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OCTOBER 2019  
CLEANER.COM

MONEY MANAGER / 34  
TECH PERSPECTIVE / 52  
SAFETY FIRST / 64



CREATING CUSTOMERS  
FOR LIFE  
/ 38

## A NOBLE AMBITION

FOSTERING EMPLOYEE SUCCESS PAVES THE WAY  
FOR EXPLOSIVE BUSINESS GROWTH / 24


PIPELINE REPAIR AND  
REHABILITATION  
DIRECTORY / 56

MONEY  
MACHINES  
/ 48



PRODUCT FOCUS  
CIPP LINING METHODS & PROJECTS / 66





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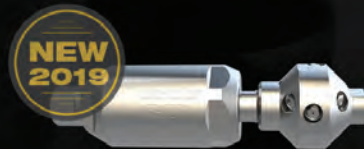
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# CONTENTS

October 2019

## FEATURES

- 24 **Profile:**  
A Noble Ambition  
Fostering employee success paves the way for explosive business growth.  
By Jared Raney
- 38 **Profile:**  
A Company With Heart  
Diversified services and an emphasis on clear communication with customers spurs growth for Tacoma plumber.  
By Ken Wysocky

## DEPARTMENTS

- 12 **From the Editor:**  
The Power of Routine  
Establishing a daily routine can make you more productive and even help you make better decisions.  
By Kim Peterson
- 16 **@cleaner.com**  
Be sure to check out our exclusive online content.
- 20 **Better Business:**  
Great Service Requires Great Communication  
You might be making these six mistakes when dealing with customers, but the fixes are simple.  
By Brigham Dickinson
- 34 **Money Manager:**  
Deal With Your Money Demons  
Walk through this financial house of horrors and see if your drain cleaning business is performing like a dream or creating a nightmare.  
By Erik Gunn
- 48 **Money Machines:**  
Lock in More Revenue  
Spot repair technology enables Midwest contractor to fix pipelines year-round.  
By Ken Wysocky
- 52 **Tech Perspective:**  
It Pays to Be Flexible  
Drain cleaning machines using flexible shafts are lighter, more flexible and easier to clean.  
By David W. Neville
- 56 **Pipeline Repair & Rehabilitation Directory**
- 62 **Dig These New Products at ICUEE 2019**  
By Craig Mandli
- 64 **Safety First:**  
Working With OSHA  
A consulting program prevents penalties and allows contractors to head off issues before they begin.  
By Jared Raney
- 66 **Product Focus:**  
CIPP Lining Methods and Projects  
By Craig Mandli
- 80 **Case Studies:**  
CIPP Lining Methods and Projects  
By Craig Mandli
- 82 **Product News**  
Product Spotlight: Popular combo unit now available with recycling option.  
By Craig Mandli
- 84 **Industry News**



## ON THE COVER

John Akhoian has expanded his drain cleaning and plumbing company, Rooter Hero Plumbing, to 12 locations in just seven years, with no plans to slow down. He eventually wants to establish 100 locations, while providing his employees with not just a career, but a financial education and a place for personal growth as well. (Photography by Cory Sherwood)

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**MONEY MANAGER:** When to update your business plan

**SAFETY FIRST:** Reminders for safe hydroexcavation

**MONEY MACHINES:** Van-mounted jetter speeds up jobs



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## ADVERTISER INDEX - October 2019

<b>ALLAN J. COLEMAN</b> SINCE 1966	11, 85	<b>MRP</b>	13
Allan J. Coleman Co.	11, 85	Milwaukee Rubber Products, Inc.	13
American Waste	21	<b>nuflow</b> WE FIX PIPES	
Aquachem Corporation	14	Nu Flow Technologies	23
<b>ARIES</b>		Patriot Sewer Equipment & Repair	71
Aries Industries	19	PE Equipment	18
Cable Center, The	37, 81	<b>PEARPOINT</b>	
		Pearpoint (USA)	22
Cam Spray	10		
<b>Winnelson</b> CENTRAL OKLAHOMA		Perma-Liner Industries, LLC	7
Central Oklahoma Winnelson	46	Petersen Products Co.	87
		<b>PICOTE</b> We Fix Pipes	
Coast Manufacturing	79	Picote Solutions	32
<b>CUES</b>		<b>PIPE LINING SUPPLY</b>	
CUES	59	Pipe Lining Supply	12
<b>DRAINABLES direct</b>		Pipeline Renewal Technologies	41
Drainables Direct	51	Pow-R-Mole Trenchless Solutions	13
		Prime Resins	21
Duracable Manufacturing Co.	17		
<b>EASY-KLEEN</b>		PrimeLine Products, Inc.	79
Easy Kleen Pressure Systems	22	<b>RapidView</b>	
<b>Envirosight</b>		RapidView IBAK North America	75
Envirosight, LLC	5	<b>Ratech</b> ELECTRONICS	
<b>enz usa inc.</b>		Ratech Electronics, Ltd.	53
Enz USA, Inc.	30	RFI Construction Products	54
<b>Solutions</b>		RODDIE, Inc.	35
F.S. Solutions	69		
Forbest Products Co.	54	Root Rat	79
<b>FORMADRAIN</b>		Sewer Equipment Company of Nevada	8
Formadrain Inc.	33		
<b>GapVax</b>		Spartan Tool, LLC	92
GapVax, Inc.	91	<b>STONEAGE</b>	
<b>General PIPE CLEANERS</b>		StoneAge, Inc.	4
General Pipe Cleaners/General Wire Spring	2		
<b>GI INDUSTRIES</b>		T&T Tools, Inc.	18
GI Industries, Inc.	27	<b>TROJAN</b>	
		Trojan Worldwide, Inc.	29
Gorlitz Sewer & Drain, Inc.	61	<b>ultraSHORE</b> TECHNOLOGIES	
<b>GUZZLER</b>		Ultra Shore	84
Guzzler Manufacturing	9	<b>VACALL</b>	
		Vacall	73
Hammerhead Trenchless	47	<b>VAC-CON</b>	
<b>Jetstream</b>		Vac-Con®	3, 83
Jetstream of Houston	55	<b>VIVAX METROTECH</b>	
KEG Technologies, Inc.	45	Vivax-Metrotech Corp.	14
Keith Huber Corporation	77	Warrior Trenchless Solutions	31
Ken-Way Corporation	54	Westmoor Ltd.	32
<b>LANSEES PRODUCTS</b>		WJTA-IMCA	8
Lansas Mfg. by Vanderlans & Sons	42-43	WWETT Show	36, 50, 60, 90
Logiball, Inc.	46	<b>ZOOM DRAIN</b>	
<b>MAXLINER</b>		Zoom Drain Franchise Company	65
MaxLiner USA	15	<b>Classifieds</b>	88-89
		<b>Marketplace</b>	86-87



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# The Power of Routine

Establishing a daily routine can make you more productive and even help you make better decisions

**D**o you ever procrastinate? Do you sometimes find yourself doing low-priority tasks because you're too tired/stressed/fill-in-the-blank to tackle the hard stuff?

Even when I have dozens of things to do during the workday, sometimes I can feel my motivation start to drain away as the day goes on.

It's an easy trap to fall into. And obviously you can't just ignore



Kim Peterson

your responsibilities, either at work or at home, especially if you're running your own business.

Decision fatigue is a real thing — so it's no surprise that after months on end of managing a company, working long days and fielding frequent questions from both customers and employees, you might find yourself making poor choices out of exhaustion.

You might think willpower is all it takes to get back to being productive, but willpower is actually finite. And it's not something you either have or don't have. All those decisions you make throughout the day eventually deplete your ability to keep making positive, productive and healthy ones. All this leads to frustration, burnout and hitting up the fast-food drive-thru more than you should.

I first heard about decision fatigue in an email newsletter by writer James Clear. He writes a lot about productivity, willpower and decision-making, and developing better habits.

I don't remember where I first discovered him, but I instantly subscribed and have been reading Clear's articles for almost two years now. I find his tips incredibly helpful. One topic that comes up again and again, in regard to willpower and other things like motivation, decision-making and focus, is how important it is to establish routines.

Morning routines have become super trendy. A quick Google search will bring up millions of articles about how everyone from Tom Brady to Oprah starts their day. I find it both ridiculous and fascinating.

I'm not saying you should get up at 4 a.m. to do yoga every morning before you have your coffee. But, according to Clear (and apparently most of the internet), routines are super important. A routine signals to your brain that it's time to get to work — it sets the activity in motion. And it takes decision-making out of the equation, which keeps up your store of willpower for the day and combats decision fatigue.

It also helps to tackle the most important or most difficult tasks early in the day, when you still feel motivated. So if you hate going through your inbox, or need to make some tough bill-collecting phone calls to customers, set aside time first thing in the morning for those housekeeping items that might not get done otherwise. It gets the worst part of your day out of the way, when you're still fresh and decision fatigue hasn't set in.

It's not easy; I'm still working on establishing a good routine. If you're looking to do the same, do a little research, take some cues from people you admire and build a routine that suits you and your business.

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

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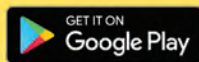
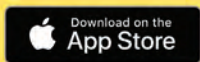




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IN PHOTOS

## A Gallery of Cleaners at Work

A small portion of the pictures that photographers take of each month’s featured contractors are able to fit on the pages of the magazine. So every so often we post a gallery of the best of those “bonus” photos. Check out the most-recent one featuring companies profiled earlier this year. >>[cleaner.com/featured](http://cleaner.com/featured)



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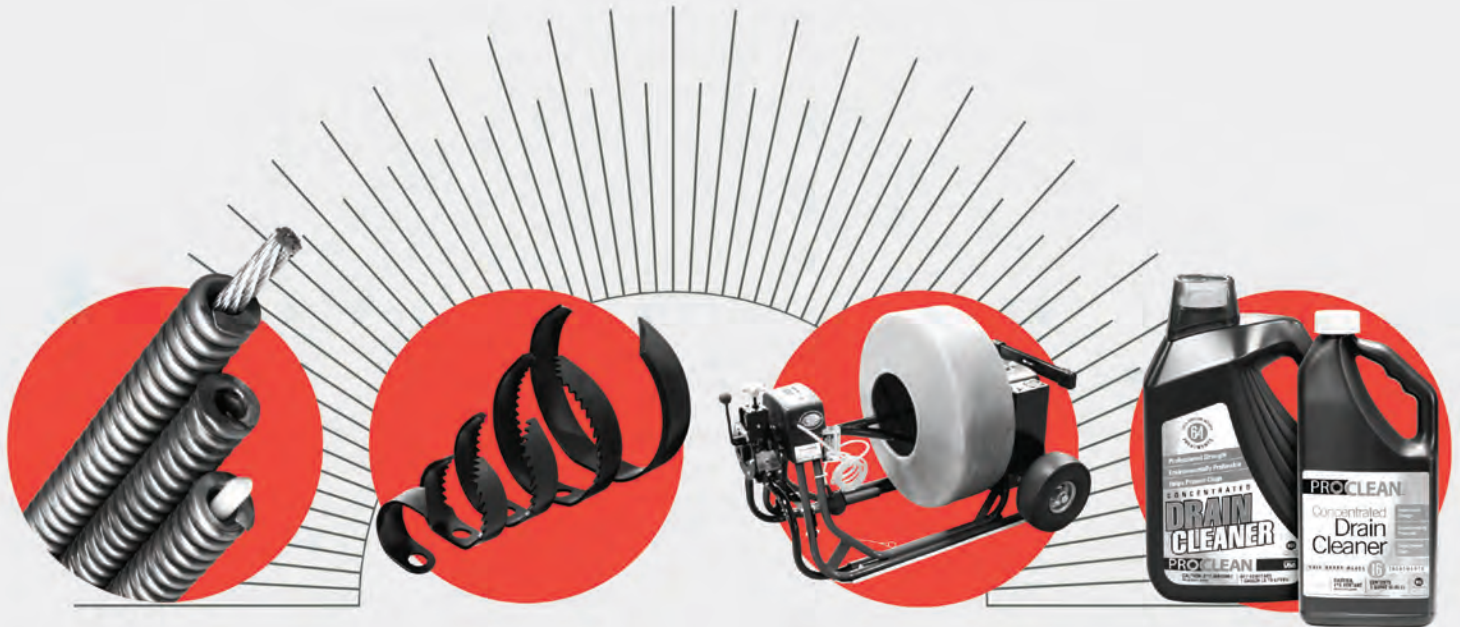
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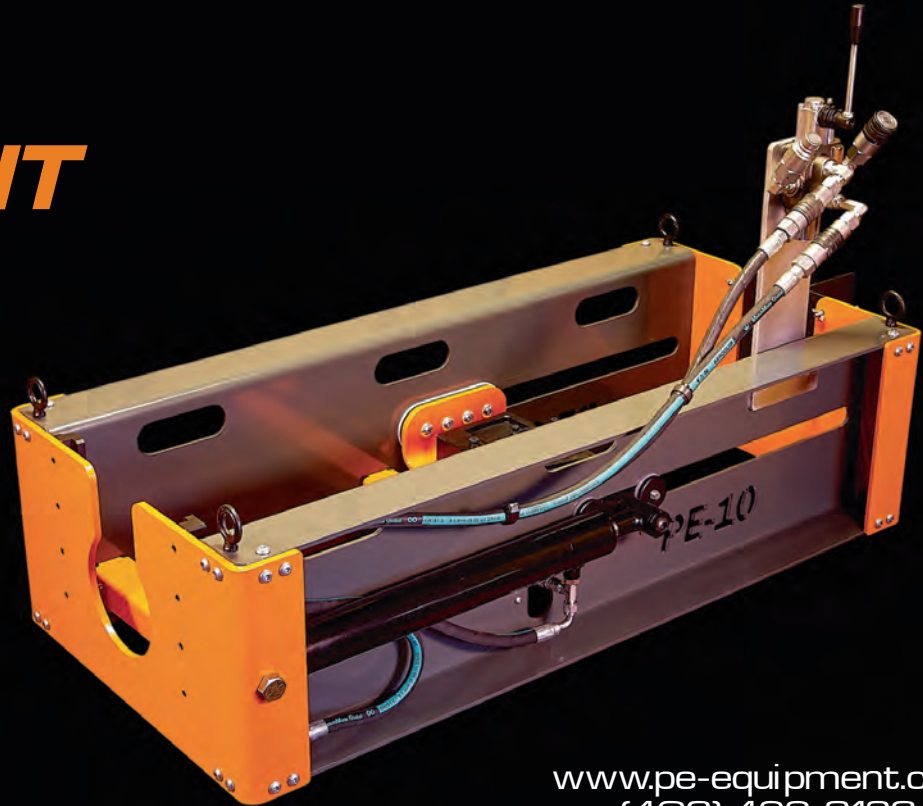
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Brigham Dickinson

# Great Service Requires Great Communication

You might be making these six mistakes when dealing with customers, but the fixes are simple

By Brigham Dickinson

Service isn't just about what you do for your customers. It's also about how you make them feel. Their perceptions of your company are formed the moment they begin interacting with you, whether through a phone call or online.

How you communicate with your customers through every touch point of service has the power to dictate whether a customer will return or recommend you to others, so it is crucial to get it right.

Stephen R. Covey, author of the famous business advice book, *7 Habits of Highly Effective People*, once said, "Communication is the most important single activity of man." So, have you given plenty of thought to the way you communicate with your customers? You should. The way your brand and your team communicate with people impacts every part of your business.

When you transform your business through great communication, you become something far more powerful — a servant leader. Your customers will perceive this and reward you with brand loyalty and enthusiastic referrals. If you're ready to take the plunge, here are six communication mistakes you can fix within your organization today.

## 1) SAYING "NO"

We've all heard the old saying that the customer is always right, and if you've been in service long enough, you know that sometimes the customer is wrong. But eliminating "no" from your customer communication vocabulary doesn't mean capitulating to unreasonable demands or giving services away for free. It means recalibrating your communication to become a problem-solver instead of an order-taker.

Your customers are coming to you with some of the worst problems they will encounter as homeowners. During these stressful times, they won't want to hear negatives like "no," "unfortunately" or "can't." They want proactive solutions. They want to feel like they're in good hands. If you don't give them that level of reassurance, they'll want to take their business elsewhere.

## 2) TALKING AT INSTEAD OF TALKING WITH

Customers want to be seen and heard, to be recognized as real people with real problems. They don't want to be talked down to or feel ignored. No matter how busy your workday has become, it is vital to take time to acknowledge them and to empathize with their problem and truly listen to what they have to say.

Slow down. Give attention before you extract information. Communicate benefits of the service instead of facts, figures and features. Let them know you care about the way service will impact their daily lives. This way builds a trust, showing your customers that they're more than just a sale to you.

## 3) LACK OF GRATITUDE

We've all had bad days, and it's easy to get bogged down in the daily grind. But be careful you and your team aren't communicating this attitude to your customers. Shift your thinking and encourage your team to do so, too. Every customer who calls your office or reaches out online is a blessing, so make sure they're treated like it. It's not a burden to serve — it's a joy. Get your head and your mouth straight about this issue and you are certain to build customer loyalty and referrals.

