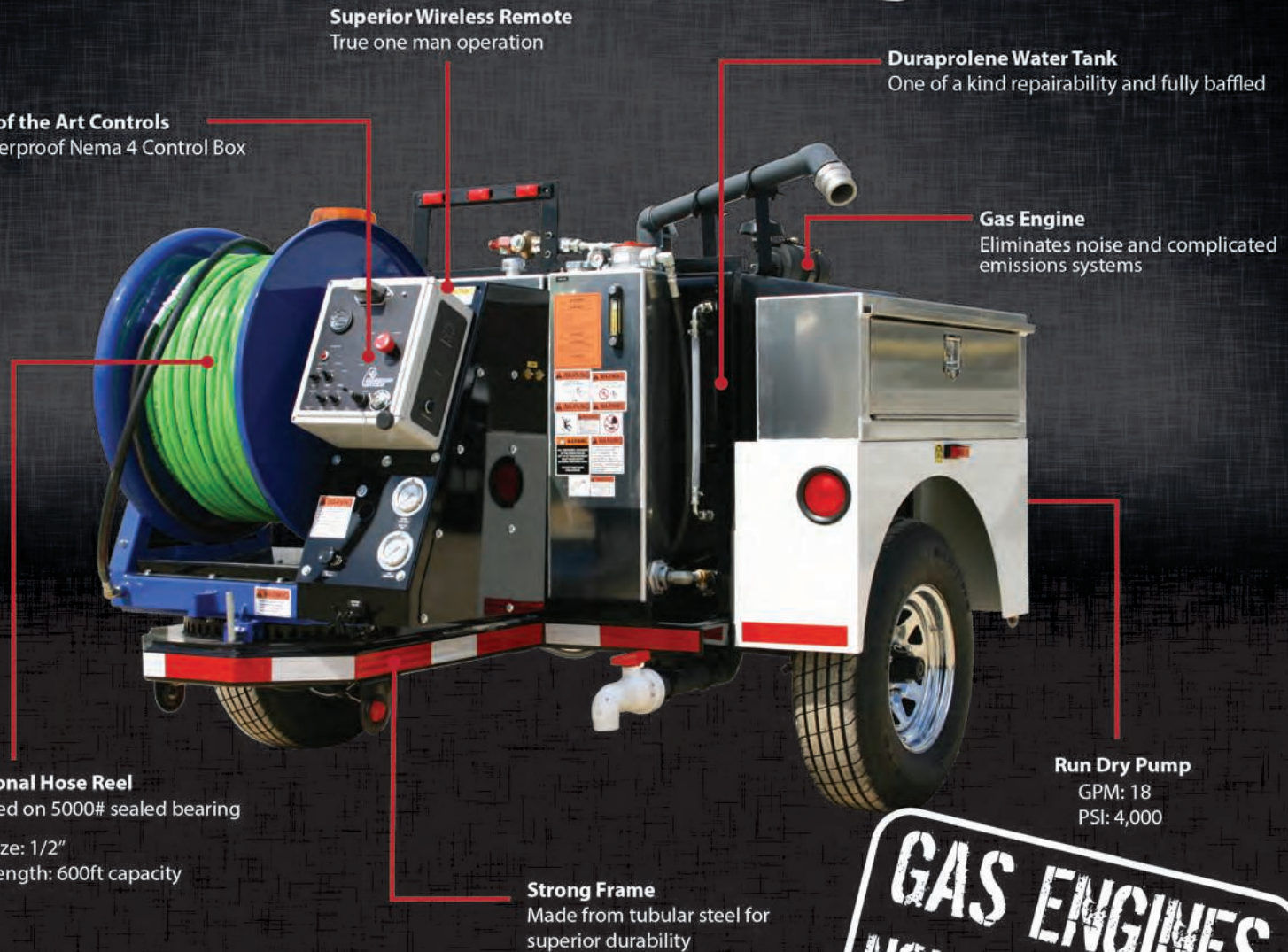
29 / PERMA-LINER INDUSTRIES PERMA-PATCH

The **Perma-Patch** system from **Perma-Liner Industries** can be used to rehabilitate 2- or 4-foot pipeline sections with a local spot repair solution. It uses a fiberglass mat with 100 percent solids epoxy resins, creating a structural repair with a minimum life span of 50 years. The system is sold in a complete kit, so there is no measuring or waste. It is designed for 3- to 24-inch-diameter pipelines with cracks, holes and separation in joints. The repair is inserted into the damaged pipe using an inflatable bladder, pushrod or pull cable. It is centered over the damaged pipe section and pressed tight against the host pipe area, creating a structural new pipe. 866-336-2568; www.perma-liner.com.

