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JUNE 2019
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LOCATION AND LEAK DETECTION, DRAINLINE TV INSPECTION EQUIPMENT / 56

Speedrooter XL[®]



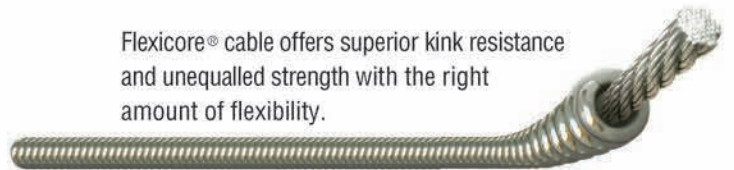
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ON THE COVER

Jim and Marc Watson, the father-son team who co-owns Royal Flush Plumbing in Seekonk, Massachusetts, have set themselves apart from other plumbers in their area by offering pipe lining and jetting. (Photography by Scott Eisen)

COMING IN JULY

Annual Buyer's Guide

- TECH PERSPECTIVE:** A guide to pipe assessment methods
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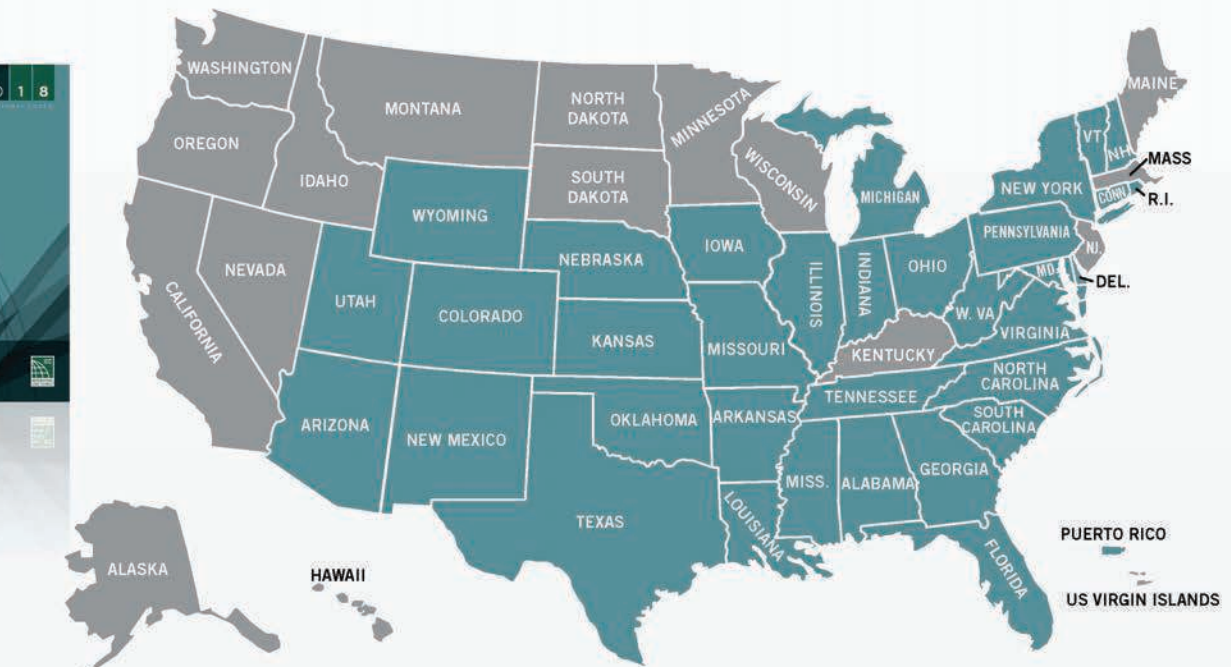
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Kayla Bisnette Jim Koshuta

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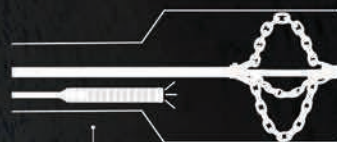
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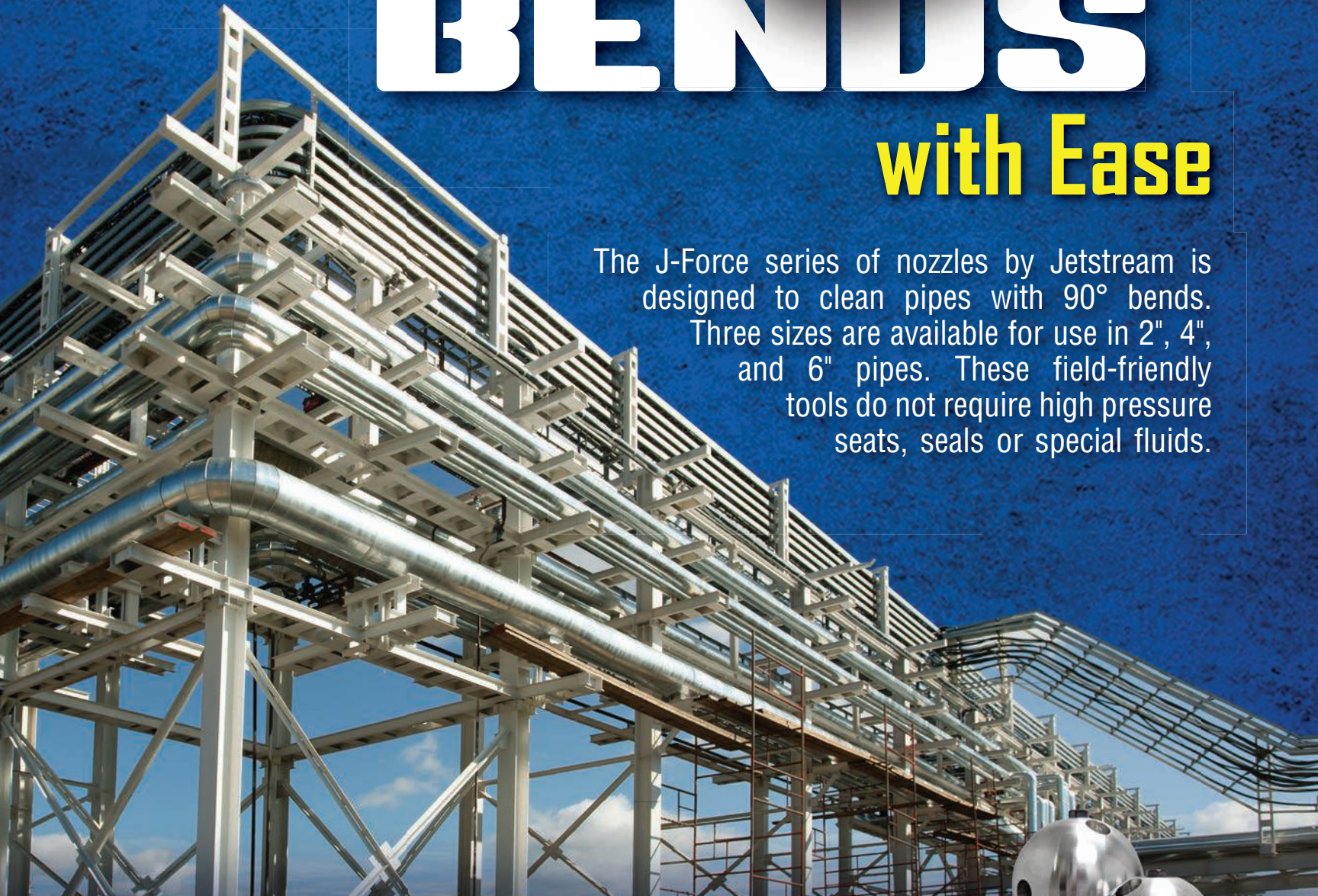
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Kim Peterson

Making Progress

Don't wait until the end of the year to check in with your business goals

The end of June will mark the halfway point of 2019.

I had to sit a moment and let that sink in. Partly because the process behind putting the magazine together requires that I'm writing this in March. And partly because I needed to take stock of the fact that another year is quickly going by and it will actually be June before I know it.

June is a nice time of year, especially for those of us living in climates with four distinct seasons (including a very long winter). The midway point is also a great time to check in with yourself and your business and see how things are going. If you set goals at the

beginning of the year, set aside some time soon to evaluate your progress.

If you don't think things are quite measuring up to your expectations, make some adjustments. One wise move is making your goals both quantifiable and actionable. If you just say you want to "increase revenue," that broad statement can set you up for failure before you even get started. If you don't have a plan in place, including ways to check your progress, all the effort you're putting into your work can feel directionless.

If you set a goal to increase revenue by a specific amount, say 20%, that gives you something to shoot for. You'll know the numbers you need to hit monthly or each quarter. You can work on putting a plan in place to help your technicians get more efficient. Maybe in order to really see the growth you want, you'll have to hire someone. Checking in on the progress more regularly can help you make decisions to keep moving toward that goal.

While long-term goals or resolutions can be highly motivating, for some people they don't work as well. It can be hard for any number of reasons to stick with big changes. Maybe you're not seeing results as soon as you thought you would, which can be incredibly discouraging. If it feels like you bit off more than you can chew, take a step back and re-evaluate.

That's not to say you shouldn't dream big. But making smaller, actionable goals that can be achieved in a shorter time frame might be the way to get back on track. Breaking up a larger goal into quarterly or even monthly achievements makes the bigger picture more manageable and helps you stay on track. Plus, you'll get a little mental boost every time you meet those shorter milestones.

It can also be a time to increase your goals if you're already well on your way to meeting them. It's wise not to bury yourself under unrealistic expectations, but if you're already close to achieving your goals for the year, don't sell yourself short. Keep inching that benchmark up and you'll get where you want to be that much sooner.

Hopefully at this midway point in the year you feel good about where your business is heading. If not, this is the perfect time to evaluate and make adjustments to finish the year strong.

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

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EMPLOYEE BUY-IN

Think Career Stage Before Age to Boost Engagement

It's commonly accepted these days that different generations of workers — whether they're millennials, baby boomers, or Gen Xers — require different approaches to keep them engaged in the workplace. While that's a factor, as this online exclusive explores, you should be putting an even heavier emphasis on the length of an employee's tenure with the company, regardless of their age.

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LEARNING TO CRAWL

CCTV Inspection Goes Beyond Robotics

Technology has been a big part of improving the quality and effectiveness of pipe inspections over the years, but at the core of good inspections are some key traits that the operators of that technology should possess. This online exclusive looks at how you can find and further develop the skillsets important to pipe inspection. [»cleaner.com/featured](http://cleaner.com/featured)

“A business plan can give you direction, but on a daily basis, you need to tackle what's in front of you or you're going to get totally overwhelmed.”

— How Strictly Should You Follow a Business Plan?

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GOING SMALL

More Contractors Eyeing Smaller Hydrovac Units

Instead of worrying about maneuvering large machines, some contractors are opting for smaller trailer-mounted units when first getting started in the hydroexcavation game. This online exclusive looks closer at this trend and a few of the trailer-mounted units that are available on the market. [»cleaner.com/featured](http://cleaner.com/featured)



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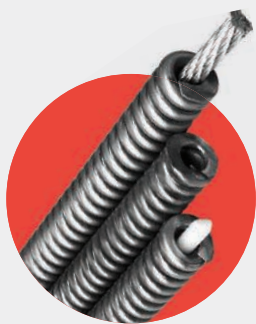
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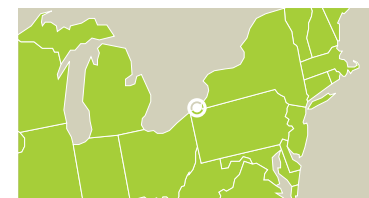
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A SHIFT IN FOCUS

Pennsylvania contractor moves to sewer and drain cleaning as demands for services change

By Cory Dellenbach // Photography by Amy Voigt



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Chris Carlin never had any thoughts of going into the drain cleaning and sewer services industry, but after years of doing new construction plumbing, a change was in store.