## 4) FAKING IT

Today's customers can spot a fake a mile away. They are bombarded all day, every day with marketing, sales pitches and scams. They've grown mental armor to resist these forces, and the only thing that will get through is genuine care and service. So, don't rely too heavily on scripts or gimmicks. Coach your team and empower yourself to be open, genuine and honest with customers. Let them see your company culture of servant leadership as you guide them to the best solutions to their problems, and be sure to verbally thank them for the opportunity to serve.

## 5) UNAVAILABILITY

With the rise of online convenience, customers expect to be able to reach you how they want, when they want. Only having one channel of communication, like a phone number answered during certain hours only, will cost you customers. Email, text, social media



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and online chatbots are all great additions to your office telephone. Opening more lines of communication is another way to serve the customer and grow their trust in you.

## 6) AVOIDING APOLOGIES

Of course, everyone makes mistakes. Despite your best efforts, someone on your team will have an off day or another communication error will occur. But there is a path back.

First, own the mistake with no excuses. Tell the customer you messed up. Next, apologize with sincerity and assure the customer that fixing his or her problem is your first priority. Then, resolve the issues and be transparent about next steps, especially as they relate to money. Finally, follow up. Make sure the solution worked and that the customer is happy. These steps can bring an angry customer back from the brink and turn him into a loyal fan of your brand.

Many of these changes represent a shift in thinking, a change in company culture. It's true that your attitude can dramatically change your reality, so consider where your priorities are. If you put all the emphasis on sales and profits, you're forgetting where your sales come from in the first place — your customers. When you put your customers' feelings and experience first, everything else will fall into place. **c**

### ABOUT THE AUTHOR

Brigham Dickinson is president and founder of PowerChats, an artificial-intelligence-powered website chat service that specializes in helping home service companies generate and capture more leads.



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## Profile

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**“The culture of NuFlow is what makes this work. They give you a sense of family with the type of support they provide.”**

The NuFlow team worked with Jayson to get him up and running, first with hands on technical training and then following up with onsite support.

**“One of my very first jobs was really technical. I called NuFlow and they sent two guys out to help me bid and execute the job. Everyone talks about support, NuFlow actually provides it.”**

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» Rooter Hero technicians Marcus Allen (left) and Gilbert Vella attach cable to a power pack at the start of a pipe bursting job.



# A NOBLE AMBITION

Fostering employee success  
paves the way for explosive  
business growth

By Jared Raney

Photography by Cory Sherwood





John Akhoian is a hero to his employees.

What else would you call a business owner who has made a commitment to enrich his employees and provide them with the tools to excel in and out of the workplace?

Akhoian is wildly ambitious, but he's not interested in politics or becoming a corporate tycoon. His goal is not to increase his personal wealth on the backs of his employees, but instead to aid in their success.

His fittingly named drain cleaning and plumbing company, Rooter Hero Plumbing, has expanded to 12 locations in seven years. He hopes to reach 100 offices in the next decade. Another initiative to encourage his employees is his "99 Millionaires" concept, the idea being to create 99 millionaires under the company's umbrella.

It's not all about making the big bucks, though — the company also offers financial literacy training for any employee.

"I want to help our people as much as I can, educate our people so when they do come to work, they can come to work with peace of mind and give our customers the service they deserve. We want to help the people who are working with and in our companies to create wealth for their families," Akhoian says. "If we can help them solve their personal problems, then we feel our customers will get a better service. And plus, it's the right thing to do."

### BUILDING THE COMPANY

As with any hero's journey, it was humble beginnings for Rooter Hero, which opened its doors in 2011 with a single truck servicing the Orange County, California, area. Today, the company stretches as far as Phoenix, with 250 trucks.

Akhoian himself has a pretty noble origin story, starting out as a plumbing apprentice at the age of 17 to support his family after the death of his father.

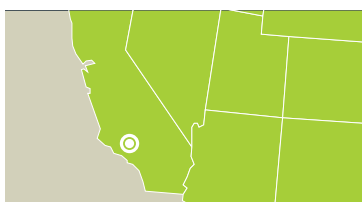
"My dad was the breadwinner of the family, and I quickly knew that I didn't have time to go to school. I had to get out and be productive right away," he says. A family friend was a plumber, and he went to work for him as an apprentice. "I quickly learned the trade, and I took a liking to it — within about a year, I was out doing all of the plumbing myself; he wouldn't even go out in the field anymore."

Within a year he was earning enough to start thinking about growth.

"I had a conversation with him because I really wanted to grow and he didn't want to grow his company. So he said, 'John, your options are: you could go work for a big company, you could stay and work here or go start your own

**"I understood the model of having a strong management team in place, having a good training program in place and having a really good operating system."**

John Akhoian



## Rooter Hero Plumbing

**LOCATION:** Mission Hills, California

**OWNER:** John Akhoian

**FOUNDED:** 2011

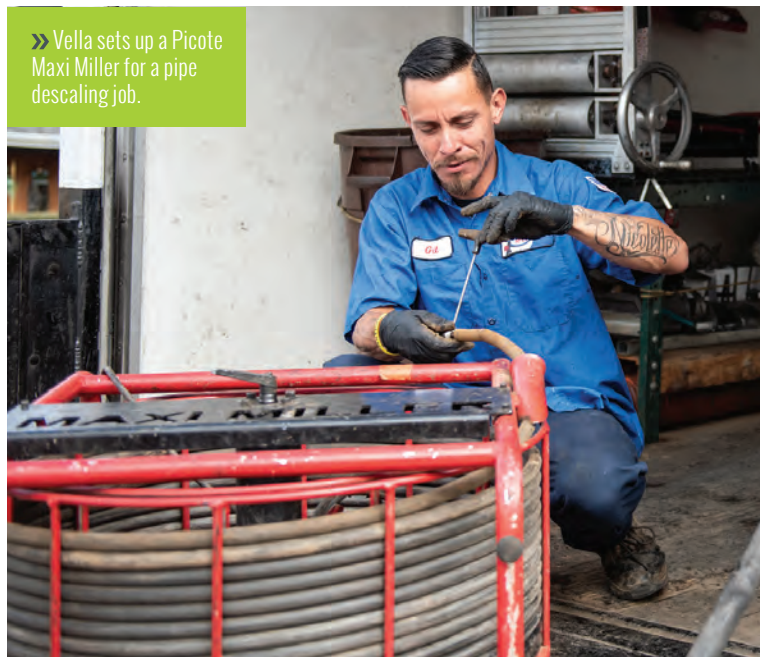
**EMPLOYEES:** 375

**SERVICES:** Residential drain cleaning, repair (refining and pipe bursting), plumbing

**SERVICE AREA:** California: Phoenix

**WEBSITE:** www.rooterhero.com

» Vella sets up a Picote Maxi Miller for a pipe descaling job.





## Creating millionaires

It should be no surprise that John Akhoian has done very well for himself, building a small drain cleaning and plumbing empire from scratch after selling a powerhouse franchising arm.

And with his determination to empower his employees as they grow through the company, it's also not surprising to hear that there are a few financial success stories under the auspices of Rooter Hero Plumbing.

"Within the last seven or eight years of our company growing, a handful of people have become millionaires in the process — either earning more money, or spending less money and investing more, and doing other things," Akhoian says.

But that's not enough for him. He wants to create 99 millionaires throughout the company's infrastructure as he seeks to build up to 100 locations over the next decade.

"We want to make 10 times the impact that we've made," he says. "So we're offering profit sharing. Some of our people running our locations also own parts of the location, and they're creating wealth through the company growing."

It isn't just a recruiting pitch, either. Akhoian actually wrote a book about the passion project, titled *Creating 99 Millionaires*, which is available for free as an e-book on the Rooter Hero website.

"We're making a really big impact," he says. "And it's my personal goal to create 99 millionaires."



▲ Gilbert Vella (left) and Pablo Miro inspect a pipe during a cleaning job.



◀ Technician Chris Gonzales uses a Spartan Tool drain cleaning machine to unclog a sink drain.

thing," Akhoian says. "At that time, I decided I'm going to start my own thing."

He started his entrepreneurial career with a small commercial plumbing company but quickly saw that investing in a franchise was the fastest way to grow and learn the ins and outs of the industry.

"That's kind of how it all started, when I was about 19 years old," he says. "Over the next two to four years, I built a really good company. I was doing mainly apartment building repipes, and I was doing large commercial jobs. I had a few vans and was making really good money. One day I saved enough money and I wanted to buy a franchise."



He rapidly expanded, in the end owning pretty much all the available franchises in the area.

"I had multiple locations, so I understood the model of operating in multiple markets," Akhoian says. "I understood the model of having a strong management team in place, having a good training program in place and having a really good operating system."

At a certain point, he decided to leave the franchise because he felt he had reached his peak with that avenue.

"I wanted to continue growing, and the franchise had already sold all of its locations. I really didn't have much more opportunity; I didn't feel like if I renewed my agreement another 10 years that we would have the opportunity to grow for the next 10 years," Akhoian says. "I felt like we were eventually going to hit a plateau, which we did. So we sold all of our franchises."

That experience has benefitted him as he now seeks to build his own company. Though it isn't technically a franchise, it is organized much like one, with independent management structures at each location, though they are all run through the company's corporate office in Mission Hills, California.

Most important to stimulating this type of expansive growth is getting the right people and putting them in the right position to succeed. That's especially true of the location managers.

"They're built of different kinds of people. Some of them used to be plumbers and ended up becoming a location manager — they understand how to operate. Some of them used to be salespeople. Some of them used to work for another company as a manager and they just couldn't grow any further. So they're all different," Akhoian says. "I would say half of them are internal promotions, and the other half come from the outside."

Proper incentives are also important: Rooter Hero again mimics the franchise model by giving high-level employees in the company an opportunity to become part owners.

"We give people who are running our locations a chance to own a piece of that location, and the program works through increasing revenue, increasing profits," Akhoian says. "As it increases, they earn a piece of that

"What's helped us grow so fast is our ability to train people. ... We eventually ended up creating our own plumbers."

John Akhoian



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📍 The Rooter Hero Plumbing crew includes technicians (from left) Marcus Allen, Gilbert Vella, Rodney Johnson, Ray Guerrero and Pablo Miro.

📍 Miro (left) and Vella monitor progress in the receiving pit as new pipe is pulled into place.



location, and it becomes almost like phantom stock that will turn into real stock over time.”

## HERO UNIVERSITY

In addition to personal improvement, Akhoian is a firm believer in ongoing professional development.

Recruits undergo a rigorous training program that was developed internally, and every manager in the company goes through a management training program — they even have an emerging leaders program to identify promising talent and promote them within the organization.

“What’s helped us grow so fast is our ability to train people. It’s really difficult to find experienced plumbers anymore, so we hit a wall. We eventually ended up creating our own plumbers,” Akhoian says. “In the beginning, we were just taking anybody who was mechanically inclined, young, motivated and who wanted to get into the trades. Over time, we started losing some people because they realized they didn’t really want to do it.”

In its early days, the training program had limited hands-on elements, and when recruits started having to crawl under buildings or get their hands dirty, some had second thoughts.

“We started to tweak and change our program, and now 80% of the people who are going through our Hero University program have signed on as apprentices. They’ve done ride-alongs, and they’ve done the labor,” Akhoian says. “We started to see much less turnover, because now they’re more committed. They’ve already tried it, they’ve done the work and they know what to expect.”



“In about nine to 12 weeks, we’re able to certify and put them out in the field as drain cleaning technicians,” he says. “They do light plumbing repairs and all of that stuff as well. While they’re doing it, we continue to train them on how to become even better at what they do, because they end up coming across a lot of different plumbing problems when they’re on the job.”

Rooter Hero is a residential service and repair company, with about 70% of its business in drain cleaning and 30% in plumbing. To support those services, Hero University is paid training with two days of fieldwork and three days of classroom or mock-up training. The company has a mobile training unit with all of the fixtures and equipment that technicians would use on the job.

“They learn code, they learn theory and then they learn how to actually take it apart and put it back together. They learn how to operate sewer machines and how to fix sewer machines when they’re in the field,” Akhoian says.

Depending on the location, Rooter Hero techs use Gorlitz Sewer & Drain and Spartan Tool drain cleaning machines; jetters from US Jetting, Harben and HotJet USA; RIDGID inspection equipment;

“If we can train and become better at what we do, then our customers will be better taken care of.”

John Akhoian

Perma-Liner Industries systems for relining; a TRIC Tools pipe bursting system; and MaxLiner USA epoxy.

“Besides Hero University, which goes through the technical training for technicians, we have a communication training that we put everybody through,” Akhoian says. “Every month, we have a two-day training that happens for technicians and salespeople called T.N.T.; and then we put them through a boot camp where we go through the five

keys of service.”

The five keys of service is another internally developed program to train technicians on the customer service side of their job. The keys are diagnose, ask, listen, educate and W.A.W. (way above wonderful).

Salespeople are also taught to leave six options with every customer to solve his or her problem. Akhoian believes in giving customers the information to make an educated decision, not upselling them on something they don’t need. Part of the training includes a role-playing element where technicians and salespeople practice the method in a live environment.

Management training is a two-year program, and they spend one whole day per month on leadership education.




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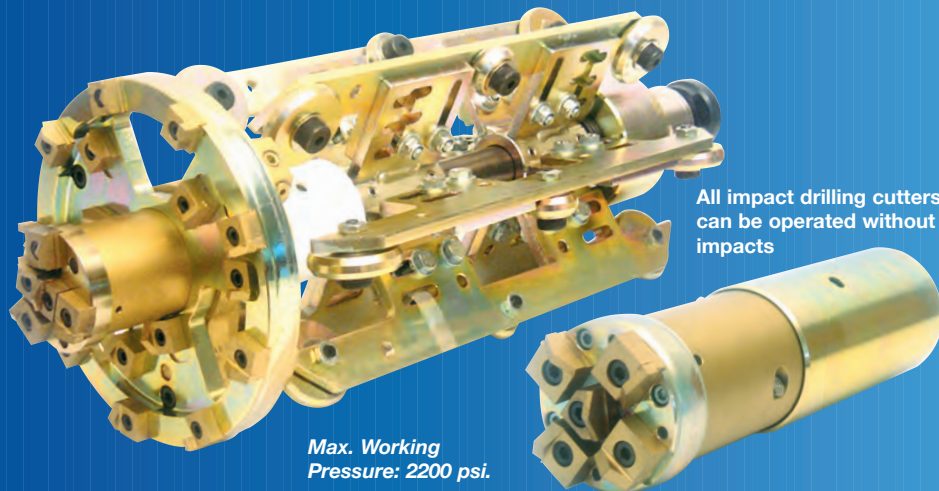
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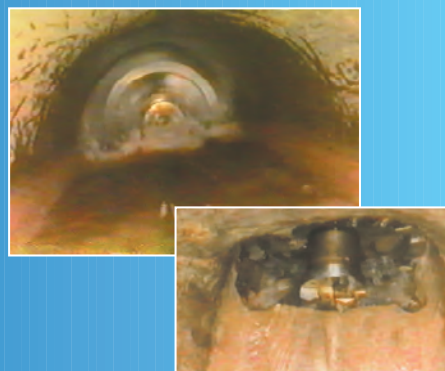
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“We feel like when we get better, everything around us gets better. If we can train and become better at what we do, then our customers will be better taken care of,” Akhoian says. “Everything is going back into training and reinvesting in the company — for growth, for learning, for marketing, for branding.”

### CATALYST FOR SUCCESS

Another training offered by the company is not directly related to drain cleaning or plumbing, but Akhoian still believes it has benefits for the company — personal finance education.

“We teach our people how to read financial statements — all of that stuff. And in our company, we do open-book management, which means that every single employee knows exactly what our numbers are; so every single number is gone through with all of our employees,” Akhoian says. “We do profit sharing, so they know what our company’s profit margin is.”

Rooter Hero isn’t the only company out there that does companywide profit sharing, but they take it a step further by not only giving employees a fair shake, but also by ensuring they have the tools they need to benefit from the boost in a meaningful way.

It feeds into his philosophy that happy employees equal happy customers, and a stronger business.

“You have to invest back into the business. We treat the business like a person and never take advantage of the business,” he says. “Most people will use the business to fuel their lifestyle. We take the business, we live within our means and then we put money right back into our business. We put it right back into our people; we put it right back into investing in the trade.”

There’s no doubt that the industry has been good to Akhoian, and his hope is simply to spread that success as far and wide as he can.

“I’ve been doing this for 30 years. I’ve been a plumber by trade, and I just really, really love the plumbing industry,” Akhoian says. “I feel like this has been my calling, and I get to show up to work every day and do what God put me on Earth to do.” **c**

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Erik Gunn

# Deal With Your Money Demons

Walk through this financial house of horrors and see if your drain cleaning business is performing like a dream or creating a nightmare

By Erik Gunn

It's October, the time of the year when we flock to haunted houses, tell scary stories and work up creepy costumes for trick-or-treating. So there's probably no better month to consider the ghouls, goblins and worse that threaten to suck the lifeblood from many small businesses. These money management mistakes can keep you up at night.

But fear not — knowledge is freedom. And demons like these are banished with some care and common sense.

**1. Keeping sloppy records.** There's no end of mischief that can result if you don't have a clear, concise bookkeeping system that can show you in an instant what's going out, what's coming in, who has paid you and who hasn't, what bills you owe and what you've paid.