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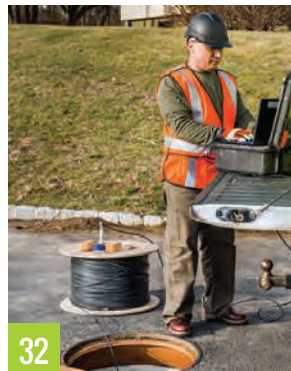
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30 / PETERSEN PRODUCTS MULTI-FLEX CIPP PACKER

Multi-Flex CIPP Packers from **Petersen Products** are available for virtually any diameter and length using ambient, hot water and steam cure. Their small deflated diameter, light weight, and flexibility allow easier installation through small openings and around bends. The fixed inflated diameter independent of the pipeline will bridge across broken sections of pipe for a continuous smooth pipe I.D. They can be ordered with or without a bypass flow-through and can be customized for unique projects to save you time and money, including the use of special materials such as Viton, Kevlar, polyurethane and nitrile. **800-926-1926; www.petersenproducts.com.**

31 / PICOTE SOLUTIONS LINER CANNON

The **Picote Solutions Liner Cannon** is a lightweight, transparent tool designed to assist in the installation of CIPP linings, particularly smaller diameters. The transparent shell allows the user to watch the lining process in real time as it progresses. It uses the Fast Lock System to install liners from 2 to 4 inches in diameter. The single Cannon inversion kit includes multiple inversion heads and a Fast Cap to cover the varying-diameter installations. For particularly tight spaces and shorter liner lengths, the Cannon Mini is also available. Both systems are constructed using heavy-duty polycarbonate and aluminum and are safe to use, with two independent pressure release systems and a maximum operating pressure of 29 psi. **219-440-1404; www.picotesolutions.com.**

32 / PIPELINE RENEWAL TECHNOLOGIES VERICURE

VeriCure from **Pipeline Renewal Technologies** monitors cure temperature continuously along a CIPP liner during installation to ensure a complete cure every time. Designed to distinguish localized thermal variations, it takes readings every inch and averages into 18-inch measurement zones — a spatial resolution at least seven times that of other technologies. The accompanying software is tailored to CIPP professionals, delivering real-time data to help control cure for maximum quality and efficiency and summarizing the completed process, making it easy to document successful installation for the asset owner and consulting engineer. With its unobtrusive 3 mm probe, this technology preserves a liner's flow characteristics while providing necessary temperature

data to ensure a complete, long-lasting cure. It makes it affordable to prevent lifts, delamination, over-tensioning, and environmental contamination and leaves users confident that the host pipe is rehabilitated to specification and performs as intended. **866-936-8476; www.pipelinert.com.**

33 / TRELLEBORG PIPE SEALS DRAINPLUS 2.0

Drainplus 2.0 liner from **Trelleborg Pipe Seals** is designed for rehabilitation of pipes with bends and variations in internal diameter. It has the ability to negotiate multiple 90-degree bends and overcome two changes in internal diameter. For example, the 4-inch liner has the ability to expand to 6 inches while still maintaining the required minimum 3 mm wall thickness — without any fins or wrinkles. The silicone coating provides high temperature resistance, and when used in combination with a range of epoxy resins, it can be steam cured without the need of calibration hoses. This allows fast processing time, so the installer can achieve maximum productivity while ensuring the highest quality in terms of mechanical properties and required design wall thickness. **800-626-2180; www.trelleborg.com.**