“A friend of mine was a sewer inspector. He said I should really consider getting a sewer camera because the townships and municipalities around the county were making changes and doing inflow and infiltration inspections and giving up the responsibility of the lateral from the house to the road,” says Carlin,

owner of C. Carlin Plumbing. “They were changing the ordinance to the laterals being the homeowners’ responsibility to maintain.”

That was in 1996. Now, the Erie, Pennsylvania-based company’s drain cleaning and sewer services encompass about 60% of the yearly revenue. The company also offers typical plumbing services and hydroexcavation.

“It’s just a completely different world in the plumbing industry that we do now compared to what we did before,” Carlin says. “We were going to new houses, drilling holes and putting in new pipe.

« Chris Carlin, founder and owner of C. Carlin Plumbing, stands with his employees (from left) Ben Kuzma, Devyn Hopson, Anthony Desser, Cody Flinn, Trevor Reed, Bill Hilbert, Doug Moyer, Scott Benim, Camille Scarabino, Kyle King, Chris Bane, Marc Prindle, Dewey Desser, and Billy Krawczyk.

Now we do a lot of small commercial work, and sewer and drain cleaning. A lot of stuff has changed over the years.”

FINDING HIS WAY

That roller coaster started in the early 1980s when Carlin was working for another local plumber right out of high school. Carlin, who had no background in plumbing and no family history in the industry, was working for a friend’s dad. As a young man just out of school, Carlin assumed since he knew the owners so well, he would be considered family.

“I was working along for six or nine months and the boss pulled me aside and wanted me to stay after and talk,” Carlin says. “I thought I was going to get a big raise, but I go in and here he tells me if I didn’t shape up, this business wasn’t for me. He gave me six months. It surprised me.”

Carlin was told he had an attitude problem, but thought he was just one of the guys joking around with the older plumbers. He was also told he was afraid to try new things and he shouldn’t be.

“He told me there was nothing I could screw up that couldn’t be fixed,” Carlin says. “He wanted me to start being more respectful to the older guys, and he wanted me to start doing work for my family and friends, like side jobs. It was the best way to learn.”

Carlin took the advice to heart, and within a year he was supervising his own crew.

“He kind of created a monster because I started doing side jobs left and right, and that’s all I did,” Carlin says. “I told everybody I was a

plumber and I could fix it. I started doing side jobs, and then 12 years later it just got out of control because I was working 70, 80, 90 hours a week.”

That year his boss called him in again, praised him for the work he was doing but told him he couldn’t do new construction on the side anymore. That is what the company’s focus was and the owner of the company didn’t want to lose work.

“I was doing two to three new houses a year and that was the company’s bread and butter,” Carlin says. “That year, I did two more houses for him that were my jobs I already had in the bag and I thought this was kind of crazy. That’s when I decided it was time to move on.”

With his wife pregnant with their second child, Carlin pulled the trigger and started his own company in 1994.

“Back then I was about 95% new construction,” Carlin says. “As things developed and I got into business, there was more demand for



» Chris Carlin (right) watches the monitor of a RIDGID K-750 system as Ben Kuzma feeds it down a drainline to find a blockage.

different things, and next thing you know, I'm doing sewer work and it's something I never thought I would do. One thing led to another from there."

A NEW MARKET

Two years after starting his company, Carlin broke into the sewer and drain side of the industry. Communities within his service area were tightening up wastewater systems and found through I&I studies that most of the water infiltrating the system was coming from homeowners.

"I bought my first sewer camera and hardly anyone in town had one, so I got a majority of the work right out of the gate and started doing camera inspections," Carlin says. His first camera was RIDGID system with a small black-and-white screen. He still has that old system but also has three newer ones as well.

Very quickly he learned he couldn't inspect a drain if there was

no way through it, so he bought a snake "It has continued to snowball over the last 20 years with equipment," Carlin laughs.

In 2003 Carlin found his way to the Pumper & Cleaner Environmental Expo (now the Water & Wastewater Equipment, Treatment & Transport Show). He was looking for ways to do all of the I&I work he was getting without having to dig up floors and yards.

"Some of the locations were just impossible to get to doing that work," Carlin says. "I was trying to find a way to do spot repairs because I didn't want to dig a huge hole just to repair a small hole in a pipe."

It was there at the Pumper & Cleaner Environmental Expo that Carlin found CIPP and began working with Nu Flow Technologies. He became a licensed installer through them in 2005.

"We were pushing CIPP because of the camera work we were doing," Carlin says. "We did a lot of inspections because I was one of the few guys who had a camera."

Making payments easy for customers

While C. Carlin Plumbing has undergone several changes within the last 15 years, this past year owner Chris Carlin wanted to make one change that would make life easier for his customers.

That change was a simple one: adding Payzer to his company's website. Payzer is an online tool for contractors that allows customers to pay through the website.

"We're breaking people into it and getting them used to it," Carlin says. "We're finding people like to use a credit card for everything in this day and age. Nobody has cash on hand."

The tool also helps customers pay for what they want instead of only what they can afford at that time by offering financing options.

"If somebody wants a tankless water heater, but they can only afford a tank style, we've got this tool to offer them and maybe they can get it then," Carlin says. "If we get someone signing up for Payzer, it's that price they are quoted and it's that price all the way through."

It takes customers five minutes to be approved through the online portal. And when a customer is approved — which is easy to do — Carlin's company is issued a check immediately for the entire cost of the project.

"We get one lump sum from Payzer," Carlin says. "The customer then makes payments to Payzer."

Carlin found the tool from one of his suppliers that also uses it. "I think people would find out they could sell a lot more product and offer a better product with a service like this."

» Ben Kuzma uses a RIDGID K-750 to clear a blockage in a commercial bathroom drainline.



One of his first jobs after taking on camera and CIPP work came soon after when a local municipality was starting a program where every real estate transaction needed to have a sewer inspection done. The first inspection failed and the first plumber on the job called upon Carlin to take a look because he was going to dig it up and put a new lateral in.

Instead, Carlin showed him CIPP and his work in that municipality took off, as there was a 75% failure rate on the inspections on the sewer laterals. For its CIPP work, the company uses Picote Solutions, MaxLiner USA and Nu Flow materials.

“We can do spot repairs, but mostly we are relining 60- to 100-foot lines,” Carlin says.

“I try to get all my drain cleaning guys working in the plumbing end too because they need to know how it’s designed from the get-go, in order to learn how to clean it.”

Chris Carlin



JETTER MEETS CABLE MACHINE... END OF STORY

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“It’s just a completely different world in the plumbing industry that we do now compared to what we did before.”

Chris Carlin

◀◀ Chris Carlin chips ice away from a clean-out.

✔ Carlin looks on as Ben Kuzma (left) takes apart a sink in order to reach a blockage in the drainline.

A RIPPLE EFFECT

Adding the drain and sewer services created even more work for C. Carlin Plumbing.

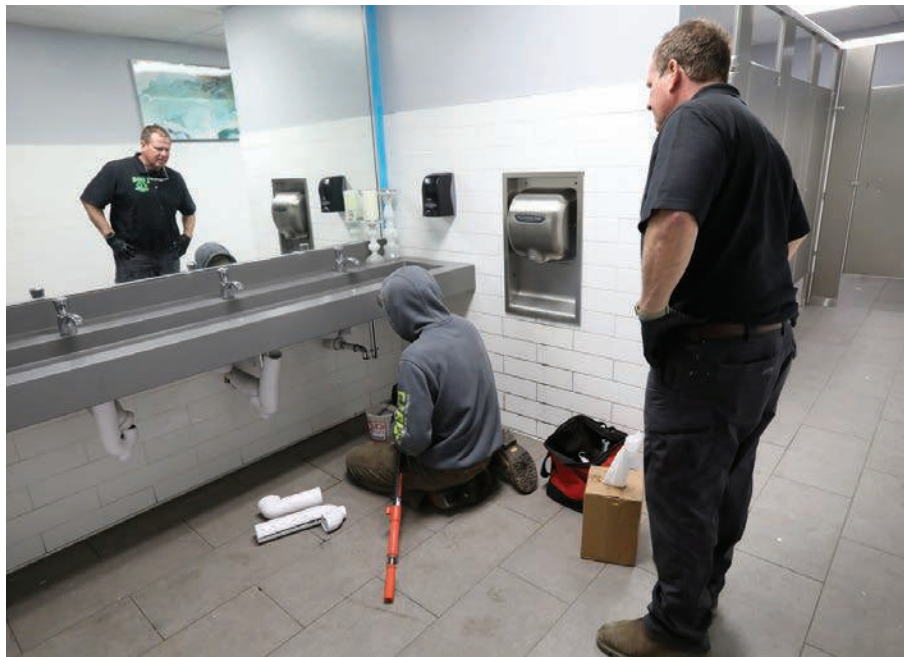
“I have an account now that probably gives us over 100 grand a year, and it’s not just drain cleaning work,” Carlin says. “They liked the work we were doing for them so much that within the last two years, they’ve handed over all their plumbing work to us. We now do 95% of that company’s plumbing; it’s all commercial.”

Carlin also does work for a builder who originally hired him out for drain cleaning services and plumbing repairs. In 2018, Carlin earned a contract from the builder to do all the plumbing installation for a new rural retirement community — a 16-patio home.

He has also added high-pressure jetting and hydroexcavation to his company’s offerings. He bought his first jetter — an O’Brien (Hi-Vac) — in order to clean the bigger sewer lines in the area and then bought a Vermeer trailer vacuum excavation unit in order to get the debris out of those lines.

“And now we do utility locating for other companies too with our trailer units,” Carlin says. “Almost all of the work we do now comes from doing work in drain cleaning and camera inspections. A lot of things we do now lead back to that.”

The company is using some of that equipment on a job currently in a local municipality where all the 900 homes in the community are



getting hooked up to sewers. While Carlin’s company isn’t installing the mainlines, they are taking on much of the residential hookups.

“Right now out of 130 installs in the township, we’ve done 50-some,” Carlin says. “There are other companies doing it too, but we have a majority of it. We have 43 alone on the books for this year and they can’t even hook up yet because they don’t have their commitment letter. Once they get that, we’re set to go.”

A COMMITTED CREW

Handling all of this work for the company is a team of 14, including Carlin, who still enjoys going out on calls as well.

“I don’t like the office — I won’t lie,” Carlin says. “Everybody here knows I’m not a pen and paper kind of guy. I’m in the field every day. If I show up to a dig, I’m in the ditch.”

CONTINUED >>



To learn more about C. Carlin Plumbing, take a look at a video profile of the company at www.cleaner.com.



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» Chris Carlin grabs tools from his truck for a commercial drain cleaning job.

Helping in the office are two full-time employees, including his son-in-law Billy Krawczyk.

“Billy worked in the field for five or six years himself,” Carlin says. “He went to school for accounting and started out on the plumbing side for a long time and graduated into helping at the office. He knows the plumbing industry so that helps when he’s doing invoicing or billing. He gets it because he’s been out there doing it.”

That leaves the remaining 11 crew members in the field. Typically there are two to a crew, but service crews are running one member a lot of the time.

“I have a couple guys who are just dedicated to the drain cleaning, camera and jetting work, and then I’ve got a couple other plumbers who float in and out of both drain cleaning and typical plumbing,” Carlin says. “I try to get all my drain cleaning guys working in the plumbing end too because they need to know how it’s designed from the get-go, in order to learn how to clean it.”

INTO THE STEAM

Not all of the jobs handled by C. Carlin Plumbing are easy commercial jobs cleaning out a line or replacing a lateral. Some have proven to be more challenging, especially at the local bakeries the company provides services to.

With so much sugar and syrup running through the pipes to form the jellies and jams for the pastries, pipes tend to deteriorate quickly. In winter 2018, Carlin was called to one of the bakeries where the bottoms of the pipes wore out.

“The pipes were within a cement platform that is about 4 feet off the ground with a ton of equipment in it,” Carlin says. “It’s called their cooking platform.”