Ideally, you're keeping your books with appropriate computer software that fits your budget, can be used to track trends, alerts you to overdue bills (whether you owe them or they're owed to you), and integrates with your bank account so it's always up to date.

But even if you're still old school enough to trust the good old paper ledger for these records, at least make sure you're using one. Keep it well organized and up to date. And remember, the better you are at doing the latter, the easier it is to do the former.

**2. Mixing personal and business expenses.** You'd think this would be a no-brainer. You'd be amazed how often it happens.

Maintain a checking and savings account, along with one or more credit cards, that are *only* for business income and expenses. The better you are at keeping those separate from your personal transactions, the less trouble you'll have documenting expenses and income at tax time and the lower your risk of having a legitimate expense questioned or disallowed in an audit.

**3. Overspending because “Who cares? It's deductible!”** It can be so tempting, especially to people just starting out in business, to spend more than you should. “I need that,” you think. “And after all, I can take the price off my income and pay less in taxes.”

All true. But remember this: When you reduce your taxable income, you're cutting your profits. Or to put it another way: For everything you buy that's deductible, you still had to do the work so you could pay for it. Business expenses should be for what you need and should be budgeted for as best you can. And on the flip side ...

**To flat-out deny credit cards under any circumstances simply punishes you - and probably needlessly turns away business.**

**4. Underspending because “Who needs it? I'll just do it the way I've always done it.”** Some people learn the lesson about demon No. 3 just a little too well — and skimp on necessary expenses because they're afraid to spend money. When new technologies come along or old tools wear out, be willing to spend appropriately to make sure you have the equipment that will do the job for you. And speaking of skimping ...

**5. Skimping on advertising and marketing.** Yes, the world has changed from the days of radio spots or phone book ads. But some form of advertising and marketing is still necessary to draw the attention of potential customers. Word-of-mouth is good, but it's not always enough. Knowing which particular marketing channels work best in your community and for your kind of business can be a challenge. But that's no excuse for simply ignoring the importance of getting the word out about what you do.

**6. Deferring maintenance on your equipment.** It doesn't matter why you're putting off routine care for your tools and vehicles. Maybe you think you don't have time or you figure you can save money on your bottom line. Wrong. There's no savings in a truck that wears out faster because you decided you didn't have to get the oil changed as often.

**7. Failing to seek bids when choosing vendors and suppliers.** Most of your customers probably have gotten estimates from one or more of your competitors, at least the first time they



hired you. You need to do the same. Loyalty and relationships certainly have their place in business, but they also need to be earned with good service and fair pricing. Don't treat your own wallet any less carefully than your customers treat theirs.

**8. Refusing to take credit cards.** If you go out on a job, you want your customer to be able to pay you as conveniently and quickly as possible. And that means being willing to take plastic, not just paper. There are legitimate concerns when deciding what policies to observe when accepting credit cards, given that you will have to pay a fee to the card processor. But to flat-out deny credit cards under any circumstances simply punishes you — and probably needlessly turns away business.

**9. Hiring on a whim.** It's harder to find skilled workers these days. But simply relying on "instinct" or taking any warm body that walks through the door sets you up for the inevitable cost of employee turnover.

Instead, consult with a human resources expert on how better to assess job applicants, not just for their skills, but for their attitude and how well they'll fit your particular company. Consider whether you might want to improve the labor pool by working with your local technical school to sponsor apprenticeship programs in your trade.

And if you have a lot of turnover, be willing to look at what you might be doing to contribute to the problem. Do new workers have an opportunity to grow on the job and gain new skills? Are people from diverse backgrounds made to feel welcome? Are your pay scales keeping up with the marketplace? And are employees free to contribute their ideas on how to better do the job?

If the answer to any of those is "no," you've got work to do. Get on it.

**10. Underpricing your work.** You've heard the old joke: "I lose a few dollars on every sale, but I make it up on volume." It's fine to aim to be the least expensive alternative, but first make sure you're covering all your costs and earning an appropriate return. If you're getting consistently beat on prices, examine what you might be doing wrong, including making sure customers understand the underlying value of what you offer compared with your competitors.

**11. Failing to hire a financial professional.** Every business needs someone to do the bookkeeping, but that's not the point here. You also need someone who understands your business finances and can give you advice, both from a big-picture perspective and from a close-up point of view.

That someone is probably a certified public accountant. Ideally, he or she will know your industry, or at least be willing to learn about it in detail and with an open mind so as to give you the best guidance.


So take a hard look at your business. Are any of these demons lurking in the corners? If so, shine a light on them; then set about ridding them from the premises. **c**

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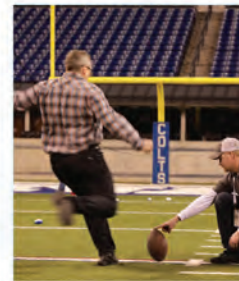




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**PROFILE**

» Owners Richard Hart (left) and Dan Hartsough established Harts Services together in Tacoma, Washington in 2013.

# A Company **WITH HEART**

Diversified services and an emphasis on clear communication with customers spurs growth for Tacoma plumber

By Ken Wysocky //  
Photography by Stephen Brashear



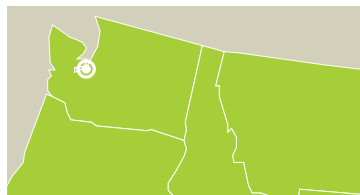
Spending years in the plumbing industry allowed Richard Hart to collect good intel about what a good plumbing company should be – and shouldn't be.

In 2013, he morphed that vision into a reality when he established Harts Services in Tacoma, Washington, based on one key principle: Always communicate extensively with and care about customers.

"We've fulfilled our vision of being a company of master communicators," says Hart, who owns Harts Services with business partner Dan Hartsough. "We emphasize excellent communication. It starts when customers first call to the time a dispatcher calls to tell them when a technician will actually arrive. And it continues when a technician listens to customers to get absolute clarity on the situation, then answers all their questions and provides options for solving the problem.

"I worked for three or four companies that didn't communicate well with customers, and that was a big reason why I didn't want to work there," he continues. "I didn't want to keep working with upset customers who were over-promised and underdelivered in terms of service. That's why we always strive to underpromise and overdeliver."

That philosophy, coupled with an emphasis on diversified services, investments in efficiency-enhancing equipment and advice from external professional groups, has served the company well. From humble beginnings, the company has doubled its gross sales nearly every year, culminating with more than \$4 million in 2018.



## Harts Services

**LOCATION:** Tacoma, Washington

**OWNERS:** Richard Hart and Dan Hartsough

**FOUNDED:** 2013

**EMPLOYEES:** 33

**SERVICES:** Residential and commercial plumbing service and repair, drain cleaning, sewer line cleaning and inspections, trenchless pipe rehab, horizontal directional drilling

**SERVICE AREA:** 30-mile radius around Tacoma

**WEBSITE:** [www.hartsservices.com](http://www.hartsservices.com)



▲ Harts Services underground lead Tim Paulk (left), apprentice Joe Ethington and apprentice Chris Ring pour resin into a liner during a residential CIPP repair job.





During the same time period, employment rose to 33 people and the company's initial emphasis on service and repair plumbing expanded into drain cleaning, jetting and inspecting sewer lines, trenchless pipeline rehabilitation and horizontal directional drilling.

### GOING THE EXTRA YARD

"When we first opened the company, we didn't envision growing this big, having this many employees or offering this many services," says Hart, 35. "But it all stems from a place of caring — always doing the right thing — which I feel serves our customers at the highest level. We always do everything we promise we're going to do, but we also make a point of doing a little bit above and beyond that, too."

For example, if technicians see a bad valve while replacing a water heater, they'll throw in a new valve at no charge to the customer. While that may make an accountant cringe, it makes perfect sense to Hart.



▶ Tim Paulk (right) and apprentices Joe Ethington and Chris Ring use a calibration roller to impregnate a liner with resin for a CIPP sewer repair.

◀ Ring (left) and Paulk feed a liner into the host pipe with a MaxLiner inversion gun.

"It only takes a few minutes to do and it's the right thing to do," he says. "If you do a little extra, you'll always get a little more in return. It's all about karma. Do the right thing and the return is golden — and you create customers for life."

The approach seems to be working; as of mid-January, Harts Services had earned an average customer rating of 4.9 out of a possible five stars on Google reviews, based on 794 reviews.

"We work off of the three-win rule, where the company, the employee and the customer all have to win," Hart explains. "If just one loses, everyone loses. We live off this. If a customer is upset, for example, then the employee didn't make sure the customer won. Or if we don't provide a great customer experience, our profitability isn't as good, so the company doesn't win. Sometimes we even give customers their money back."

### A CULTURE OF CARING

The company's slogan is "We care more," which is emblazoned on its service vehicles. But this applies to more than just customers; the philosophy permeates the company. Hart says it is critical





“It all stems from a place of caring - always doing the right thing - which I feel serves our customers at the highest level.”

Richard Hart

to attracting and retaining quality employees in an industry where it's very difficult to do so. “Great people make a great company.”

As an example, consider a program the company calls No-Man-Left-Behind Fridays, which fosters a culture of teamwork. Here's how it works: The first technician who returns to the shop on a Friday afternoon has to check in before leaving work to make sure everyone is going to get off work at a reasonable time.

“If not, we send the technician who's finished working first to whatever job site needs support,” Hart says. “So a technician who gets back to the shop at 3 p.m., for example, might get dispatched to help a colleague who's on a nightmare commercial job. Maybe three guys will end up going out there. In effect, nobody goes home until everyone goes home. They're all like family, rooting each other on and helping out when things get tough.”

Creating that kind of family atmosphere helps to attract and retain employees. To build that kind of culture, Hart says he and Hart-sough try to hire employees who are as highly motivated and enthusiastic as they are. “Not everyone works out, but our retention rate is pretty good.”



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To thoroughly vet job candidates, as well as give them a good feel for the company's culture, they go through a three-stage interview process. The steps include attending a companywide meeting held every Wednesday, where company officials talk about everything from sales and revenue goals to jobs that went well or off the rails, and going on a service ride-along with a veteran technician, Hart says.

The company also emphasizes employee accountability. For example, within five minutes after technicians leave a job, a customer service representative calls the customers and asks them to rate the technicians on a scale from one to 10. If the customer rating is less than eight, the rep finds out why.

"And if the score is less than five, we turn the technician around and send him back there," Hart says. "Our goal is to get all good reviews. But if we get a bad one, we talk about it at our next Wednesday meeting. We talk about the good ones, too, so all of us know how awesome we are. We all feed off each other."

#### TRADESMAN AT HEART

Hart entered the trades in 2000, when he was 18 years old. "I definitely wasn't that kid who was going to college," he says.

After working as a plumber in Hawaii for most of his career, Hart and his wife, Jordan, decided to move to Tacoma, where her family

lives. Initially, things didn't work out well; Hart worked for several different plumbing companies. In fact, he was even considering moving back to Hawaii when Hartsough, a longtime friend, suggested Hart open his own plumbing company.

"He came up from California to help me start it," Hart says. "But then he realized how good we could do, so he stayed and we became 50-50 partners. Early on, he was developing processes and helping us get work while I was out in the field."

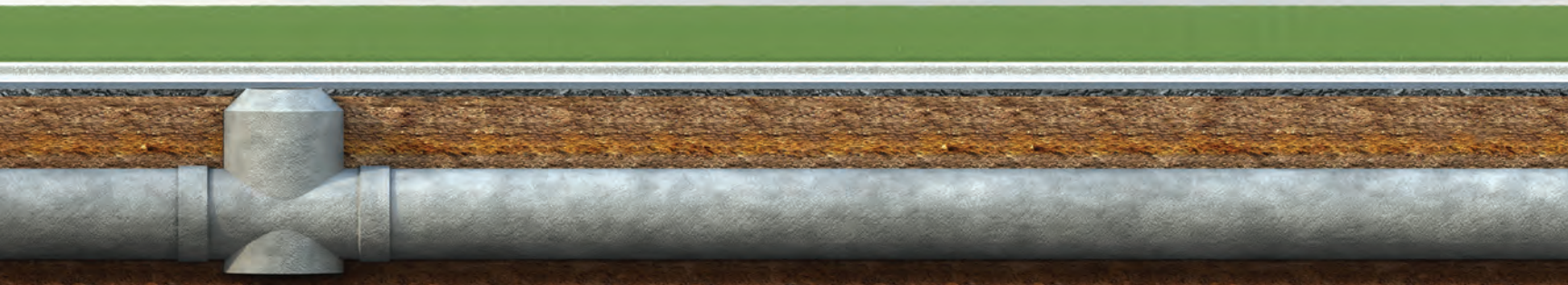
As the company grew, so did its fleet of equipment and vehicles. The backbone of the company is its fleet of 11 bright-orange Mercedes-Benz Sprinters (all 2016 or newer models) and four installation trucks (one Ford box truck and three Dodge and Chevrolet utility-bed trucks). Hart invests in Sprinters because of their spacious cargo area, ample legroom for drivers and diesel engines that get 22 to 26 mpg. Plumbing technicians use eight of the Sprinters; the other three are dedicated to drain cleaning.

The Sprinters are equipped with VT Hackney/Hackney storage systems that enable each truck to carry between \$7,000 and \$8,000 worth of inventory, including three different styles of popular faucets. "The trucks are so big that we can basically invite customers into the back to show them different types of faucets and other items," Hart says. "They're like showrooms on wheels."

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## Networking sparks dramatic growth

Many businesses struggle to grow, despite their owner's best intentions and efforts. Harts Services in Tacoma, Washington, which has roughly doubled its gross revenue every year since 2014 and posted more than \$4 million in sales in 2018, isn't one of the them — but it very well could've been without the business coaching provided by the Nexstar Network and CEO Warrior organizations.

"They've been huge contributors to our growth," says Richard Hart, company co-owner. "They help us push past that uncomfortable zone, where you don't want to offer customers new services because you've never provided those services before, yet you know you need to in order to provide first-class service.

"I think that as human beings, we sometimes scare ourselves into doing nothing. But these groups open up our minds to things we otherwise wouldn't be so willing to do. Without them, we'd probably still be trying to become a \$2 million-a-year company."

A key benefit to membership in the organizations is the ability

to pick the brains of other plumbing executives that provide critical insights into strategies that worked or didn't work. It might be something as simple as learning how to roll out a new in-home, water-filtration product that Hart saw at a trade show. Or it might be something as large as developing an internal parts-warehousing system that increases profitability by virtually eliminating technicians' trips to supply houses. (Membership fees for the two organizations vary; visit [www.nexstarnetwork.com](http://www.nexstarnetwork.com) and [www.ceowarrior.com](http://www.ceowarrior.com) for details.)

"Having access to other business owners is huge," Hart says. "Take our inventory system, for example. We went to five or six different companies around the county, picked them apart and created our own parts-inventory system.

"Now our inventory system is world-class. And we couldn't have done it without all of the networking — the open-door policy these groups provide. These other companies treated us like family and taught us so much."

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» Apprentice Dylan Leshner monitors a RODDIE R2 pipe bursting machine as it pulls the head through on a sewer line replacement.

» Harts Services employees put communication first when it comes to customer interactions and embrace the company philosophy “We care more.”



“We work off of the three-win rule, where the company, the employee and the customer all have to win.

If just one loses, everyone loses.”

Richard Hart

“Customers can order other faucets if they don’t like the three we have on the trucks. But if they love one of the faucets we have, we’re ready to install it right then and there.”

### EFFICIENT INVENTORY CONTROL

The Sprinters’ size also minimizes time-killing trips to supply houses for repair parts. Unless it’s a specialty part, odds are that technicians have whatever they need. This also increases customer service because they don’t have to wait as long to get their problems resolved. Furthermore, it ratchets up profitability because technicians can do more jobs than they otherwise could, Hart notes.

“Back when I worked as a tech, I went to a supply house every day — almost every time I needed a part,” he says. “By virtually eliminating supply-house trips, I’d say we can do five jobs per day, compared to the three we could do before. With eight service trucks, that’s huge in terms of revenue.”

Other equipment includes Milwaukee Tool corded power tools; five Quadra Plex portable drain cleaning machines; three truck-mounted waterjetting machines built by Jetters Northwest (3,000 psi at 12 gpm); a MaxLiner USA pipe lining system; three RIDGID SeeSnake Mini pipeline inspection cameras; an R2 pipe bursting machine and a Basement Buddy horizontal directional drilling machine,

both made by RODDIE; two mini-excavators built by Takeuchi; a micro-excavator manufactured by IHI (now owned by KATO Works); and two 14-foot dump trailers from PJ Trailers.

To ensure trucks have adequate inventory, Harts Services uses ServiceTitan inventory replenishment software that works in tandem with Barnett, a parts-supply company. When technicians use parts, they simply use an iPad to reorder them. “We’re completely paperless out in the field,” Hart says. Then the parts get delivered from a local Barnett warehouse to a small warehouse set up by Barnett within the Harts Services facility.

Barnett doesn’t charge any fees for this service; the only requirement, aside from passing a credit check, is that clients must purchase a minimum amount of parts and materials each month, Hart says.