34 / WINCAN REHAB PLANNING MODULE

WinCan's Rehab Planning Module helps supervisors make informed rehab decisions based on systemwide inspection data. It can help easily identify the areas most in need of rehab, plan and budget projects, assign work orders, and track progress. The process is simple: Build a price catalog for regionally available rehab methods, then quickly determine the best return on investment based on the maintenance budget and condition of the collections system. It also allows for grouped work order assignment. When performing CIPP lining, individual steps may include obstruction clearing, jetting, traffic diversion setup, lining and curing, and service reinstatement. Each step can be budgeted and assigned with the click of a button, saving time and streamlining planning. It also interfaces with ArcGIS mapping software and native WinCan maps, so municipalities can visualize their rehab strategy options, communicate them to others, and understand how physical surroundings affect their rehabilitation efforts. **877-626-8386; www.wincan.com. C**

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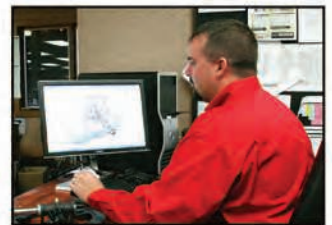
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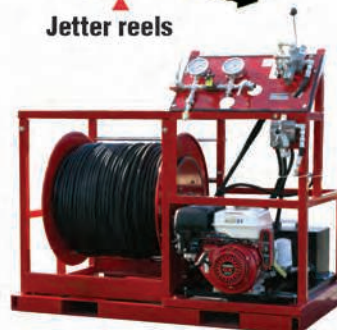
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CIPP Lining Methods and Projects

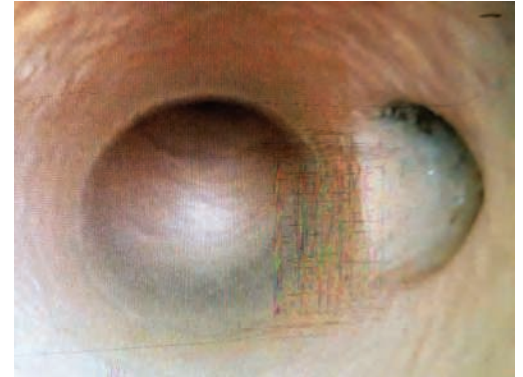
By Craig Mandli

PLUMBER EMPLOYS MULTIPLE REHAB METHODS ON CHALLENGING JOB

PROBLEM / Steve Allen from Allens Plumbing in Maui, Hawaii, had a pipe rehabilitation job that could not be fixed with a single pipe rehabilitation method. The project at a condominium included a leaking plumbing stack, a root-infested sewer from the building to the street with part of the line collapsed, and another section of drain-waste-vent piping that had a hole in it with the rest of the pipe in need of corrosion protection.

SOLUTION / Allen fixed the collapsed section of the lateral out to the main with his pipe bursting technology. Stringing a cable through the collapsed line allowed him to pull in an HDPE pipe from the building to the right-of-way. He then used **Pipe Lining Supply's Quik-Shot** CIPP lining equipment to line the pipe from the right-of-way to the main at the clean-out he installed. Inside the building, he applied a pipe patch to cover the hole in the missing section of cast-iron drain-waste-vent and then used the **Quik-Coating** polyurea coating system to provide corrosion prevention, providing a 50-year life expectancy. The key to the job was cleaning the pipe, which Allen's crew performed with a high-speed cable machine equipped with chain knockers.

RESULT / The multiple rehabilitation methods employed by Allen have proven successful, and the condominium owner was pleased with the result. 888-354-6464; www.pipeliningupply.com. c



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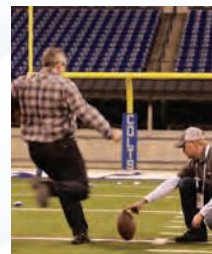


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SPOTLIGHT

Get a better grip on sewer inspections

By Craig Mandli



Inspection cameras have revolutionized the sewer maintenance industry, but the process doesn't come without problems. Often sewer pipes are so full of grease and grime that it's difficult for tractor-mounted cameras to get enough traction to move. TruGrit Traction solves that problem.

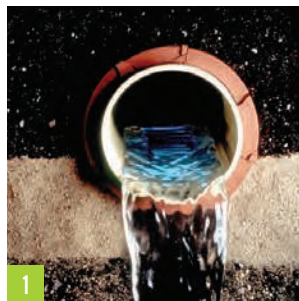
The TruGrit is a polymer and carbide grit camera transporter and cutter wheel designed to provide maximum pulling power in all pipe types and conditions. Using universal reusable hub adapters, the TruGrit fits most major CCTV transporter and cutter brands.