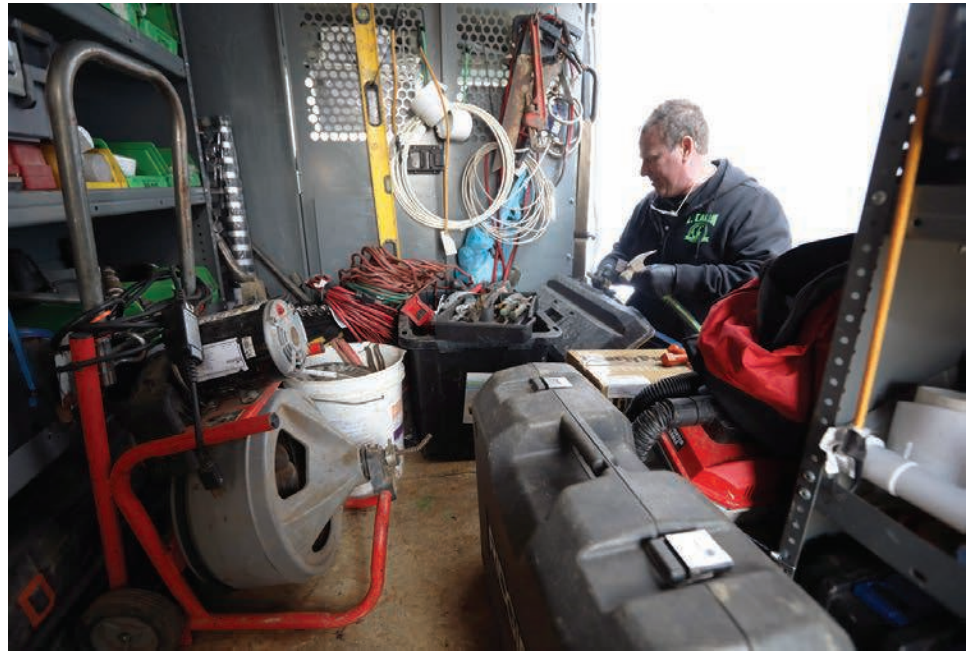
On top of the platform sit three big mixing bowls that all the jellies flow into for mixing and ultimate inserting into the confections. Running under and above the mixing bowls are steam units to heat it. The piping that needed to be replaced was under all of this equipment, which could not be shut down.

“We were getting gravel back every time we snaked or jetted it,” Carlin says. “So we knew the pipes were gone. We ran a CCTV on it and knew we had to replace a section of it.”

Crews taped off a 10-by-12 area, cut a hole in the floor about 6 foot by 4 foot and then tunneled under the platform to get to the pipes and cut them out with Sawzalls (Milwaukee Tool) for replacement.

While the repairs were being done, the bakery was never shut down.

“The steam was blowing and it looked like I had a facial by the time we were done,” Carlin says. His crews had the job completed in



three days. “It was a pretty difficult situation. Probably the hardest work I’ve ever done has been at this bakery and all the jobs have been similar.”

DIVERSIFICATION CONTINUES

Carlin isn’t afraid to say that his company has had to reinvent itself several times in the last 15 years. “We did new construction at first; now we do all of it,” he says. “It’s changed dramatically.”

Carlin says it’s important to pay attention to what is going on in the industry and look at what the market is around the service area.

“You have to adapt to what that market is,” Carlin says. “But you can’t do it all, and you can’t do just one thing either. You definitely need to have a niche — your bread and butter — but you have to be able to diversify and do more than just one thing or you can’t make it in this world.” c

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Michael Williams

Eyes on the Prize

It takes a lot of dedication and hard work to succeed in the drain cleaning business

By Michael Williams

I've been in this industry for over 40 years and wouldn't trade it for the world. This multibillion-dollar industry requires a lot of sacrifice. It's very physically demanding, and it's a 24-hour grind because drains never take a day off.

Two things I love about this industry are meeting new people and solving problems. The freedom to not be stuck in an office or cubicle, to be able to travel and hit the streets, has opened my eyes to many opportunities. When we show up, we are like detectives figuring out the why, what and how to resolve and fix the issues at hand. We never assume we know all the answers, and we are not scared to seek the advice of other professionals if it means helping the customer.

My foundation is strong because I work on being better every day. For me it's more than drain cleaning, it's about helping others and making sure those around me are just as successful and motivated as I am.

FIVE WAYS TO STAY FOCUSED IN THIS BUSINESS

1. Stay around like-minded people.

What works for me is dealing with people who are doing more and people who are dominating the industry. It's great motivation for me.

You want to look for companies that are crushing it at every level, even if they are not in your market, to find out how they are successful. Look at who is doing business like you want to do it. At Just Drains in Philadelphia, we enjoy building up our industry and providing the leadership and tools needed to succeed. To grow, you have to deal with those who are already growing. I've reached out to people who are not in my state, people who are not in my country, to ask them one simple question: "What can I do to be as successful as you?"

If you see a person or company that is successful, call and extend an olive branch to find out the keys to their success. Reach out of your comfort zone. To be successful, you have to be around and learn from people in the business who are succeeding. Talk to and get advice from them. You can't have a billion-dollar attitude dealing with folks who have a hundred-dollar mentality.

2. Always look the part.

To look the part of a drain cleaning professional, you must always be groomed, well mannered and well versed in your trade, and always treat your customer as you want to be treated. I see companies whose technicians are not

uniformed properly, they don't have business cards, technicians don't seem knowledgeable on the particular services the customer needs or they don't look professional. When a customer calls you, they have a problem that needs solving. If your attitude is negative or you find yourself talking at a customer instead of talking to a customer, that really turns people off. If you don't ask the right questions, you'll never get the right answers. Always be transparent. If you're running late or can't make it on a certain day, let the customer know.

3. Stay up on industry equipment.

To stay up on industry equipment, you have to be aware of what's happening in this industry every day — not every week, not every month, but every day. Equipment is always changing. We have just over 200 different drain machines. There's always a different and better way to tackle a drain problem or sewer job. Staying abreast of the new technology means going to seminars and conferences like the Water & Wastewater Equipment, Treatment & Transport Show in Indianapolis where you get to see equipment from lots of different companies. We look at this equipment to find out what is going to help us best do our jobs. The sewer industry is like going to war in that you can never have enough equipment and ammunition. If you don't familiarize yourself with new equipment, you're going to be lagging behind the competition.

Another great way to meet with company reps and sales folks is to have them meet you in the field with equipment so you can try it on the job.

4. Never be afraid to better yourself in understanding this business.

You must attend industry events and education seminars at trade shows that feature the latest equipment. If you don't, you are doing your customers and your family a grave disservice by not keeping up with modern technology. Your attendance at these events is mandatory if you want to grow your business. Searching for the next great innovation takes time and investment. In this industry, if you don't go, you don't know. These events are also the perfect place to meet those like-minded people I mentioned above. Don't be afraid to reach out and ask questions. Never pass up an opportunity to learn from others and to network and make connections in your industry.

5. Develop good business habits.

The average person who starts a business often realizes it's a slow grind that clicks and ticks like the sound of a roller coaster going up a 100-foot hill. But in growing your business, you begin to realize not all those who believed in your vision at the beginning will be there to see you peak at the top. Many drain cleaning businesses fail within 24 months due to lack of planning, commitment, bad business relationships and habits, and not treating customers with value.

The businesses that succeed are the ones that commit 100% and never take "no" for an answer. There's a big difference between trying and doing. To try is to fail.

Good business habits to develop include always being in business mode. Always be ready for any opportunity. If you want to be successful in this industry, you have to be ready for it. Have business cards; look the part. Does

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your truck define who you are? If it does, opportunities will knock on your door. When my team leaves the shop, they always have at least 500 business cards and they have to pass them out. Wherever you are, there is potential business.

I want to encourage you to set goals and dream big. Never accept "no" if you want to grow. **c**

ABOUT THE AUTHOR

Michael Williams is a high-energy, highly motivated drain cleaner and businessman. He is the owner of Just Drains LLC in Philadelphia, providing drain cleaning and plumbing services in the tri-state area. Williams welcomes calls from others in the industry. If you have questions for him or topic suggestions for this column, he can be reached at 215-879-8459.

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A Higher **STANDARD**

A father-son team seizes market share by offering services the competition can't provide

By Giles Lambertson //
Photography by Scott Eisen



To call Jim and Marc Watson plumbers understates their professional credentials.

Yes, they can install or repair waterlines, switch out a toilet and get water flowing again in a clogged sink line. But what distinguishes them from other plumbers in the Rhode Island and southern Massachusetts market is the breadth of their skills.

“We have really set ourselves apart from other plumbers in the area, especially with our pipe lining and hydrojetting work,” says Jim Watson, owner of Royal Flush Plumbing. “By getting into that, we have the market right here. No one else in the immediate area is jetting.”

His son Marc Watson says the extension of their services into pipe repair came after their visit to the 2016 Water & Wastewater Equipment, Treatment & Transport Show in Indianapolis. “At the expo, Source One Environmental demonstrated pipe patch repairs. When we got back, I got to thinking, We could handle that. We’d wanted to try something different. Once we tried that, I thought we could do pipe lining, too.”

So they geared up with specialized equipment and have settled in as the go-to plumbers, jetters and pipe liners in their area.

ALL IN

Jim Watson started his one-man plumbing company in 1991 after immigrating to Providence, Rhode Island. As a fearless, travel-ready, 20-something native of Scotland,

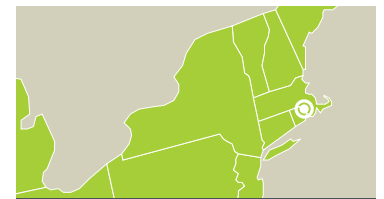
Watson had moved to South Africa in 1982 to accept a journeyman plumber opportunity. After nine years there, he headed back north and landed across the Atlantic Ocean in Rhode Island.

He started out cleaning drains, calling his company Royal Flush Plumbing. “I just thought it was catchy,” he says of the name.

His logo features the five cards that make up the winning poker hand plus a slogan, “The Best Hand in the Game.”

A secondary marketing angle alludes to his heritage as a native of Scotland: On each truck are photos of his son Marc Watson in a plaid kilt holding a big pipe wrench instead of bagpipes.

The company doesn’t do any gimmicky promotions related to the company name. Nobody makes service calls in kilts. But the company is working on getting its name in front of potential customers. “We sponsor a baseball



Royal Flush Plumbing

LOCATION: Seekonk, Massachusetts

OWNER: Jim Watson

EMPLOYEES: 5

SERVICES: Drain cleaning, plumbing, pipe inspection, pipe lining, jetting, drain cleaning

SERVICE AREA: Rhode Island and southern Massachusetts

WEBSITE: www.plumbersinkilts.com



◀ Royal Flush co-owner Marc Watson (left), Zack Davis and Chris Barosso feed a liner through a Quik-Shot system while training for lining work in the company shop.

▶ Barosso (left), Watson and Davis use a Spartan Tool trailer jetter to clear a lateral line at a home in East Providence, Rhode Island.



» Chris Barroso (left) and Zack Davis pour resin for a pipe lining test.

“We have really set ourselves apart from other plumbers in the area, especially with our pipe lining and hydrojetting work.”

Jim Watson

Customer is king

Never underestimate the value of personal service and customer care. Jim and Marc Watson of Royal Flush Plumbing can attest to that from both sides of the equation — as service providers and as customers.

The Massachusetts firm has made a name for itself in the Rhode Island and southern Massachusetts market by expanding its bundle of services beyond the traditional plumbing portfolio. While the Watsons readily point to the breadth of their services — from unstopping toilets to lining deteriorating sewer lines — for distinguishing them from most of their peers in the area, they say something else is satisfying customers and bringing in return business.

“Our customer support separates us from the competition,” says Marc Watson, Jim Watson’s son, who joined the business in 2006. “We always make sure a task is totally explained, step by step. We give them options, always — there being no end-all solution to a problem. We make sure a customer is comfortable with what is going on and what is being done and why.”