“The warehouse occupies less than 2,000 square feet of our 8,000-square-foot building,” Hart says. “All the parts are inventoried on consignment. We don’t pay for them until we take them from the warehouse and put them on our trucks. It’s a pre-positioned inventory system run by one of our employees.”

The system pays for itself by eliminating trips to supply houses. “At the end of the day, we have a whole warehouse in our shop. From water heaters and faucets to garbage disposals, fittings and pipes, almost everything you can name is in our shop — about \$80,000 worth in all.”





“By virtually eliminating supply-house trips, I’d say we can do five jobs per day, compared to the three we could do before. **With eight service trucks, that’s huge in terms of revenue.”**

Richard Hart

### EXPECTING TO GROW

The company’s success in its first five years has given Hart the confidence to set ambitious goals for future growth: \$20 million in gross revenue by 2025. That will require hiring more employees, buying more equipment and gaining more market share in the coming years. As Hart puts it, “We’re firm believers that what got us here isn’t going to get us there.”

To increase the brand recognition required to spur more growth, the company has embarked on a marketing campaign called Paint the Town Orange. It includes both billboard rentals and TV commercials that feature the company’s distinctive orange-with-black-trim Sprinters.

The company also entices customers to let Harts Services post yard signs on their lawns for three months at a time. How? By offering participants a chance to win \$100 in a monthly random drawing.

“The signs need to be there for a minimum of three months,” Hart says. “I deliver the check personally. We do a drive-by after we draw a name, just to be sure the sign still is there.”

The company typically has about 500 yard signs installed. Along with the TV commercials, trucks and billboards — plus technicians’ uniforms that feature the company’s orange logo — Hart aims to have Tacoma residents seeing orange everywhere they go.

“By the end of the year, we want everyone to know who we are,” he says. “It’s all about branding. When someone thinks about hiring a plumber, we want them to see orange in their head.” **c**

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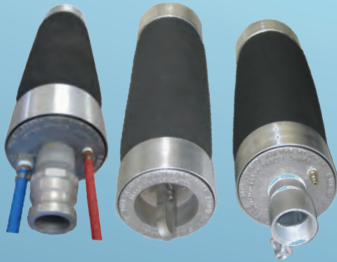




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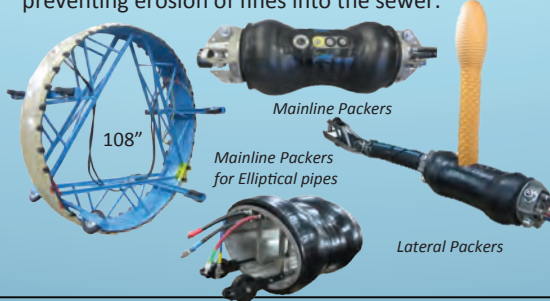
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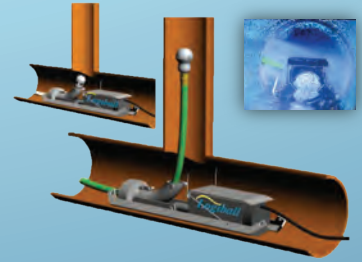
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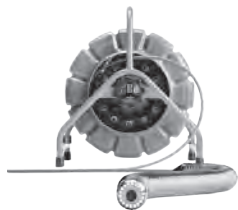
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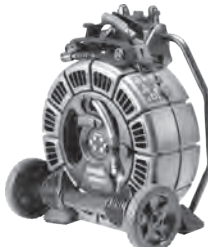
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# Lock in More Revenue

Spot repair technology enables Midwest contractor to fix pipelines year-round

By Ken Wysocky

**D**uring frigid South Dakota winters, it's difficult for crews at Hydro-Klean to use conventional felt CIPP systems to perform spot repairs in municipal sewer lines. Installations require a propane heater to cure the liner, plus the curing time might extend to five hours or more, which boosts labor expenses for customers.

"The other option is mixing the chemicals differently to shorten the curing time," says Derrick Joens, who is based in Watertown, South Dakota, and is director of pipeline rehabilitation at the company. The company is headquartered in Des Moines, Iowa, and primarily does industrial cleaning and trenchless pipe rehabilitation in Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota and Wisconsin. "But then you run the risk of the liner curing before you can get it in place."

These days, however, Hydro-Klean crews do spot repairs year-round. And they do them in about 30 minutes to an hour since the business started using Quick-Lock sleeves, developed by Pipeline Renewal Technologies (an EnviroSight company).

The adoption of Quick-Lock technology has generated a positive ripple effect throughout the company's operations and finances. For example, along with increasing customer satisfaction through year-round repair capability, Joens says the company has seen a significant annual increase in gross revenue as crews keep working through the winter months.

Moreover, because crews work year-round, the company no longer has to jam an overwhelming amount of pent-up repair work into the short summer season — a situation that often



✔ A rubber gasket slides down over the stainless steel Quick-Lock sleeve and then onto the packer. When everything is in position in the pipe, tiny gears in the ratchetlike lock system are clicked into place to compress the gasket between the host pipe and sleeve.

## HYDRO-KLEAN WATERTOWN, SOUTH DAKOTA

**OWNER:** David Jass/Summit Equity Group

**PRODUCT:** Quick-Lock point repair sleeves from Pipeline Renewal Technologies (an EnviroSight company)

**FUNCTION:** Pipeline spot repairs for infiltration, offset joints, abandoned laterals, root intrusions

**FEATURES:** Stainless steel sleeve; vulcanized EPDM rubber gasket that's chemically resistant to sewage, thinned acids, lye, and aromatic and chlorinated hydrocarbons; available in 6-, 8-, 10-, 12-, 15-, 18-, 21-, 24-, 27-, 30- and 32-inch diameters and lengths of 16, 19 and 20 inches; pneumatic packer

**COST:** Sleeves vary by diameter and length, ranging from \$500 to \$1,500; packers range from \$6,000 to \$14,000

**WEBSITE:** [www.hydro-klean.com](http://www.hydro-klean.com)





▲ A technician slides the Quick-Lock sleeve and rubber gasket onto the four-wheeled packer, which is then pushed into position by a robotic camera. (Photos courtesy of Pipeline Renewal Technologies)

forced the company to hand off work to competitors, just to keep customers happy.

“That hurts financially because emergency work always is more profitable than bid jobs,” Joens points out. “In addition, our backlog would get so long in the summer that we’d have to back off on bidding jobs. Now we can bid jobs year-round and still fit in emergency jobs.”

### OVERCOME INFILTRATION

Quick-Lock sleeves also enable crews to sidestep delays they used to encounter while trying to repair pipes during spring, when melting snow leads to sewer infiltration. “In years past, we’d have to patch the leaks and then wait, so there was a time delay,” Joens says.

“But even with infiltration, we can still install Quick-Lock sleeves in about an hour and then do mainline pipe lining the same day. Plus, we don’t have to plug off lines and do bypass pumping in order to work.”

Furthermore, because the company can now perform repairs year-round, it doesn’t lose employees who often used to leave during winter months because they didn’t get enough hours. “It really improves employee morale when they know they’ll have jobs all winter,” Joens says. “Plus, we don’t have to do as much training because there are fewer new guys coming in every year.”

There’s another benefit, too: Installing Quick-Lock sleeves requires only two employees and significantly less equipment. It’s also much faster and less cumbersome than wetting out felt CIPP patches.

“If you’re running only two service techs instead of four, the discount to customers is pretty significant,” he says.

**“It really improves employee morale when they know they’ll have jobs all winter.”**

Derrick Joens

### EASY INSTALLATION

The company typically uses Quick-Lock sleeves to fix only 8- to 24-inch-diameter pipes, but Pipeline Renewal Technologies can also custom-fabricate sleeves in odd pipe diameters. The system consists of three basic components: a gasket made from EPDM rubber; a stainless steel cylinder that features two circular, ratchetlike locking devices located inside the cylinder near each end; and a mobile, four-wheeled packer, which essentially is a pneumatic bladder used for installation. The packer gets pushed into position by a robotic camera. The packer comes in two sizes; they retail for about \$6,000 and \$14,000, respectively.

Joens says the installation process is pretty cut-and-dried. In a nutshell, here’s how it works: First pull the rubber gasket over the stainless steel cylinder; then slide the cylinder onto the packer. Connect an air compressor to the packer and inflate it to a point where it can hold the sleeve in place.

Then insert the robotic camera and the packer into the pipe and guide the sleeve into position. “Because the packer is pretty short, it’s easy to fit it into a manhole and place it in the pipe,” Joens says.

Next, inflate the packer to a predetermined pressure. As the bladder inflates, the sleeve expands to fit the host pipe. As it does so, tiny gears in the ratchetlike lock system keep clicking into place, compressing the rubber gasket tighter and tighter between the host pipe and the sleeve; the locking devices keep the sleeve from sliding back into its original position.

Then deflate and remove the bladder, leaving behind a sleeve firmly lodged inside the pipe. There’s a slight lip left on each end of the sleeve, but Joens says he’s never seen anything catch on it. If the pipe is eventually lined, the ends of the sleeve aren’t noticeable.

Almost any robotic camera will work as a towing device. Joens uses a camera made by CUES.

Because the sleeves are made from stainless steel, the Quick-Lock system offers the added benefit of providing structural support for failing pipeline segments, plus minimal diameter loss. For longer repairs, the Quick-Lock sleeves can be installed end to end in a series. But Joens says there’s a tipping point where it becomes more economical to line a pipe using CIPP technology.

While Quick-Lock fills a niche for certain applications, it will never completely replace CIPP patches. But Joens says the product is a great complement to CIPP technology, and to Hydro-Klean overall, in terms of increased revenue.

“I’d like to be the only guy using it,” he says. “But I’d highly recommend this product to other companies — as long as they don’t work in the Midwest.” **c**





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# It Pays to Be Flexible

Drain cleaning machines using flexible shafts are lighter, more flexible and easier to clean

By David W. Neville

**C**leaning clogged drains can be a substantial job. Restaurants put undue stress on their drain systems with all of the grease and food waste they discard every day, requiring heavy-duty equipment to remove troublesome blockages.

Drains and pipes connected to homes or businesses are constantly infiltrated by root systems, clogging them severely.

When blockages like tree roots or a longtime buildup of grease come into play, chemical solutions do no more than tickle blockages. This is why there is a wide variety of industrial drain cleaning devices on the market today — there is a need for machines that can clean severely blocked drains quickly, cheaply and efficiently.

## TYPES OF MACHINES

Industrial-strength drain cleaning machines can be divided into roughly three types: hydrojetting machines, drain snakes and power rodding machines.

Hydrojetting removes scale, grease and other debris that have built up inside the pipe walls over time. Drain cleaning machines using this method work in more or less the same basic way. First, the operator inserts a hose that's connected to a tank of water into the clogged pipe. The hose can withstand the high-pressured water that's sent into the pipes, and a specialized machine pressurizes water from the tank. This hose then delivers a high-pressure jet of water into the pipe, the pressure of which varies depending on the condition of the pipes. In general, machines may pressurize the water up to 5,000 psi or more and deliver as many as 20 gallons of water per minute, and the flow works with gravity to remove the blockage. This type of machine can be quite effective at drain cleaning, but it does have downsides, including freezing in cold temperatures and the various dangers that can come with using high pressure.

Perhaps the most common kind of drain cleaning machine is called a drain snake. Drain snaking has a simple operation that is often

effective, especially for home plumbing use. Industrial-strength drain snakes are, more or less, a long spring cable with a corkscrew on the end, attached to a motor. The cable is inserted into the clogged pipe, and the motor feeds the cable into the pipe. With luck, the cable or corkscrew at the end snags any blockages in the pipe and can then be pulled out with the blockages. This kind of drain cleaning machine is common, but it's often not suitable for more challenging drain cleaning applications.

The third type of drain cleaning machines work via a method known as “power rodding.” Developed as an alternative to drain snake machines, power rodding systems use a flexible metal cable that threads into drain systems and around bends and joints. A cleaning head with very sharp teeth is installed at the leading end of the cable. This cleaning attachment is sized to the diameter of the pipe being treated. An electric motor rotates the cable, causing the sharp cleaning head to turn at a high rate of speed. This action obliterates the obstruction blocking the pipe, shears off any protrusions such as tree roots and shaves away years of sludge buildup. The high-speed cutting tool shreds the obstructive material blocking the pipe into small fragments that are easily flushed away when a flow of water is introduced into the pipe.

While all three of these methods are viable depending on the application, all three have downsides and issues. However, one technology — flexible shafts — when applied to drain cleaning machines can help to rectify many of these issues.

## FLEXIBLE SHAFTS

A flexible shaft is a precisely defined and configured nested group of springs, tightly wound so that it has torsional, or rotational strength, as opposed to the tensile strength found in standard wire rope or cable.

What makes flexible shafts useful for drain cleaning is that they can bend, but also still rotate. In other words, a flexible shaft transmits rotary motion much like a solid shaft, but it can be routed over, under and around obstacles that would make using a solid shaft impractical.

Flexible shafts are used in a number of applications, including advanced aerospace technologies. Their flexibility, combined with tensile strength, makes flexible shafts a force in the tight, twisted environments often encountered in drain cleaning.

When compared to other drain cleaning technologies, drain cleaning machines using flexible shafts are advantageous in that they are smaller, lighter and more flexible; easier to clean; and enable the use of a camera in drain cleaning.

Another advantage flexible shafts have over traditional drain cleaning cables is that they are exceedingly easy to clean.



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These characteristics are helpful in two ways. First, the low weight and size is useful primarily for the operators of drain cleaning machines in using and transporting the equipment to the job site. The cables traditionally used in drain cleaning can be large and heavy, as well as difficult to transport. In addition, traditional drain cleaning cables, which more or less resemble extremely long, tightly wound open springs, are not very flexible. This can make maneuvering the cables through drains difficult. However, flexible shafts can be useful in applications in which the clogged pipes are particularly bendy or hard to navigate with the stiffer traditional cables.

Another advantage flexible shafts have over traditional drain cleaning cables is that they are exceedingly easy to clean. Traditional cables are like large hollow springs — and springs are open to the air, so as the cable moves through the dirty drain, unclogging debris, that debris becomes lodged in the cable. Being that these cables are long and tightly wound, it's a hassle to maintain them and keep them clean. Flexible shafts, on the other hand, are covered in a protective casing, making cleanup after use much easier.

Lastly, flexible shafts can be advantageous to use over other drain cleaning methods in certain situations because they clean drains without water, which enables the use of a camera. When hydrojetting, camera use is impossible due to the high volume of pressurized water used. Cleaning a drain using a machine based around a flexible shaft (or other dry cable) allows a camera to be fed into the drain just behind the spinning end of the cable. This can

be helpful, as it allows you to see what exactly is blocking the pipe, enabling you to adjust your cleaning method if need be.

## CLOG CLEARING

One example of flexible shafts being used in drain cleaning to great effect is their use by Clog Squad, a Michigan-based drain cleaning contractor. According to Clog Squad, it had been searching for a lighter, safer and easier way to clean drains and found it in the flexible shaft.

The Clog Squad's Clog Dog drain cleaning machine is based around the use of a flexible shaft to clean drains, and the use of flexible shafts with the Clog Dog has made the job cleaner, safer and much more effective.

Clog Squad uses flexible shafts from S.S. White Technologies. The manufacturer ensures that its flexible shafts are always designed to exact specifications using proprietary software. The use of these flexible shafts has enabled Clog Squad great success while drain cleaning.

All of the three main methods for drain cleaning have a place in various applications. Now, it's clear that flexible shafts are a light, powerful, clean and effective new method of cleaning drains that can serve as an excellent option in all kinds of industrial drain cleaning applications. **c**

## ABOUT THE AUTHOR

David W. Neville is a sales account manager at S.S. White Technologies.