"The TruGrit has the unique ability to provide the traction needed for varying pipe types, yet it still provides the flexibility needed to traverse through obstacles without damaging the pipe," says Tom Rebozo, director of sales and marketing for TruGrit Traction. "This is what sets it apart from the common steel carbide grit wheels on the market today. Thanks to an optimal blend of flexible polymer and carbide grit, TruGrit wheels do not get dull, even in clay and concrete pipe; they only get better as they wear, making them truly a universal wheel for all your CCTV inspection and trenchless needs."

The key, Rebozo says, is in the wheel's universal hub adapters. The wheel can be used on various camera transporters and robotic cutters, such as Aries Industries, CUES, EnviroSight, RapidView IBAK North America, ID-TEC, RST, Rausch and Schwalm USA. After three years' research and development, a wheel for 8-inch pipe was released in February 2017, with a version for 6-inch pipe in February 2018.

"The fact that one wheel can accommodate seven different camera transporter and cutter brands, and also work in all pipe types without getting dull, is a huge step forward for an industry that has struggled for years in greasy pipe trying to get footage," Rebozo says.

According to Rebozo, the TruGrit is also an ideal alternative for reinstating laterals in a timely manner while protecting the new liner. "The fact that a contractor or municipality with multiple brands of transporters and cutters can purchase one wheel that fits all of their equipment is very unique, especially in such a niche industry with tight proprietary OEM specifications." 407-900-1091; www.trugrittraction.com.



1 PERMA-LINER INDUSTRIES VINYL ESTER RESIN

Vinyl Ester, a high-performance epoxy vinyl ester resin from Perma-Liner Industries, provides corrosion resistance, durability, and toughness for CIPP applications. It is well-suited for specific applications where fluid temperature is relatively higher and also for high-pressure and corrosive environments. The molecular architecture delivers a number of benefits, including superior mechanical properties and catalyzed pot life. 866-336-2568; www.perma-liner.com.

2 HAMMERHEAD TRENCHLESS LT-20PRO CIPP TRAILER

HammerHead Trenchless' LT-20PRO is a purpose-built trailer for CIPP applications, and it features a modular design with all storage, electrical power, and air supply needed for a wide range of lateral lining tasks. The configuration is customizable, allowing the customer to tailor it to their specific needs and avoid duplication of existing equipment. The base model's standard features include insulated trailer walls and ceiling, roof-mounted air conditioner, 13,000-watt generator with external slide-out, roller bed with wall mount for the wet-out table, 30-gallon wall-mounted air compressor, and external and internal air connections and electrical outlets. 800-331-6653; www.hammerheadtrenchless.com.

3 HANNAY REELS VAC SERIES VACUUM HOSE STORAGE REEL

VAC Series reels from Hannay Reels store and handle vacuum hose with interior diameter up to 4 inches. The reels are constructed with a heavy-duty frame for over-road durability and offer a variety of mounting configurations to adjust to different truck and tank constraints. The reels have dual, sealed bearings for smooth winding and unwinding operation, and spoked discs, which make for an optimal balance of strength and weight savings. The reel comes standard with manual rewind but is also available with electric, air, or hydraulic rewind for smoother handling. A dual-sided hose access design offers easy access to the hose from either side. 877-467-3357; www.hannay.com.

4 WHEELER-REX TUBING CUTTER

The Model 4992 close-quarters tubing cutter from Wheeler-Rex cuts pipe diameters ranging from 1/4- to 2 3/8-inch outside diameter, making cuts in tight areas easy. It also cuts thin wall materials like traps and tailpieces with no distortion. The cutter prevents sawing, avoiding loose joints. The new design allows for quick and easy switching of the cutting wheels using a simple pushpin, so no special tools are required. 800-321-7950; www.wheelerrex.com. **C**

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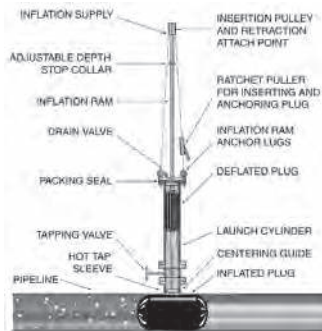
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New appointments at Trelleborg pipe seals operation

Trelleborg's pipe seals operation has strengthened its support team in America with the addition of four new personnel in sales and engineering. Mark Yanzo joins the company as national sales manager. He brings with him more than 20 years' sales and marketing experience, with previous positions at industrial manufacturing companies. Andrew Marshall and Tyler Welmon, responsible for the mid-Atlantic and West Coast respectively, joined the company as regional sales managers. And Robert Catlin was announced as process engineer.