This level of communication and follow-up regularly garners the company positive feedback. It works both ways. The Watsons express their appreciation for similar attention paid them by the representative of a pipe lining products company, MaxLiner USA. The rep, Chad Miller, interacts with them the same way they do with their customers.

“We are entirely satisfied with him,” Marc Watson says of Miller. “He actually trained us when we were working with another company. When he left that company and moved to MaxLiner, we followed him because of his excellent attention to detail, customer service and reliability.”

team and, soon, a football team,” Marc Watson says. He is starting work with a marketer to build the company’s social media and Google presence.

Watson joined his father in the business in 2006 when he decided he would rather work with his hands than pursue a marketing major in college. Shortly thereafter, a business location opened up across the state line in Seekonk, Massachusetts.

Its technicians are certified in both Massachusetts and Rhode Island and move back and forth across the state line in response to customer calls, with about half the calls originating in each state. Though Jim Watson began as a residential plumber, Royal Flush Plumbing also does work for restaurants and facilities on college campuses. After Marc Watson joined the team, the company solicited additional jobs from colleges. Today, the work is evenly split between commercial and residential.

The two-man team has now grown to four technicians and one office worker.

Building the team hasn't been easy. "Finding good people is hard," Marc Watson says. Keeping them is just as difficult.

This especially is true for a company aspiring to excellence in its work and performance. As Royal Flush Plumbing states on its website, the company "offers the personalization and attention to detail of a small company, while also offering the professionalism and quality of a big company." To help sustain that standard, Watson says he and his father are advocates of "open-door communication" with employees, including conversations on the company dime over lunch and during coffee breaks.

"We have found if we treat our employees right, they will respond," Watson says. "We make sure each employee knows what is expected of him to maintain our standard. My dad is the face of the company. He always meets with customers, not only to close a deal, but to make sure they are happy."

"We make sure each employee knows what is expected of him to maintain our standard."

Marc Watson



▲ Marc Watson and Zack Davis do some CIPP training in the company shop.

At 31, the younger Watson is comfortable with new technology and always is ready to utilize it. He says he likes all of the company's work, but finds operating the pipe inspection, jetting and lining systems particularly satisfying. "Pipe lining is a challenge, and we like the challenge. It also gives us a lot of gray hairs."

An advertisement for Schonstedt locators. The top half features the company logo "SCHONSTEDT" in white on a blue background, with a stylized grid icon to the right. Below the logo, the text "LOCATORS FOR THE WATER & SEWER INDUSTRY" is displayed. Five yellow Schonstedt locator tools are shown against a light blue gradient background. The bottom half of the ad features silhouettes of two workers using locators on a grassy field, with a fire hydrant in the center. Text reads: "A wide range of underground locating instruments, Magnetic Locators and Pipe & Cable Locators, optimized to fit every need." Below this, the phrase "FIND UNDERGROUND" is written in yellow. A list of applications follows: "STEEL & DUCTILE PIPE • CURB & VALVE BOXES • REINFORCED SEPTIC TANKS • MANHOLE COVERS • STEEL ENCLOSURES • WELL CASINGS • COPPER & LEAD PIPE • TRACER WIRE ON NON-METALLIC PIPE". The Schonstedt logo is repeated at the bottom left, and social media icons for Facebook, Twitter, LinkedIn, and Instagram are at the bottom right, along with the phone number "800-999-8280". At the very bottom, the SPX logo is shown, followed by the text "Which SCHONSTEDT is right for you? Find The Right Locator at www.Schonstedt.com".

TOOLS OF THE TRADE

The company utilizes the Quik-Shot CIP lining system (Pipe Lining Supply), partly because the system's propulsion unit, heater and rollers are relatively compact and can be easily carried into a basement or to a rooftop for vertical lining. MaxLiner USA felt inserts are the company's choice of lining material, usually the Max FLEX 4D. The felt tube is impregnated with resin and unfolded into a pipe using air pressure (5 to 7 psi) to create an inner surface up to 4.5 mm thick. Hot air is then blown through the lined pipe for an hour to harden the resins and create a new surface.

The thickness of the new pipe can vary by a millimeter or so, and the felt inserts can range from 4 to 8 inches in diameter. "We're very happy with the MaxLiner system, and we're looking at equipment that will let us do pipe up to 15 inches in diameter," Watson says.

The usual application of the system is in repairing collapsing lines running from a house to a sewer main. Royal Flush Plumbing gets the call when homeowners start dealing with sewage backing up into the home. The company's longest lining project to date occurred last summer — a 750-foot-long trailer park sewer line. The Royal Flush Plumbing team incrementally inserted a MaxLiner felt tube into the old line, 150 feet at a time.

To remove roots and scale, Royal Flush Plumbing frequently calls upon the Maxi and Mini Millers from Picote Solutions. The tools' grinding chains thoroughly scour the interior of pipes. "Roots are the biggest problem, particularly in residential work," Watson says. The invasive roots of elm and maple trees are the bane of underground pipe in tree-covered New England. "In commercial work, scale is the bigger problem. The Picote Cyclone is fantastic for descaling pipes."

If the better course seems to be blasting through sludge or another material, Royal Flush Plumbing brings out the Spartan Tool Warrior trailer hydro jetter. The unit's 67 hp diesel engine and triplex pump can produce up to 19 gallons a minute at 4,000 psi, though 2,500 psi will clear away most obstructions. Most pipes jetted are 4 to 6 inches in diameter, but the equipment is sometimes used in pipes as small as 1 1/2 inches in diameter.

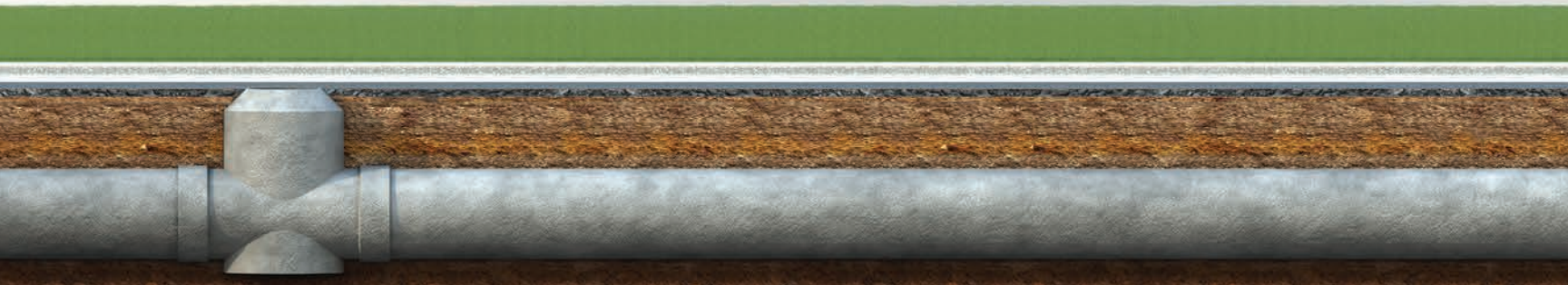
Company techs are regularly trained on equipment, including the hydro jetter. "Anytime we have to run a jetter, we let the guys operate it so they can get comfortable," Watson says. "We look for hands-on training opportunities on site. Training on an actual job site is a lot different than in a shop."

All of this trenchless work requires visual pre- and post-inspection to know what awaits the team underground and what impact the line-cleaning process has had. Royal Flush Plumbing techs depend on

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“We look for hands-on training opportunities on site. **Training on an actual job site is a lot different than in a shop.**”

Marc Watson

» Zack Davis and Chris Barroso work to clean and inspect a lateral line.



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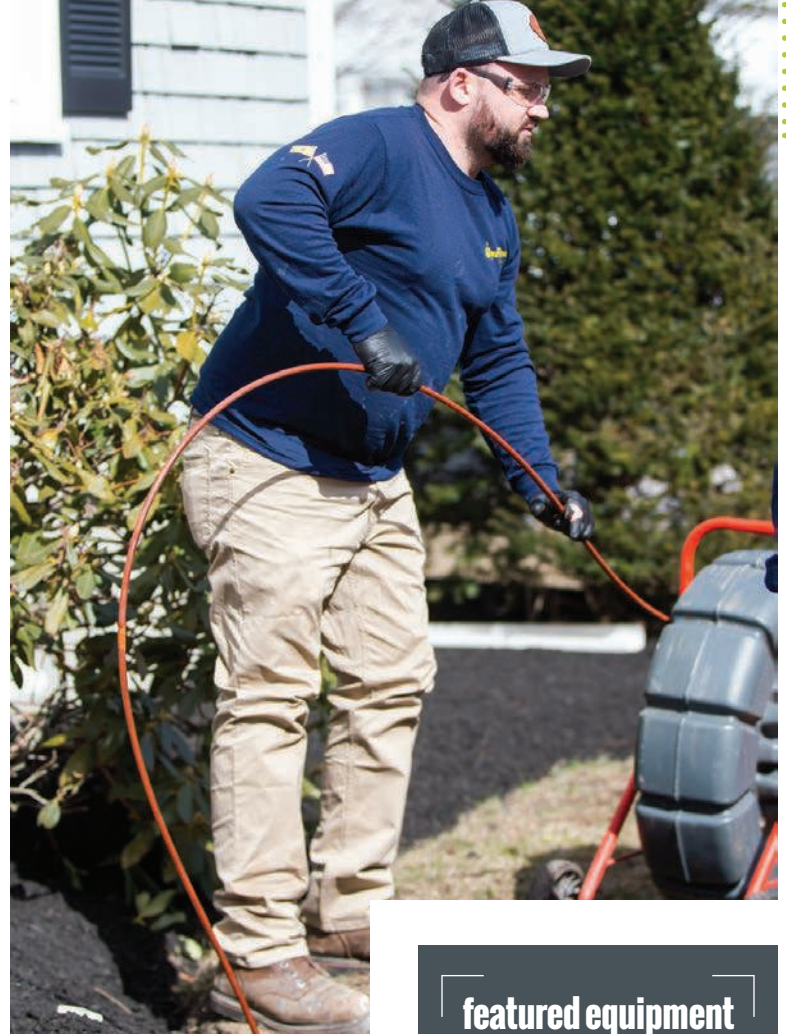
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▲ Marc Watson feeds a RIDGID SeeSnake camera into a lateral line to pre-inspect it prior to cleaning.

a RIDGID SeeSnake plumbing camera connected to a CS12X monitor to eyeball the condition of buried pipe. A couple AnySun cameras are employed in pipes as small as 2 inches.

"We are always looking at new equipment in the market," Watson says. He's currently tempted by a new UV-light liner-curing system that claims faster setup and simultaneous camera inspection in one pass through a pipe. "I'm looking at it, but I'm just not entirely there yet." **c**

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To learn more about Royal Flush Plumbing, take a look at a video profile of the company at www.cleaner.com.

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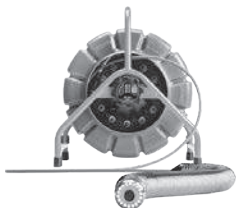


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Consider Your Options

Self-funded health insurance means taking on risk, but it makes sense for some companies

By Neil Feldman

As small and midsize employers continue to struggle with managing their ever-increasing health insurance costs, business owners are well-advised to re-evaluate their plan designs.

Since 2005, the average family's premium has increased over 60%, and the upward trend will likely continue. Employers' options are shifting more costs to workers, bearing the increasing costs themselves, or a mix of the two.

Faced with this challenge, midsized and smaller companies are increasingly looking to implement a partially or fully self-funded health plan. In a traditional medical plan insurance contract, the employer pays predetermined rates (premiums) to the insurance carrier, and in exchange, the insurance carrier takes on all claims risk for one year. In a self-insured arrangement, the employer, as plan sponsor, hires a company to administer the plan, but the administrator draws on the employer's general assets to pay the doctors and hospitals.

"Under a self-funded arrangement, there is more risk to the employer of a member having a large claim," says Karen Regini, vice president at Gorman Insurance Agency, a Connecticut-based brokerage firm. To mitigate this risk the employer typically purchases stop-loss insurance, she explains. "It's essential to be protected in the event a policy holder has a serious, long-term health issue."

