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## MAKING A NAME

JULIUS VOSS USES PROFESSIONALISM  
AND HIS PLUMBING "SUPER TRUCK" TO  
BUILD A BROAD CUSTOMER BASE / 44

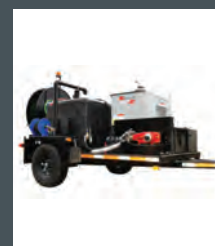
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**ON THE COVER //** Third-generation plumber Julius Voss has built up his company slowly but surely over the past two decades. From humble beginnings with an old pickup and some hand tools, he's steadily invested in more sophisticated equipment and has expanded his services to include waterjetting, inspection and septic pumping and installation. (Photography by Wendy Yang)



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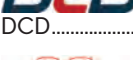
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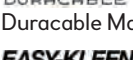
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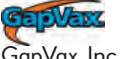
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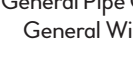


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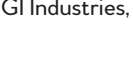


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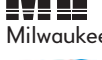
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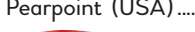
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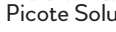
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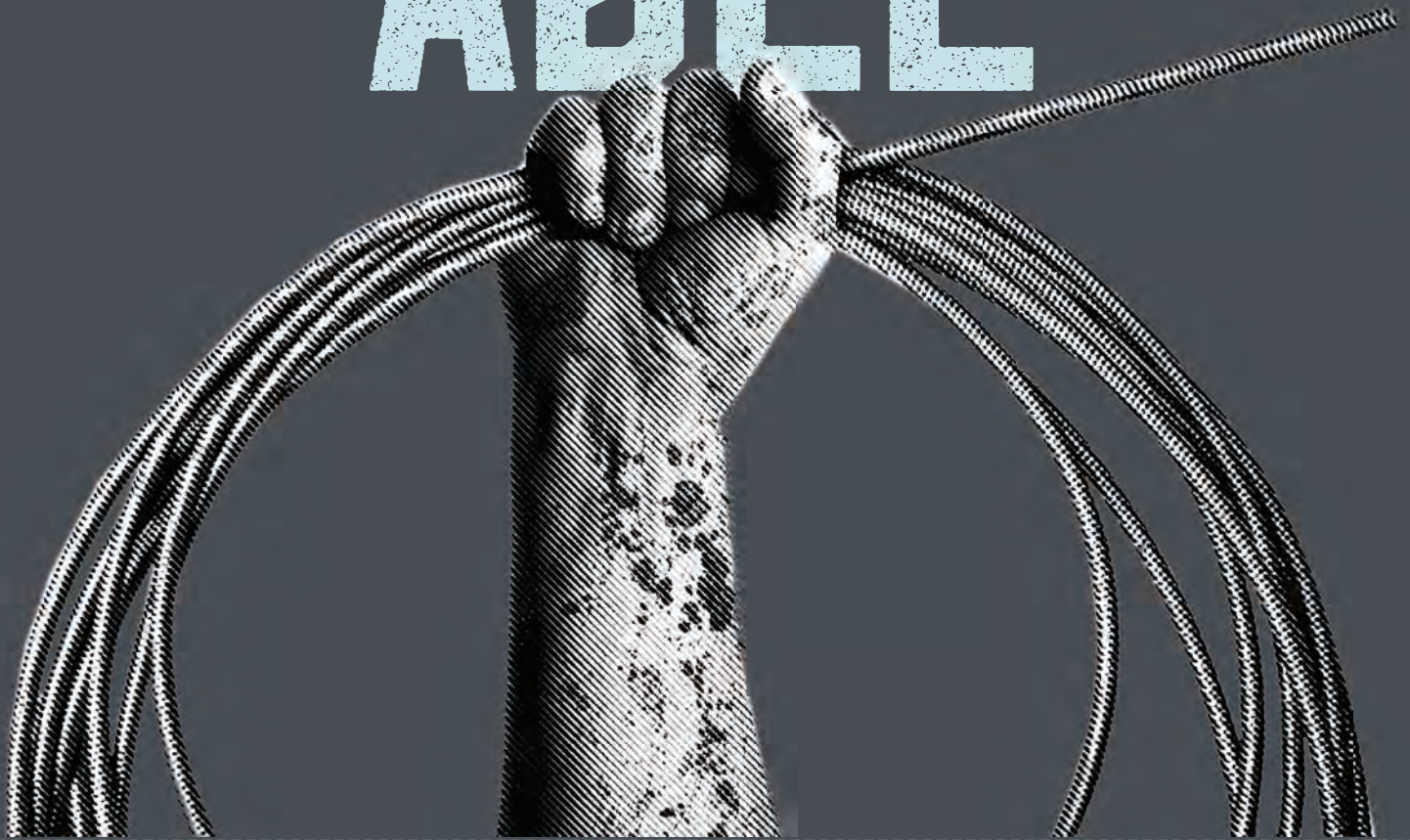