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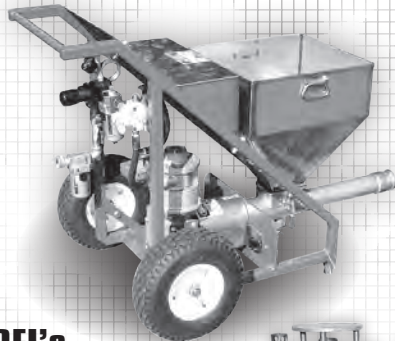
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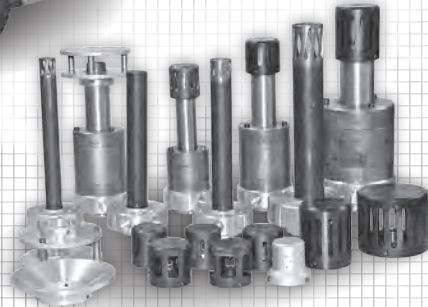
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		RELINING	BURSTING	LATERAL REHABILITATION	MANHOLE REHABILITATION	SEALING/ SPOT REPAIR	REINSTATEMENT CUTTERS	GROUTING
see ad on page 46	<b>Logiball, Inc.</b> 440 Papin St., Quebec, QC G1P 3T9 CANADA 800-246-5988 • 418-656-9767 • (f) 418-653-5746 www.logiball.com • info@logiball.com	✓		✓	✓	✓		✓
see ad on page 15	 <b>MaxLiner USA</b> 450 College Dr., Martinsville, VA 24112 877-426-5948 • 276-656-1225 • (f) 276-656-0419 www.maxlinerusa.com • info@maxlinerusa.com	✓		✓			✓	
see ad on page 23	 <b>Nu Flow Technologies</b> 7710 Kenamar Ct., San Diego, CA 92121 800-834-9597 • 619-275-9130 www.nuflowtechnologies.com info@nuflowtechnologies.com	✓		✓		✓	✓	
	 <b>Parson Environmental Products, Inc.</b> PO Box 25 Wernersville, PA 19565 800-356-9023 • 610-582-6060 www.parsonenvironmental.com info@parsonenvironmental.com	✓			✓			
see ad on page 18	<b>PE Equipment</b> 485 Ash Rd., Kalispell, MT 59901 406-499-8136 www.pe-equipment.com • adam@preeng.com		✓	✓				
see ad on page 7	 <b>Perma-Liner Industries, LLC</b> 13000 Automotive Blvd., Ste. 300, Clearwater, FL 33762 866-336-2568 • 727-507-9749 • (f) 727-507-9849 www.perma-liner.com • info@perma-liner.com	✓		✓	✓	✓	✓	
see ad on page 87	<b>Petersen Products Co.</b> 421 Wheeler St., Fredonia, WI 53021 800-926-1926 • 262-692-3100 (f) 262-692-2418 www.petersenproducts.com sales@petersenproducts.com	✓	✓	✓	✓	✓		✓
see ad on page 32	 <b>Picote Solutions</b> 20810 SE 18th Pl., Sammamish, WA 98075 219-440-1440 tony@picotesolutions.com			✓		✓	✓	
see ad on page 41	 <b>Pipeline Renewal Technologies</b> 111 Canfield Ave., Ste., Randolph, NJ 07869 866-936-8476 • 973-252-6700 • (f) 973-252-1176 www.pipeliner.com • mail@pipeliner.com	✓		✓		✓	✓	
see ad on page 12	 <b>Pipe Lining Supply</b> 2970 E La Palma Ave., Anaheim, CA 92806 888-354-6464 www.pipeliningupply.com • info@pipeliningsupply.com	✓	✓	✓		✓	✓	
see ad on page 13	 <b>Pow-R Mole Sales LLC</b> 1400 Commerce Pkwy., Lancaster, NY 14086 800-344-6653 • 716-683-2486 www.powrmole.com		✓	✓				
see ad on page 21	<b>Prime Resins</b> 2291 Plunkett Rd., Conyers, GA 30012 800-321-7212 • 770-388-0626 www.primeresins.com • info@primeresins.com			✓	✓	✓		✓
see ad on page 79	 <b>PrimeLine Products, Inc.</b> 309 Altamonte Commerce Blvd., Ste. 1518, Altamonte Springs, FL 32714 877-409-7888 • 407-772-8131 • (f) 407-786-8131 www.primelineproducts.com • andy@prime-line.net	✓		✓	✓	✓		
see ad on page 75	 <b>RapidView IBAK North America</b> 1828 W Olson Rd., Rochester, IN 46975 800-656-4225 • 574-224-5426 • (f) 574-223-7953 www.rapidview.com • sales@rapidview.com						✓	
see ad on page 53	<b>Ratech Electronics, Ltd.</b> 260-7 Spinnaker Way, Concord, ON L4K 4P9 CANADA 800-461-9200 • 905-660-7072 • (f) 905-660-1519 www.ratech-electronics.com sales@ratech-electronics.com					✓		



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 <b>Reline America, Inc.</b> 116 Battleground Ave., Saltville, VA 24370 800-998-0808 • 276-498-4000 www.relineamerica.com • info@relineamerica.com	✓						
 <b>RFI Construction Products</b> 495 Smith St., Farmingdale, NY 11735 631-752-8899 • (f) 631-454-9155 www.rficonstructionproducts.com • rficp@optonline.net see ad on page 54	✓			✓			✓
<b>Roddie Inc.</b> 4457 Trumble Creek Rd., Columbia Falls, MT 59912 406-730-1565 • (f) 888-406-8282 www.roddieunderground.com rod@roddieunderground.com see ad on page 35		✓					
<b>Source One Environmental</b> 300 S Dayton St., Davison, MI 48423 810-503-9030 david.donahue@fernco.com	✓	✓	✓	✓	✓	✓	✓
 <b>Spartan Tool</b> 1619 Terminal Rd., Niles, MI 49120 800-435-3866 www.spartantool.com • sales@spartantool.com see ad on page 92	✓	✓	✓		✓	✓	
 <b>The Strong Company, Inc.</b> 4505 Emmett Sanders Rd., Pine Bluff, AR 71601 800-982-8009 • 870-535-7617 • (f) 870-850-6933 www.strongseal.com • info@strongseal.com				✓			
 <b>Trelleborg Pipe Seals Milford Inc.</b> 250 Elm St., Milford, NH 03055 800-626-2180 • 603-673-8680 • (f) 603-673-7271 www.trelleborg.com/pipe-seals tim.sparrow@trelleborg.com/mark.yanzo@trelleborg.com	✓		✓	✓	✓	✓	
<b>Trenchless Equipment Repair &amp; Sales</b> 25799 Springbrook St., Santa Clarita, CA 91350 661-259-8711 www.trenchlesser.com • richieshydraulic@sbcglobal.net		✓					
 <b>TRIC Tools, Inc.</b> 1350 S Loop Rd., Ste. 104, Alameda, CA 94502 888-883-8742 • 510-629-4167 • (f) 510-217-9493 www.trictools.com • info@trictools.com		✓	✓				
<b>TruGrit Traction, Inc.</b> PO Box 2084, Winter Park, FL 32790 407-900-1091 www.TruGritTraction.com • tomr@trugrittraction.com see ad on page 86	✓	✓	✓		✓	✓	✓
 <b>Warrior Trenchless Solutions</b> 1400 Commerce Pkwy., Lancaster, NY 14086 716-601-7760 www.thermoformliner.com see ad on page 31	✓		✓				

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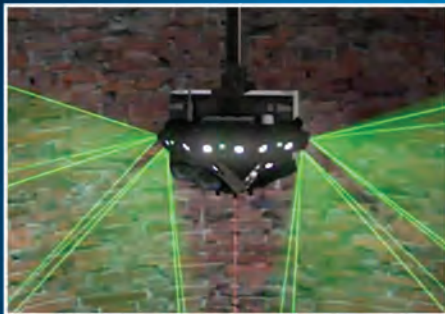
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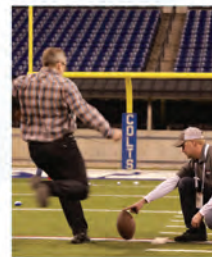
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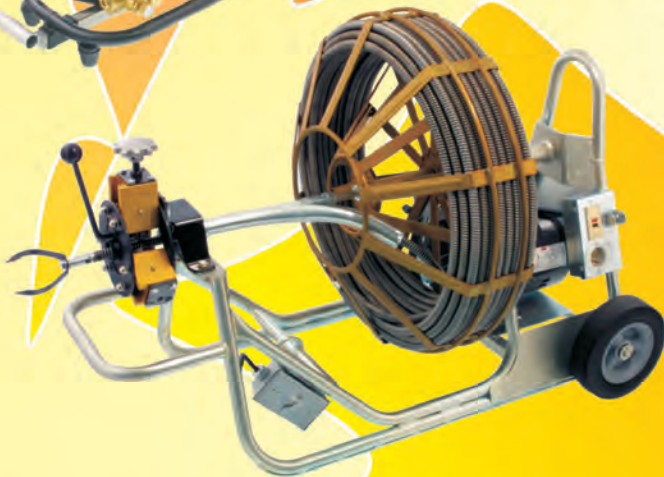
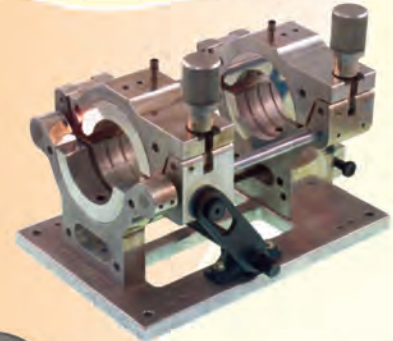
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# Dig These New Products at ICUEE 2019

By Craig Mandli

The International Construction and Utility Equipment Exposition (ICUEE), also known as the Demo Expo, is the premier event for utility professionals and construction contractors to gain comprehensive insights into the latest technologies, innovations and trends affecting their industry.

This year's event, slated for Oct. 1-3 in Louisville, Kentucky, promises to show off some of the finest new products on the construction market. Below is a preview of some of the newest products that will be highlighted at this year's show.

## Boss Industries Bullet D

The **Bullet D** from Boss Industries is a compact, strategically designed system that integrates all major components on to a single frame, enclosed in a tough, weather-resistant canopy. Its design provides output of up to 80 cfm at 100 psi. Because it measures just 20 inches wide by 48 inches long by 40 inches high, it can be set on any class truck with minimal effect on load capacity and visibility. It is narrow enough to fit into standard industrial gates and doorways, as well as service elevators for highrise or underground construction. The width of the unit makes it suitable for mounting on top of 20-inch-wide service body compartments.



## Ox Equipment MTS Dino Series

Advanced technology allows the **MTS Dino Series** dry suction excavator from Ox Equipment to powerfully dig without the use of water, eliminating issues related to slurry disposal as well as overweight loads. It uses a twin-fan system, which generates over 24,000 cfm. The large 10-inch-diameter suction hose, which extends up to 30 feet off the back of the truck, is precisely manipulated via the mechanical Power Arm. The functional side-tipping feature allows for efficient dumping from the 10-cubic-yard spoils container, allowing the unit to stay on site all day, effectively doubling productivity.



800-635-6587; [www.bossair.com](http://www.bossair.com); Booth L475

888-290-4044; [www.ox-equipment.com](http://www.ox-equipment.com); Booth K373

## Hyundai Construction Equipment Americas R30Z-9AK

Hyundai Construction Equipment Americas will exhibit nine equipment models, including a prototype of an electric-powered model, the R35E, developed in collaboration with Cummins Engine Co. They will also exhibit six conventional diesel-powered models from the 9A series of compact excavators, ranging from its smallest (the R17Z-9A) to its largest (the R80CR-9A) and including the **R30Z-9AK**. Also on display from the full-sized HX series of hydraulic excavators will be the HX140L, powered by a 127 hp Cummins QSF3.8 engine. Rounding out the exhibit from the HL900 series of wheel loaders will be the HL940TM model.



## Oxford Plastics Systems LowPro 23/05 road plates

Oxford Plastics Systems' **LowPro 23/05** road plates are HS20-44 load rated for up to a 36-inch-wide trench. Two workers can transport this composite modular system in a work truck and install coverage for 6 feet of trench in 10 minutes. Interlocking sections have a high-visibility, anti-skid surface. The chamfered Flexi-Edge is easy to grip and reduces noise. Gravity-fed underside pins prevent lateral movement. EasiLift handles lock into the sections, making installation easier and more ergonomic.



877-509-2254; [www.hceamericas.com](http://www.hceamericas.com); Booth K345

800-567-9182; [www.oxfordplasticsusa.com](http://www.oxfordplasticsusa.com); Booth 3044



## Rival Hydrovac T7

The **T7** from Rival Hydrovac was designed primarily to be a unit that could be loaded with debris and driven within legislated road limits with most types of debris on board. Additionally the unit comes standard with a scale that reads real-time weights both in the cab and on the wireless remote to confirm weights prior to travel. It is operator friendly, and the operating system is engaged through one PTO switch. The remainder of the operation occurs from the rear panel or the wireless remote. The components used in this truck are high performance in nature, and the unit will dig at levels competitive to large units.



403-550-7997; [www.rivalhydrovac.com](http://www.rivalhydrovac.com); Booth 5142

## Sonetics wireless headsets

Sonetics **wireless headsets** enable natural conversation in the most challenging environments. Talk hands-free with a crew and protect hearing from dangerous noise. Listen-Through Technology provides control of when and how much outside sound to let in to maintain situational awareness. High audio quality and an auto-leveling, noise-canceling microphone lets the user understand the subtle differences in what they hear — even in the middle of a loud work zone.



800-833-4558; [www.soneticscorp.com](http://www.soneticscorp.com); Booth 3706

## Super Products Mud Dog

Super Products offers a safe, efficient and versatile alternative to traditional digging equipment with the **Mud Dog** hydroexcavator product line. The Mud Dog is designed for operator convenience and consistent performance in the harshest environments. It is available with 12- or 16-yard debris capacity and has a 1,500- to 2,000-gallon water tank capacity to meet the challenges of a variety of applications, excavation projects and job site conditions.



800-837-9711; [www.superproductsllc.com](http://www.superproductsllc.com); Booth 3422

## TRUVAC by Vactor Paradigm

Designed for utility, municipal and contractor customers involved in the installation, maintenance and repair of underground water, sewer, gas, electric and telecommunications lines, the versatile **Paradigm** subcompact vacuum excavator from TRUVAC by Vactor can dig holes with water or air; vacuum,

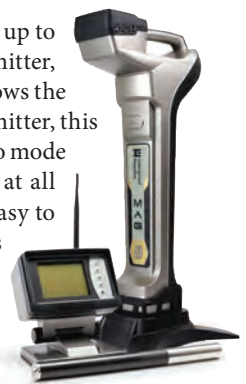


contain and dispose of drill mud; power pneumatic, hydraulic or electrical tools; and provide transport and storage of replacement parts, equipment and tools. The truck's Park-n-Dig design minimizes the time between arriving on the job site and excavation, including the ability to dig up to 6 feet in depth without additional pipe and hose. The standard air compressor powers utility tools such as jackhammers and tampers that may be used on the job.

800-627-3171; [www.truvac.com](http://www.truvac.com); Booths 1531, N2013

## Underground Magnetics Mag 8

With an easy-to-use interface and the ability to go up to 360 feet deep with the Echo 110 extended range transmitter, the **Mag 8** receiver from Underground Magnetics allows the user to go deep. Even with the standard Echo 50 transmitter, this receiver provides a depth range of up to 160 feet. Bore-To mode is always displayed on both the receiver and display at all times, with no programming required. This locator is easy to operate. Once set up, the operator never needs to press a button to accurately know where the transmitter is and where it is going. It includes the ability to change not only 10 frequencies downhole, but also change between high and low power.



515-505-0960; [www.umaghdd.com](http://www.umaghdd.com); Booth 2956

## Vactor 2100 Plus

A water recycling system, available as an option for the Vactor **2100 Plus** sewer cleaner, reuses water already in the sewer to clean sewer lines, eliminating the need for clean water. The system helps municipalities save thousands of gallons of freshwater, improve efficiencies, reduce costs and promote sustainability. The system can also increase operator productivity by up to 100%, enabling operators to clean twice the number of lines. The five-stage filtration system combines settling, centrifugal separation and absolute filtration to 100-micron particle sizes, preventing most abrasive solids from entering the jetting system. The filter cleaning system allows the machine to operate continuously at full operating flows and pressures throughout the day. **C**



800-627-3171; [www.vactor.com](http://www.vactor.com); Booths 1531, N2013



# Working With OSHA

A consulting program prevents penalties and allows contractors to head off issues before they begin

By Jared Raney

**R**eporting incidents to regulatory and oversight organizations like OSHA can be harrowing, but ironically, it turns out that the best way to avoid such negative interactions is to be proactive in contacting the agency.

Fortunately for contractors who may be hesitant to broach the subject of working conditions lest they incur the wrath of OSHA, there is a way to preemptively avoid punitive measures through the On-Site Consultation Program.

“OSHA understands that working with stakeholders is a great way to achieve the mission of ensuring safe and healthful working conditions,” says Kimberly Darby, an OSHA spokesperson. “The consultation program offers no-cost, voluntary and confidential occupational safety and health services to small and medium-sized businesses.”

**“Don’t underestimate the cost of a workplace incident, and don’t assume that the cost of hazard abatement will be expensive.”**

Kimberly Darby

It may be tempting to believe that government organizations want to catch contractors red-handed, but the reality is that it’s in everyone’s best interest to prevent accidents whenever possible.

“This program provides an opportunity for employers to work with the agency to find and fix hazards, achieve compliance, and establish or improve safety and health programs,” Darby says. “Consultation services are separate from enforcement and do not result in penalties or citations.”

As a no-cost program, the only commitment by those seeking consultation is the time it takes to do the review and the commitment to correct any serious issues found — which the company will not be penalized for during the consultation.

“No citations or penalties will be issued. The employer’s only obligation is to correct serious safety and health hazards,” Darby says. “They will be provided information about potential hazards at their work sites, receive advice on complying with OSHA standards, and receive assistance with establishing and improving safety and health programs.”

## THE CONSULTATION PROCESS

To initiate an OSHA review, contractors and subcontractors should coordinate to provide input across the breadth of the work area and project, and because it is a voluntary process, the employer must request the service.

Once the request has been made, the regional consulting office will initiate a review based on the scope indicated by the employer. It can be as specific or broad as the company desires.