There are two major types of stop-loss insurance: specific (or individual) and aggregate. Under the former, once a single member's claims reach a predetermined annual amount (for example, \$50,000 or \$100,000), the stop-loss carrier reimburses the employer for the rest of the member's claims costs. Under aggregate stop-loss policies, the employer is reimbursed for the amount of claims (excluding any that are reimbursed under the specific policy) that exceed a predetermined amount for the year.

Determining which type of stop-loss coverage and what that amount should be is best left to the professionals, Regini says. "There's a lot of considerations that must be looked at including overall health of the policy holders, claims history, cost of the stop-loss policies and appetite for risk of the business."

Self-funding is not a new idea. In fact, 94% of employers with 5,000 or more workers do it, according to 2017 research by the Kaiser Family Foundation. Among those with 200 to 999 workers, 56% self-fund. It's far less common where there are fewer than 200 workers, with 17% of such employers self-funding, but that's up from 12% in 2008, and it continues to rise.

Why are more employers choosing to self-fund? According to Joe Nicoletti, senior manager at New York-based Meridian Benefits Consulting, more small businesses are drawn to the concept of designing and controlling their own health plans. "When you design the plan," Nicoletti says, "it enables the business to do things like charging smokers considerably more than nonsmokers, implementing wellness programs with incentives for healthy lifestyle decisions and providing strong incentives for plan members to utilize walk-in health clinics instead of ERs for nonemergency matters."

Another benefit of self-funding, Nicoletti points out, are reduced taxes and fees. States typically tax insurance premiums, he says, but when you self-insure, the majority of those premiums are removed. Moreover, the Affordable Care Act introduced new taxes on insurance carriers, who pass along increased expense to employers. While self-funded plans are subject to some ACA taxes, the tab is less than with an insured plan. Finally, self-insuring removes some carrier risk charges.

There is also increased cost transparency with self-funding. "When receiving a significant health plan increase on a renewal," Nicoletti notes, "employers often wonder whether it truly is a fair renewal. When you self-insure, you see very clearly where your dollars are spent."

"When you self-insure, you see very clearly where your dollars are spent."

Joe Nicoletti

EVALUATE RISKS

Given these advantages, why don't all employers self-insure?

There are several reasons it doesn't always work, and at the top of the list are certain state-imposed limitations. Some states



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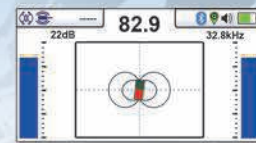
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regulate or disallow sales of stop-loss insurance to smaller groups. For example, a New York state law prohibits the sale of stop-loss insurance to groups of 100 workers or fewer. "If a smaller employer cannot protect itself with stop-loss insurance, self-insurance is just too risky," Regini says.

Even with the protection of stop-loss insurance, claims still fluctuate, and the fluctuations are more pronounced with smaller groups. A small handful of hospitalizations, or even just one, can impact claims totals, and for some small businesses, the risk is simply too much to stomach.

Lack of claims data can be a challenge. "It's difficult to assess the viability of self-funding if you cannot access historical claims from your insurance carrier or if the data set is too small to make credible predictions," Regini says. "Those are common challenges for smaller employers."

When a company self-insures, it must become much more involved in the health plan, particularly regarding banking arrangements, compliance requirements and managing plan design, and thus the administrative burden becomes greater.

If a business determines that it wants to explore self-funding, the usual starting point is to evaluate the claims history. In reviewing claims for the last few years, attention needs to be on whether there have been large claims (say, more than \$50,000 or \$100,000). "You need to model it out and see what your costs would have been if you had hired a third-party administrator and paid for stop-loss during those years," Regini advises. She notes that a rule of thumb is that

companies can expect to have a high claims year every five years, but it's advisable to track savings over time.

Every organization's appetite for risk is different, and this needs to be assessed as well. Health benefits professionals note that if a business lacks strong cash flow or sometimes struggles to make payroll or pay vendors on time, self-funding is probably not a wise option. Regini tells her clients that if they envision being worried about an impending large claim throughout the year, then it's probably not worth the angst.

As small or midsize companies continue to grapple with health care costs and regulatory requirements, best practices used by larger companies are worth considering. "While self-funding is not necessarily a good fit for every company," Nicoletti says, "it's smart to consider it and evaluate the risks versus the rewards in implementing a health plan that works well for both employer and employee." **c**

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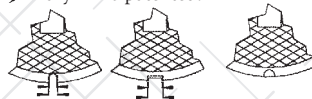
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The Tools to Take Charge

Create an environment where employees take ownership of their own safety

By Jared Raney

Safety should be second nature — most contractors in the industry can agree on that — but often, employees need a nudge to keep safety at the forefront of their daily work.

The best way to ensure that is to create a “safety culture,” which is often easier said than done. One way this culture of safety is developed is to create the expectation that safety will always be ingrained into every facet of the company.

FOCUS ON MENTALITY

Steve Taplin is the owner of Taplin Holdings, which serves many segments of the environmental services industry, including drain cleaning.

The company follows what Taplin calls the ELKS Program, or Eliminating Loss through Knowledge and Stewardship. Developed internally, the method focuses on a behavioral approach to safety.

“The essence of it is to change or complement the behavior of workers, wherein the safe execution of their work is at the core of everything they do,” Taplin says.

Some of the key practical efforts of their program are new employee training, assessment and incident reporting.

Taplin is a big believer in giving his employees the tools to take charge of their own safety. Part of that is giving them the confidence and authority to call out unsafe practices or even stop work completely when necessary.

“We take a great deal of pride in the employees’ ability to utilize stop-work authority if they feel a circumstance is unsafe,” Taplin says. “If they don’t know exactly what to do, or maybe they don’t have the right equipment, they stop.”

The company also endorses both self-evaluation and peer-to-peer evaluation. That, in addition to persistent-loss and near-loss reporting, gives workers a firm grasp of what to do or not do in a variety of situations that may not be covered in standard training.

“The goal is to be able to communicate those losses and near losses to other people in the company, so they may avoid the same,” Taplin says. “If they encounter a similar circumstance, it’ll be more recognizable.”

An extension of that ongoing knowledge sharing is a job safety analysis that is performed on each new job assignment. Employees are encouraged to take stock of the site, recognizing the risks identified with each task.

Taplin Holdings also employs a vice president of safety, with another safety manager working under him, and they have established unofficial “safety liaisons” within each division to create a network of safety resources spiraling down to each crew.

“The reward for safe work is going home with all your pieces and parts to see your family.”

Steve Taplin

ESTABLISHING PROCEDURE

Clog Squad is a drain cleaning company that also manufactures and distributes their own drain cleaning equipment. Company management believes that safety is a process, and it takes great pains to ensure each and every employee takes the appropriate steps to mitigate dangers from biohazards.

An experience with unsafe drain cleaning is what inspired founder and co-owner Ken Beyer to develop the safety-forward drain cleaners and processes that prioritize safety in the company.

“We make sure all of our employees understand how to go into a work environment and neutralize the area that’s been infected by a backed-up sewer,” Beyer says. “We neutralize it with a compound, a chemical, so it isn’t dangerous to the guys who work for us and for the people around them. We put doorknob protectors on doors — we treat it like the biohazard that it is.”

The design of their equipment allows the cable to be rinsed and sanitized as it is removed from the pipe. Such considerations encourage safe procedures by making it easy for operators, and the equipment cleaning becomes incorporated into typical operation.

“We have a training manual, and then we go over it in a classroom. We ride with them, and then we occasionally ride with them again to make sure they’re doing it, plus we follow up with phone calls to our customers, to make sure the area is left cleaner than when they arrived,” Beyer says. “We really go beyond the norm of what other companies do.”

Any safety culture needs a strong motivator for employees to embrace safety procedures.

“We give them about three strikes, and then we ask them to go someplace else,” Beyer says. “The reward is getting a paycheck at the end of the week.”

Their safety procedure includes using doorknob protectors, neutralizing agents for bacteria and odors, and water blockers to isolate spills.

“I think the industry is cleaning up its act. Our primary goal is to take the dirty out of the dirtiest jobs. We have a problem with new recruits not wanting to get into drain cleaning. Our job is to clean up that image, by being cleaner,” Beyer says. “We try to get rid of the belief everybody has that this is a dirty job. The methods that we use really clean up the image of it because it isn’t as dirty as what they expect it to be.”

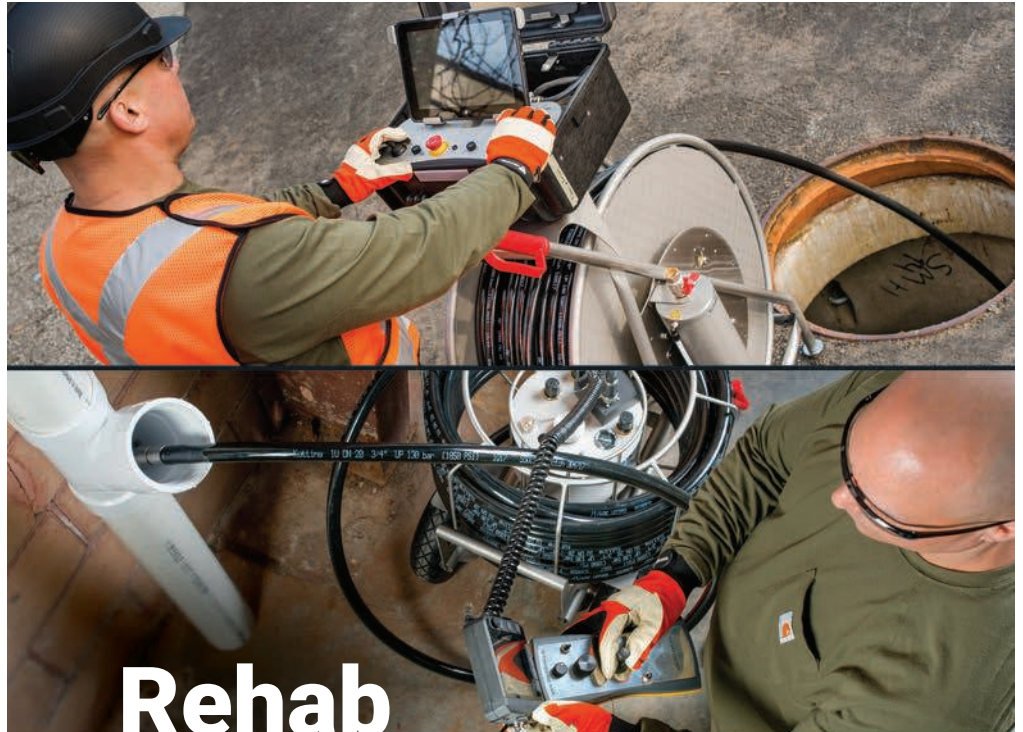
AN EVOLVING FIELD

Beyond the obvious benefits of cost savings on workers’ compensation and lost time, a strong culture of safety can increase your business’ standing in the eyes of consumers.

“We always say our best competition is somebody else being there before us, because we actually leave the place cleaner than we found it,” Beyer says. “When I first started plumbing, the old drain cleaners looked at anybody wearing a pair of gloves as a sissy. We want to make sure our guys stay healthy — it’s an evolution, and companies are starting to understand that.”

Some companies will offer incentives for employees who demonstrate a commitment to safety, but Beyer and Taplin believe treating safety as an expectation is the best way to promote it.

“The reward for safe work is going home with all your pieces and parts to see your family,” Taplin says. “Every employee is accountable for his or her own safety and the safety of their co-workers.” **c**



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Taking the Heat

Even under the toughest conditions, Rovver X inspection cameras keep on working – and generating revenue

By Ken Wysocky

During the six years since Ellingson Cos. invested in its first EnviroSight Rovver X pipeline inspection camera, there have been several instances when Joe Bingham figured the unit had met its match on a difficult job.