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## MORE THAN A MAGAZINE

These pages are just the start of what *Cleaner* and COLE Publishing have to offer

**IT'S RARE THAT I CALL** a contractor to talk about a potential story for *Cleaner* and the person isn't familiar with the magazine. I think only once have I had to explain that, yes, there's a magazine for drain cleaners, and by the end of the conversation that guy wanted me to sign him up for a subscription.

Knowing our work is well received is a great feeling. The print magazine is only the start of what we offer, however, so I thought I'd touch on a couple of our other offerings you may not be as familiar with.

As you flip through each issue, you'll see the @Cleaner.com page that highlights a few recent articles from the website. Those picks are really just the tip of the iceberg when it comes to our online content. Fresh new content is posted daily, covering topics ranging from what to do when your best employee quits, to the pros and cons of free inspections, business and technical tips, and industry news.

You can receive twice-weekly roundups of this content by signing up for our e-newsletters. If you're interested in certain topics specifically, like plumbing or pipeline relining/rehab, for example, you can also sign up for alerts when we publish articles on that topic. Our topics are located on the top of the homepage if you want to explore them. We also feature product directories and content storefronts that showcase equipment from trusted manufacturers. If you're a new subscriber and want to see back issues of the magazine, digital editions are all archived under the magazine tab.

Our most exciting opportunity was unfortunately put on hold for 2020, but is back on schedule for 2021 and beyond. The Wastewater Equipment Fair, or WEQ Fair, is a regional event that will travel to all corners of the United States, featuring live outdoor equipment demonstrations.

Exhibitors include manufacturers, dealers and distributors of drain cleaning machines, inspection equipment, combination machines, jetters and more.

The WEQ Fair was in Pennsylvania earlier this summer and the next one takes place in Nashville at Nissan Stadium on Sept. 14-15, 2021. Future events are already scheduled and there will be more to come, so there's a good chance we'll be coming to a location near you soon.

These events are a great way to see equipment in person and get to know regional dealers. We know not everyone can take extended time off work to travel, so our goal is to keep providing these regional events to make it easier. For more information, to register and to check for future dates, visit weqfair.com.

Our goal at *Cleaner* is always to be a resource to help you elevate your business. Keep reading, and take advantage of our other offerings as well.

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

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## INDUSTRY ISSUES

### A Look at Gender

Gender should be a non-issue in this industry, but reality doesn't always reflect that. In this online exclusive, several women talk about their experiences working in what is still a largely male-dominated field. >> [cleaner.com/featured](https://cleaner.com/featured)

## OVERHEARD ONLINE

"It can seem like blasphemy to say that busy is a bad thing. But there is a difference between 'good busy' and 'too busy.'"

— When Being Busy Isn't Always Good Business  
>> [cleaner.com/featured](https://cleaner.com/featured)



## TO BE CLEAR

### Keys to Effective Communication

It's vital to always be mindful about how you're communicating to others since doing it poorly can have ramifications on job site productivity and efficiency. This online exclusive explains more. >> [cleaner.com/featured](https://cleaner.com/featured)

## COST COMPARISON

### Pipe Lining vs. Traditional Excavation

Is pipe lining truly worth it? In this online exclusive, industry veteran John Heisler, of Pipe Lining Supply, breaks down some numbers using a fictional scenario to show how lining stands up to the standard dig-and-replace method. >> [cleaner.com/featured](https://cleaner.com/featured)



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Photography by Mark Henle

# THE VOICE OF EXPERIENCE

MIKE BREWER WORKED HIS WAY UP TO CEO OF HIS OWN  
PLUMBING CONSORTIUM AND NOW TEACHES THE  
NEXT GENERATION AT HIS ACADEMY

// By Giles Lambertson

**LIKE MOST SUCCESSFUL ENTREPRENEURS, MIKE BREWER SORT OF MADE IT UP AS HE** went along, just like the quote by Aristotle: “For the things we have to learn before we can do them, we learn by doing them.”