The consultant will discuss the employer’s specific needs and set up a visit based on the priority assigned to the employer’s request, work schedule and amount of time needed for the consultant to adequately prepare to provide assistance.

A consultation itself consists of an opening conference, a walk-through of the work site or facility, as well as a review of written injury logs and safety programs. The closing conference will entail a final review with the employer of the OSHA consultant’s findings, wherein they will discuss any necessary safety mitigation or remedies.

Detailed written reports follow the review, again explaining the findings and confirming hazard correction dates.

“When deciding to use the consultation program, employers must determine the scope of the safety and/or health assessment desired; contact their state’s consultation program office to request the assistance; and agree to correct serious and imminent danger hazards identified during the consultation visit,” Darby says. “Based on the scope of the request for assistance, consultants will conduct safety and health assessments of the employer’s entire facility or a portion of the facility.”

It is recommended that employers have injury and illness logs, written safety and health protocols, and workplace policies ready for review. They will be provided information about potential hazards at their work sites, receive advice on complying with OSHA standards, and receive assistance with establishing and improving safety and health programs.



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### DON'T PROCRASTINATE

While committing to an unknown level of hazard mitigation can be daunting, delay in assessing health and safety concerns will cost exponentially more.

"Don't underestimate the cost of a workplace incident, and don't assume that the cost of hazard abatement will be expensive. The solution may be as simple as relocating materials that are blocking an exit or correctly labeling chemicals," Darby says. "Improving workplace safety and health also brings fewer accidents, lowers injury and illness rates, decreases workers' compensation costs, reduces equipment damages and limits product losses." **c**

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# CIPP Lining Methods and Projects

By Craig Mandli



1



2



3



4

## CIPP EQUIPMENT AND MATERIALS

### 1 / EMAGINEERED SOLUTIONS THE SHOOTER

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

### 2 / HAMMERHEAD TRENCHLESS WT212-3D

The **WT212-3D** wet-out table from HammerHead Trenchless has a three-drive roller system and no-shim gap control that combine to deliver highly accurate and uniform resin saturation for quality CIPP installations. The latest CIPP curing methods, such as LED curing, require consistency in resin depth and saturation. The three-drive design of the unit powers rollers to reduce liner wrinkling. The smooth, automated operation delivers uniform wet-outs time after time. In addition, a quick-locking gap mechanism allows users to calibrate gaps between 5 and 15 mm, with more precision than shim-calibrated designs, to eliminate thickness variations in resin. 800-331-6653; [www.hammerheadtrenchless.com](http://www.hammerheadtrenchless.com).

### 3 / PIPELINE RENEWAL TECHNOLOGIES SPEEDYLIGHT+

**SpeedyLight+** from Pipeline Renewal Technologies is an LED-based UV solution for CIPP that cures at speeds ranging from 0.66 to 3.3 feet per minute. Because it's compatible with felt (as well as invertible glass fiber), it can cure 90-degree bends in lines as small as 4 inches, as well as other challenging geometries like transitions and verticals. Free of styrene and amines (and the associated odor), UV-based cure technologies raise fewer objections from the public and a crew. The single-part vinyl ester resin requires no mixing and eliminates shelf life and working time challenges. It uses LED lamps to cure, drawing half the power of traditional UV technology while providing a more powerful cure. The integrated camera lets operators monitor the curing process in real time for optimal quality control. The highly portable design allows for access from even the most remote sites, curing up to 328 feet of liner in pipe 4 to 12 inches. 866-936-8476; [www.pipelinert.com](http://www.pipelinert.com).

## COATINGS/LININGS/SEALANTS

### 4 / APPLIED FELTS HYBRID LINERS

Hybrid liners from Applied Felts combine fiberglass reinforcement with traditional felt liner material to provide strong, robust liners. These hybrid liners perform and install in the same manner as nonreinforced liners with the benefit of reduced thickness, delivering significant resin savings and ensuring a close fit and faster install. AquaCure RP, PS and PW fiberglass-reinforced liners provide superior physical and mechanical properties that meet or exceed ASTM and





NSF 61 testing standards. Additionally, traditional felt liners come in a variety of coating options for polyurethane, polypropylene or polyethylene. 276-656-1904; [www.appliedfelts.com](http://www.appliedfelts.com).

#### 5 / EPOXYTEC CPP SPRAYLINER 61

Epoxytec CPP Sprayliner 61 is a two-component, 100% solids, high-build, spray-applied, structural-grade epoxy system. It is formulated specifically for use in potable, drinking water environments (certified ANSI/NSF 61) and utilizes a blended cycloaliphatic curing system for increased chemical resistance and UV tolerance. Similar to standard CPP once cured, this version is packaged conveniently for applicators seeking to spray with heated plural-component equipment. The material can be sprayed for ultrahigh build, up to 1/4 inch per pass. Blended with reinforcing agents and various fibers, the liner when cured creates reinforcement lining as a fiber-reinforced polymer, with high-strength and flexural properties for partially or fully deteriorated structures. 877-463-7699; [www.epoxytec.com](http://www.epoxytec.com).

#### 6 / MAXLINER MAX FLEX 4D

Max FLEX 4D from MaxLiner provides ease of inversion and a close fit in 4- to 6-inch transitions (while maintaining a thickness of 3 mm), and its specifically designed stitched seam and taped seam is capable of negotiating bends up to 90 degrees with minimal wrinkling. It is a nonwoven needle-punched polyethylene felt liner with an impermeable polyurethane coating. 877-426-5948; [www.maxlinerusa.com](http://www.maxlinerusa.com).

#### 7 / PARSON ENVIRONMENTAL PRODUCTS GEOLINER

GeoLiner geopolymer mortar from Parson Environmental Products provides an outstanding bond, corrosion resistance, high strength and low permeability. It is a suitable option for the protection and renewal of large-diameter pipelines and associated structures, tunnels and culverts. Its formulation is a low-carbon-emission,

recycled material producing a green, eco-friendly infrastructure rehabilitation product. It is applied using the same tools and equipment the industry has been using for decades. 800-356-9023; [www.parsonenvironmental.com](http://www.parsonenvironmental.com).

#### 8 / PERMA-LINER INDUSTRIES VERTICAL CONNECTION LINING SYSTEM

Perma-Liner Industries' vertical connection pipe lining system offers a way to approach and repair vertical pipelines in residential and commercial markets, making the process easier in less time. The system cures in one hour using a compact, electric steamer or vacuum pump. The system offers uniform thickness throughout. The host pipe does not need to be dry prior to installation, which lessens the installation and cure time. The materials come in kit form, eliminating measuring and waste, and an experienced crew can easily install five or more per day. 866-336-2568; [www.perma-liner.com](http://www.perma-liner.com).

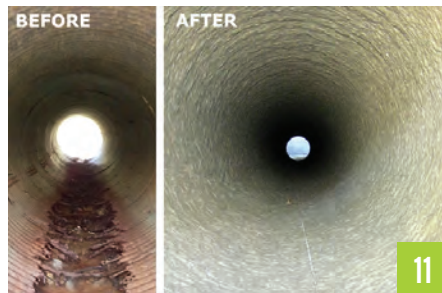
#### 9 / PRIME RESINS PR10

PR10 acrylamide from Prime Resins is a low-viscosity permeation chemical grout that is injected from within the manhole, wicking into the soil outside or used to curtain-grout the exterior. A high-pressure pump injects grout through the manhole wall into the surrounding soil or is injected directly into the surrounding soil, creating an impermeable barrier. The permeation grout doesn't expand, but rather saturates the soil immediately outside of the manhole (with a desired gel time) that permanently stabilizes the soil and prevents further groundwater penetration. 800-321-7212; [www.primeresins.com](http://www.primeresins.com).





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### 10 / SEALING SYSTEMS INFI-SHIELD

**Infi-Shield** external seal from **Sealing Systems** prevents erosion and infiltration in manholes or catch basins. The one-piece molded seal is made from EPDM rubber, has a minimum of 460% elongation and has a reinforced, preformed, L-shaped corner. It can be combined with the Sealing Systems manhole insert to help stop unwanted inflow of rainwater through the manhole cover. The inserts are custom-sized to provide an enhanced fit and seal and are manufactured from ultrahigh-density polyethylene. Both products are inexpensive and simple to install with in-house personnel. 800-478-2054; [www.ssisealingsystems.com](http://www.ssisealingsystems.com).

### 11 / THE STRONG CO. STORM SEAL

**Storm Seal** from **The Strong Co.** is a solution for structural fatigue and corrosion in stormwater pipes. It provides a system for the rehabilitation of corrugated metal, concrete, or masonry culverts, storm drains, and catch basins to stop inflow, infiltration, and exfiltration and restore structural integrity. It is a high building Type I/II Portland cement-based product blend with pozzolans, masonry sand, alkaline-resistant fiberglass reinforcement and performance-enhancing admixtures used to form a structural monolithic liner covering all interior substrate surfaces. It is centrifugally cast using a mixer, pump and spinner. It may also be sprayed manually. It is specially formulated for stormwater applications and culverts 24 inches in diameter or larger. 800-982-8009; [www.strongseal.com](http://www.strongseal.com).

### 12 / TRELLEBORG PIPE SEALS TYPE A

**Type A** silicate resin from **Trelleborg Pipe Seals** is suitable for patch repair. The “A” stands for accelerator, based on the high amounts of catalyst that have been added to this custom-formulated resin system. Catalysts activate the components of the resin, making them more susceptible to react with the hardener. The resin can be combined with other Trelleborg silicate resins, such as Type S and W (summer and winter) in the Northern Hemisphere. It increases

the speed of the polymerization without jeopardizing the mechanical properties of the cured liner. It also enables customers to adapt the composition of the resin mixture to the ambient temperature. By supplementing this resin with Type A resin, the curing time can become faster. 800-626-2180; [www.trelleborg.com/pipe-seals](http://www.trelleborg.com/pipe-seals).

## HYDROEXCAVATION

### 13 / CUSCO SEWER JETTER

The **Sewer Jetter** from **Cusco** can help perform major cleanups by excavating debris using a 26-foot boom reach and a 600-foot, 3,000 psi jetting system. According to the maker, the jetter is outfitted with quality components and reverse engineered for optimal weight and payload using a superior operator control system. The unit is designed for simple maintenance and features durable and uncomplicated systems to reduce repairs and downtime. It can be paired with a Cusco SJX hydroexcavator to provide a powerful option for handling sewer and waterline maintenance and digging new lines with one piece of equipment. Options include various tank and chassis sizes and can be modified based on customer specifications. 800-490-3541; [www.wastequip-cusco.com](http://www.wastequip-cusco.com).

### 14 / DYNABLAST HV420F-12VRED

The **Dynablast HV420F-12VRED** hydrovac water heater produces 420,000 Btu with an output temperature of 175 degrees F at 5 gpm, making it suitable for colder climates and improved digging in clay-filled areas. All models come with ETL certification for safety, which also includes certification on the coil for higher efficiency and heat transfer, a stainless steel target plate for increased coil life and a design with serviceability in mind with momentary override control. A 19-by-19-inch footprint makes it suitable for compact installations. 905-867-4642; [www.dynablast.ca](http://www.dynablast.ca).

CONTINUED >>



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**TRUVAC**<sup>®</sup>  
by Vactor Mfg., Inc.

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### 15 / EASY KLEEN PRESSURE SYSTEMS WILDCAT HEATERS

Wildcat Heaters high-pressure, oil-fired hot-water/steam heaters and hydraulic pump systems from Easy Kleen Pressure Systems are designed for reliability and efficiency and are install-ready for vacuum trucks and hydroexcavators. A full range of heater options includes dry steam, redundancy packages, Schedule 80 and 160 stainless steel or A53 boiler pipe, fine-tuned temperature and flow-control systems. All coils are manufactured in-house, with CRN boiler-approved coils now available. Heaters can be designed for mounting in a cabinet or supplied as a completed cabinet unit. They are CSA and ETL approved. Hydraulic pumping systems are available. 800-315-5533; [www.easykleen.com](http://www.easykleen.com).

### 16 / GAPVAX HV33

Designed to safely transport water and debris in urban areas, the GapVax HV33 is shorter, smaller and more compact than its predecessor. It is 30 feet long overall on a medium-duty chassis and includes a 600-gallon water tank, 6-cubic-yard debris body, 6- or 8-inch top-mounted telescoping boom with a 14- to 17.5-foot reach, 4,000 cfm power and an inverted, full-opening tailgate. 888-442-7829; [www.gapvax.com](http://www.gapvax.com).

### 17 / HOTJET USA VAC 'N JET SERIES

The HotJet USA Vac 'n Jet Series of vacuum trailer jettors are rugged and compact; are engineered to haul equipment and spoils loads; and can clean valve boxes and storm drains, and hydroexcavate and/or clean drainlines and sewer lines. They offer hot- and/or cold-water operation with a choice of engine options ranging from 13 to 66 hp and gas or diesel operation. They are equipped with premium triplex pumps, a 500-gallon spoils tank, 200-gallon water tank, Gardner Denver vac/blowers, 4-ton hydraulic dump and centri-clean filter system. They can also be custom engineered and designed to meet specifications. 800-624-8186; [www.hotjetusa.com](http://www.hotjetusa.com).

### 18 / NOZZTEQ MONRO-JET

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

### 19 / RAMVAC BY SEWER EQUIPMENT HX-12

The HX-12 hydroexcavator from Ramvac by Sewer Equipment has a 12-yard debris tank and a temperature-controlled environmental chamber that contains the entire water system, including water tanks. A directional discharge system allows the operator to off-load debris back into the excavation site when finished, without the mess of dumping the tank. This system also allows operators to blow any obstructions out of the dig hose. It includes a long-range wireless remote, NEMA 4 electrical system, a 900,000 Btu water boiler and a three-stage cyclonic filtration system. The standard 4,400 cfm blower delivers fuel economy. It is available with a RamAir air excavation system touting a 185 cfm at 150 psi air compressor for when the operator can't risk adding water to the problem area. 877-735-4640; [www.ram-vac.com](http://www.ram-vac.com).

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**Patriot Sewer Equipment & Repair**  
RIVERSIDE CA

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### 1776 Heavy Duty



- Patented Design: U.S. Patent #: D802,241
- Electric / Remote Start • Hour / Battery Gauge
- Pulsation Valve • 1.3" Flat Free Tires
- Audible battery alarm
- Winch mount for easy loading and unloading
- High Quality Stainless Steel & Brass Fittings
- Removable Top handle for easy storage

**Motor:** 23 hp Briggs & Stratton V-Twin  
**Fuel:** Gas / Propane  
**Pump / Pressure:** 11 GPM Pump @ 3,500 PSI  
**Frame & Reel:** 100% Stainless Steel  
**Hose:** 300' of 3/8" Piranha Jetter Hose – (5k PSI Max, 12k Burst)  
**Weight:** 341 lbs  
**Dimensions:** 55"H (with handle), 43 1/2" (without handle), 38"L x 25"W

### 1776 Standard Edition



- Patented Design: U.S. Patent #: D802,241
- Electric / Remote Start • Hour / Battery Gauge
- Pulsation Valve • Safety Relief Valve
- 1.3" Flat Free Tires • Audible battery alarm
- Winch mount for easy loading and unloading
- High Quality Stainless Steel & Brass Fittings
- Removable Top handle for easy storage

**Motor:** 23 hp Briggs & Stratton V-Twin  
**Fuel:** Gas / Propane  
**Pump / Pressure:** 5.5 GPM Pump @ 4,000 PSI  
**Frame & Reel:** 100% Stainless Steel  
**Hose:** 300' of 3/8" Piranha Jetter Hose – (5k PSI Max, 12k Burst)  
**Weight:** 275 lbs  
**Dimensions:** 54"H (with handle), 43" (without handle), 38"L x 23"W

### 1808 Madison Mini Jetter



- Portable, lightweight jetter, only weighs 15 lbs
- Clear out grease, sand, and debris in 1 1/2" – 3" lines
- Generates 1,600 PSI @ 1.3 GPM and only draws 13 amps
- Pulsation helps hose go through tight bends and further down line
- Heavy Duty Hose Reel with 100' of 1/8" Piranha Hose
- 3 piece nozzle kit, custom designed for 1808 Madison Mini Jetter
- 25' of pressure washer hose, wand, and turbo nozzle to clean up any job site messes

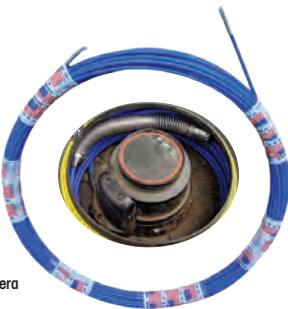
**Motor:** 13 Amp Electric Motor  
**Pump:** Axial Cam  
**Pressure:** 1,600 PSI  
**Flow:** 1.3 GPM  
**Hose Capacity:** 100 feet of 1/8" hose  
**Weight:** 15 lbs (without hose & reel)  
**Dimensions:** 17"L x 12.5"W x 8.5"H

**BUILT TO ORDER AND CUSTOM MADE IN USA**

### Patriot - Micro Rod

**Push Rod Exterior Jacket:** Polypropylene  
**Push Rod Interior:** Fiberglass  
**Push Rod Diameter:** .27"  
**Conductor Wires:** 6  
**Conductor Wire Size:** 28 AWG  
**Length:** 100'

Made in USA. Call to see if compatible with your sewer camera



### Patriot - Mini Rod

**Push Rod Exterior Jacket:** Polypropylene  
**Push Rod Interior:** Fiberglass  
**Push Rod Diameter:** .37"  
**Conductor Wires:** 6  
**Conductor Wire Size:** 20 AWG  
**Lengths:** 100', 200'

Made in USA. Call to see if compatible with your sewer camera



### Patriot - Standard Rod

**Push Rod Exterior Jacket:** Polypropylene  
**Push Rod Interior:** Fiberglass  
**Push Rod Diameter:** .46"  
**Conductor Wires:** 8  
**Conductor Wire Size:** 20 AWG  
**Lengths:** 200', 325'

Made in USA. Call to see if compatible with your sewer camera



### Upgrade your old sewer monitor!

- LCD / LED Monitor
- USB Recorder
- 18V Battery Addon (Milwaukee M18)
- Sunlight Readable LCD \*additional\*

Don't waste \$\$\$\$ on a new monitor. We can install the latest technology to your older sewer monitor equipment.