In particular, Bingham — production manager for the company, based in West Concord in southeastern Minnesota — recalls the time the wheeled Rovver X was on the receiving end of an unexpected, scalding-hot bath while inspecting pipes in a food-processing plant.

“In the middle of the inspection, a boiler dumped 185-degree F water into the line, which the Rovver X is not designed to handle,” Bingham says. “There wasn’t enough time to get the Rovver X out.

“By the time we were able to retrieve it, the hot water had melted the exterior paint and the unit was overheated. But after we let it cool off and started it up again, we were totally amazed when it still worked with absolutely no issues at all. We thought we ruined it, but it kept on trucking — never skipped a beat. They’re very well-engineered machines.”

Durability is the Rovver X’s calling card. Bingham says Ellingson’s oldest Rovver X has logged 294,000 feet of inspections, while the other two units have logged 181,956 and 265,189 feet.

Bingham also praises the Rovver X’s ability to televise while underwater. He says it’s not unusual for the machine to do so for a few feet at a time, as long as it travels slowly. “You usually only get one shot at it, though, because after you stir up the water, it’s hard to see.”

Ellingson now owns three Rovver X cameras, and they’ve become instrumental to operations at the company, which does everything from pipe bursting, sliplining and pipe lining to



« Ellingson Cos. technician Marco Martinez checks over a Rovver X camera before a pipeline inspection job.

ELLINGSON COS.

WEST CONCORD, MINNESOTA

OWNER: Roger Ellingson

MACHINE: Rovver X wheeled pipeline inspection cameras from EnviroSight

FUNCTION: Inspecting sewers and process piping

FEATURES: Three body sizes for pipes ranging from 4 to 96 inches in diameter; steerable, overlapping six-wheel drive; a zero-degree turning radius; compact footprint; 1/4-inch-diameter, 1,000-foot-long Kevlar cable with 1,000-pound break strength; automated reel; 12 quick-change wheel options; remote-control capability; can record digital video, log observations, generate reports for clients; links directly to asset management software

COST: About \$100,000

WEBSITE:
www.ellingsoncompanies.com

ENVIROSIGHT WEBSITE:
www.envirosight.com

“They often cut work time in half because we can see what we’re up against before we start working.”

Joe Bingham

horizontal directional drilling and pipeline assessments and inspections. The company employs about 230 people and primarily serves customers nationwide in the agriculture, oil and gas, water and wastewater, power, and telecommunications industries.

The Rovver X features three different body sizes that can inspect 4- to 96-inch-diameter pipes; steerable, overlapping six-wheel drive for traversing offsets and debris; a zero-degree turning radius for maximum maneuverability in curved inverts; compact footprint; 1/4-inch-diameter, 1,000-foot-long Kevlar cable with 1,000-pound break strength and stored on an automated reel; simultaneous control of multiple camera functions; 12 quick-change wheel options; remote-control capability; and the ability to view and record digital video, log observations, generate reports for clients and link directly to asset management software. Optional lateral launch, side-scanning and laser-profiling systems are also available.

Ellingson crews had used push cameras for inspections, but their limited cable length hurt productivity and prompted the company to rethink its options. “Because the cables were so short, we often had to dig a lot of access points before we could find the problem,” Bingham says. That’s not an issue now, thanks to the Rovver X’s 1,000-foot cable. (An optional 1,640-foot-long cable is also available.)

“With a 1,000-foot cable, we can go down one manhole and inspect in both directions, covering a lot of ground. But it’s different with interior commercial jobs, where there are fewer access points and a lot of bends in pipes that put the machine and cable at higher risk. Those jobs are much rougher on equipment because we’re continually taking the camera in and out of pipes.”

But the Rovver X’s compact footprint reduces the odds of getting stuck. “The Rovver X is easy to run, too,” Bingham adds. “Running it is pretty self-explanatory — you don’t need a doctorate degree to learn how to operate it.

“That’s important because it shortens the learning curve. If we get a new guy, we can train him on the fly in the field. With other machines, you need classroom training to learn how to run it, so you’re potentially losing productivity out in the field.”

In addition, the Rovver X’s compact size and transportability enables the company to deploy them from customized wheeled carts instead of expensive camera trucks. The carts make it easier to work in tight quarters inside a plant or to access remotely located manholes in swamps or farm fields where a camera truck can’t go. “They’re like toolboxes on wheels,” he says of the carts. “If you’re tied to a truck, you can only go so far.”

At roughly \$100,000 apiece, the Rovver Xs represent a significant capital investment. But they also improve productivity and generate repeat business by helping crews complete jobs on time and on budget. “They often cut work time in half because we can see what we’re up against before we start working.”

As such, the return on investment makes the Rovver X a worthwhile purchase. “As long as you keep up with the general maintenance, they’re going to last,” Bingham says. “And if they do break down, Envirosight is really good at repairing and returning them quickly or sending us one to use while the broken one gets repaired.

“They’ve been a great investment for our company. They do everything we’ve asked them to do.” Even when they’re in hot water. **c**

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Keeping the Beat

Treating your drum machine right lowers repair and replacement costs, extends its life and ensures safe operation

By Joan Koehne

Every shop teacher preaches the importance of safely using and maintaining tools. Take good care of your tools, and they'll take good care of you. This advice pertains to every tool in the tool chest. After using a tool, spending a few moments on commonsense cleaning and preventive maintenance can save time in the long run. Contractors can easily extend the life of their equipment by adopting a simple routine of cleaning and oiling.

This is certainly true of drain cleaning units. These units come in contact with sewer water, tree roots, dirt and debris. Without routine maintenance, a drum machine is apt to become a foul-smelling unit with a rusted and acid-corroded snake. Before using it to clear the next drain, a plumber may be left scrambling — spending precious time on an emergency cable replacement.

Bob Baker, owner of Baker Plumbing, Heating and Gasfitting in Calgary, Alberta, says regular maintenance keeps his K-750 RIDGID drum machine working properly.

“Really, in our experience, those machines should last you a decade without breaking a sweat,” he says. “If you treat them bad, they'll only last you three months.”

“It’s basically just a 200-pound spinning disk. If that’s not properly maintained, you open yourself up to all sorts of extra costs and liability that no business owner wants.”

Bob Baker

» Drum machines have the added benefit of keeping any mess contained inside, but if they're not drained and cleaned properly, you will end up with a rusted, corroded snake.

Contractors can save money by maintaining their units instead of buying new because the old ones rusted out.

“Here in Canada, one of those drum machines is going to cost you \$1,000. If you get into the bigger and more powerful machines, they'll cost as much as \$7,000 to \$8,000,” Baker says.

Safety is another compelling reason to keep the machines in good shape.

“If the drum isn't well-maintained, it can literally fall to pieces at the job site,” Baker says. Drum machines can be dangerous if not operated correctly, and that risk escalates if the machine is damaged.

“It's basically just a 200-pound spinning disk. If that's not properly maintained, you open yourself up to all sorts of extra costs and liability that no business owner wants.”

Safe operation extends to electrical cords and plug-ins. Using electricity near water creates additional hazards, so it's extremely important to be safety conscious, says Marty Silverman, vice president of marketing at General Pipe Cleaners/General Wire Spring.

He encourages contractors to check all power cords and extensions to make certain they are safe from current leakage. Replace any cords that are cut, damaged or frayed. Plug the drum machine into properly grounded outlets, and use a ground checker if you're in doubt. Be sure the drum machine has a ground-fault circuit interrupter, which automatically shuts off power if a current leakage is detected, protecting the operator from injury.



Silverman says he's seen some drum machines that are a month old that look much older because they weren't maintained properly.

"You can extend the life of the product just by taking care of it," he says.

ROUTINE CLEANING

Linda Hudek, owner of LH Plumbing Services in Fairfield, Ohio, uses a multistep approach to maintain her Speedrooter 92 from General.

"After I clear the drain, I run a lot of hot, soapy water down the drain, and that brings my cables back pretty clean. That's No. 1," she says.

The hot water cleans the snake before the snake goes back into the drum. The water also rinses away the corrosive drain cleaning chemicals that customers may have used before she arrived. Customers often try to clear the drains themselves with over-the-counter clog removers. These strong, corrosive chemicals can damage a drum machine.

To prevent the cable from rusting, LH Plumbing Services uses the cable conditioner Snakeoil from General — plus a secret ingredient.

"This is kind of a goofy thing, but I also put essential oils in to make it smell good," Hudek says. She adds whatever essential oils she has on hand and has found that orange and tea tree oils work well. Hudek puts the Snakeoil and essential oils in a spray bottle, uses the foot pedal to rotate the drum and sprays the cables.

"I definitely want to do that after every use. I don't douse them. I just do a couple of sprays while the drum is rotating, and that's it."

Squirting Snakeoil into the drum distributes oil throughout the cable and drum. Plus, it indirectly lubricates the power feed.

Oftentimes, the drum will collect sewage and other debris. It should be drained from the unit before storage.

"There's a drain port at the bottom to drain out any debris or anything else that's in the drum before storing it on the trailer," Hudek says. This simple step makes for a much better experience the next time she uses the drain cleaning machine.

"When I take the cable out when I get to the next job, there's no muck in the drum to worry about."

Hudek has used her Speedrooter 92 for about five years. With proper oiling and care, it's still in good condition.

"I haven't had to replace my drum cable yet in my machine, so that's money-saving," she says.

Baker Plumbing uses a similar protocol as LH Plumbing Services to clean and lubricate the company's RIDGID drum machines.

"Usually when we clear the obstruction, whatever that may be, we tell our guys to run as much hot water as they can while the snake is still in the drain. As we pull that cable back, it tends to

clean itself," Baker says. Any debris that's twisted up in the snake is removed by hand.

"At every job, we make sure the cable is clean and dry and the heads on the cables are in good shape and well-intact."

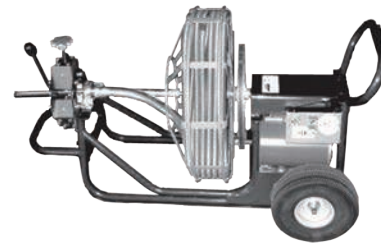
In addition to maintenance at the job site, periodic maintenance of drum machines is advised.

"For belts and motors, we want to keep the belts tight and fray-free and replace any that need it," Baker says. "For us, belts generally last about six months or so before we switch them out."

General recommends drain cleaners expose, clean and lubricate all of the moving parts in their drum machines at least twice a year. The power feed should be taken apart more often, depending on how often the drum is used. All bushings and bearings should be greased. In general, marine grease works well for drum machine maintenance.

These maintenance practices help to preserve the cables, drum, bearings and power cable feed rollers, thereby extending the life of a drum machine. **c**

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4 / SCHONSTEDT INSTRUMENT REX

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bag. The Multi-Purpose Combo Kit (MPC-Rex) includes a GA-92XTd magnetic locator and a Rex multifrequency pipe and cable locator. 800-999-8280; www.schonstedt.com.

5 / VIVAX-METROTECH VSCAN M

The vScan M utility avoidance tool from Vivax-Metrotech helps contractors prevent damage to buried utilities. It allows the excavating operator to check an area for buried utilities before digging. It is simple to operate, requiring minimal training while being reliable and rugged for site use. An optional integrated manhole detector allows even these hazards to be detected. 800-446-3392; www.vivax-metrotech.com.

PUSH TV CAMERA SYSTEMS

6 / ARIES INDUSTRIES SEEKER 2.0

The portable Seeker 2.0 from Aries Industries provides quality video with integral recording and a large keyboard. The easy-to-use, contractor-grade system operates in pipes of 3 inches or larger. The stand-alone system requires no external wiring. The reel contains 200 feet of small-diameter, lightweight cable for inspecting long pipe runs. Self-leveling straight view or pan-and-tilt cameras are available. The control unit, housed in a rugged case, provides integral recording. A large touchpad keyboard allows easy titling and fault annotation. Visibility of the 6.40-inch LCD screen is enhanced with the light-shielding cover. A hard-shell storage case accommodates optional accessories, including a sonde for line location, skids and a pressurization kit for the camera. The unit can also be used in an inspection truck or trailer with video transmitted through the vehicle's mainline cable. 800-234-7205; www.ariesindustries.com.