Brewer knew he wanted to work outside of an office — unlike his father in technology marketing, for instance. So, after taking a week off following high school graduation, Brewer went to work full time at Canyon State Plumbing, a company owned by a neighbor. “My father spent all day, every day in the office. He liked the office,” Brewer says. “I didn’t want that kind of career. I like the outdoors.”

As frequently happens when entrepreneurs experience success, however, Brewer eventually worked himself into an office job. The 60-year-old businessman is now CEO of Brewer Cos., a four-division business unit offering commercial and residential plumbing work, plumbing repair services and a full-fledged training program for novice plumbers.

The Phoenix high school kid who was eager to get his hands dirty in a blue-collar job has become the largest single-family residential plumbing contractor in Arizona.

“THE BEAUTY OF  
BEING A FRANCHISED  
SERVICES PROVIDER IS  
THAT THERE IS WORK  
FOR US REGARDLESS OF  
THE ECONOMY. TOILETS  
STILL NEED TO FLUSH  
AND LEAKING PIPES  
STILL NEED TO BE FIXED.”

MIKE BREWER

## FINDING A FRANCHISE

The first dozen years of Brewer’s plumbing career were spent learning the trade as a Canyon State Plumbing employee. The long-term plan was for Brewer and his neighbor’s son to take over the neighbor’s company together. When the owner’s son lost interest, Brewer began to be groomed by the owner to solely take the reins.

During the dozen years he worked at Canyon State, Brewer honed his plumbing skills. As he and the owner began to plan the transition, he enrolled as a night student for a couple of semesters in Paradise Valley Community College to “formalize” his understanding of managing books. Finally, he became the business owner in 1990.

Mike Brewer, CEO of Brewer Cos., has grown his Arizona company to 400 employees and four divisions.





“Four of us were working at the company on a Friday. When I took over the following Monday, it was myself and one other guy working four days a week,” he says. Just like that, Canyon State Plumbing became Brewer Enterprises Inc.

Changes followed. The young residential plumbing company — with the heritage of an older one — got a new telephone number. With the number came a listing in the Yellow Pages of the Phoenix directory. Homeowners needing a plumber looked in the Yellow Pages and began to call. This wasn’t part of Brewer’s business plan, which was plumbing new tract homes — not fixing sinks.

“We’d get calls saying, ‘I’ve got a problem with my toilet’ or some other challenge in the home, and our receptionist would have to tell them we did strictly new-construction plumbing,” Brewer says. “Well, it was a small office, and I’d overhear these



<b>Brewer Cos.</b>	
PHOENIX, ARIZONA	
<b>OWNER</b>	Mike Brewer
<b>EMPLOYEES</b>	400
<b>SERVICES</b>	Residential new-construction plumbing, commercial plumbing, residential plumbing and drain cleaning services
<b>SERVICE AREA</b>	Commercial plumbing and drain cleaning is statewide; residential new-construction plumbing in Phoenix and Tucson region; plumbing services in Phoenix metro area.
<b>WEBSITE</b>	<a href="http://www.brewercompanies.com">www.brewercompanies.com</a>



«Plumber Daryl Robinson inspects a sewer line at a residential job using a RIDGID SeeSnake camera system.



calls. More and more of the calls came so we began to talk about the possibility of offering plumbing services.”

Brewer had been on his own for 13 years when he learned of Benjamin Franklin Plumbing, a Houston-based residential repair and maintenance franchise founded in 2001. Over the course of a few months, he became convinced the franchising opportunity was a means for Brewer Enterprises to get into plumbing services.

