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TAKING AIM AT A NEW TARGET

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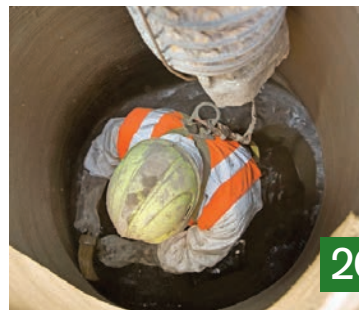
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Robert Waddell had developed a comfortable place in residential plumbing services over a quarter century of business with Robert's Plumbing & Rooter Service in Orange County, California. Eventually, however, his focus began to change and NoRoots was born as a new division and emphasis within the company. (Photo by Collin Chappelle)

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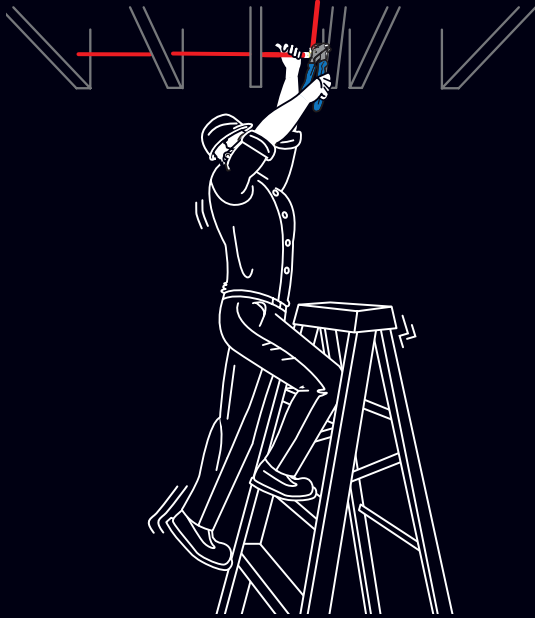
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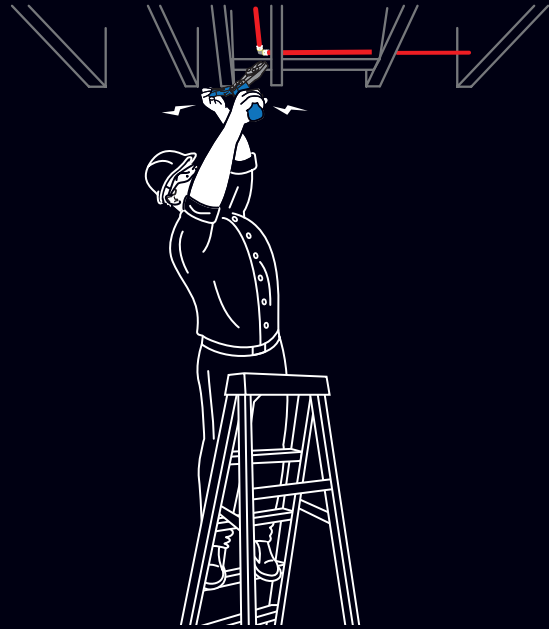


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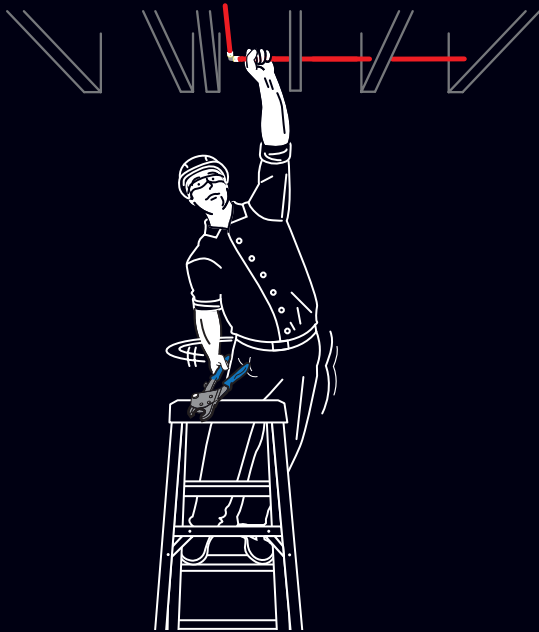
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Luke Laggis
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Show What You Know

Continue the evolution and help usher in the industry's next generation

By Luke Laggis

don't claim to know much.

When it comes to sewer and drain work, you're the professionals. I've gained a substantial volume of knowledge from you, but still, it's just enough to be well aware of how much I don't know.

I was at a party over the Fourth of July and got into a conversation about my work. When I explain what I do to people who aren't familiar, there's always some initial level of surprise that there is a magazine focused solely on sewer and drain cleaning. Once I begin explaining some of the services you provide and the level of technology involved, the surprise often turns to a sort of amazement.

People don't often appreciate your work, but I think that's largely because they don't understand what you do and what it involves. I always try to give

them a better picture, and I can usually tell that the more I explain, the more they begin to see the significance. Your work touches everyone; they're just not always aware of the level to which that's true.

My appreciation for the work you do grows with every issue of this magazine and every conversation I have with you. I remember when I started at *Cleaner* and being told the importance of avoiding the old plumber stereotypes and potty humor. At first I was very mindful of that, but as I've gotten to know you, I don't ever think about those things because they simply don't represent who and what you are at all. Maybe there was a time, but not today.

No doubt there are those who haven't evolved, but those aren't the people I meet. They're not the people I hear from and they're not the people we feature in *Cleaner*. In fact, it's really quite the opposite.

As the technology in this industry has evolved, so have you. The level of knowledge and technical savvy you hold sets you apart from the plumbers and drain cleaners of the past, and I think that's an important message to send to both potential customers and the plumbers and drain cleaners of tomorrow.

I also had a conversation not long ago with a friend who told me that, at 40, he's the youngest plumber at his company by several years. He said he's working 60 hours a week because they're understaffed and can't keep up with the workload. There aren't enough new people coming into the trade. I think some of that has to do with misperceptions and those old stereotypes, so it's important that you offer a more accurate representation of the work you do and put a new public face on the industry so that evolution can continue. Show the next generation it's work and a career they can be proud of.

On my end, I'm proud to serve you. It's been an education, and one for which I'm thankful.

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

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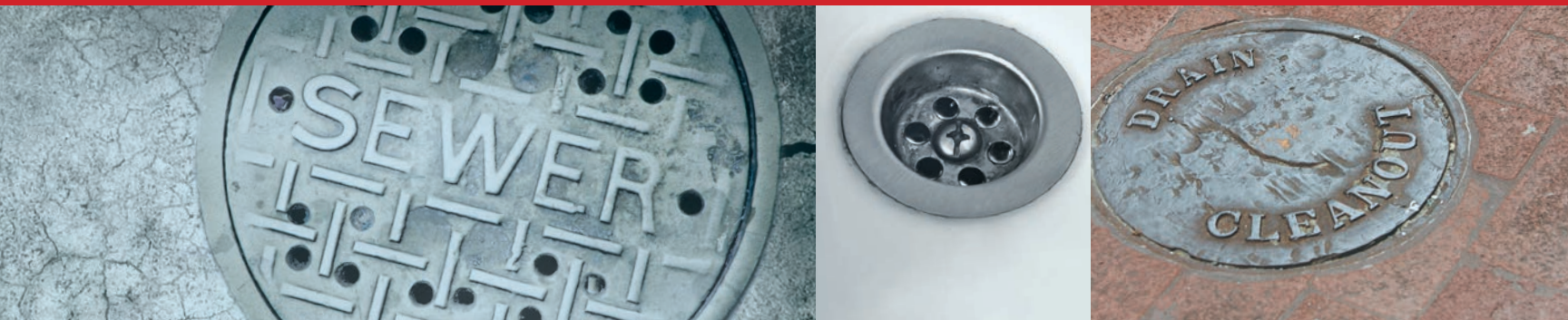
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CAMERA CARE

Tips to Avoid Costly Inspection Camera Repairs

Manufacturers build inspection cameras with a rugged working environment in mind, but the equipment can still break if not used properly. In this online story, two manufacturers provide advice on how to avoid the most common issues that land inspection cameras in the repair shop. >> cleaner.com/featured



LOCATING TIPS

Equipment Malfunction or Job Site Problem?

With some machines, a consistent regimen of preventive maintenance is critical or you could be in store for an equipment breakdown out in the field. Locating equipment is no different, but maintenance alone won't ensure success on the job site. You also need a solid understanding of how to actually do locating work, otherwise a job site problem could easily be mistaken for an equipment malfunction. A manufacturer provides tips about tackling the common job site issues that could affect your locating capabilities. >> cleaner.com/featured

OVERHEARD ONLINE

“We try to set ourselves apart by talking down about others, and this might work in the short term. It can breed immediate camaraderie with your customer, but then what? What if the next cleaner down the line does it to you? Then, to that customer, you are no better than the rest.”

— Cleaners Can Benefit From Friendlier Competition
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EQUIPMENT BUYING

Company's Purchasing Strategy Helps Meet New Market Demands

When Darrin Black makes a purchase, oftentimes there isn't a lot of work for the new piece of equipment. But he's OK with not seeing an immediate return on his investment. It's simply the way he approaches equipment purchasing: Secure the necessary equipment first before there is an obvious market need, then be prepared to take full advantage when that need finally emerges. Learn more about how this method has helped Black grow and diversify his Abilene, Texas-based plumbing business, which was featured in the May issue.

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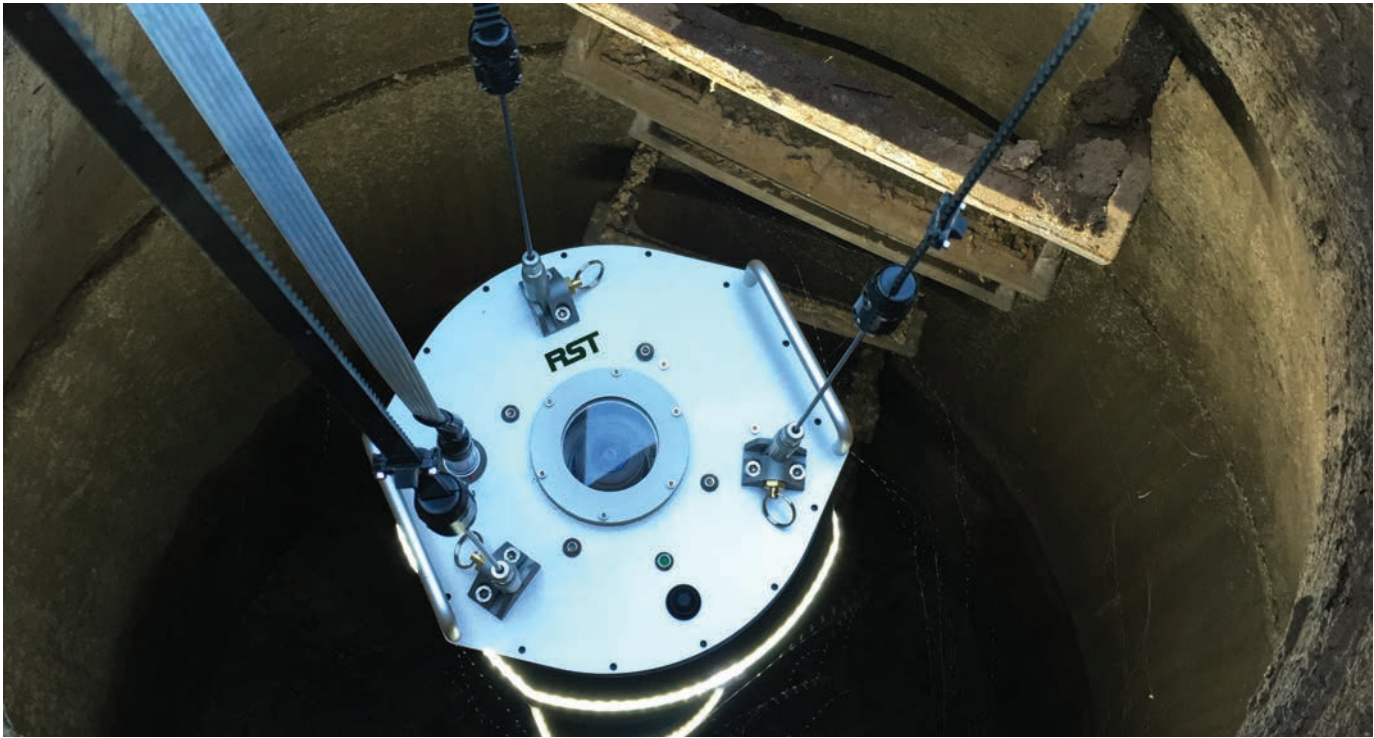


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Julian Banuelos (left) and Roberto Lopez of Kim Construction apply a caulk seal to a Ladtech HDPE adjusting ring installed on existing brick manhole. The rings absorb road vibration and won't crack and crumble over time.