7 / CUES MPLUS+ XL

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

8 / ELECTRIC EEL ECAM PRO 2

The eCAM Pro 2 mainline pipeline inspection camera system from Electric Eel has a stainless steel-housed, 1.68-inch self-leveling color camera with sapphire lens; 20-LED light ring with an impact-resistant polycarbonate light ring cover; and high-resolution CCD element. The auto-iris adjusts light automatically. A flexible camera spring navigates 3-inch P-traps. The unit comes standard with 200 feet of braided fiberglass premium 1/2-inch-diameter pushrod (with a capacity of 400 feet available on the reel), industry-standard 512 Hz sonde, 10.4-inch daylight-readable monitor with click-touch controls, and one-touch recording directly to a USB flash drive. It has an on-screen footage counter, a two-hour battery with built-in charger, adjustable light controls, 16 pages of text writing with memory saves, voice-over recording, an 8x zoom function, audio/video out jacks, 8-inch wheels for easy maneuverability, a secure-locking reel brake, and rugged powder-coated steel tube and bar construction. 800-833-1212; www.electriceel.com.



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9 / ENVIROSIGHT VERISIGHT PRO

The VeriSight Pro from Envirosight has a stainless self-leveling camera with shadowless, variable LED illumination to capture crisp video footage regardless of pipe material, according to the manufacturer. With supplied centering devices, it inspects lines 2 to 9 inches and snakes through multiple bends for maximum range. An integral tri-band sonde (33 kHz, 512 Hz, 640 Hz) works with almost any locator. Its welded steel coiler comes with 130, 200 or 330 feet of pushrod. The system runs continuously for six hours off internal rechargeable lithium-ion batteries or off main or vehicle power. Its multilanguage controller displays footage on an 8-inch thin-film-transistor LCD and captures up to 90 hours' MPEG-4 video on an SD/SDHC card or USB stick. It has 3x zoom, captures images in JPEG format from both live and recorded video, and offers a 16-page text writer with full QWERTY keyboard. 866-936-8476; www.envirosight.com.

10 / FORBEST PRODUCTS FB-PIC3188XX/4188XX

The FB-PIC3188XX/4188XX portable lay-flat camera system from Forbest Products comes with a 1-inch waterproof color camera head or 1-inch self-leveling color camera head with a built-in 512 Hz sonde transmitter, stainless steel spring kit and bright LED lights. It comes with 130 feet of 5.3 mm or 200 feet of 6 mm fiberglass cable, with a high-resolution 7- or 10-inch color control station with USB and SD recording. Typing and editing is optional for the 10-inch multifunction control station. The lay-flat design is convenient for one user to operate the camera independently. 877-369-1199; www.forbestusa.net.

11 / GENERAL PIPE CLEANERS/GENERAL WIRE SPRING GEN-EYE X-POD

The Gen-Eye X-POD from General Pipe Cleaners/General Wire Spring offers a command module with a USB port to record on a flash drive. The lightweight unit combines camera, reel and monitor into a compact package. It comes with a 7-inch LCD color monitor, one-touch recording, digital zoom, voice-over recording, date and time

stamp, and a flash drive capacity indicator. It includes a 3-foot probe rod with color camera for inspecting hard-to-reach places. The full-size unit includes a self-leveling color camera and 200 feet of Gel-Rod for inspecting 3- to 10-inch drainlines. The compact Mini-Reel carries 100 or 200 feet of Gel-Rod with mini color self-leveling camera for troubleshooting 2- and 3-inch lines. The rugged steel frames and reels include a drag brake and reel lock. The full-size reel has 10-inch wheels. 800-245-6200; www.drainbrain.com.

12 / HATHORN CLEANER WI-FI DOC

The Cleaner Wi-Fi Doc from Hathorn allows users to transmit wireless video to a tablet or phone in high definition. Simply download the Hathorn app, connect to the Wi-Fi stream and begin recording or taking pictures. Once finished recording, the technician can easily send videos via Messenger, email, AirDrop, YouTube or Facebook. The Wi-Fi reels come in three sizes and are available with multiple cameras and rod diameters. 905-604-7040; www.hathorncorp.com.

13 / MYTANA MFG. DRAINSTEER

The DrainSteer from MyTana Mfg. uses high-pressure water for propulsion, steering and cleaning as it captures live inspection video from inside lateral lines. Its design makes it able to traverse multiple bends in pipe, steer through branches and levitate above debris. With these special capabilities, municipal contractors and commercial plumbers can 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, and 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. 800-328-8170; www.mytana.com.

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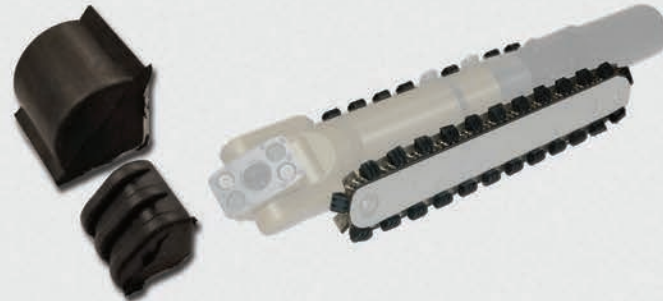
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14 / PEARPOINT/SPX P342

The Pearpoint/SPX P342 with the Plumbers add-on is a combination of convenience and performance, offering users one system for confined work areas and ease of use in congested work sites. This equipment requires just one universal command module to operate and offers an option of a 1- or 2-inch camera. The 2-inch camera is self-leveling, keeping the video picture upright when navigating pipes. 800-688-8094; www.pearpoint.com.

15 / PERMA-LINER INDUSTRIES DRAIN/PIPE INSPECTION CAMERA SYSTEM

Perma-Liner Industries offers a drain/pipe inspection camera system with either a 130-, 165- or 197-foot cable length option and a diameter of 1/4 inch on each cable. The 7-inch monitor offers LCD color with universal installation brackets, a push record button, SD card slot and rechargeable battery that lasts up to five hours per charge. The camera head is made of 304 stainless steel, measures 1 1/2 by 3 1/4 inches, and features a view angle of 120 feet, focal distance of 5 to 47 inches, 1/3-inch Sony CCD, 480 TV lines sensor and self-leveling feature. The camera head is waterproof up to a maximum of 65 1/2 feet underwater. The inspection camera boasts two roller skids: a mini one with a diameter of 2 3/4 inches and another universal skid with a diameter of 4 3/4 to 6 inches. The camera system is a lightweight design at approximately 25 1/2 pounds. 866-336-2568; www.perma-liner.com.

16 / RAPIDVIEW IBAK NORTH AMERICA MICROLITE PUSHROD SYSTEM

The MicroLite Pushrod System from RapidView IBAK North America is a lightweight, small-diameter push system with a durable steel frame construction that delivers a high-quality image for all contractors and plumbers. Fitted with 100 feet of push cable, powerful LED lighting and an auto-uprighting camera, it is designed to inspect pipelines 2 to 4 inches in diameter. The entire system is powered

by rechargeable batteries and is equipped with the positionable MicroLite Command Console, which includes a 10-inch touch-screen monitor, full Windows operating system, two USB connections and recording software. 800-656-4225; www.rapidview.com.

17 / RATECH ELECTRONICS 5/8-INCH ULTRA MICRO CAMERA

The 5/8-inch Ultra Micro Camera from Ratech Electronics is tiny enough to inspect kitchen sinks and toilet P-traps. Made for 1- to 4-inch pipe inspections, it conveniently maneuvers around bends and turns smoothly. It is adaptable to any existing Ratech Electronics system, including the Elite SD/USB, Fast Peek or Mini Peek portable drainline units. The camera is complemented with four super-bright LED lights producing an ideal color picture. 800-461-9200; www.ratech-electronics.com.

18 / RAUSCHUSA MINCAM360

The 2-inch minCam360 remote-controlled, pan-and-tilt push camera from RauschUSA has digital zoom and a tri-band sonde with selectable frequencies. The Bluetooth remote includes a joystick for camera control. The cable reel is equipped with 200 feet of cable (with up to 300 feet available), and the removable batteries run for four hours. Its RID steering skid enables it to push into 45-degree Y and 90-degree T branches in the pipe. The 8.4-inch, sunlight-readable monitor enables recording video, voice and photos directly to an SD card. This system is designed as a capable stand-alone inspection system, including a text generator for detailed reporting capabilities and an on-screen distance counter. Applications range from 3- to 20-inch pipe diameters with all centering accessories. 717-709-1005; www.rauschusa.com.

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20



19

19 / RIDGID SEESNAKE WITH TRUSENSE

Connecting to RIDGID SeeSnake CSx series Wi-Fi enabled monitors, TruSense conveys valuable information about the in-pipe environment, eliminating common challenges faced by diagnostic professionals. For example, the high dynamic range image sensor expands the camera's dynamic range, allowing a greater ratio of bright and dark areas to be displayed in the same image at the same time. This means fewer blown-out areas and sections of pipe that are too dark to see. In addition, the cameras let you choose between fixed or self-leveling camera options. TruSense also includes an integrated TiltSense feature that reports the pitch of the camera in-pipe. This on-camera inclinometer helps contractors accurately identify and diagnose problems underground. 800-769-7743; www.ridgid.com.

20 / SPARTAN TOOL TRAPJUMPER

The TrapJumper from Spartan Tool is a lightweight pushrod camera designed to provide both the flexibility to navigate tight trap-bends and the strength to be pushed up to 130 feet. The beacon is built into the camera, not the spring, so that it doesn't hinder flexibility and is protected from potential damage. With a self-leveling camera and LED light ring with a 41-lumen output, the camera with Explorer control box lets its user easily show the customer exactly what ails their plumbing system. 800-435-3866; www.spartantool.com.

21 / TROJAN WORLDWIDE C100-512SL

The C100-512SL self-leveling color camera system from Trojan Worldwide is a lightweight, easy-to-operate system designed for 1 1/2- to 4-inch lines. It has a 1-inch, self-leveling waterproof color camera head with adjustable LED lights. The 512 Hz sonde transmitter is built into the spring of the camera, which allows more flexibility when maneuvering around sharp turns, and also creates a stronger signal for locating. The system has a 115-foot durable pushrod and a built-in footage counter. The display screen is a 7-inch

22



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LCD with DVR, with SD card recording and a built-in microphone for voice recording. The built-in battery offers seven hours' runtime and has an AC adapter for charging or direct power. Also included is the SD card, USB adapter for the SD card, protective visor, two skids and a waterproof case for the entire system to fit in for easy transportation. 800-392-4902; www.trojanworldwide.com.

TRANSMITTER

22 / INFOSENSE SEWER LINE RAPID ASSESSMENT TOOL

The Sewer Line Rapid Assessment Tool, or SL-RAT, from InfoSense can be used to screen 6- to 18-inch gravity-fed sewers for blockages. Results from over 120 million feet of screening show that 65% to 90% of pipes in the average utility do not need to be cleaned. This allows users to prioritize cleaning resources to areas that need it. With the capability to assess 10,000 to 20,000 feet per day, acoustic inspection can be a suitable preliminary screening tool. It requires no flow contact and is GPS-enabled. A full-standard practice for using acoustic technology can be found in the ASTM Guide (F3220-17, Standard Practice for Prioritizing Sewer Pipe Cleaning Operations by Using Transmissive Acoustic Inspection). 704-644-1164; www.infosense.com.

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SMOKE LOCATORS

23 / HURCO TECHNOLOGIES POWER SMOKER 2

The Power Smoker 2 from Hurco Technologies quickly locates leaks in new and existing plumbing systems. The machine is connected to a clean-out, and smoke is sent through the system to reveal any problem areas. The system uses LiquiSmoke, a laboratory-tested safe smoke that costs cents per minute to use and has an indefinite shelf life. When the test is complete, the smoke dissipates without leaving an odor or residue. 800-888-1436; www.hurcotech.com.