“I’m glad I decided to become a Benjamin Franklin Plumbing franchise owner,” he says. He was especially glad five years after signing on: Being a plumbing services provider may have saved the overall enterprise after a major recession hit the construction industry.

“In the crash in 2008, new construction went completely away from us,” Brewer says. “The beauty of being a franchised services provider is that there is work for us regardless of the economy. Toilets still need to flush and leaking pipes still need to be fixed. So, even in that downturn, I was able to continue growing the company.”

The CEO is not satisfied today with the size of the plumbing-services piece of his business. “It is my fault. I haven’t focused enough on it with my team,” he says. “We’re in the process of reviewing our structure internally and spending more time looking at the Ben Franklin business to determine if we have the right pieces in place to grow it.”

Benjamin Franklin Plumbing bills itself as “The Punctual Plumber” and offers a customer \$5 for every minute a service person arrives late, up to \$300. Brewer says the company doesn’t have to pay customers very often. Should one plumber or another regularly incur late-arrival fees, he says the plumber might not be fired, but “we definitely will be in a discussion.”

Brewer Cos. established the 42nd of what’s now more than 250 Benjamin Franklin Plumbing territories in the country. Brewer says that network of plumbing franchise owners itself is



“THE TRADES AS A WHOLE ARE THE BACKBONE OF THIS COUNTRY. WE HAVE TO ESCALATE THAT TRANSFER OF KNOWLEDGE, NOT JUST IN THE CLASSROOM, BUT ALSO WITH THE NEW GENERATION TALKING TO PEOPLE WHO HAVE DONE THE WORK FOR 20 YEARS.”

MIKE BREWER



an intangible benefit to his company. “You buy that network when you buy a franchise,” Brewer says. “We all are doing the same things fundamentally, following the franchise process. If I have a problem, someone else somewhere in the network has had that problem and we can learn from them.”

### OPPORTUNITIES TO GROW

Brewer Cos. got into commercial plumbing in 2007 almost as fortuitously. A friend of Brewer’s, Tim Snyder, approached him with the opportunity. Snyder was in the hydrojetting business and had talked to a regional restaurant chain about contracting with Snyder to keep restaurant drains open. Turns out chain management was only interested in working with a company doing both plumbing and drain cleaning.

So, Snyder and Brewer combined their expertise. Today, they are partners in Brewer Commercial Services. The division does hydrojetting on commercial and institutional properties and undertakes service, repair or replacement of water, drainage and sewer lines. They also perform light commercial plumbing on new construction and existing properties.

✔ Daryl Robinson checks a water main shut-off during a home inspection in Peoria, Arizona.



The footprint of the different companies under the Brewer umbrella varies. Commercial work is contracted statewide, though most is in the valley. Benjamin Franklin Plumbing services are performed entirely in the Phoenix metro area. New residential plumbing work is undertaken in Phoenix and Tucson, as well as the region between the two metropolitan areas. Some 7,000 new residential units were plumbed by the company in 2020.

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Overall, Brewer characterizes work as “pretty steady.” Before COVID-19 disrupted everything, the new construction market — by far the biggest component of Brewer Cos. — “felt like it was in full swing,” the CEO says, but he believes Benjamin Franklin Plumbing services are the company’s “biggest opportunity for growth.”

In an unusual twist, all excavation work needed by the organization’s 300-plus plumbers working across three plumbing divisions is outsourced. That is, the heavy equipment and operators needed almost daily are subcontracted. “We thought we would stay in our niche,” Brewer explains. “Let others handle upkeep of the machinery and find operators.”



▲ Brewer Cos. employee Marc Rogers washes a Benjamin Franklin Plumbing vehicle at the company’s office in Phoenix. The company doesn’t own its own fleet; instead, Enterprise Fleet Management provides the vehicles and maintains them.

For the same reason, Brewer Cos. has chosen to leanly operate its service vehicles. It doesn’t own a fleet of vans and other trucks, nor does it have a large maintenance facility to keep the trucks on the road. Instead, Enterprise Fleet Management provides the vehicles and maintains them. “We are sort of unique. We don’t want to incur all those costs,” Brewer says. “The Enterprise leases include maintenance, sometimes even on site — and we stay focused on what we are good at.”