Ship your camera to us for repair and repair work is performed, we will ship it back to you at no charge

### Repair your broken sewer camera!

- Broken / Kinked push rods
- Camera Head rebuild & replace
- Sonde & Transmitters
- Slip Rings
- No Picture Issues
- Push Rod Replacement
- Powdercoat & Restoration
- Warranty work & more!







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### 20 / RIVAL HYDROVAC T7

The T7 hydrovac from Rival Hydrovac is a road-legal unit engineered to work primarily in urban settings. It offers a 7-cubic-yard debris body, 800-gallon freshwater storage, and hoist and pressure-off off-loading capabilities that allow it to pressure loads into other vessels, vehicles or tanks in minutes. Its Raptorlock dump door system allows the door to hold a seal under vacuum or pressure without the use of manual wing nuts. It comes with a Robuschi Robox enclosed blower system, 12-volt boiler system, 14 gpm water system and full winterization package, full-rotation 6-inch boom extendable to 20 feet, and an Aarcomm remote system that controls the boom, water, and vacuum and displays real-time truck weight. Its full safety package includes a safety railing atop the truck, engineered D-ring tie-offs and boom cradle sensors to prevent driving with the boom deployed. 403-550-7997; [www.rivalhydrovac.com](http://www.rivalhydrovac.com).

### 21 / SOIL SURGEON HYDROEXCAVATING TOOL

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

### 22 / SUPER PRODUCTS MUD DOG

The Mud Dog hydroexcavator from Super Products is designed for operator convenience and consistent performance in the harshest environments. It is available with an air excavation option, which allows the operator to always choose the best application, water or air, for the job. It is available with 12- or 16-yard debris capacity. Each model comes standard with tilt ejection unloading, which provides a safe dumping solution, and is equipped with a rear-mounted boom that can reach 27 feet and has 335-degree rotation. 800-837-9711; [www.superproductsllc.com](http://www.superproductsllc.com).

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

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

### 24 / TORNADO GLOBAL HYDROVACS F4 ECOLITE

The F4 ECOLITE from Tornado Global Hydrovacs has a 12-cubic-yard mud tank and holds 1,550 gallons of freshwater. The unit is more than 7,000 pounds lighter than the company's older models and offers more than double the payload. The boom has a 342-degree rotation and a 26-foot reach. The smaller F3 ECOLITE is a 10-cubic-yard, 1,250-gallon tandem-axle unit that also more than doubles older payload capacities. It features an 8-inch boom and a 3,800 cfm blower. 715-441-7157; [www.tornadotrucks.com](http://www.tornadotrucks.com).

### 25 / TRUVAC BY VACTOR PARADIGM

Designed for utility, municipal and contractor customers involved in the installation, maintenance and repair of underground water, sewer, gas, electric and telecommunications lines, the Paradigm subcompact vacuum excavator from TRUVAC by Vactor can dig holes with water or air; vacuum, contain and dispose of drill mud; power pneumatic, hydraulic or electrical tools; and provide transport and storage of replacement parts, equipment and tools. The truck's Park-n-Dig design minimizes time between job site arrival and excavation, including the ability to dig up to 6 feet without additional pipe and hose. The air compressor powers utility tools such as jackhammers and tampers. The truck offers tool storage space, including a long-handle toolbox. The truck can tow up to 20,000 pounds. 800-627-3171; [www.truvac.com](http://www.truvac.com).

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**In Milwaukee, a massive project to replace lead water pipes poses a huge challenge ...**

**But Vacall AllExcavate machines are able to simplify the solution**

AllExcavate hydro excavators by Vacall are calmly addressing the urgent need to replace over 18 miles of water service mains in Milwaukee. Operators appreciate the easy startup and operating procedures, using exceptional Vacall jet-vac power to dig down 15 feet, expose lead water pipes and clear the area for new pipes.

See the video and read about our success in Milwaukee. Then call for facts and a demo.

**See the video on the *NEW* Vacall web site:**

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**800-445-4752**

**VACALL™**  
**DRIVING INGENUITY**







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## 26 / VACALL ALLEXCAVATE

Vacall AllExcavate hydroexcavators include AllSmartFlow smart controls that help to conserve water during high-performance jet/vac digging around utilities and waterlines or while cleaning frac tanks and vessels. Single-engine efficiency helps conserve fuel and reduce emissions. It has a high-pressure water system with rheostat control to vary water volume and capacity output. A heated compartment protects the water system components against freezing. Its water tanks are made of high-quality aluminum for extra strength. Large, galvanized steel debris tanks are also available. A single control is used to open, close and lock the tailgate. It has double-cyclone filtration with a simplified design to reduce maintenance, extend performance and increase working life. Its rear-mounted boom front-loads debris. It is available with a cold-weather package. 800-382-8302; [www.vacall.com](http://www.vacall.com).

## 27 / VECTOR TECHNOLOGIES MUDSLINGER

The Mudslinger line of compact trailer-mounted hydroexcavation vacuums from Vac-Con, in cooperation with Vector Technologies, have multiple Tier 4 diesel and gas engine options, with an 1,190 cfm, 16-inch Hg positive displacement blower, and come with a 535- or 845-gallon debris tank with 55-degree hydraulic dump hoist and a hydraulic door. The water system is 4 gpm at 4,000 psi with 50 feet of 3/8-inch hose and comes with a 225- or 325-gallon HDPE water tank. A 9-foot boom with 24 inches of hydraulic extension, hydraulic up/down and 270 degrees of manual rotation is also available. It is mounted on a heavy-duty welded tube steel trailer. 800-832-4010; [www.vector-vacuums.com](http://www.vector-vacuums.com).

## 28 / WESTECH VAC SYSTEMS WOLF

The Wolf noncode hydrovac truck from Westech Vac Systems is suitable for oil and gas customers working in extreme conditions. The debris body is positioned on the optimal chassis location to ensure the payload is proportionately distributed across all axles, maximizing legal payload for customers and improving operational

efficiency. The side-mounted water tanks reduce the weight by more than 40%, lowering the overall cost of the truck. The 1,500-gallon capacity ensures ample water for large or remote jobs. A top-mounted, no-touch water fill system is easily accessible from the passenger side of the vehicle. The debris body is lifted using a telescoping, dual-acting hydraulic cylinder capable of 36,000 pounds of force. When fully extended, the debris body exceeds a 45-degree dump angle for fast and efficient off-loading. To help the off-loading process, a heavy-duty, hydraulically powered tank vibrator is mounted to the belly of the debris body. 780-955-3030; [www.westechvac.com](http://www.westechvac.com).

## MANHOLE REHABILITATION PRODUCTS

### 29 / CRETEX SPECIALTY PRODUCTS LSS INTERNAL MANHOLE CHIMNEY SEAL

The LSS Internal Manhole Chimney Seal from Cretex Specialty Products is a high-performance, watertight mechanical seal installed on the frame and grade ring sections of sanitary sewer manholes. These seals eliminate and prevent manhole frame-chimney inflow. During wet weather and snowmelt, clearwater enters manholes through deteriorated or broken frame-chimney joints. This deterioration can be caused by frost heave, soil movement, traffic loading, thermal expansion and contraction of the surrounding pavement, and poor or antiquated construction methods. Each seal is made up of an EPDM sleeve and type 304 stainless steel expansion bands, and it can be easily removed and reinstalled to allow for future manhole adjustments. It has a 50-year design life and is available in four widths, allowing complete chimney coverage of up to 24 vertical inches with a single seal. 800-345-3764; [www.cretexseals.com](http://www.cretexseals.com).

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### 30 / CUES SPIDER

The SPiDER scanner from CUES can calculate its position in the manhole shaft by using its sensor data to measure its incremental motion instead of the payout cable. It weighs less than 30 pounds and can be hand-carried to easements or other previously difficult-to-access sites. This wireless portability is possible because the processing computer and battery supply are built into the scanner. It collects millions of 3D measurements during each manhole inspection, so the manhole can be measured to better than 5 mm accuracy. The point cloud can be used to evaluate the structural changes in a manhole before and after rehab. It also provides live-video stream and recorded MPG video, making it an ideal wireless tool for inflow and infiltration studies. 800-327-7791; [www.cuesinc.com](http://www.cuesinc.com).

### 31 / DUKE'S ROOT CONTROL RAZOROOTER II

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

### 32 / 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). 877-747-3245; [www.infosense.com](http://www.infosense.com).

### 33 / LMK TECHNOLOGIES CIPMH

The CIPMH (cured-in-place manhole) solution from LMK Technologies is a one-piece, resin-saturated liner designed to reduce I&I and renew structural defects in a variety of manhole configurations and sizes, including barrel sections, as well as eccentric and concentric cones constructed of brick and mortar, precast or cinder block. This one-size-fits-most, reinforced and stretchable liner is engineered to resist traffic loading and freeze-thaw cycles while creating a corrosion-resistant lining. Available for chimney or full-depth manhole rehabilitation projects, the ASTM F3033-compliant, vacuum-impregnated liner is pressed against the existing manhole by a pressurized bladder until the thermoset resins have cured ambiently, typically within two hours. 815-433-1275; [www.lmktechnologies.com](http://www.lmktechnologies.com).

## PIPELINE REHABILITATION/LINING

### 34 / ARIES INDUSTRIES TEST AND SEAL GROUTING SYSTEM

The test and seal grouting system from Aries Industries reduces setup time and provides efficient hands-on control to quickly seal leaking joints. Grout — pumped to a leaking joint — flows through the leak, sealing the surrounding soil to form an impenetrable barrier. Sixty-gallon tanks and continuous-duty mixers provide high volume to seal large voids. Reels for fast deployment and retrieval, as well as high-power winches, quickly move the packer from joint to joint for high productivity. The unit's 800 feet of color-coded hose allows long runs. The truck comes with a bench, storage and room to work. The operator tests and seals the joints while working in the control room, where test data and the sealing process are easily viewed, recorded and logged. 800-234-7205; [www.ariesindustries.com](http://www.ariesindustries.com).

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# HUBER DAYS

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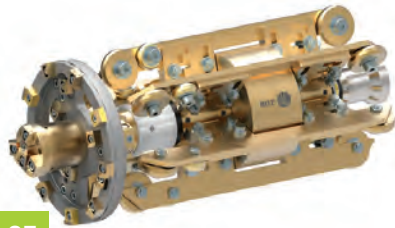
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### 35 / ENZ USA GOLDEN JET IMPACT DRILLING CUTTERS

Golden Jet Impact Drilling Cutters from Enz USA are designed to remove stubborn deposits like concrete and injection cement, as well as calcareous and mineral deposits. In many cases, the use of a percussion milling cutter is the only alternative to digging up pipes under foundations or roads. It can also cut out dropped liners and prep for a reline job. Cutters range from 4- to 24-inch pipe diameters. They come with tungsten carbide and/or diamond-tipped teeth, and they work with the percussion system of 600 to 3,000 impulses per minute and up to 12 tons of impact force. All impact drilling cutters can be operated without impacts by means of a simple mechanical changeover. They are now available in 8- to 10-inch sizes for use with recycled water. 877-362-8721; [www.enz.com/en-us/home](http://www.enz.com/en-us/home).

### 36 / INFRASTRUCTURE REPAIR SYSTEMS POINT REPAIR SYSTEM

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



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### 37 / PETERSEN PRODUCTS DRAINJET-PRO

The DrainJet-Pro drain flusher from Petersen Products may be used with high-pressure jetters or use the Standard DrainJet with standard water pressure. It is flexible for navigating bends, and you can attach a cap to make it a pipe plug. It's able to plug the pipe as well as flush prevents backflow of water and debris. The flusher is constructed of heavy-duty specially treated industrial fabric. Standard sizes are 1.3 to 6 inches. 800-926-1926; [www.petersenproducts.com](http://www.petersenproducts.com).

## REINSTATEMENT CUTTER

### 38 / SEWER ROBOTICS SR-SERIES HA125

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# CIPP Lining Methods and Projects

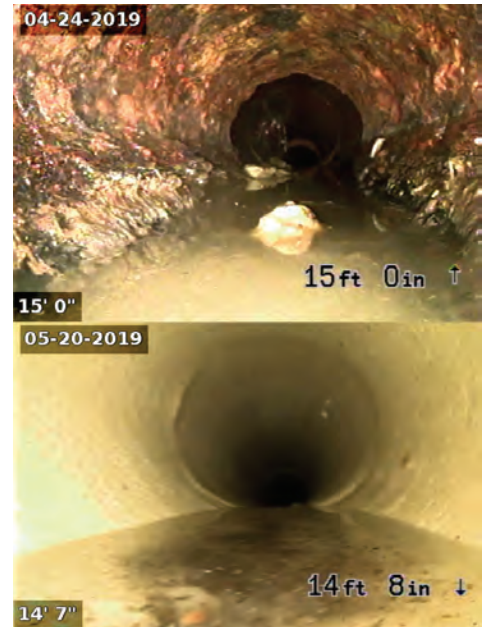
By Craig Mandli

## DRAIN CLEANING MACHINE HELPS PREPARE SEWER FOR RELINING

**PROBLEM** / A+ Environmental of North Beach, Maryland, was called out by a plumber who said he'd been working on a sewer line that had backed up several times in the past few months. Every time he snaked the sewer, he could get the sewer line to open and drain but could never get through a certain area at approximately 23 to 25 feet.

**SOLUTION** / Kevin Walker, owner of A+ Environmental, used a 4018 jetter from US Jetting and a WT StoneAge nozzle to open the sewer line, then conducted a video inspection (using a RIDGID CS6x and Mini Reel) to see several areas with roots. Walker used a ZIP-ZIP flex-shaft drain cleaner from Drain Rehab Solutions to prep the sewer line before installing the liner. Not only did the machine easily cut through the root areas, it descaled the cast iron piping to get full inside diameter. He then used a Drain Rehab Solutions 4-by-6-inch by 12-foot packer to patch-line a total of 24 feet, completing the job within six hours.

**RESULT** / "Using this equipment has given me the ability to save several hours each day when needing to patch-line more than 4 feet," Walker says. "The ZIP-ZIP machine basically paid for itself within two jobs. It gives me the ability to cut roots faster, descale cast iron better, grind down offset clay joints and even cut out overpoured concrete." 514-379-3544; [www.drainrehabolutions.com](http://www.drainrehabolutions.com).



## CONSTANT ROOT-INTRUSION PROBLEM FIXED WITH CIPP SOLUTION

**PROBLEM** / The Family Plumber in Los Alamitos, California, had a longtime residential customer who was having a yearly issue with root intrusion. The city got involved, as the problem was spilling into the city sewer. A camera inspection determined that 75 feet of 4-inch cast iron was getting brittle and couldn't handle more cleaning. The homeowner had two options: dig up the yard and be without water for at least a week, or reline the pipe. After consulting the plumber, relining the pipe was chosen as the best and most economical solution.

**SOLUTION** / The Family Plumber wanted to add CIPP as a service, and this was their first job. With Pipe Lining Supply's trained technician, they did on-the-job training. They dug a small access point in the yard, using a Renssi high-speed cable machine with a 4-inch chain knocker to prepare the pipe. They then used a 4-inch green calibration tube as a preliner since there had been lots of rain and groundwater infiltrating the pipe. They used the Quik-Shot System, a portable 70 cfm compressor, 4-by-3-inch embossed liner, Quik-Pox 60 resin, and hardener. To cure the liner, they used the Quik-Heater. The entire job took four hours to complete.

**RESULT** / After final city inspection, both the homeowner and city were impressed with the completed job. The homeowner saved money and help ensure against roots in their sewer line in the future. 888-354-6464; [www.pipeliningssupply.com](http://www.pipeliningssupply.com).





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## INSIDE MANHOLE DROPS REPLACE FAILED OUTSIDE DROPS

**PROBLEM** / Aging outside drops in Saugus, Massachusetts, had proven difficult to access for inspection, cleaning and maintenance. Many of the drops were deteriorating, leaking or clogged. The community sought a replacement.