MAKING THE GRADE

FORMER TEACHERS CONTINUE
LEARNING AND EVOLVING WITH
TECHNOLOGY WHILE MAKING
A NAME IN THE MANHOLE
REHAB INDUSTRY

BY **KEN WYSOCKY**
PHOTOGRAPHY BY MARK HIRSCH

It may seem far-fetched that two former physical education teachers would make abrupt career changes and build a multimillion-dollar-a-year manhole rehabilitation business, but that's exactly what Kim and Lawrence Vallow did in 1982.

The couple's blueprint for success was drafted around the quick adoption of new technology as it emerged, fiscal prudence and quality workmanship, which generated that most valuable of marketing efforts: word-of-mouth referrals. And they coupled it all with a relentless work ethic and positive attitude that enabled them to confidently tackle ever-bigger projects.

"When we saw an opportunity, we seized it and capitalized on it," says Kim Vallow, the majority owner of the company, which is a certified women's business enterprise (WBE). "If you see an opportunity, research it ... then take a chance and go for it. But you have to be fiscally responsible and cautious. You can't get in too far over your head, but at the same time you can't be afraid to expand. As long as you surround yourself with capable people, you're going to be fine."

The Kim Construction Co., based in the southern Chicago suburb of Steger, has grown significantly since the Vallows started out with one truck and a backhoe, doing residential sewer lateral tie-ins in nearby East Hazel Crest as a side business to their teaching careers. Today, the company employs 20 people, serves customers throughout the Upper Midwest,



Roberto Lopez jackhammers surface material around a manhole at the start of a rehabilitation project in Davenport, Iowa.

profile

KIM CONSTRUCTION CO. INC.

STEGER, ILLINOIS

OWNERS: Kim and Lawrence Vallow
FOUNDED: 1982
EMPLOYEES: 20
SPECIALTIES: Manhole rehabilitation
SERVICE AREA: Primarily Midwest states
WEBSITE: www.kimconstruction.com





<< Felipe Servin brushes the final coat of Strong Seal MS- 2C cement liner inside a manhole.

and owns a fleet of equipment that represents an investment of several million dollars. Furthermore, the firm has rehabbed more than 50,000 manholes. That includes one owned by the Milwaukee Metropolitan Sewerage District that was 105 feet deep — a record depth for the company.

“I still am a little surprised at how it continued to evolve and grow over the years,” Vallow says. “When you look back, if we had known some of the risks or headaches involved, you might say, ‘Gee, I don’t believe we did that.’ But we were young and ambitious, and wanted to better our families, so we decided to go for it.”

LEARNING COMES NATURALLY

The Vallows graduated from college in 1970 with education degrees; Kim from the University of Illinois and Lawrence from the University of Northern Colorado. They both taught for about five years, Kim at a local grade school and Lawrence at a local high school. Lawrence also worked briefly for a local paving contractor, but everything changed when East Hazel Crest switched from septic systems to sewers around 1979.

“We saw this as an opportunity to establish a little startup business, doing the tie-ins for local residences,” explains Vallow, age 65. “After a few years, we decided to do it full time.”

Opportunity knocked again when the Vallows realized that paving contractors needed manholes adjusted during road projects. Moreover, the U.S. Environmental Protection Agency was just starting to

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MANHOLE REHAB REPELS INFLOW AND INFILTRATION

When Kim Construction first started rehabbing manholes in 1982, the only technique available was chemical grouting. Since then, new technologies have periodically emerged to the point that the Steger, Illinois-based company now offers customers three different solutions that are often used together: grouting, cement lining and epoxy lining.

With chemical grouting, company technicians drill holes through the manhole's walls from the inside. Then they use a grout-pumping rig made by Graco to inject the grout, which swells and encapsulates the soil outside the manhole to form a protective seal, says Brett Vallow, project manager and the son of owners Kim and Lawrence Vallow.

How many holes must be drilled on average? "It depends on what you're grouting," Vallow says. "If it's a barrel joint around the manhole, you might need four to six holes. If you're grouting at a pipe seal, you'll probably need at least three holes at the pipe connection and at the bench connection as well."

The company uses Avanti grout products — either acrylamide or urethane grouts. The former is better suited for regions where frost occurs because it's stronger and less vulnerable to groundwater contamination. Urethane grouts are more expensive and better suited for corbel and pipe-sealing applications, he says.

A hand-sprayed cement liner is usually applied in conjunction with grouting. A cement lining is the most cost-effective way to fix an old brick manhole because the liner adds structural strength. Technicians

use ChemGrout CG-570 pumping rigs and cement products made by The Strong Company. "With a cement liner, you effectively create a new manhole within the old brick manhole, which has hundreds of thousands of joints," Vallow says. "It has the strength of 9,000 psi concrete."

Some cement lining blends include calcium aluminate, which fights decay caused by hydrogen sulfide gases that naturally occur inside sanitary sewers. "Sometimes we use it even on precast concrete manholes, because if they're tied into a force main sewer line, they're exposed to extremely high gas levels that decay the concrete — make it chalky and soft," he explains.

The third technique involves spraying an epoxy coating on the cement liner. Kim Construction uses epoxy-pumping rigs made by AirTech Spray Systems and epoxies made by Raven Lining Systems. Most times, project specifications will dictate how many of the three technologies are used, but the company almost always does chemical grouting before applying a new cement liner, he notes.

The epoxy lining provides only protection from corrosion; it adds no structural strength the way a cement liner does, Vallow points out. It can be applied only if the manhole substrate is in good condition. It's usually applied about 1/8 to 1/4 of an inch thick. "We mostly see epoxy being specified on interceptor manholes with higher gas levels and, as such, more corrosion," Vallow says. "We also see it specified more often for lift stations, which are also exposed to very high amounts of hydrogen sulfide gases."



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◀◀ Brett Vallow (left) and foreman Mike Walsh visually inspect a cement liner, measuring vertical footage for build quantity.

BELOW TOP A brick manhole prior to rehabilitation.

BELOW BOTTOM The manhole after installation of a Reliner channel system.



“IF YOU SEE AN OPPORTUNITY, RESEARCH IT ... THEN TAKE A CHANCE AND GO FOR IT. BUT YOU HAVE TO BE FISCALLY RESPONSIBLE AND CAUTIOUS. YOU CAN'T GET IN TOO FAR OVER YOUR HEAD, BUT AT THE SAME TIME YOU CAN'T BE AFRAID TO EXPAND.”

Kim Vallow

order communities nationwide to take steps to stop sewer system inflow and infiltration. As such, government funding for such projects was on the rise.

So the Vallows decided to get into chemical grouting, a process in which grout is injected by a pump through holes drilled into the inside of manholes. The Vallows invested in equipment made by ChemGrout, which provided training.

A key turning point occurred in 1983, when Kim Construction won a bid to chemically grout 700 manholes in nearby Chicago Heights, working

as a subcontractor for a prominent general contractor. “All of a sudden, we were in the big leagues,” she notes. “They took a chance on us and gave us a foothold in the industry, for which we’re still grateful today.”

It was daunting to tackle such a large project, she admits, but also a great opportunity. It’s also a vivid example of the nothing-ventured, nothing-gained mentality that spurred the company’s growth, as that project led to more work in the following years.

Vallow says that working as a female in a male-dominated industry typically wasn’t an issue because general contractors needed WBE and minority-owned subcontractors in order to bid on government-funded projects. In fact, limited financial resources posed a much larger problem. So to buy the additional equipment needed to handle the large project, which took six months to complete, the Vallows saved money by buying used trucks and other machines at auctions.

“We never took out a lot of loans,” Vallow points out. “We were frugal and paid bills on time. We didn’t spend beyond what we could afford.”



◀◀◀ Former physical education teachers Kim and Lawrence Vallow founded Kim Construction in 1982.

“WHEN WE’D SEE NEW APPLICATIONS, WE SEIZED THE MOMENT, BUT WE ALWAYS STAYED WITHIN THE MANHOLE REHABILITATION MARKET.

WE’D FOUND OUR LITTLE NICHE IN THE INDUSTRY.”

Kim Vallow

ROLL WITH THE CHANGES

Another hallmark of the company’s growth has been an ability to adapt to changing technology. A good example was the emergence in the late 1980s of cementitious spray lining, in which a pump sprays a layer of fiber-reinforced mortar that bonds to the interior of a manhole. It enhances the structural integrity of a manhole and is often used in conjunction with chemical grouting.

Responding to demand for the new technology, the Vallows invested in a Strong-Seal cementitious spray-lining rig made by The Strong Company in 1991. After getting employees trained and certified, the investment opened up an even larger segment of the manhole rehabilitation industry, Vallow notes.

“Grouting and cement linings work hand in hand,” explains project manager Brett Vallow, 35, the son of Kim and Lawrence. “Groundwater moves around and finds the weakest spots in manholes, so we use the two technologies together for the best success. I’d say that we use both methods together about 50 to 60 percent of the time.”

The new technology trend continued when epoxy spray lining emerged in the 1990s as another manhole rehab alternative. Depending on the application, epoxy lining can be used alone or along with cementitious lining and chemical grouting. The epoxy coating helps preserve the cementitious lining, which is vulnerable to damage from hydrogen sulfide, a gas that naturally occurs in manholes. After gauging demand, the company invested in a spraying rig made by Raven Lining Systems. “As the manhole rehabilitation industry evolved, so did we,” Vallow says.

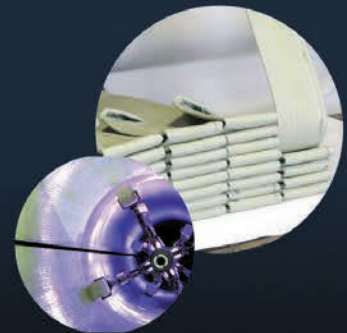
Through word-of-mouth referrals, the company’s reputation kept growing. In 1987, the company started a five-year project in Johnson County, Kansas, rehabbing more than 10,000 manholes.



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>>> The Kim Construction crew includes (from left) Julian Banuelos, Mike Walsh, Brett Vallow, Robert Anderson and Roberto Lopez (seated).

“Our secret sauce is our knowledge and our experience, combined with a great safety record on confined-space-entry work,” Brett says. “With knowledge comes efficiency and the ability to finish a project in a timely manner.”

DOING ONE THING WELL

Were the Vallows concerned that all their business eggs were in one basket, as opposed to diversifying their services? Not really, Vallow says, pointing out that the company was diversifying within the manhole rehab market.

“When we’d see new applications, we seized the moment, but we always stayed within the manhole rehabilitation market,” she explains. “We’d found our little niche in the industry. We felt comfortable and knew the work, plus we had established good relationships with contractors, engineers and municipalities.” In addition, manhole rehab equipment is expensive and the work is labor-intensive — two barriers to market entry that discouraged a lot of competition, she adds.

Brett says geographic diversity also helps dilute the risks of focusing only on one primary service. In the late 1980s and early 1990s, for instance, there was the five-year-long project in Kansas. In the early 2000s, projects in Michigan kept crews busy. In addition, the company has worked in Arkansas, Indiana, Iowa, Minnesota, Missouri, Ohio, Oklahoma, Texas and Wisconsin. In most cases, municipal funding for manhole rehab projects drives the location of where the company works. And if funding slumps in one state, it usually picks up in another, he adds.



“We also pay bills on time, which allows us to take advantage of discounts that suppliers don’t offer to customers who pay late.”

PLENTY OF MANHOLES LEFT

Brett says the future outlook for manhole rehabilitation work is very good, thanks to an ever-increasing population in the U.S. and an aging infrastructure. As a matter of fact, there are 20 million manholes in America, with many of them in need of rehabbing, according to the U.S. Environmental Protection Agency.

“Manholes may be underground and out of sight, but you can’t put off fixing them when they become a problem,” he points out. “Even in small communities, there are a lot of manholes, when you consider there’s one every 300 to 400 feet. If you divide the total length of sewer lines in our country and divide it by 300 or 400, it’s a shockingly high number. So I think we’re just scraping the surface in our markets.” **C**

“A LOT OF COMPANIES WANT TO HAVE A MILLION DIFFERENT DIVISIONS. BUT WE’D RATHER BE GREAT IN ONE DIVISION THAN BE AVERAGE IN MANY DIVISIONS AND HAVE COMPLAINTS IN WORKMANSHIP. WE’D LOSE CUSTOMERS AND EVENTUALLY WE’D ALSO LOSE GREAT EMPLOYEES.”
Brett Vallow

“A lot of companies want to have a million different divisions,” he notes. “But we’d rather be great in one division than be average in many divisions and have complaints in workmanship. We’d lose customers and eventually we’d also lose great employees.”

Doing quality work requires quality equipment. Along with rigs made by ChemGrout, Strong and Raven, the company relies on Ingersoll Rand and Atlas Copco air compressors; skid-steers made by New Holland (a brand owned by CNH Industrial America); backhoes made by New Holland and Ford; a track excavator built by Takeuchi Mfg.; Martin Diesel generators; epoxy sprayers made by AirTech Spray Systems; Water Cannon and Hotsy pressure washers; a gas detector manufactured by BW Technologies; and epoxy-thickness testing equipment made by Defelsko Corp. and Elcometer USA.

Another factor in the Vallows’ success is improved profitability from buying materials like chemical grout or cementitious lining products in bulk quantities. “Buying in bulk instead of a couple of pallets at a time makes enough of a price difference to make it worthwhile,” explains Vallow, who at one time worked for a bank, which gave her financial experience.