On the other hand, company techs do have access in-house to RODDIE pipe bursting machinery, called on several times a month. Company techs are cross-trained to use the trenchless equipment. The company’s hydro jetters are US Jetting 4018 units and a Spartan Tool 777. For initial and post-work pipe inspections, the techs use six large RIDGID (3- to 10-inch) cameras and have more than 40 small (2- to 4-inch) RIDGID cameras in their service vans.

## DEVELOPING NEW TALENT

The fourth division of Brewer Cos. isn’t a moneymaker per se. Brewer Craftsman Academy was opened 18 months ago to develop a

CONTINUED >>

## BUILDING A LEGACY

A person might assume that a young Mike Brewer envisioned big things for his Phoenix-based company when he named it Brewer Enterprises. The name suggests he had big things in mind when he launched his residential construction plumbing company.

Brewer had to come up with a name for the company he bought because the previous owner wanted to keep the “Canyon State Plumbing” name in case his son ever decided to get into the business.

“I wasn’t that smart at the time,” Brewer says of the ultimate appropriateness of the name. “I just happened to call it Brewer Enterprises. There already was a Brewer Plumbing in Arizona so I couldn’t call it that.”

It turned out to be a prescient christening. His two-person plumbing enterprise has not only become the largest single-family residential plumbing contractor in Arizona, it has also spawned a consortium of related businesses that, under the banner of Brewer Cos., made the 2019 Inc. 5000 list of most successful private companies in the U.S.

Brewer admits to being ambitious and looking for opportunities to improve his company. “Way, way, way back 28 years ago, a couple of years after starting the company, I decided to put a tag line on the company name — Your Professional Plumber — and an interesting thing happened,” he says. “When you call yourself a professional, you begin to think like a professional.”

He also recalls a moment in 2007 before the recession struck the country when he was talking with employee Dave Morgan, who was the other guy in the two-man shop on day one of the company and who now oversees the company’s work quality efforts. The team was talking and Brewer recalls saying, “‘Why can’t we be the largest residential plumbing contractor in Arizona?’ From that conversation, we started down the path of how that would look, and then how much risk we could take and how we would fund it.”

This willingness to rethink the business hasn’t stopped. Four years ago, Brewer and his executive team reorganized the leadership structure. At a biannual retreat, the company executives questioned whether each individual business unit — commercial, residential, plumbing services and job training — should continue to have its own president. The group decided the answer was no and that the divisions would be better led by a five-person leadership team coordinating the work of the entities as a single business. That decision, too, has borne fruit.

In all of this, Brewer obviously takes the future of Brewer Cos. seriously. One reason is that he has four children working at the firm and he wants the company to continue beyond his own retirement in a few years. “We consider this to be a legacy business.”





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MIKE BREWER

new generation of residential plumbers in Arizona. It is considered a strategic investment to ensure quality plumbing work is provided by his company for years to come.

The academy was a response to a worrisome labor issue. Like elsewhere in the country, plumbing, construction and other critical industries are having a difficult time maintaining their workforces. Emerging generations are not drawn to trade work like they are to software and other high-tech workplaces, thereby creating a chronic shortage.

“The trades as a whole are the backbone of this country,” Brewer says with conviction. He sees the diminishing “transfer of knowledge” from older generations to a new workforce as consequential. “We have to escalate that transfer of knowledge, not just in the classroom, but also with the new generation talking to people who have done the work for 20 years.”

His commitment to that exchange is evident in his chairmanship of the Greater Phoenix Chamber of Commerce’s initiative to develop a construction trade workforce — Build Your Future Arizona. The group is raising \$3 million for a three-year marketing campaign to get the word out to young people about how much satisfaction is derived from trade work — and much money can be made.

Dovetailing with the chamber initiative is Brewer’s academy, which is entirely funded by the company. “Graduates of the academy’s fast-track education will earn \$40,000-\$50,000 upon graduation, and by year three, they can be earning \$70,000-\$100,000 a year — and without a nickel’s worth of debt. Our best plumber made more than \$120,000 last year,” the academy founder says. “Yet young people don’t know the trade exists, don’t know how to apply and don’t know how much they can earn.”