**SOLUTION** / National Water Main Cleaning, using design documents developed by CDM Smith, was contracted to fill in the outside drops and install new inside drops from RELINER/Duran. The base of the outside drop is plugged with concrete prior to the drop being filled with pea stone, flowable fill or sand. A hydraulic cement cap is placed on top and worked to be smooth with the mainline pipe invert. The mainline pipe is then CIPP-lined, followed by rehabilitation of the manhole. After the installation of a cementitious liner in the manhole, the Inside Drop System is installed. The system consists of a fiberglass drop bowl that is bolted to the manhole wall just beneath the high-level inflow pipe, and stainless steel pipe support brackets are used to attach the drop pipe to the wall. A flexible coupler is used to connect the drop pipe to the drop bowl, and a bend is installed at the pipe base in the manhole invert. The system is easy to install and allows the drop to be cleaned and inspected from above. The system is available to accommodate internal drops ranging from 4 to 24 inches in diameter.



**RESULT** / The system eliminated the maintenance problems associated with failing outside drops. 800-508-6001; [www.reliner.com](http://www.reliner.com). **c**

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## SPOTLIGHT

### Popular combo unit now available with recycling option

By Craig Mandli



Conserving clean water has become a goal all across the country. Because combination sewer cleaning units typically are large users of clean water, the popularity of units that can effectively reuse water continues to increase. The technology can potentially save vast amounts of water per year, which is an especially attractive benefit for drought-stricken regions, as well those communities looking to reduce overall sewer cleaning costs.

With that in mind, the popular Vac-Con combination machine is now available with a recycling feature suitable for sewer cleaning, catch basin cleaning, hydroexcavation and daylighting. The recycling components include a two-stage water filtration system with a stainless steel first-stage filter for removal of large particulate. The second-stage filter is self-cleaning and features a high-pressure backflush at 2,000 psi.

“The Vac-Con Recycler is the machine that operators have been waiting for,” says Todd Masley, Vac-Con’s executive vice president. “Our team of engineers and production associates have worked tirelessly to bring the strongest and most efficient recycling unit to the market.”

The Recycler boasts water flows of 50 to 80 gpm. Water pressure can be activated or deactivated regardless of system revolutions per minute, due to a hydraulic control located at the control panel.

The recycling system operates with freshwater and recycled water. During recycling, water is used from the debris tank directly and does not enter the freshwater system. Freshwater and recycled water are completely separated from one another. It can operate as a traditional combination machine by turning the recycling feature off, which gives the unit a wide range of applications. Employing the recycling system enables crews to clean more linear feet of sewer per day. Instead of spending time going back and forth to fire hydrants to refill water tanks, contractors can spend all day on a job site, never leaving to refill a water tank.

“We began this product design by first understanding what the customers in the field required and, consequently, what other recycling machines on the market lacked,” Masley says. “We believe this machine will revolutionize the way contractors and municipalities work. The timesavings and efficiencies that the recycling feature produces will bring year-round savings to departments.”

The Recycler is available in a dual- or single-engine configuration. The debris tank is offered in an 11-, 12- or 16-yard option. Freshwater capacity is offered up to 1,000 gallons. 904-284-4200; [www.vac-con.com](http://www.vac-con.com).

## 1 PowerChats



### 1 POWERCHATS AI-POWERED CHAT SERVICE WITH REAL-TIME ALERTS

PowerChats is an artificial-intelligence-powered website chat service that specializes in helping home service companies generate and capture more leads by utilizing a user-friendly interface and clear, efficient messaging. It now offers outbound texting capability, expansion of CRM tracking integrations, dynamically changing click-to-call buttons to ensure compatibility with all call-tracking providers and new chat notifications via text message and email. 801-860-1871; [www.powerchats.com](http://www.powerchats.com).

### 2 PIPE VISE TOOLS

Pipe Vise tools are designed to eliminate the hassle of using two pipe wrenches to assemble piping and fittings. Hardened spring-loaded jaws provide a secure hold for objects ranging from a 1/2 inch to 2 inches depending on the model. Whether you are assembling new fittings or breaking loose old pipe, Pipe Vise tools are designed to make tightening and loosening easier. 832-303-1149; [www.pipevise.com](http://www.pipevise.com). c



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# C70

## HD Video Cleaning Nozzle



### A **Nozzle** Idea

The Sewer Robotics C70 video nozzle features 8 cleaning jets, battery pack, LED lighting, WiFi, and self-leveling HD camera for video recording and jetting 6" to 40" pipelines.

Video is recorded on an SD-card inside the nozzle and downloaded to the included tablet via integrated WiFi as soon as the nozzle has returned to the manhole.



#### Specifications

Scope of Use:	6" - 40" Diameter Pipelines
Jet Angle:	20 Degrees
Hose Connection:	1.25", 1", .75" Fitting
Flow:	40 - 170 GPM
Pressure:	2,000 - 4,000 PSI
Battery Runtime:	8+ Hours
Video Memory:	8+ Hours

#### Features

- Auto Upright HD Camera
- 7 Pressure Switched LEDs
- 8 Exchangeable Jet Inserts
- Double Sapphire Lenses
- Wireless Video Downloading
- Rugged Tablet with GPS
- Fully Submersible
- Cleaning Assessment Software (optional)



#### The Kit - What's Included

- C70 Nozzle with HD Camera and LED lights
- Protective Case
- Tablet with GPS
- Pipeline Viewing Software
- Jet Inserts
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### AIMS Cos. acquires Southern Hydro Vac

AIMS Cos. announced it acquired Southern Hydro Vac, a soft-dig hydroexcavation company in Georgia. The company will do business as Southern Hydro Vac under the AIMS umbrella. All 50 Southern Hydro Vac employees will work with the combined organization moving forward. AIMS now employs over 500 professionals nationwide and is averaging two new regional locations per year with additional growth plans.

### RIDGID names Mitch Barton marketing director of Global Press Connection

RIDGID announced the addition of Mitch Barton to the Global Press Connection team, where he will serve as marketing director. In this new position, Barton will manage product development, partner relations and new business opportunities for the growing line of RIDGID press tools. He brings several decades of marketing and product development experience to his new role. He previously served as director, global project management for Performance Health in Akron, Ohio.



Mitch Barton

### Vacuworx announces new hires and promotions

Vacuworx announced the promotion of two employees and three new hires as it expands the marketing and strategy teams in support of global growth. Alan Odgers has been promoted to senior vice president of strategy from vice president of marketing. William Bompreszi was hired as director of business analytics and will focus on making continuous improvements within the organization and supporting global initiatives. Paula Bell was promoted to director of marketing from marketing manager, managing the development, implementation and evaluation of integrated marketing strategies to increase both brand awareness and sales revenue. Vacuworx has also hired Brandon Martin and Denise Warner as marketing coordinators.



Alan Odgers



William Bompreszi



Paula Bell



Brandon Martin



Denise Warner

### WJTA Conference and Expo dates announced

The 2019 WaterJet Technology Association Conference and Expo will be held Nov. 11-13 in New Orleans at the Morial Convention Center. A daylong preconference short course will be held on Nov. 11, and the conference sessions and expo activities will take place on Nov. 12 and 13. New to the program this year is a dedicated session track for asset owners and a panel discussion on collaboration between asset owners, contractors and original equipment manufacturers. For more information on the expo, visit [www.wjtaimcaexpo.com](http://www.wjtaimcaexpo.com). c

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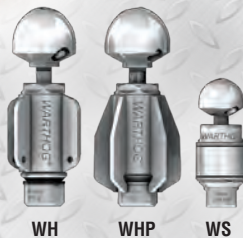
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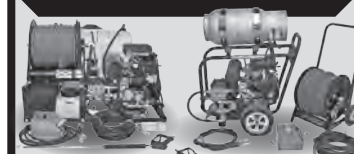
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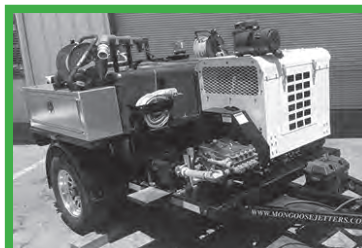
2007 Volvo with a Vector 2115 combination unit. (Stock# 5903C). **(888) VAC-UNIT (822-8648); www.vsirentalsllc.com** (CBM)

1990 Vac-Con/International. 466 engine with Allison transmission. 88k miles, 6,500 hrs. Recently replaced fan, tires, rear door, and PTO. 1,000-gallon freshwater with 80gpm @ 2,000psi. FMC pump. 15-yard debris box. \$15,500 OBO. 972-754-5279 (C10)

2001 Vac-Con VPD42HA/1300 sewer-cleaning unit mounted on a Sterling LT9501 with 131395 miles. 380hp Cat C12 in-frame rebuild at 101115 miles. Fuller 10-speed manual transmission, 120gpm FMC Quintuplex water pump, recent reman 165hp Cummins 8.3 auxiliary engine, recent reman Roots/Dresser 827 blower, cold-weather recirculation, 16-cubic yard-debris tank, 1,300-gallon water tank, 30' x 8" aluminum telescoping boom tube (great for catch basins), 500' x 1-1/4" hose on articulating reel. \$40,000. Call Mark 708-475-7116, IL (CBM)

2011 Vac-Con V390LHA combination cleaning truck. Low miles, great condition. 1998 Vector 2110-36PD ex-city owned, low miles. See details of these units and CCTV inspection trucks at [www.empireequip.com](http://www.empireequip.com). Contact Craig at 714-639-8352. (CBM)

## JETTERS-TRAILER



**2015 Mongoose Model 184** jetter on trailer, super clean and in like-new condition. Cat diesel engine with shroud run-dry Udor 5-cylinder plunger pump 4,000 psi - 18 gpm. Full gauge package. Omnex full function wireless remote system. 500 feet 1/2" hose, hydraulic-driven hose reel. Single-axle trailer with electric brakes. LED trailer light package, LED safety beacon light. 300-gallon water tank, 190-degree pivoting hose reel on 5,000 lbs bearing pulsation system. Air-purge system to winterize unit. Aluminum diesel and hydraulic tank aluminum anti-freeze tank with recirculation system. 2 aluminum fender-mounted toolboxes. Hydrant fill system with 25' hydrant hose reel speed control, vari-flow valve, 4-pack standard nozzle kit with case and tip cleaner. Manhole hook, 2 Tiger Tail hose protectors, 1 WS Warthog grease and root cutting nozzle, various cleaning nozzles. 100' 1/4" mini reel with mounting bracket and nozzles. 100' 1/8" micro reel with mounting bracket and nozzles. Kevlar hose, stainless side bays. 216 hours. Located in San Diego, CA. Can help with shipping coordination. \$42,500

**Call Jason 619-778-1135** C10



**The HotJetII®** is a best-selling hot- and cold-water drainline cleaner featuring a 35hp Vanguard engine by Toyota and delivering 10gpm @ 4,000psi that cleans drains up to 300' and 12" in diameter. Priced at \$32,995 including freight to the lower 48 states, the HotJet II® is American made using nonproprietary parts for affordability and ease in serviceability making its return on investment truly impressive. Financing available.

**800-624-8186 sales@hotjetusa.com www.hotjetusa.com** CBM

Pre-owned Harben P-type pump, 4,000psi @ 16gpm and gearbox with Lister diesel drive engine. \$1,500. **(888) VAC-UNIT (822-8648); www.vsirentalsllc.com** (CBM)

## JETTERS-TRUCK



**1998 Vac-Con Hot Shot** Straight jet truck. .... \$15,000

**920-734-4707, WI info@speedycleaninc.com** C10



Built on 1995 Ford L8000 chassis with 8.3 L/225hp engine and 6-speed manual transmission. Sewer Equipment Company of America Jet truck (S/N: 2220) with 1,500-gallon HD poly tank. Truck has been well maintained and serviced regularly. Truck and Jetter are fully functional and in good working order. Features: Roll-up aluminum doors, Myers 65gpm pump, telescoping and rotating reel, wash-down gun, air blowdown system and winter drain for pump and water lines, recirculation feature. Truck has a 2" trailer receiver with 7-pin RV plug. Asking \$20,000 as is.

**Call Tom 800-876-8478, WI** C10



## LOCATORS

Used RIDGID NaviTrack, Gen-Eye Model 100 and Goldak Model 4400. The Cable Center 800-257-7209. (CBM)

## PIPELINE REHABILITATION



**Perma-Liner** 18 ft. trailer w/equipment and build out for 4" and 6" (ambient cure) method. Tandem axle trailer used less than 10 times. Call for more information and pictures. PART# T81866.

**Curtis Total Service, Inc.**  
610-770-9045, PA

C10



Lightly used **2015 Aries UV lining truck** for sale. JD Brule Equipment, located in Greely, Ontario, Canada, is selling a fully-equipped 2015 Ford F750 with 59,948 miles. 33,000 GVW. Aries UV lining truck, available immediately. The unit has two light trains included that can cure up to 48" diameter pipe, and 4 cans included. Unit is in great shape. Asking price is \$275,000 USD plus applicable taxes.

**Contact Adam Russell**  
613-293-1965

C10

## POSITIONS AVAILABLE

Senior Technician - Work as senior member of a 2-man crew operating pipe high-pressure water-jetting and CCTV video-inspection trucks for a service company with municipal and private customers throughout the state of North Carolina and neighboring states. Position has travel up to 50% of the time during the normal M-F work week, while being home most weekends. Excellent pay, paid vacation and company 401k. Call 800-226-8013 to discuss. (C12)

**General Manager** for plumbing/sewer cleaning company in the metro Detroit area. Also have an opening in the Saginaw area. Salary and profit sharing plus full benefits. Looking for someone for longterm position. Send resume to M\_Ciaramitaro@comcast.net or call Mike 586-219-2117 (C11)

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## PUMPS

Honda model WP40X, 8 hp, 4" with hoses. Honda 4 hp, 2" pump with hoses. The Cable Center: 800-257-7209. (CBM)

## RENTAL EQUIPMENT

Liquid vacs, wet/dry industrial vacs, combination jetter/vacs, vacuum street sweeper & catch basin cleaner, truck & trailer mounted jetters. All available for daily, weekly, monthly, and yearly rentals. **VSI Rentals, LLC, (888) VAC-UNIT (822-8648) www.vsirentalsllc.com.** (CBM)

## SERVICE/REPAIR

**Dynamic Repairs - Inspection Camera Repairs:** 48 hour turn-around time. General Wire, Ratech, RIDGID, Electric Eel Mfg, Gator Cams, Insight Vision, Vision Intruders. Quality service on all brands. **Rental equipment available.** For more info call Jack at 973-478-0893. Lodi, New Jersey. [www.dynamicrepairs.biz](http://www.dynamicrepairs.biz) (CBM)

## TOOLS

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**T&T Tools:** Probes, hooks. Probes feature steel shafts with threaded and hardened tips. The insulated **Mighty Probe™** tested to 50,000 volts. **Top Poppers™** open manhole covers easily. Free catalog. **www.TandTtools.com.** Phone **800-521-6893.** (CBM)

RIDGID model #300 with stand, RIDGID tri-stand vises, RP 330 ProPress kit. The Cable Center: 800-257-7209. (CBM)

## TRAILERS



**FOR SALE - 70-tonne (+) winch trailer.** 2010 Artis trailer S/N RC9121J. Torsion flex 4,500kg axles, pintle hitch with hydraulic surge brakes. Powered by a Deutz air-cooled engine S/N 8494592. Freshly rebuilt, 2 hours on engine. Bonfiglioli type gear case with chain-driven winch reel, 500' 3/4" cable. Trailer has been given full maintenance, painted and ready to roll. Asking \$35,000 USD, OBO + applicable taxes. Please contact Adam Russell if you are interested:

613-293-1965

C11

## TV INSPECTION



**Insight/Vision Opticam** 200-foot push-rod self-leveling color camera. Very clean, excellent condition, only two years old and only used a handful of times. .... \$5,000

920-585-9924, WI

C11

Used SeeSnake Camera Systems in all sizes; Used General Wire Spring Camera Systems in all sizes; Used machines in all sizes. We want your trade! The Cable Center: 800-257-7209. (CBM)

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2002 CUES CCTV inspection truck. Ford F550 SuperDuty, 7.3 diesel engine with 71k miles, 16' box. Onan 7.5 HDK diesel generator with 3k hours. CUES reel with approximately 1,000' of cable, CUES 1208 PCU. Call Mark for more information. \$45,000 OBO. 708-475-7116, Chicago area (CBM)

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Aries CCTV Inspection Truck: 2002 Ford E350, 5.4 Triton V8, 59,484 miles. Aries PCU, Dell operating system. New Onan commercial 7,000-watt generator. Pipe Tech pipeline inspection software, camera and transporter negotiable. Call for more information and more pictures. \$15,500. Mark 708-475-7116, IL (CBM)

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CUES CCTV Inspection Truck: 2000 Freightliner MT45 walk-in, Cummins 5.9, 71,086 miles. CUES PCU, Dell operating system, truck-mounted CUES grouting system. Onan 10.0 GenSet diesel generator. Software, camera and transporter negotiable. Call for more information and more pictures. \$19,500. Mark 708-475-7116, IL (CBM)

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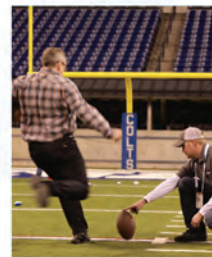


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