24 / SUPERIOR SIGNAL SMOKE TESTING

Smoke testing from Superior Signal can effectively help find cross-connected sewer lines and other sources of surface inflow causing wet-weather sanitary sewer overflows. Smoke candles provide visible smoke to detect more faults and at a longer distance. It is a fast, easy and inexpensive way to find leaks and faults in any type of collections system, with generators available in sizes to meet any need, from 30 to 500,000 cubic feet. 800-945-8378; www.superiorsignal.com.

25 / TURBO FOG DIVISION OF KINGSCOTE CHEMICALS M-45

The TURBO FOG Division of Kingscote Chemicals M-45 is a versatile, lightweight, portable, self-contained smoke generator that's capable of producing dense, white smoke using leak-proof liquid smoke cartridges. Each cartridge can be replaced in seconds, even while the unit is operating, for uninterrupted smoke production. No additional smoke bombs or pump garden sprayers are needed for additional test time. The Briggs & Stratton-powered, turbine-type blower weighs 45 pounds and creates a discharge velocity of over 75 mph and 2,000 cfm. It continues to work under pressure in up to 5.75 inches of water. It is available with a plumbing conversion kit. 800-394-0678; www.turbo-fog.com. **c**

Location and Leak Detection, Drainline TV Inspection Equipment

By Craig Mandli

UNIVERSAL INSPECTION MONITOR LOCATES A BREAK IN A SEWER LINE

PROBLEM / When a technician with Handy Plumbing in Corpus Christi, Texas, was unable to view a suspected crack in a sewer line with his mainstream camera system, he knew he needed a monitor with higher picture quality.



SOLUTION / The company owner contacted a local competitor, Hurricane Drain, who owned a Gvision monitor from EPL Solutions. Running the camera in the line, they quickly found the elusive crack on the top of the sewer line. "The image was so clear," says Paul Simons, owner of Hurricane Drain, "that we easily spotted it as soon as it came into view." The Gvision will power up many camera reel brands using a universal adapter and is constructed with a durable, militaristic design. Its vivid daylight-viewable LCD screen displays a clear picture even in direct sunlight, allowing plumbers to clearly view their inspections in daylight or shadow.

RESULT / Activating the transmitter on the reel using the Gvision monitor, the plumbing contractor was able to locate the crack in the line and repair the broken section. 714-453-9760; www.epls-usa.com. **c**



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SPOTLIGHT

Wireless nozzle provides immediate assessment

By Craig Mandli

With time and storage space increasingly limited, sewer inspection and jetting technicians are always looking to do more with less. A new accessory for sewer jetting trucks from Envirosight does just that, capturing high-definition footage of pipe condition for immediate assessment.

The wireless Jetscan high-definition video nozzle improves on the first generation of the Jetscan, which provides operators a simple method to assess pipe condition and verify proper cleaning without calling in a CCTV truck. Now, Jetscan is wireless, capable of streaming HD video footage straight to a tablet upon removal from a manhole. The footage can be imported wirelessly or via a USB connection. It provides an inexpensive method to assess pipe condition and cleaning success, eliminating repeated callouts and wasted resources.

“It has a paired tablet app, so video can be streamed directly to a tablet for viewing and annotating as soon as the Jetscan is removed from a manhole,” explains Jake Wells, marketing director for Envirosight. “The app also connects online to WinCan Web, so footage can be shared rapidly and securely on the cloud. Beyond that, Jetscan recharges wirelessly and can be adapted to various line sizes using different size nozzle sleds that can be interchanged without tools.”

This second-generation Jetscan provides the efficiency and optimization of the previous unit with new features for greater ease of use and efficiency. Tool-free sleds of varying sizes make it easy to deploy it in a variety of line sizes. Wireless charging eliminates plugs and removable batteries. Also, an app-based tablet interface makes it simple to view and annotate footage.

“Our main goals were to make this Jetscan wireless, tool-free and cloud-connected. Jetter truck operators want tools that are easy, quick and portable,” Wells says. “A lot of development resources went into making the video streaming robust; building an app that allowed easy viewing, annotation and cloud upload; and packaging the design’s sophisticated electronics for deployment in a hostile sewer environment.”

According to Wells, several contractors familiar with the original model tested the new Jetscan HD in the field. The feedback has been encouraging.

“Everyone’s thrilled,” he says. “Development of the new Jetscan was guided heavily by customer feature requests, so our beta testers and early customers have been highly complimentary.” 866-936-8476; www.envirosight.com.



1 PERMA-LINER INDUSTRIES MANHOLE EDGE PROTECTOR

The Manhole Edge Protector from Perma-Liner Industries is made with a highly visible safety orange that helps identify the site and the open manhole, eliminating potential hazards. The 360-degree edge protection also eliminates the top-edge roller and top-wide tiger tail that can allow the cable to slip off the roller. The interior 3.5-inch flange holds back debris and any loose infrastructure from falling into the manhole. It is made with ABS 3/16 plastic, which is durable and withstands temperatures from 40 degrees below zero to 180 degrees F. The Manhole Edge Protector leaves the manhole completely open, providing accessibility and visibility while also protecting the camera and jetter lines. 866-336-2568; www.perma-liner.com.

2 SEWER EQUIPMENT GENESIS WATER RECYCLING SEWER CLEANER

The GENESIS water recycling sewer cleaner from Cappellotto by Sewer Equipment employs a passive separation approach, which includes a true five-stage separation process. Using gravity, it separates water from sludge. The GENESIS is able to work effectively and efficiently in grease and lines containing water with any size impurities, as there are no filters to become clogged. It has a 13-yard stainless steel debris tank, a 1,500-gallon stainless steel water tank, a 90 gpm at 2,500 psi water pump designed specifically for recycled water, a positive displacement blower with 3,000 cfm at 27-inch Hg with 6-inch system, and 800 feet of 1-inch sewer hose. With a boom reach that is adjustable from 15 to 21 feet from the center of the truck, the Smart Boom assembly has 65 feet of vacuum tube, providing the ability to vacuum 30 to 37 feet below grade without adding additional tubes. 800-323-1604; www.sewerequipment.com.

3 HAMMERHEAD TRENCHLESS WT212-3D WET-OUT TABLE

The WT212-3D wet-out table from HammerHead Trenchless features a three-drive roller system and no-shim gap control that

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4 ISUZU COMMERCIAL TRUCK OF AMERICA ROAD-READY KNAPHEIDE TRUCK BODIES

Isuzu Commercial Truck of America announced the availability of new road-ready truck bodies for select N-Series trucks. The Knapheide bodies include the KUVcc, dump and landscaper models. The 11-foot KUVcc utility body is available for 109-inch wheelbase NPR and NPR-HD gasoline-powered trucks and is made from 20-gauge galvanized steel. The 11-foot dump body is available for 109-inch wheelbase N-Series standard cab trucks with gross vehicle weight ratings of 14,500 pounds and higher. It has an electric hoist powered by a 12-volt pump with power up and down. The landscaper body is available for N-Series standard cab models with 109- and 132.5-inch wheelbases with GVWRs of 14,500 pounds and higher. It will also be available for 150- and 176-inch wheelbase N-Series crew cab models with 14,500 GVWRs and higher. The landscape body features three doors for versatility in loading and dumping. 866-441-9638; www.isuzucv.com.

5 SENSORAY HIGH-DEFINITION EMBEDDABLE DIGITAL VIDEO RECORDER MODEL 4023

The Model 4023 from Sensoray is a compact high-definition digital video recorder designed for embedded OEM applications. It captures and records analog HD video (TVI, CVI, AHD) and stereo audio to USB storage media and can capture JPG images on the fly without interrupting stream recording. It provides both DVI and composite NTSC/PAL



6 COXREELS SWIVEL OPTIONS FOR THE 1125 SERIES

COXREELS offers two upgraded swivel options for the 1125 Series. The medium pressure (up to 4,000 psi) and high pressure (up to 5,000 psi) can both be factory installed on the standard 1125 Series. The medium-pressure swivel is precision machined from solid brass and features upgraded wall thickness, as well as upgraded seals and backup rings. The high-pressure swivel is machined from high-strength steel and nickel plated for corrosion resistance. This ball bearing swivel features maximum flow and enhanced load-bearing capabilities. 800-269-7335; www.coxreels.com.

7 ELECTRIC EEL eCAM ACE 2 SL SELF-LEVELING CAMERA INSPECTION SYSTEM

The Electric Eel eCAM Ace 2 SL self-leveling camera inspection system is housed with stainless steel 1.68 inches in diameter. The self-leveling color camera allows for a clear, right-side-up view of the pipeline. The system can inspect 3- to 10-inch pipelines for maintenance or troubleshooting issues. Features include a 120-volt AC power supply or optional rechargeable battery pack, sapphire lens with 20-LED light ring and high-resolution CCD element. It also has a flexible camera spring designed to navigate 3-inch P-traps, an auto-iris that adjusts lighting automatically, an impact-resistant polycarbonate light ring cover and a 5.4-inch LCD monitor with AR film for optimal viewing in sunlight. The system has a protective acrylic, anti-glare monitor shield, a video output jack for recording option, and a rugged and portable powder-coated steel frame. 800-833-1212; www.electriceel.com. c



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 Straightline Sports Steamboat Springs, CO



Bucher Municipal opens service center in California

Located in Ontario, California, the Bucher Municipal Center of Excellence held its grand opening in May. The full-service location will offer a range of upscale amenities to service all Bucher Municipal products. In addition to traditional service products, the center will also offer training, demonstration and showroom facilities, as well as spare parts and accessories.

Jetstream of Houston enters distribution partnership with Diamond Technology Innovations

Jetstream of Houston announced an exclusive distribution partnership in the professional cleaning, surface prep and waterblasting industry with Diamond Technology Innovations, a manufacturer of water jet nozzles, cutting heads and related products. Under the terms of the 18-month agreement, Jetstream of Houston will sell and support Diamond Technology Innovations' tetraCORE nozzle. Designed for use in a variety of high-pressure water jet cleaning and surface prep applications, tetraCORE nozzles produce a coherent jet stream that does not widen over use, ensuring consistent flow rates and optimal energy directed at the target areas for the entire life of the orifice.

Gradall Industries releases video featuring production, models and history

Gradall Industries released a new video providing an in-depth look at its Vacall family of products, including an up-close tour of Gradall's New Philadelphia, Ohio, manufacturing facilities. The 12-minute video features the manufacturing processes that produce Vacall sewer cleaning, hydroexcavation, industrial vacuum and sweeper models. The video also includes a brief overview of the history of the Vacall models and a summary of the various AllJetVac, AllExcavate, AllSweep and AllVac machines, as well as Vacall's new AllJet truck-mounted jetting machine. To view, visit www.vacall.com/vacall-tv.php.

Avanti International announces pathway to Certified Grout Technician

Starting in April 2019, the first Grouting Certified Technician course will be conducted at Avanti International's headquarters in Webster, Texas. The course will certify competence in knowledge of solution grouts, application of best practices to seal the collections system from infiltration of groundwater and exfiltration of sewerage, and stabilization of the sewer trench from further erosion of supporting soils. The two-day course titled Advanced Insitu Grout Chemistry & Best Practices — also known as Level 300 — provides grout technicians with both classroom and hands-on lab experiences to better equip them for decision-making in response to variable conditions such as soil types, temperature extremes and presence of groundwater.

CUES opens new sales and service center

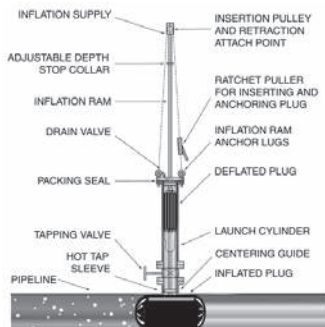
CUES announced the grand opening of its newest sales and service center in New Castle, Delaware, just off the Interstate 95 corridor. The fully staffed and factory-certified center will provide CUES customers with direct access to customer service, loaner equipment support and new equipment sales. The new location features over 8,100 square feet of offices, inventory, shop and service space. **c**

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