Brewer says he is a big supporter of post-high school education in general but is concerned that college costs are out of control. “The difference with trade education is that you are getting paid to learn, instead of paying to learn.”

The academy course runs 24 weeks and, so far, has trained 142 men and women. In July, the academy was set to open another round of teaching — with a class half the size of normal because of COVID-19 spacing requirements in classrooms. Though the company



▲ Daryl Robinson packs up equipment after an inspection job.

struggled to attract the first class of students, more than 100 young people applied for the 18 seats in the latest class. Retention rates for students have increased as the program has progressed, with administrators getting better at culling applicants and systematically strengthening the curriculum.

### SHARING HARD-EARNED KNOWLEDGE

Upon graduation, the apprentices work on Brewer Enterprises’ residential job sites in two-person teams with a mentor coach “to make sure they are successful,” Brewer says. Despite their training being paid for entirely by the company, graduating class members don’t have to work for a Brewer division. A few, in fact, have gone to work elsewhere.

Brewer believes the academy best serves a new generation of plumbers. “We have shown that substantially more class time is experienced in our 24-week academy and 18-week post-academy mentoring than an apprentice will get in years of taking night classes in a union shop or graduating from a for-profit training program,” Brewer says. “We get trainees up to speed quickly, and that appeals to young people.”

His contribution to the teaching comes in the first week of classes when he shows up and shares his Horatio Alger story of moving from plumbing apprentice to CEO. He shares his own work experience as



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a teenager, scooping horse manure and working a newspaper delivery route before becoming an apprentice.

In the last week of classes, Brewer returns for a general discussion with the trainees. He gives them practical tips about how to succeed in the trades, such as counseling them about cellphone use. "I tell them, 'Leave it in the truck. It's a distraction that eats up time.'" He also gives counsel on managing their money. "These young people are about to earn 'real' money, and most don't have any experience in managing finances of this sort," Brewer says. "We have that kind of conversation. Many have never before had that kind of conversation with a mentor.

"I know those things are true because I was just like them," Brewer says. "These young people and I didn't have the luxury of sitting in an air conditioned classroom with a job waiting when beginning in the trade." **c**

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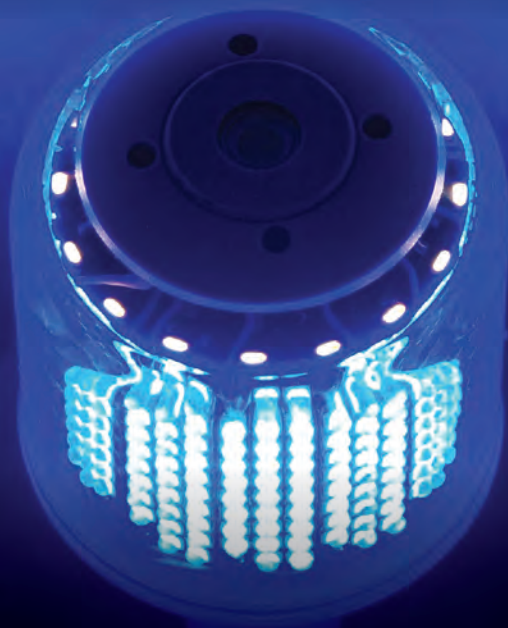
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Joan Koehne

## MAKE THE MOST OF YOUR MONEY

Many companies use QuickBooks, but few utilize its full potential to keep financials up to date // By Joan Koehne

**IF YOUR COMPANY'S GOING TO GROW**, you need organizational processes that are streamlined and efficient. Bookkeeping is a key part of that — ignore it, and you could end up in trouble with tax officials, customers and vendors. Plus, you'd have no clear understanding of how your company is performing.

Compared to the old carbon-copy receipts and an Excel spreadsheet, bookkeeping software is more accurate, efficient and versatile. An automated bookkeeping system is a game-changer. Many companies buy accounting software like Intuit's QuickBooks, but few use it to its fullest potential.

**"IF YOU'RE NOT ORGANIZED THROUGHOUT THE YEAR AND HAVE TO SPEND A WEEK TRYING TO ORGANIZE EVERYTHING FOR THE YEAR, IT'S VERY STRESSFUL."**

**CARA MARTINSON**

Cara Martinson, owner of CM Business Services in Madison, Wisconsin, is a QuickBooks ProAdvisor who has used QuickBooks since 1997.