Mark Yanzo

InfoSense launches new website

InfoSense announced it launched its newly redesigned website. It features helpful resources and testimonials regarding acoustic inspection technology, with easy access to the latest news and upcoming events.

Wastequip names new chief information officer

Mike Marchetti has been named the new chief information officer for Wastequip. In this role, Marchetti will lead the company's information technology strategy to focus on enhancing security measures, integrating a number of disparate systems across the company to increase efficiency and reduce costs while identifying areas to leverage data and technology to grow the business. He brings more than 20 years' IT experience and leadership expertise to his role, and he most recently held the position of vice president of Truck Hero.

TRIC Tools revises website to animate pipe bursting

TRIC Tools announced the rerelease of its new website, www.trictools.com, with new animation featured for the X30 pipe bursting hydraulic ram. The animation is a collaboration with Trenchless Marketing, which will next feature the Municipal M100 hydraulic ram. The updated website is organized into eight sections that describe the company, what products and services they offer, and how TRIC Tools can assist in meeting your trenchless product needs.

Aquarius Spectrum and TaKaDu announce integration partnership

Aquarius Spectrum and TaKaDu are collaborating to provide water utilities with a centralized, cloud-based solution for improved network efficiency, water loss reduction, and asset management. Based on big data analytics and tailored algorithms, TaKaDu's Central Event Management solution is being integrated with Aquarius Spectrum's automatic leak detection and monitoring system to detect, monitor, analyze, and manage faulty pipes, hidden leaks, and other anomalies in the water network.

Integration between the two systems enables users to receive two independent indications about the same problem in the same area, one from TaKaDu and one from Aquarius Spectrum. Using the centralized platform, operational teams can validate, track, prioritize, and resolve events more easily, in coordination with other departments in the organization. The combined solution facilitates follow-up action and provides management dashboards, actionable insights, and detailed reports for strategic decisions and budget planning. **c**



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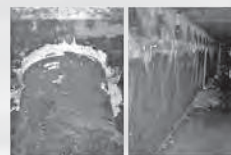
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- Smoke Testing



Trelleborg/NPC Pipe Seals

- Internal Joint Seals
- External Joint Seals
- Liner End Seals
- Chimney Seals

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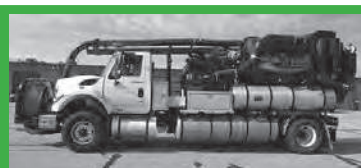


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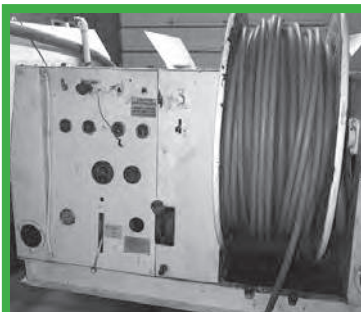
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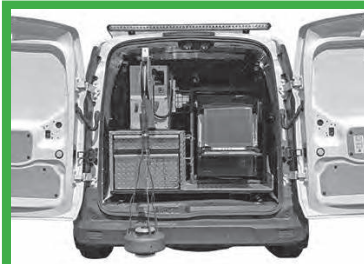
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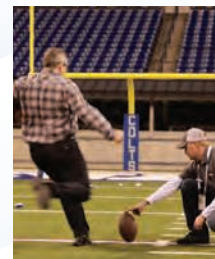
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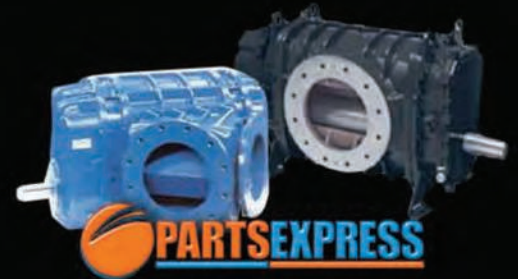


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