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More Customers for Your Marketing Dollar

Current trends combine traditional methods and newer technology to increase clients and profits

By Brenda Silva

There's more than one way to market your business, and current trends among drain cleaning companies show a shift away from banners and brochures to options that often cost less and offer a much greater return on investment.

At O'Connor Plumbing & Heating, located in Germantown, Maryland, marketing begins and ends with building a great brand and reputation. Kevin Walker, manager of the drains division, points out the advantage of having a strong brand when marketing your company.

"We don't spend a lot of money on marketing. We prefer traditional word-of-mouth to get our name out there, and build relationships with our customers that way," Walker says. "Building a strong brand that customers can rely on is what it's all about with us, and this has worked really well as more people hear about us and use our services."

"A reputation can make or break a company, so we focus on building a strong brand. Then we get it out there and let it work for us, instead of using flyers to try to convince people we're good at what we do."

RELYING ON REVIEWS

Because many plumbing companies are family-owned, tradition often plays a big role in how things are done, including reliance on word-of-mouth marketing techniques. Just as good customer reviews are said to be priceless, they have actually become real profit for some businesses on the West Coast.

At Pacific Drain & Plumbing, located in Vista, California, marketing efforts rely heavily on posted customer reviews, with increased new business the reward for their efforts.

General manager Roy Gallegos says the company relied on word-of-mouth for years as a way to attract new business, while building their reputation for great service and quality work. However, this method eventually reached a plateau, becoming less effective at bringing in new clients over time. While researching alternative marketing methods, Gallegos decided to try Yelp, which resulted in a dramatic increase in business.

"In my research, I found people on the West Coast use Yelp reviews for everything,

with online reviews dictating a company's reputation versus the other way around. So every time we have a satisfied customer, we ask them to post a review, which increases our overall value to people. As a result, we've seen an increase in business of over 10 percent since we've been using Yelp, and we probably get 40 to 60 calls a day from people reading our Yelp reviews. We

also have a following on Facebook. That helps, too."

Gallegos also found as popular as Yelp is to people on the West Coast, it's used much less on the East Coast, where the favored choice for looking up reviews online is Angie's List. "No matter what site you choose, push to get good reviews posted because they will set you apart in the industry," he says.

ALL FORMS OF MEDIA

Doyle Parsons, owner of Parsons Plumbing Heating & Cooling in Bell, Louisiana, is another proponent of social media for marketing. He's grown his business by paying attention to area-specific trends.

"Around here, we encourage word-of-mouth among our customers, and also ask customers to leave feedback online after we provide service," Parsons says. "Facebook and our reviews have helped us increase business, but Yelp really hasn't taken off around here, nobody really uses it."

Parsons has also been using radio and television to attract new customers. The company has commercials that run on eight AM/FM stations, as well as two local television stations. As a way to further enhance his business, one of the television stations allows local businesses to come on a talk show called "Love the Locals" once every quarter.

In addition, Parsons takes advantage of seasonal marketing promotions, including a recent contest that encouraged radio listeners to submit entries for the oldest A/C unit, with the winner having that unit replaced at no charge. The contest received over 250 entries, and Parsons said he would consider doing something similar with heaters in the winter for more marketing.

"We also chose to be a sponsor for the renovation of a local coliseum where there will be a lot of sporting events, which allows our name to be seen on scoreboards, screens, murals, etc., by hundreds of people at any one time."

Another company who has seen the value of radio and digital media reflected in their bottom line is Matt Mertz Plumbing, located in Wexford, Pennsylvania. Owner and President Matt Mertz explains what works best for his marketing needs.

"We tried Angie's List, which works good, and we also tried cable television spots, which didn't work as good," Mertz says. "For us, radio ads work really well, as well as direct mailings to targeted zip codes to bring in new customers."

Matt Mertz Plumbing earmarks a monthly budget for radio advertising, with commercials providing a worthy return on investment. In addition, Mertz targets areas with aging infrastructure — versus new construction areas — as a way to market himself with direct mail campaigns to acquire new customers.

"My business is my life, and with 42 people on my staff, I have their futures to consider as well," Mertz says. "This is one of the reasons I'm always

"A reputation can make or break a company, so we focus on building a strong brand."

Kevin Walker



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When it comes to marketing for plumbing companies, no two businesses or budgets are exactly alike. However, they all share one common goal: the desire to keep hard-earned profits from going down the drain, and that has become a little easier thanks to the range of innovative marketing options available today. **c**

"No matter what site you choose, push to get good reviews posted because they will set you apart in the industry."

Roy Gallegos

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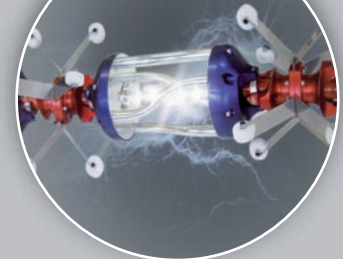
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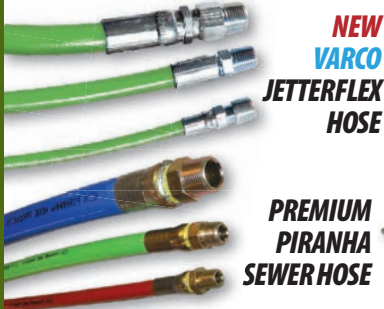
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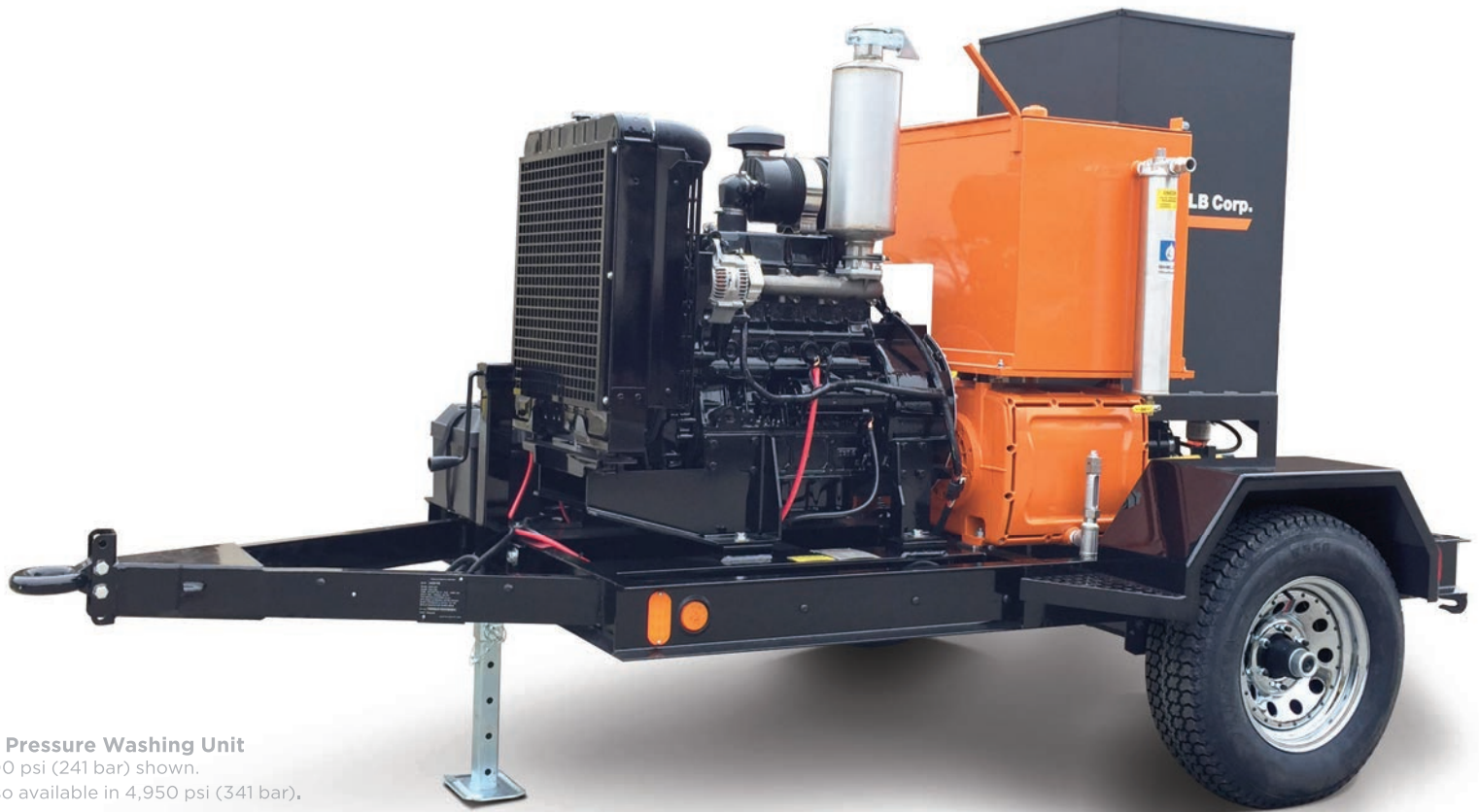
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TAKING AIM AT A NEW TARGET

SOUTHERN CALIFORNIA PLUMBING FIRM FINDS A SOLID NICHE IN ROOT CONTROL FOR RESIDENTIAL CUSTOMERS AND OTHER PLUMBING SHOPS

Robert Waddell doesn't like roots. They make him foam.

A licensed California plumber and owner of Robert's Plumbing & Rooter Service, Waddell had developed a comfortable place in residential plumbing services over 24 years of business in the city of Buena Park, a short distance from Long Beach, amid the sprawling housing developments of Southern California's Orange County. Over time, however, his focus began to shift.

Waddell realized there was a need for better root control options for lateral lines in his service area, and began taking a

greater interest in those challenges. In the process, he discovered his own pleasure in working in the sewer and drain side of his business. Plus, he's found that the money is better and the jobs easier to execute.

As he got more serious about root control options, he rebranded the sewer and drain side of the business as NoRoots.

SHIFTING GEARS

He had already brought RIDGID inspection cameras into the mix and had seen their value grow, so he began to research trailer jettors. Eventually, in 2013, he purchased a Mongoose 184 jetter. It has since become a key weapon in his battle against roots in the primarily clay and cast iron lateral lines he cleans on a daily basis.

"Over the years I had experienced how difficult it is to clean blockages because of roots, and that they would regularly come back and continue to cause problems," Waddell says. "I wanted more permanent solutions, and that included adding jetting, which has proven to be a very effective way to deal with the situation."

The jetter was a big step, but it wasn't a complete solution. Waddell had used chemicals in the past, and while effective, they couldn't always get the job done.

"The issue is getting it to the problem that may be 50 feet or more down the line," he says. "Then I discovered Vaporooter, sold by Douglas Products, with a foamer machine that pushes the product down the line so you can reach these more inaccessible regions."

profile

NORROOTS, A DIVISION OF ROBERT'S PLUMBING & ROOTER SERVICE

ORANGE COUNTY, CALIFORNIA

FOUNDED: 1989

OWNER: Robert Waddell

EMPLOYEES: Two

SERVICES: Plumbing, CCTV, jetting,
root control, pipe patching

WEBSITE: www.noroots.com





Plumber Sergio Orozco (left) helps NoRoots owner/operator Robert Waddell measure the exact placement of a pipe patch at a residential property near Huntington Beach, California.



ABOVE Robert Waddell works from the back of the Ford F-550 box truck that houses his Mongoose 184 jetter. The jetter has become a key element in his fight against root intrusion.

>> Waddell prepares the Vaporooter chemical root control mixture at a client's home. The two-part chemical mixture is forced down the pipe creating a foaming action that kills existing roots and helps prevent future root intrusion.

"In order for me to be authorized by the state of California through the Department of Pesticide Regulation, I took a weekend course on treating roots in sewers. I had to learn how to use the product safely and learn the laws and regulations required in order to even purchase the product. I obtained a qualified applicator license."

STAYING LEAN

Waddell says he's comfortable with a small and manageable business model — just himself, plumber Sergio Orozco and a helper. Sadly, the crew recently lost 20-year veteran plumber John Routh to cancer.

The company operates out of Waddell's home, with a garage for equipment storage. His primary work vehicle is a 2016 Ford F-550 Turbo Diesel box truck that houses the Mongoose 184 jetter. He also has a 2002 Chevrolet Express 1-ton cargo van fully outfitted for plumbing work, most of which is handled by Orozco.

The team uses RIDGID cameras and a RIDGID SeekTech SR-20 Locator. When they find damaged pipes, they regularly turn to the PipePatch from Source One Environmental, which can handle repairs up to 4 feet in length. If they need a longer fix, they can do two 4-foot patches.



"Source One Environmental has been amazing. Their salesman came out and trained me, and he is always available on the telephone if I have questions. The salesman with Vaporooter has also been awesome," he says, noting he's also extremely appreciative of the service he's received from Mongoose and RIDGID.

The crew also uses Duracable roter equipment and toolboxes from Extreme Tools.

GETTING STRONGER

The battle over roots has become Waddell's obsession, and as he's refined his approach, his success has grown.

A NEW FOCUS AND A NEW BRAND

Robert Waddell has been a plumber for 28 years, but he's been taking a more aggressive stance on root control in his market over the past few years. He is in the process of changing the company name from Robert's Plumbing & Rooter Service to NoRoots, with a new website and new approach to winning the battle for the residential clients and plumbing contractors he serves.

The shift in focus initially began when Waddell added jetting to the menu of services. His trailer jetter is mounted on a track inside his 2016 Ford F-550 Turbo Diesel so it can be extended out the back of the 18-foot box truck and doesn't have to be towed.

"Before I had my jetter, I had a customer who had a sewer infested with roots in the backyard," he says. "I would treat it and would be able to finally get a small blade through, and I would treat it again, and eventually on the third try I could get a full blade through. But I would be going back again and again."

The house was at the top of a hill, and the line ran deep under a telephone pole and a neighbor's fence. Excavation and repair would have been very expensive.

"Now, with the jetter and Vaporooter I can take care of a 125-foot drain for a customer and treat it once a year after I jet it back to like-new status, and all is good to go.

"OVER THE YEARS I HAD EXPERIENCED HOW DIFFICULT IT IS TO CLEAN BLOCKAGES BECAUSE OF ROOTS, AND THAT THEY WOULD REGULARLY COME BACK AND CONTINUE TO CAUSE PROBLEMS. I WANTED MORE PERMANENT SOLUTIONS, AND THAT INCLUDED ADDING JETTING, WHICH HAS PROVEN TO BE A VERY EFFECTIVE WAY TO DEAL WITH THE SITUATION!"

Robert Waddell

"All the root needs is a microscopic opening to start its infiltration. The object is to kill the root before it starts splitting open the joints."

MORE OPPORTUNITY

As the company focus changed, Waddell realized offering his NoRoots solutions to other plumbing firms could provide new opportunities, but he had no idea it would result in such a

"EPL Solutions in Orange County was the outfit that designed and installed the hydraulic rail system to extend the jetter out the back of my truck, and they also designed and manufactured the monitor that I use with my three RIDGID cameras."

Waddell doesn't plan on giving up the plumbing aspect of his company, but he will take the business as it comes and adapt to whatever the market demands. But he's serious about NoRoots.

"It may come to a point where I just won't have time for basic plumbing — that I won't have time for anything but drain cleaning and sewers. It is my dream to do nothing but sewers."

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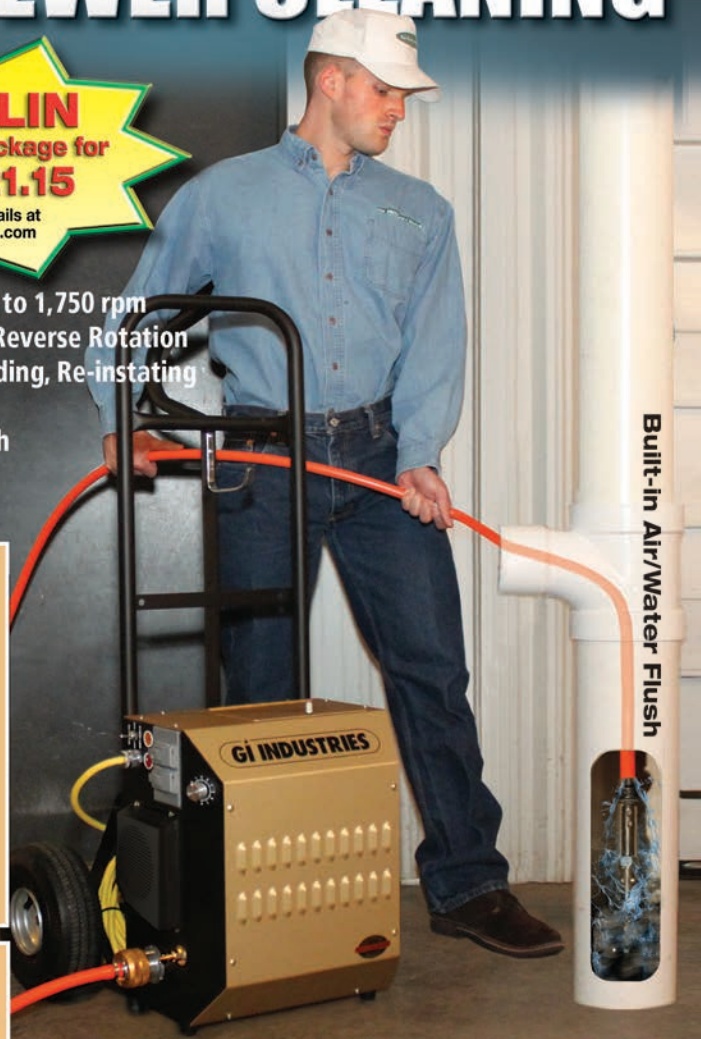
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Robert Waddell uses a RIDGID camera to inspect a customer's lateral line in preparation for the installation of a 4-foot pipe patch.



significant upturn in that area of the business. It also led to a pretty dramatic turn in his business model. His goal is to ultimately concentrate on NoRoots, and eventually franchise the model.

“ALL THE ROOT NEEDS IS A MICROSCOPIC OPENING TO START ITS INFILTRATION. THE OBJECT IS TO KILL THE ROOT BEFORE IT STARTS SPLITTING OPEN THE JOINTS.”

Robert Waddell

Prior to the shift, he was doing about 5 percent of his sewer business with other plumbing firms, offering them a discounted price. Subcontracted work has grown to about 20 percent of his business, and he expects it to continue growing. It has led to an upturn in profits as well.

Residential plumbing and drain cleaning now represents 80 percent of the company's work, which includes some small commercial clients, and apartment and condominium complexes.

Waddell sees even more opportunities before him because of his location in a sprawling urban area with a much larger potential customer base, including many more plumbing firms.

Over the past four years he has established a reputation that has positioned the company well with others in the business.



Epoxy is poured and spread over a 4-foot section of fibermat that will be used as an internal pipe patch for a residential sewer line.

“We recently did a job on a 3,500-square-foot house,” Waddell says. “I walked around and checked it out, went on the roof and found a vent, and put the jetter hose in and cleared it all up. The other guy’s customer had a big grin on his face and two toilets that had been clogged up for a couple days were clear.”

“Sometimes a plumber will be on a difficult job, stuck on a job, and he is fighting a blockage,” he says. “If he has somebody to call on, someone he can rely on, that may save him four hours of work. He can kick it over to me, the guy with the jetter. That is happening now.”

On a recent busy day, Waddell had several jobs on the docket. Three called for the jetter, two for his cameras, and four were drain jobs for other plumbers.

“I really didn’t think it would take off to this degree. My gosh, I’m doing so much work for other plumbers it is hard to believe. How did this happen?”

SELLING IT

Waddell describes how he promotes his NoRoots process to a residential customer.

“I point out that if they trim their hedges and bushes they will grow back. Then I explain that if you just cut the roots in the sewer, they will just keep growing back thicker and stronger, but if we can treat the roots in the sewer with the root killer, they will not be allowed to creep back into any crevices in the pipe or the joints. The root killer will not harm the trees or bushes on the surface. I can tell them that their sewers should last forever if we treat them properly and sufficiently using the tools we have available.” **c**

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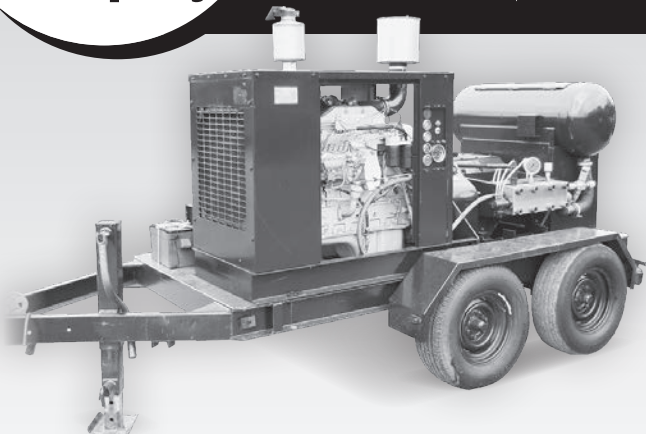
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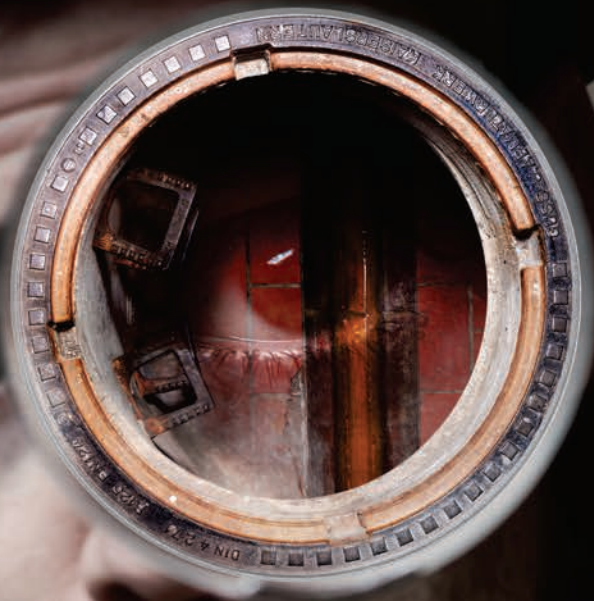
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See ads pages 27, 61	ALLAN J. COLEMAN CO. 5725 N Ravenswood Ave., Chicago, IL 60660 773-728-2400 • (f) 773-728-2499 www.allanjcoleman.com • shane@allanjcoleman.com	RIDGID, Insight Vision, VuTek, General Wire, Electric Eel, UEMSI, Spartan	1" to 12"	30' to 325'	Flash Drive/USB Thumb Drive, DVR, DVD, SD Card		✓	✓	✓		✓
See ad page 63	ARIES INDUSTRIES, INC. 550 Elizabeth St., Waukesha, WI 53186 800-234-7205 • 262-896-7205 www.ariesindustries.com • sales@ariesindustries.com	Pathfinder, Badger, Taurua, Titan, LETS 6.0, Seeker 2.0, Sentinel, Wolverine, Raptor, Anaconda, PipeOtx	2" to 72"	100' to 2000'	Flash Drive/USB Thumb Drive, SD Card	✓	✓	✓	✓	✓	✓
See ad page 14	CENTRAL OKLAHOMA WINNELSON 5037 NW 10th St., Oklahoma City, OK 73127 888-947-8761 • 405-947-8761 • (f) 405-947-8761 www.centralwinnelson.com • krjones@winnelson.com	RIDGID	3/4" to 12"	3' to 325'	Flash Drive/USB Thumb Drive, Wi-Fi, SD Card, DVD, Bluetooth	✓	✓	✓	✓		✓
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See ad page 69	 CUES, INC. 3600 Rio Vista Ave., Orlando, FL 32805 800-327-7791 • 407-849-0190 • (f) 407-425-1569 www.cuesinc.com • salesinfo@cuesinc.com	CUES	2" to 200"	100' to 4000'	HDD, Flash Drive/USB Thumb Drive, Wi-Fi, SD Card, Compact Flash, DVR, CD, DVD, VHS, any digital media	✓	✓	✓	✓	✓	✓
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See ad page 17	 DURACABLE MANUFACTURING 300 Ashworth Rd., West Des Moines, IA 50265 877-244-0556 • (f) 515-223-6109 www.duracable.com • sales@duracable.com	RIDGID	2" to 12"	30' to 325'	Flash Drive/USB Thumb Drive, Wi-Fi, SD Card, Bluetooth		✓	✓	✓		✓
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See ad page 50	 ELECTRIC EEL MFG. 501 W Leffel Ln., Springfield, OH 45501 800-833-1212 • 937-323-4644 • (f) 937-323-3767 www.electriceel.com • msperanza@electriceel.com	Electric Eel Mfg.	1" to 12"	125' to 400'	HDD, Flash Drive/USB Thumb Drive		✓				✓
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See ad page 46	FORBEST PRODUCTS CO. 44130 Old Warm Springs Blvd., Fremont, CA 94538 877-369-1199 • 510-226-7988 • (f) 888-604-0107 www.forbestusa.net • sales@forbestusa.net	Forbest Products Co.	2" to 20"	65' to 400'	Flash Drive/USB Thumb Drive, Wi-Fi, SD Card	✓	✓	✓		✓	✓
See ad page 2	 GENERAL PIPE CLEANERS 1101 Thompson Ave., McKees Rocks, PA 15136 800-245-6200 • 412-771-6300 www.drainbrain.com • info@drainbrain.com	Gen-Eye, Hot Spot	1-1/2" to 10"	30' to 400'	SD Card, Wi-Fi						✓

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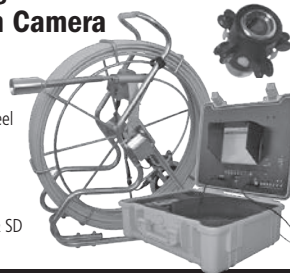
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Multitasking Tool

Versatile milling machine serves several roles while dramatically improving productivity and profitability

By Ken Wysocky

Even the best pipe lining contractors periodically experience collapsed liners. But as Ricky Salinas can attest, fixing a collapsed liner doesn't have to be financially disastrous, thanks to the Maxi Miller from Picote Solutions.

"No matter how good your technicians are, you're going to run into a liner failure at some point, either due to your own error or something completely out of your control," says Salinas, the co-owner of All American Plumbers. Based in Manassas, Virginia, and established in 2003, the company has 25 employees and serves customers in northern Virginia and

Maryland. Salinas' business partner is John Bounds. "If it fails, most times you have to dig in order to repair it.

"But sometimes it's inaccessible or too expensive to excavate," he continues. "That's where the Maxi Miller comes in."

Designed primarily as a drain cleaning machine, the Maxi Miller — which weighs about 210 pounds and is designed to work in 4- to 8-inch-diameter pipes — can be outfitted with different attachments that turn it into a multifaceted and versatile tool. In this case, Salinas uses a cutting head that's designed to drill through fallen liners in 4- to 6-inch-diameter pipe. Then he employs a sanding head that utilizes four spinning grinding panels that smooth out the rough cut left by the cutting head, Salinas says.

"The cutting head is similar to a drill bit," Salinas explains. "It's specifically designed to drill through a liner. After you drill through it, we change the head to a sander that spins at such a rate of speed that it smooths out the rough cut created by the drill. Before you know it, you're back down to the original pipe, which is ready to be lined again."

Before Salinas invested in the Maxi Miller, which is powered by a 1,400 rpm electric motor with output of 1,130 watts, excavation was the only option for repairing collapsed liners. Depending on where the failure occurs, how deep the pipe is and what's above ground at that point, excavation work can cost anywhere from \$5,000 in a residential yard with no obstructions to \$20,000 if the collapse occurs under a street, he estimates.

One extreme incident that occurred about four years ago illustrates the Maxi Miller's value. An All American Plumbers crew was lining a 30-foot stretch of sewer lateral under a building in Georgetown in the District of Columbia. When the liner collapsed, the only option was to hand-dig a 5-foot-long tunnel and replace a section of the lateral with PVC pipe.

CONTINUED >>



Nehemiah Martinez of All American Plumbers uses a Maxi Miller from Picote Solutions to descale a 4-inch-diameter cast-iron sewer line at a commercial shopping center.

money machines

OWNER: All American Plumbers, Manassas, Virginia

MACHINE: Maxi Miller milling machine from Picote Solutions

FUNCTION: Removing collapsed pipe liners, descaling drainlines and reinstating sewer laterals

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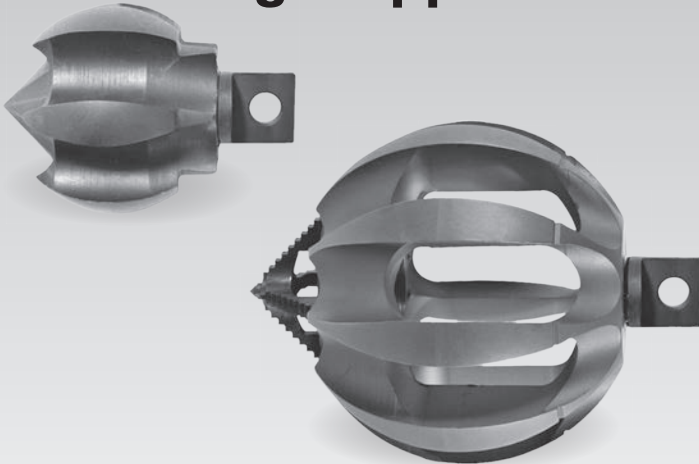
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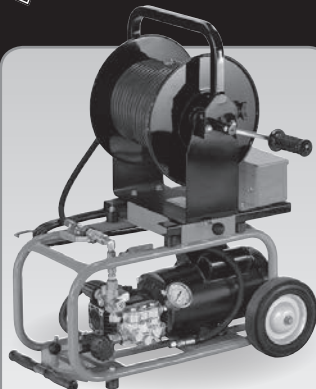
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"It was a desperate measure," Salinas recalls. "Excavating from above wasn't an option because it would have bankrupted my company. It's the only time I ever worked for 48 hours straight without any food or sleep. We had to get the job done ... and it nearly killed me. That's when I started looking for an alternative."

Salinas first saw the Maxi Miller at the 2013 Pumper and Cleaner Environmental Expo International (now the WWETT Show). But he waited two years before buying one. "It seemed too good to be true," he says. "I was afraid it would be one of those pass-through products, so I wanted to see how it would evolve, be sure it was something that was going to stick. And sure as hell, it stuck."

"It seemed too good to be true. I was afraid it would be one of those pass-through products, so I wanted to see how it would evolve, be sure it was something that was going to stick. And sure as hell, it stuck."

Ricky Salinas

In fact, the Maxi Miller impacted the company more than Salinas initially envisioned, due to its versatility. He says that when paired with a descaling chain attachment, the machine reams out pipes more effectively than high-pressure water jetters he owns and does so without damaging pipes. This improved capability has opened up a new market for the company.

"We dramatically improved our drain cleaning service," Salinas says.

"The Maxi Miller uses a chain (attachment) that's specifically designed for a 4-inch-diameter cast iron pipe. It runs at such a high rate that it lifts itself up (via centrifugal force), so the force is evenly distributed all the way around the pipe walls. It generates a very focused punch right where you want it.

"It might take our guys one to three days to descale a pipe, but the Maxi Miller can do the same job in one to three hours," he continues. "My business partner got mad when I bought the machine. But now he's a believer, too, because we're doing almost three times more descaling jobs and delivering a better final product to our customers."

Furthermore, by using yet another attachment, the Maxi Miller can reinstate lateral lines after pipe lining is complete. "It's changed how we operate, big-time," Salinas says. "We can charge a fair-market rate for both descaling and for reinstatements. And after the initial investment, the only real cost to use the Maxi Miller is labor. It paid for itself almost four-fold after one year. It's really a phenomenal product." **c**

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Protect Your Push Cameras

Proper usage, regular cleaning and daily checks for wear and tear will help prevent problems

By MaryBeth Matzek

Adam Teets understands the dilemma drainline inspection technicians often face.

“You see the object causing the obstruction right there and there’s a temptation to just start using the camera to push at it and move it out of the way,” says Teets, a service manager with RIDGID. “But you need to fight the urge, since doing something like that will only damage the equipment.”

Inspection cameras are valuable tools, but they’re regularly exposed to harsh environments and can wear out or break prematurely if they’re not used properly.

Dave Dunbar, assistant sales manager for General Pipe Cleaners, says kinked cables and damaged camera heads are the most common problems that land push cameras in the repair shop.

Taking care of your equipment protects your investment and avoids headaches. To prevent downtime and get the most out of your equipment, industry experts share these tips:

1. Do a simple check of the equipment first

Be sure to follow all of the recommended maintenance specific to your equipment. Before you begin work each day, check for damaged power cords, pulled-out strain reliefs, damaged switches and missing ground prongs. Inspect the cable for any damage. Repair or replace as needed.

You should also expose, clean and lubricate all bushings, bearings and moving parts at least twice a year. A well-lubricated machine will last longer and is less likely to break down in the middle of a job.

2. Keep hands near the drain opening when operating

When your hands are near the opening, you have greater control over the feed and retrieval. Without proper control, the reel can kink up or move too quickly and potentially cause damage to the camera, Teets says.

3. Don’t use camera as a tool

Dunbar says cameras used to inspect clogged pipes are similar in design to cameras used to record family events.

“Most of the damaged camera heads that arrive at repair centers have a cracked lens cover or light ring,” he says. “The LED lights are hidden behind bulletproof Plexiglas and the whole thing is either pipe threaded or epoxied to the end of the pushrod, so it’s sealed up like an Egyptian tomb. That sounds impressive, but it’s really no defense against an overly enthusiastic drain cleaner.”

As Teets mentioned, it can be tempting for a contractor to use the equipment to push the obstruction out of the way, but “that’s asking for trouble.



Keeping your hands near the drain opening and feeding the camera into the line slowly will help prevent kinking the reel and damaging your push camera.

You need to remember the camera is a diagnostic tool. You are trying to find out what’s wrong.”

4. Keep it clean

Keeping the camera and cable clean will improve the equipment’s longevity. “I always keep rags in my truck and wipe it all off after I pull it out,” Teets says. “Some people pour clean water over the cable as they pull it out, but if there’s a backup, adding more water is not always the best move.”

The lens of the camera will need to be cleaned after each use. Cleaning the camera will also keep oil, grease and grit from building up, which will damage the camera if left.

When cleaning, do not use an oil cleanser, as this could impair the camera lens. Instead, use a dry cloth and gently wipe the camera head to remove any dirt or debris.

5. Go slow

When starting on a project, the key is to move slowly and carefully as you put the pushrod into the pipe. If a worker moves too quickly or applies too much force, Dunbar says the pushrod will bow out and kink up.

“Once you are in, use short, fast motions to get around a bend and watch where you’re going,” he says. “Just pay attention.”

A kinked cable can be expensive to fix. As part of the repair, technicians usually cut the cable above the kink, which shortens the reach, Teets notes.

“You have less flexibility with the camera and may not be able to see as far into the pipe.” **C**

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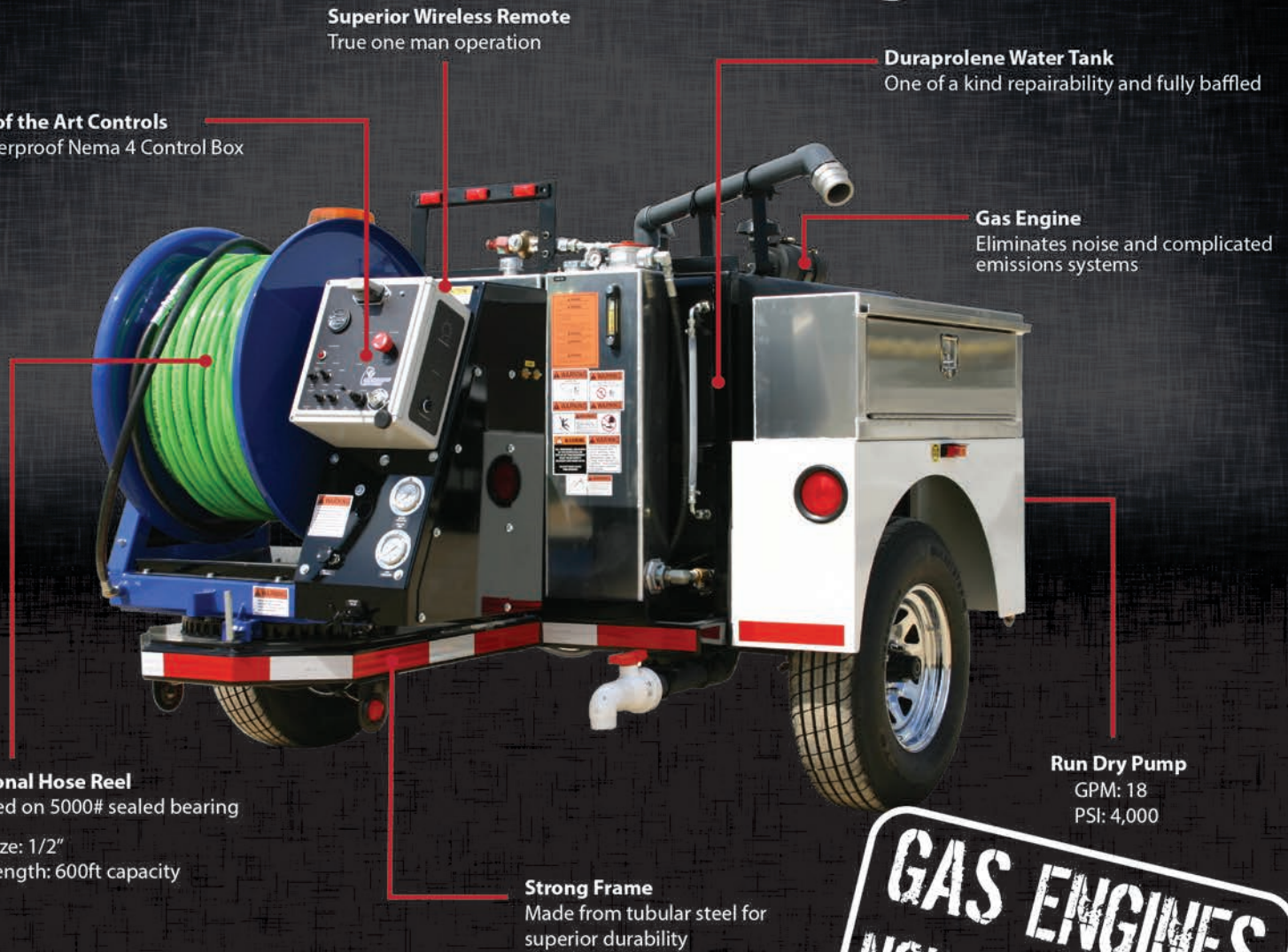
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Erik Gunn is a magazine writer and editor in Racine, Wisconsin. Direct Money Manager inquiries to editor@cleaner.com.

How Much Should You Spend?

There's no one-size-fits-all solution to managing expenses and cash flow

By Erik Gunn

It sounds like a simple question.

If you're running a small business, what's the best way to spend your money? What percentage of your annual revenue should go to salaries, training, marketing, investing in new equipment, retirement savings?

The answer, though, turns out to be unexpectedly complicated.

Wouldn't it be so convenient if there were handy rules of thumb? After all, we try to use them when we make choices about our household expenses — like the one that says your housing expenses shouldn't be more than about 25 percent of your income.

Yet looking closely at even that longstanding principle suggests why this may be more difficult than it would seem. Does someone making \$1,000 a week (\$4,000 a month) and living where there's a severe shortage of housing have any choice if the cheapest rents are \$1,800 a month? Perhaps over the very long term (move or seek a higher-paying job). But the specific conditions of where you are — geographically and otherwise — defy such airy pronouncements.

THE MARKET IS KING

Larry Rush of Reading, Pennsylvania, spent 45 years in banking. In retirement, he now mentors small-business owners through SCORE, which was previously an acronym for the Service Corps of Retired Executives.

"There is no one way to allocate percentages from revenues" to specific categories of expense, Rush says. Market differences along with individual business and industry circumstances all play a part in dictating those decisions, and you ignore that at your peril.

"When we at SCORE counsel new or present businesses, we ask the owners to do a business plan," Rush explains. Using data from various sources, Rush and his fellow business mentors then offer examples of successful businesses within the particular industry to project cash flows from revenues to various expenses.

Even within an industry, though, there's too much variability to come up with a one-size-fits-all set of rules. The first and most obvious: Is the operation a startup or long-established?

Existing businesses "have historical numbers, which we review to see if they seem out of balance to their profitability," he says.

CRUNCHING THE NUMBERS

"With startups, we ask each owner to tell us what equipment they need to perform their daily work," he continues. And embedded in the answer to that question is another question — do you buy that equipment or lease it? "Leasing or even renting may be an option, so it doesn't cost the full purchase price" when allocating revenues to that line item.

Employee costs are another variable. As the owner, you'll start by doing

everything, but the number of employees — and therefore the share of employment costs against your revenues — will change with the volume of work, increasing along with your revenue.

With a larger operation, you'll need to consider how you as the owner manage your time most efficiently and parcel the work out effectively. As the business and number of employees grow, ensuring you have seasoned supervisors who can mentor new employees is key.

The time also comes when you must hire administrative personnel "to be sure that costing, billing, and payroll can be done without having the owner do that," Rush points out. Your time as the owner is more important than those tasks — but your office personnel "need to represent the owner 100 percent to reflect the company's face to the community."

WHERE THE BUDGET FITS IN

So does all that mean budgets don't matter? Of course not.

Rush advises starting by tracking your profit loss and cash flow month to month against the jobs you do and the revenue they produce. "We suggest that each job be priced with its projected overhead — costs of equipment, fuel, labor time, insurance and other overhead expenses — and then at the end of the job, price it to see if your beginning quote was correct or was at a loss," he says. "Then learn from that."

Overhead costs especially need to be spread out month to month, not just treated as lump expenses when they occurred. You're paying \$2,400 a year for insurance? That means you budget it at \$200 a month. If your work has seasonal ups and downs, you need to account for that as well.

When setting wages, your benchmark is what other people with the same skills and experience in your market are making — and don't forget benefits or the cost of vacation time. And you need to review those questions regularly.

YOUR OWN SPECIAL WAY

All of this doesn't mean the starting question is pointless. It does mean that the answer is going to be so specific — to your business, where you're located, and a host of other factors — that the only reliable answer is to consult with your local trade association and data providers that collect and aggregate information from a large number of companies in discrete industries.

And there's another important thing to remember, which as a seasoned business owner you almost certainly already know far too well: Day to day, month to month, year to year, your business is not going to just tick on like some perpetual motion machine.

A seasonal boom might require you to call in part-time employees or hire a subcontractor. A sudden glut could force you to find make-work for your people, or even, unthinkably, lay some of them off.

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The only way you can prepare for those unexpected jerks in your bottom line is to relentlessly monitor your month-to-month profitability so you can maximize your cash flow and know you'll be able to cover downturns when they occur.

And that, Rush concludes, is where budgeting comes in. You look at how you've performed in the past, and what you need to do differently to perform better next year.

Because the real answer to how much you should spend and what you should spend it on comes down to where you are now, where you want to be, and how you plan to get there.

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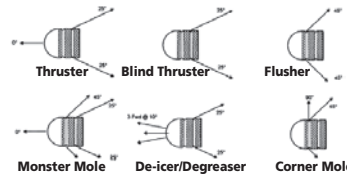


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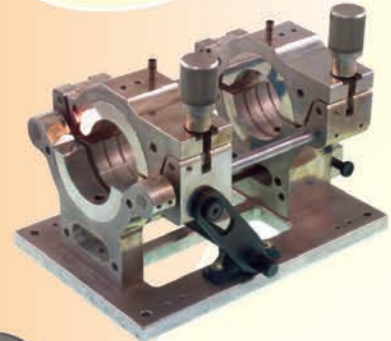
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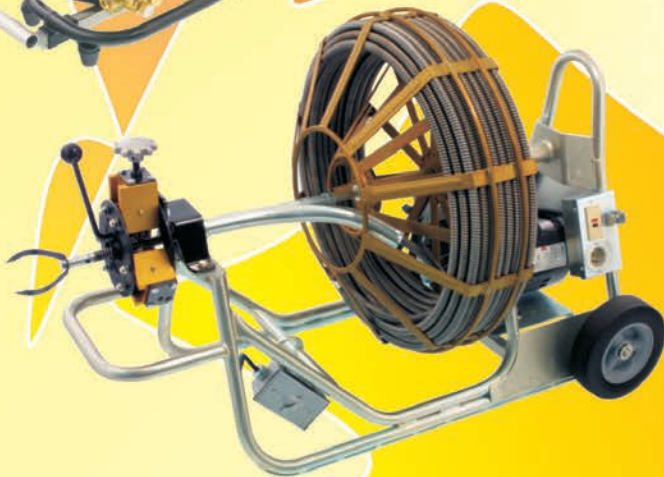
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Monitoring Job Safety

Even if your company has no dedicated safety coordinator, it should still be a focus of the employees

By Jessica Whitmore

When the business cycle is slow, Dan Lin, safety coordinator/operator of Supreme Vac in Edmonton, Alberta, jumps into a truck and works in the field. It is this versatility that has allowed the small business to maintain a designated safety person on staff.

The company itself provides vacuum truck, hydrovac and steam services with a large emphasis on safety. All employees are required to have current certifications and safety training, but the company takes it even further by having a specific safety person on staff. This wasn't an overnight position, but one that evolved over time.

"As a business's customer portfolio and client requirements grows, it is important to enhance and comply with a safety program," says Braydon Jeske, foreman/operator at Supreme Vac.

A DEDICATION TO SAFETY

In 2011 and 2012, the company first had an employee designated to manage the paperwork and administration necessary for safety. That evolved to Lin taking his current position in late 2014. What makes him unique in this position is that he also has the required licensure to operate the trucks.

This has given Lin the versatility to spend approximately 50 percent of his time in a safety administrative role and 50 percent of his time directly in the field, operating equipment. He works to make sure Supreme Vac is in compliance with its own safety requirements as well as government regulations and client compliance requirements. He knows what to do, the challenges within the field and how to monitor as well as document safety plans, procedures and requirements. It is this combined knowledge that helps him provide safety features for Supreme Vac.

Most small companies, however, are not able to always have a designated safety person on staff because of the funds available. Instead, the owners handle the safety person role themselves, or the employees are expected to simply comply after training has been presented.

The need for a designated person becomes more important for small companies to compete with the larger ones when bidding on jobs that have a safety coordinator as a requirement.

DEDICATED POSITION

Lin suggests looking at the type of work you're currently doing and expect to do in the future. This insight is valuable when choosing the route of adding a staff member focused specifically on safety.

Jeske also recommends focusing on a safety employee who is diversified in skill sets. Lin is that guy for Supreme Vac. While he oversees safety at the company, he can also run equipment in the field during those slow cycles that each business in the industry faces. This means he isn't just sitting in an office.

The safety culture, however, isn't fully dependent on the safety person. The focus on safety becomes everyone's responsibility, says Jeske. He also recommends any person put in the safety roll needs to be confident, knowledgeable of policy and procedures, and able to enforce the safety processes and procedures.

STAY FOCUSED

Even if a full-time safety coordinator is not within reach for your company, it doesn't mean you should skimp on safety. There are simple things any company can do to keep employees safe. For example, Supreme Vac always sends two operators on a job. This way someone is there to handle any potential issues and to assist in potentially dangerous situations such as spotting and congestion with traffic.

Regardless of whether a designated safety person is on staff, communication is another key to safety. Supreme Vac focuses this communication not only internally with its employees, but also with its clients. The company will request feedback from clients. These conversations can include processes used as well as equipment and specific concerns.

These upper management conversations are important because a client may be reluctant to talk directly with the equipment operators. Instead, talking with the designated safety person or someone in higher management is a way to keep those communication lines open.

IS IT NECESSARY?

You can review the need for a designated safety person by looking at current and expected contracts, regular processes, dangerous work environments, equipment used and customer lists.

After that review, consider how management prepares and communicates with employees to safely complete all aspects of the job. Companies might just start with basic safety processes and procedures and then grow from there — just as Supreme Vac did.

As Jeske says, "The bigger the company gets, the more the safety needs to expand." **C**

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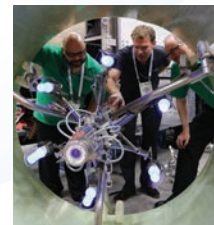
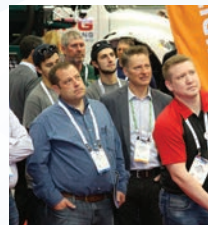
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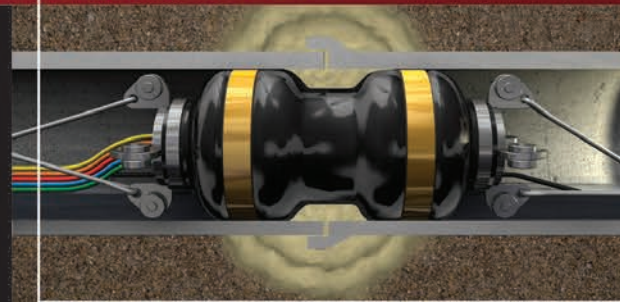


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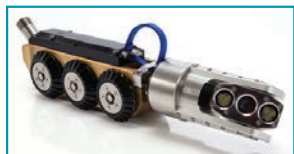
By Craig Mandli

INSPECTION CAMERAS/COMPONENTS



ARIES INDUSTRIES PATHFINDER MODEL TR3310

The **Pathfinder Model TR3310** mainline inspection system from **Aries Industries** operates with long life in harsh pipe conditions. It's a powerful, steerable tractor with a pan-and-tilt camera and self-cleaning lens. Forward weight distribution results in better traction for longer pulls and faster inspections. Continuous-duty-rated motors, all-gear-driven drivetrain, and improved pressure testing ensure reliable operation. With various wheel sizes, it sets up quickly to match pipe contours. A standard-configuration tractor operates in 6- to 24-inch-diameter relined pipe. A large-line kit provides navigation in pipes up to 36 inches. An adjustable electric camera lift with a 7.1-inch extension keeps the camera centered in a wide range of pipe sizes for full visibility. It operates with the Aries Master Controller that enables wireless remote operation using a dual-joystick Xbox controller. **800/234-7205; www.ariesindustries.com.**



COBRA TECHNOLOGIES FROM TRIO VISION CT601

The small **CT601** crawler from **Cobra Technologies from Trio Vision** has been tested to 20 psi with superior traction, with its brass construction making it a hardy performer for its size, without adding undue weight. It can be configured with a powered camera lift and accessory wheels, making the system capable of inspecting 30-inch or larger lines. Conventional wisdom holds that 90 percent of pipe in the ground is 10 inches or smaller, making its size ideal the majority of the time. It can be paired with the Cobra PTZ Version 9 camera, which is rated from 6 to 48 inches. **800/443-3761; www.cobratec.com.**

CUA CLAWS TRANSPORT WHEELS

Transport Wheels from **Cua Claws** were developed to increase camera footage in slippery PVC pipes by applying a specific grit to a steel wheel. They are available in three sizes and are made of stamped 16-gauge steel that is pre-drilled for application. The wheels are furnace brazed to attach a coating of 16-grit carbide chips for traction. The method of attaching the carbide ensures a long life for the wheels. They fit most popular cameras and do not need to be modified. The company can also regrit all makes of steel transport wheels. **714/697-8697; www.cuaclaws.com.**



ELECTRIC EEL ECAM PRO 2

The **Ecamm PRO 2** from **Electric Eel** allows users to quickly inspect 3- to 10-inch-diameter pipelines and locate a wide variety of pipeline problems. It has a stainless steel-housed 1.68-inch self-leveling color camera with sapphire lens, 20-LED light ring and high-resolution CCD element. A flexible camera spring navigates 3-inch P-traps. The auto iris adjusts lighting automatically. It provides an industry-standard 512 Hz sonde and has a 10.4-inch daylight-readable display with an on-screen footage counter, 16 pages of text writing with memory saves and click-touch controls with one-touch recording. Users can record directly to a USB flash. It has voiceover recording and audio/video out jacks, an 8X zoom function and adjustable light controls. It comes standard with 200 feet of braided fiberglass premium 1/2-inch-diameter pushrod, and powder-coated steel tube and bar construction with a secure-locking reel brake. It rolls on 8-inch wheels for easy maneuverability. **800/833-1212; www.electriceel.com.**



ENVIROSIGHT ROVVER X

The **ROVVER X** inspection crawler from **Envirosight** is a one-pipe inspection platform that lets an operator control inspections, view and record digital video, log observations, generate reports and link directly to asset-management software. It is packed into a simple three-piece layout, with no CCU or other components to clutter the workspace. Twelve wheel options, plus camera lift, carriage and illumination accessories mean **ROVVER X** transforms in seconds to inspect any-size line. Its six-wheel drive with proportional steering navigates past obstacles, and overlapping wheels climb offsets effectively. Powerful motors and a geared six-wheel drivetrain maximize travel range. It is built on an expandable digital backbone. Side scanning and laser profiling can be added, and technicians can view data from onboard sensors, automate tasks with macros, and measure defects on-screen. Its firmware updates automatically to the latest features. **866/936-8476; www.envirosight.com.**



FORBEST PRODUCTS FB-PIC3688A

The **FB-PIC3688A** pan-and-tilt pipe inspection camera system from **Forbest Products** allows users to have panorama pictures with the remote directional control. It comes with a 2 1/4-inch waterproof high-resolution color camera head with zooming, 400 feet of fiberglass cable and a reel with a meter counter. The 600 TVL camera head with high LED lights offers wide angle and focus. The heavy-duty waterproof control box includes a 10-inch LCD color screen with USB and built-in SD card to record photos and videos. Control buttons on the front panel are designed for remote controlling camera head rotation for over 20,000 hours. On-screen status indicators include footage of the cable pushed through the pipe. The built-in rechargeable battery lasts about three hours. **877/369-1199; www.forbestusa.net.**



GENERAL PIPE CLEANERS GEN-EYE POD

Lightweight **Gen-Eye POD** video inspection systems from **General Pipe Cleaners** offer optional Wi-Fi capability. A Wi-Fi transmitter inside the monitor lets the user send video to a tablet or smartphone to record the inspection. They can send the video on to customers or post it to YouTube from the field. The package combines camera, reel and monitor. The full-size unit sports a self-leveling camera and 200 feet of Gel-Rod for troubleshooting 3- to 10-inch drainlines. The MINI-POD version carries 125 or 175 feet of pushrod with mini self-leveling color camera small enough to troubleshoot 2- to 4-inch lines. A video-out connection still lets the user record to an external device. A 7-inch LCD color monitor mounts on a rugged, flexible gooseneck that swivels for optimal viewing angles. **800/245-6200; www.drainbrain.com.**



HATHORN CORPORATION MAGNUM M7

The **Magnum M7** from **Hathorn Corporation** is packed with multiple features and is extremely lightweight at only 29 pounds. The unit can easily be carried down a flight of stairs or rolled on its 6-inch wheels. The 7.4-inch monitor delivers a clear, bright picture and is covered by an acrylic shield for durability. It offers USB recording, 2-hour lithium battery, on-screen footage counter, 512 Hz sonde transmitter, adjustable lighting and text writer. A Wi-Fi transmitter can be added for recording to a mobile device. It comes with a variety of pushrod lengths and camera sizes to fit every job type. **905/604-7040; www.hathorncorp.com.**



MYTANA MANUFACTURING MS11-NG

The **MS11-NG** mid-sized video inspection system from **MyTana Manufacturing** can be used to inspect 3- to 4-inch lines, and is available with 200 feet of pushrod. It has a 1 1/2-inch color self-leveling camera head; a built-in 512 Hz transmitter, allowing a technician to locate during the inspection; and a daylight-readable 6.4-inch monitor. A technician can record or upload an inspection using the MyTana Viewer App, available for iPhone, iPad and Android. Built-in Wi-Fi allows multiple viewers on relining/rehabilitation projects. Inspection records can be uploaded to YouTube or still photos emailed to customers. Media connects through RCA jacks on the front of the unit. **800/328-8170; www.mytana.com.**



PEARPOINT P340 FLEXIPROBE

The **P340 flexiprobe** pushrod system from **Pearpoint** can be used to visually inspect mainline sewer runs and industrial pipework. The P343 Reel provides high-quality video cameras mounted on a semi-rigid 500-foot rod designed to push over long distances. A range of skids is available to center the cameras in pipes up to 12 inches in diameter, ensuring clear imaging of pipeline joints

and defects. The system delivers high-quality pipeline video inspection in a rugged, weatherproof package designed for use on site. Video and images are displayed in digital quality on a bright 8-inch TFT screen, with a full-sized keyboard and reporting system built in, so operators can produce detailed, coded reports without returning to the office. The P340+ controller has an internal lithium-ion battery, providing convenient power for up to a full day's typical usage, removing the inconvenience and setup time of an external power lead. **800/688-8094; www.pearpoint.com.**

PERMA-LINER INDUSTRIES PERMA-CAM

The **Perma-CAM** from **Perma-Liner Industries** comes complete with a self-leveling color camera head with a sapphire lens and centering skid, and 200 feet of heavy-duty push cable with a standard 512 MHz transmitter, all mounted on our heavy-duty, powder-coated aluminum frame. The 7-inch monitor comes with a weatherproof hand-held holder, complete with a custom sunshade. The HD monitor records to an SD media card and also has voiceover capability. The standard Wi-Fi compatible unit comes with a complimentary Samsung tablet. **866/336-2568; www.perma-liner.com.**



PIPELINE RENEWAL TECHNOLOGIES CLEANSTEER 40

The **Cleansteer 40** from **Pipeline Renewal Technologies** uses high-pressure water for propulsion, steering and cleaning as it captures live inspection video from inside lateral lines. It is able to traverse multiple bends in pipe, steer through branches and levitate above debris, allowing municipal contractors and commercial plumbers to locate failed pipes, cross bores and blockages, as well as perform cleaning. It is fully water-driven, as six propulsion nozzles generate the power needed to pull its own flexible hose through multiple bends, while a side nozzle on the camera can be aimed to steer through diverging pipes and hover past obstacles. An optional forward-facing nozzle can be pulsed to clear debris and other obstructions. The system works with any high-pressure water source, including pressure washers and combination trucks. Its 1/2-inch hose comes in lengths from 115 to 190 feet. **866/936-8476; www.pipelinert.com.**



RATECH MINI CRAWLER PNT

The **Ratech Mini Crawler PNT** is a self-propelled four-wheel-drive multiconductor camera transporter. The 12 super-bright LEDs with variable intensity control light the way through 5- to 30-inch-diameter pipes. Using the full 360-degree-rotation pan-and-tilt camera, users will be able to see defects and obstructions more closely and in more detail. This same camera head is interchangeable with the head on the company's push camera system. The power and controls to operate the crawler are in a handy remote control device. It comes with a manual lift and built-in 512 Hz sonde for locating purposes. **800/461-9200; www.ratech-electronics.com.**

RIDGID CS65X

The **RIDGID CS65x** digital reporting monitor has Wi-Fi and Bluetooth, as well as immediate access to footage from drainline inspections, providing faster access to inspections. It provides one-touch image recording for fast, efficient documentation of inspections, along with a new, faster processor and solid-state hard drive. It has ample storage for multiple jobs and docks to the SeeSnake Max rM200 camera system for on-site reporting. It has a built-in, water-resistant keyboard for easy addition of on-screen titles and annotation of captured media, as well as a daylight-viewable display for a crisp, clear in-pipe image. It has a companion app compatible with Android and iOS devices. **800/769-7743; www.ridgid.com.**



SPARTAN TOOL EXPLORER BY SCANPROBE

The **Explorer by Scanprobe** modular camera system from **Spartan Tool** has a control box that is compatible with five different pushrods 5 to 14 mm in diameter and 130 to 325 feet in length. Optional available camera

heads from 16 to 50 mm provide the ability to tackle any-size job. It comes with WinCan software preinstalled and USB, SD and cloud storage are available. An open reel design makes cleaning easy, and allows for use in any environment. The specially designed screen even lets the user see video and images clearly in direct sunlight. Detachable stainless steel camera heads allow for quick changes and extra durability. Up to nine hours of battery life means the user can complete multiple jobs without recharging. External lighting and a radio sonde location system are optional. **800/435-3866; www.spartantool.com.**



VIVAX-METROTECH TYPE-CP

The **Type-CP** inspection system from **Vivax-Metrotech** has a reel available in 200-, 300- or 400-foot lengths of stiff pushrod flexible enough for easy entry and turns. The 1.6-inch D34-CP self-leveling camera provides 700 pixels of resolution to inspect up to 6-inch pipes. It includes the vCam-5

control module with an 8-inch color LCD; transmitting sonde; digital recording to USB thumb drives, SD cards or to the internal hard drive; full-function keyboard; internal microphone; AC/DC power; rechargeable batteries; distance counter; and camera LED brightness control. The control module ships ready to use with LACP software such as POSM, WinCan or MuniXS. **800/446-3392; www.vivax-metrotech.com.**

WOHLER VIS 350PLUS WITH LOCATOR

The **VIS 350Plus** visual inspection system from **Wohler** allows users to precisely locate pipe damage and document the results of the inspection. Its 1.5-inch camera head can pan 360 degrees and tilt 180. Users can inspect waterlines 2 inches and larger with the pan-and-tilt feature to ensure no damage is overlooked. The camera head has an



integrated transmitter that facilitates location detection with a Wohler L 200 locator, which has an easy-to-read color display. Users can record video footage and store photos on a 4GB SD card for documentation and archiving purposes. **978/750-9876; www.wohlerusa.com.**

INSPECTION VEHICLES/COMPONENTS



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laser and sonar pipe profiling systems, mainline joint and lateral sealing, and lateral reinstatement cutters for the relining industry. Equipment can be ergonomically mounted to inspect 6- through 200-inch mainlines and 3- through 8-inch lateral services. The truck interior can be customized, with cabinets, equipment and mounting configuration to fit unique requirements. Truck- and trailer-mounted grout rehabilitation systems are available for mainline, manhole and lateral joint sealing, and can be equipped with the latest CCTV equipment and decision support software for television inspection with documented condition assessment. **800/327-7791; www.cuesinc.com.**

R.S. TECHNICAL SERVICES PIPELINE INSPECTION VEHICLES

R.S. Technical Services offers a full line of vehicles designed to meet the needs of contractors and municipalities. The mainline reel is precision engineered to smoothly deploy and retrieve up to 3,000 feet of single-conductor cable. The gear-driven cable drum eliminates excessive drag, which allows tractors to travel farther. The variable-speed motor and dual gear ratios provide an ideal level of control when managing inspections in challenging environments. The extreme-duty automatic cable level wind with heavy-duty, self-aligning sealed bearing is designed for longevity and consistent performance. State-of-the-art microprocessor control electronics allow local and remote operation. The footage counter displays travel at the reel and on the data display at the operator's station. **800/767-1974; www.rstechserv.com.**



LASER PROFILERS

RAPIDVIEW IBAK GATOR AUTOMATIC LATERAL DETECTOR

The **GATOR Automatic Lateral Detector** is a sensor that mounts on the front armature of **RapidView IBAK GATOR** cutters and allows the user to locate lateral connections through the pipe liner before reinstatement. Using a small microwave emitter and easy-to-use software, it locates the lateral behind the



liner and automatically marks the center of the lateral for reinstatement. The system can be operated in a completely automatic mode, finding the laterals, even if a pre-inspection was not completed prior to lining. The sensor allows rehabilitation companies to avoid costly and time-consuming mistakes when reinstating laterals. 800/656-4225; www.rapidview.com.

RAUSCH LASER PROFILER

The **Rausch Laser Profiler** performs CCTV inspection, crack measurement and laser profiling. A full Rausch camera is connected to the electric lift on the L135 steerable tractor. The system features two laser diodes integrated into a mainline TV camera head. The lasers project onto the pipe wall and the rotating camera head analyzes the pipe profile via spinning laser technology. No time-consuming, manual field calibration is necessary, as users simply place the profiler in the pipe and begin. All data is instantly and accurately generated on site using POSM Pro software. No third-party data processing is required, thus providing immediate and reliable on-site evaluation of the pipe. It meets ASTM F3080-14 standard, and can be used in 8- to 48-inch pipe. 717/709-1005; www.rauschusa.com.



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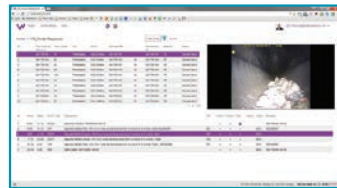
PIPELOGIX GIS

With the addition of the **PipeLogix GIS** module added to ArcMap, supervisors can view all surveys performed on an asset. The toolbar filters survey data in the master database to highlight pipes with selected conditions, grades or score values, allowing the user to link to the movie or survey. Survey conditions can be exported to a shape file or a Geodatabase feature class. When opened in ArcMap, this layer displays the condition along the length of pipe. Selecting the condition will link to the movie and jump to the correct footage for viewing. Seeing the problem and where it exists on the pipe can make it easier to schedule repair and cleaning crews. The system is compatible with ArcGIS 10.0 through 10.5. 866/299-3150; www.pipelogix.com.

ing the user to link to the movie or survey. Survey conditions can be exported to a shape file or a Geodatabase feature class. When opened in ArcMap, this layer displays the condition along the length of pipe. Selecting the condition will link to the movie and jump to the correct footage for viewing. Seeing the problem and where it exists on the pipe can make it easier to schedule repair and cleaning crews. The system is compatible with ArcGIS 10.0 through 10.5. 866/299-3150; www.pipelogix.com.

WINCAN WEB

WinCan Web allows users to upload inspection footage for secure viewing anywhere, instantaneously, from any device. Once an inspection is complete, the operator simply uploads the project to be processed and published for authorized viewers. To view uploaded projects, a link can be sent by email, or an account can be created, giving authorized users access to a specific collection of projects. Aside from the convenience and speed of sharing data instantaneously online, utilizing cloud-based data storage eliminates many IT costs while also offering increased security and reliability. 877/626-8386; www.wincan.com.



SONAR PROFILING

INFOSENSE SL-RAT

The **Sewer Line Rapid Assessment Tool (SL-RAT)** from InfoSense uses active acoustics to provide a quick view of blockage conditions within gravity-fed sewers. The test takes three minutes with no flow contact. It allows a crew of two to inspect 10,000 to 20,000 feet per day. It is EPA validated and GPS enabled. Data can be downloaded to the Sewer Line Data OrGanizer, or SL-DOG, cloud application for visualization in Google Earth, or integrated with enterprise/GIS applications. 704/644-1164; www.infosense.com. **C**



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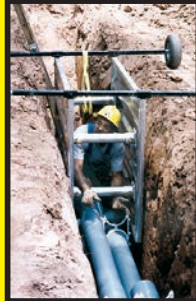
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Mainline Sewer Inspection

By Craig Mandli



INSPECTION CAMERA ASSESSES WATER MAIN FOR BLOCKAGES

PROBLEM

When unusually low-flow ratings were observed in a 12-inch HDP water main in Jupiter, Florida, the city's utility department sought out technology that could identify the cause of the unusually low flow.

SOLUTION

Technicians from National Water Main, a subsidiary company of Carylton Corp., used Aquam Pipe Diagnostic's LDS1000 condition assessment technology to identify the cause of the low-flow rates under live pressure. The inspection camera was inserted into the 12-inch main through a 3-inch valve. The system uses a tri-sensor head with a high-resolution camera, and internal hydrophone and sonde. The camera uses the pipe flow and a drogue (parachute) to carry the camera down the water main.

RESULT

Technicians were able to survey 2,000 feet of pipe and determine the cause of the problem. With this data, the city will be able to properly execute a plan to reduce the sediment buildup that was causing the low-flow rate. 858/242-1640; www.aquamcorp.com. c



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PRODUCT SPOTLIGHT

New nozzle delivers lightweight efficiency

By Craig Mandli

Typical high-end surface cleaning nozzles are large and heavy. While they are effective, they are also cumbersome and their weight can lead to operator fatigue. The lightweight, compact RD MASTERJET nozzle from Hammelmann Corp. solves those problems.

The RD MASTERJET is lightweight at 2.2 pounds, with a compact ergonomic design 2.2 inches in diameter and 6.5 inches in length. Its small size doesn't sacrifice performance, though, as it can be used at operating pressures up to 46,500 psi, with its optimum internal flow allowing the pump's total performance to be used for surface preparation and high-end cleaning.

"Industrial cleaners are the target market, but it certainly has a place in the drain cleaning industry," says Denny Mesarvey, sales manager for Hammelmann Corp. "Older nozzles with this capability were roughly 4 pounds. We've cut that in half."

The RD MASTERJET has HPS sealing technology and adjustable speed rotation. It is designed for use with shotguns, robotic lance systems or replacement of any rotating tool. It has a versatile universal nozzle hub for working with two- or four-nozzle inserts. Nozzle inserts are countersunk in the nozzle carrier with blast-back shields. Its rotation speed is controlled by an infinitely variable magnetic brake.

"With adjustment down to 5,000 psi, it is terrific for many cleaning jobs," says Mesarvey. "We think contractors are really going to love the unit's pressure and rotation versatility."



The nozzle can be used for cleaning and washing, expansion joint removal, coating and paint removal from surfaces, blasting pipe externals, paint booth grid and skid cleanup, superstructure surface preparation, heavy machinery cleanup and surface preparation. Mesarvey says that with many drain cleaners venturing into surface preparation work, it makes sense to have a versatile nozzle like the RD MASTERJET in the toolbox.

"A lot of guys who used to focus on pipe cleaning are starting to take more industrial jobs because they have the equipment powerful enough to do it," he says. "The feedback we've gotten from contractors that are already using this in the field indicates that the biggest positives are the small size, light weight and the versatility with its high-pressure rating."

Mesarvey says anytime a contractor can use one product to perform multiple jobs, it means big value.

"These contractors are always looking for ways to become more efficient," he says. "This nozzle helps them do it. 800/783-4935; www.hammelmann.com.



1

1 TRY TEK .9 HP SQUARE AIR ROUTER

The .9 hp square air router from TRY TEK Machine Works is for 8-inch and larger pipe applications. Its overall length is 4.4 inches, operates up to 25,000 rpm and 90 psi, and has air consumption of 40 cfm. The air router is compatible with all of TRY TEK's cutters and comes standard with 5- to 18-inch T150 mainline reinstatement cutters. 717/428-1477; www.trytek.com.



2

2 TROJAN BATTERY SOLAR AGM BATTERIES

Trojan Battery's deep-cycle absorbent glass mat batteries are designed for solar and other renewable energy applications. Its nonspillable design enables customization of use and position, and the batteries are certified for nonhazardous shipping per U.S. DOT/IATA regulations. They come with a rugged polypropylene case, reinforced cell compression, flame arrestors and are abuse tolerant. 800/423-6569; www.trojanbattery.com.



3



4



5

3 GENERAL PIPE CLEANERS SEWEROOTER T-3

The lightweight Sewerooter T-3 from General Pipe Cleaners clears clogs from 2- to 4-inch-diameter lines up to 100 feet long. Optimized for inside work, it features a fold-down handle and a tough, reinforced tubular frame on 10-inch wheels for easy transport to and from the job. The power cable feed provides maximum feed control of 1/2- or 3/8-inch cable. The accompanying guide tube and optional extensions prevent cable whipping and kinking. Powered by a heavy-duty 1/3 hp capacitor-type motor with thermal overload protection, the T-3 has a powder-coated metal drum with a capacity of 100 feet of 1/2-inch Flexicore cable. **800/245-6200; www.drainbrain.com.**

4 RIDGID MICRO CA-150 AND CA-350 INSPECTION CAMERAS

The Micro CA-150 and CA-350 hand-held inspection cameras are made to work in tough environments for quick job site feedback and project implementation. The CA-150 has a 3.5-inch color display and the internal memory can save up to 20 images. The CA-350 comes standard with a 12-volt rechargeable lithium-ion battery, lasts up to eight hours and takes 45 minutes to recharge. Both cameras include a pistol grip design, LED lights and large screens for viewing. **800/769-7743; www.ridgid.com.**

5 COXREELS INDUSTRIAL-DUTY LED LIGHT

The industrial-duty PC13-H-Series LED light from COXREELS is available on the PC13 cord reels and has a variety of industrial-grade features, including an LED end light, internal light diffuser, adjustable steel hooks for hands-free placement and shatter-resistant polycarbonate lenses. The light is UL listed with a 50,000-hour rating. **800/269-7335; www.coxreels.com.** **C**

LMK Technologies announces continued partnership

LMK Technologies announced its continued five-year partnership with Flow-Liner as a national distributor of the Neofit System. The Neofit System is a durable, green and cost-effective method of trenchless rehabilitation of potable-water lines.

NLB partners with Vac2Go

NLB Corp. announced that it has entered into an agreement with Vac2Go. The reciprocal agreement will include Vac2Go's Louisville, Kentucky; Rock Hill, South Carolina; and Memphis Tennessee, locations featuring select NLB waterjetting units for rent and long-term lease.

KNIPEX Tools hires Daryl Warren as key accounts sales manager

KNIPEX Tools announced Daryl Warren as key accounts sales manager. In this position, he will be responsible for developing and maintaining relationships with key account customers while meeting the sales and financial objectives of the company.



Daryl Warren

Comet Group acquires Lavorwash

The Comet Group announced that a binding share-purchasing agreement for the acquisition of Lavorwash Group has been signed. Lavorwash runs production facilities in Italy, Brazil and China, as well as commercial subsidiaries in Spain, France, the United Kingdom and Poland.

Trelleborg appoints business unit president

Simon Burke has been appointed president of Trelleborg's pipe seals operation. Based in Lelystad, Netherlands, he will be responsible for the strategic direction, growth and management of Trelleborg's pipe seals operation globally. **C**



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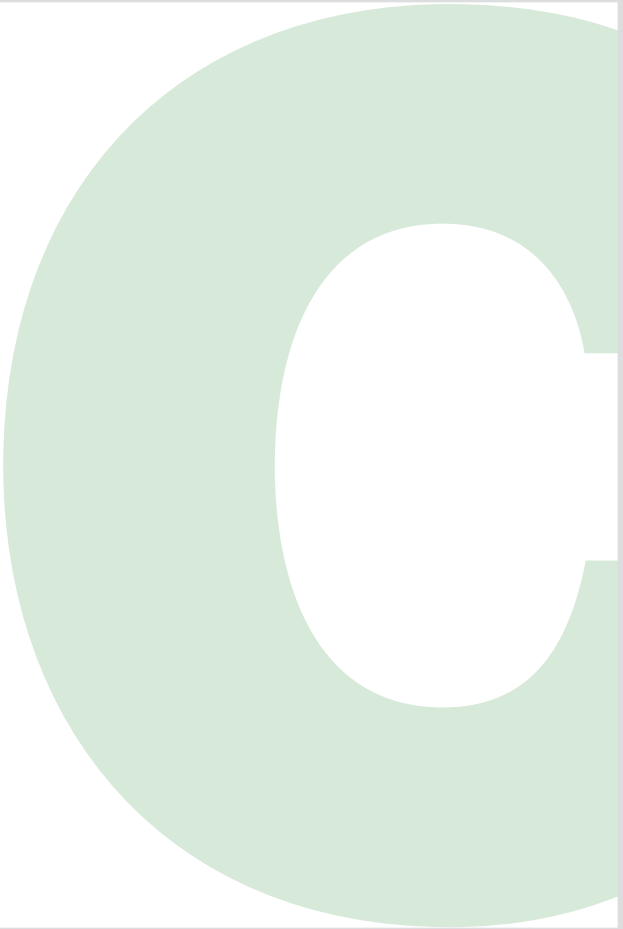
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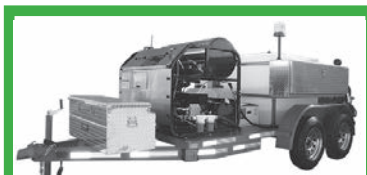
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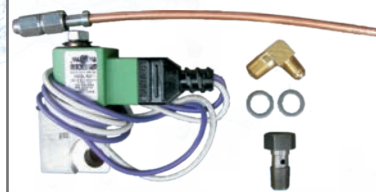
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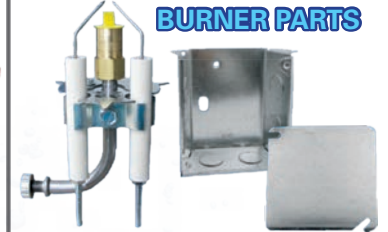
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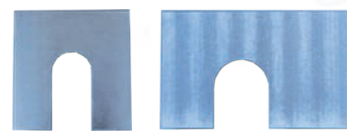
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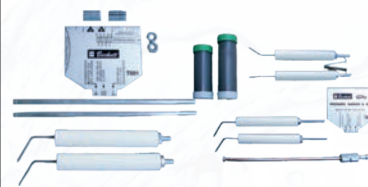
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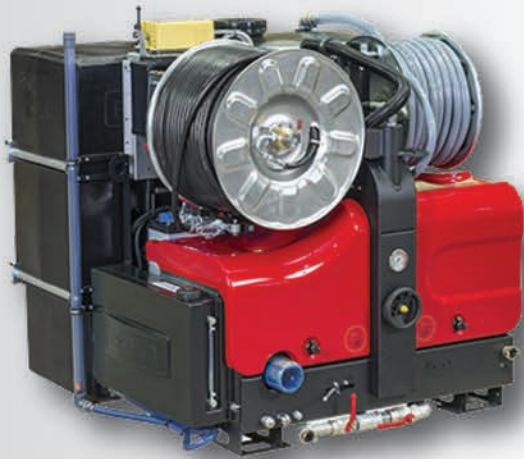


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