"It's a great system for business owners. If you're not using software of any kind, we would recommend it, just to keep you organized throughout the entire year," Martinson says. Paper copies build up over time and are difficult to track, especially with a large number of invoices.

"The accounting software system will prepare you for year-end, so you're not caught with boxfuls of receipts and paperwork. You won't have to sit down for a few days to a week at tax time to try to organize it all," she says.

Tax season isn't the only time when financials need to be in order. Think of the future. If you want to transfer or sell your company, accurate financial records are a must.

QuickBooks comes in different versions, and this column focuses on the online version. With QuickBooks Online, businesses can pay bills, accept payments and manage payroll. And that's just the start. Here are some of the additional features.

### ACCEPTING PAYMENTS

QuickBooks provides a free mobile card reader to create invoices and accept credit card payments with a mobile device like a smartphone. To do so, you register for a QuickBooks merchant service account and download the payment app. Although QuickBooks charges a fee for this convenience, this fee typically is lower than PayPal or Square. Plus, you get paid right at the job site.

"With the mobile reader, you can just grab their card and swipe it," Martinson says. Instead of chasing down small invoices later, you're paid immediately after finishing the job.

"It's one less thing to worry about."

With QuickBooks, customers can pay online with a credit card or eCheck. They can view the invoice, click and pay.

"It gives the customer the tools to make a payment straight away."

### OUTSTANDING INVOICES

QuickBooks enables you to track specific details for each account to fit the type of transactions you make. With one of these trackable details, you can record who pays the bills.

With QuickBooks, you can see if a customer viewed the invoice and how often. If no one viewed the invoice, you might be sending it to the wrong email address. If someone viewed the invoice but you're not getting paid, the problem isn't on your end. You'll just have to figure out a way to light a fire under them.

One technique is to set up a system of email reminders. You choose when to send an email reminder — after 15 days, 30, 60, depending on your net terms. QuickBooks automatically sends a notice.

"It's handy if you're out and about in the field and don't have the time to think about it," Martinson says.

Speaking of payments, QuickBooks enables you to track the



history of invoices/accounts receivable. At a glance, the A/R Aging Summary report shows invoices that are 30, 60 or 90 days old. You'll know who owes you money, how much and how long the payment is overdue.

### CUSTOMIZE SETTINGS

A fast way to categorize expenditures is to create custom settings. With memorized reports, QuickBooks will remember the category you set when you re-enter the expense in the future. You complete the customization process once, and it's filed away for the next time you input similar data.

For example, if you treat your team to lunch at Pepe's Pizza Palace, you can categorize your credit card purchase under food and entertainment. The next time you spring for lunch at Pepe's, QuickBooks will remember it. You'll simply need to review the credit card statement and click Accept. If an entire list of expenses all belong in the same category, select Click All and you're done.

### RECONCILING THE BOOKS

You can set up your books so multiple accounts automatically feed into QuickBooks. A savings account, checking account and line of credit all can be connected. With a few clicks, all of your accounts update to current balances and show the most recent transactions. Reconciling the books is much easier when you can see all of your accounts.

### REPORTS

QuickBooks enables you to create custom reports to evaluate key financial benchmarks. To do so, select a period, like a month, quarter or year, and compare it with the matching time period from the past. This way, you can track what's changed.

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# MONEY MANAGER

For example, if your receivables are significantly lower, try to determine the cause. Are you behind on billing for the period? Did you lose a primary customer or experience weather delays? You won't necessarily know these things unless you have a report system in place.

## PAYROLL

Payroll can be complicated, even when using sophisticated software like QuickBooks.

"The most important thing is to get it set up right," Martinson says.

Unless you have an in-house human resources staff, you might want to seek expert help from a credible bookkeeping firm because of the many details and deadlines. Mistakes, incomplete records or late reports can lead to costly penalties issued by state tax authorities or the IRS.

However, if you have a good handle on payroll, you can use QuickBooks to schedule automatic, direct-deposit payments to employees. Additionally, you can manage employee information,

including tax ID numbers and benefits. Once you set up the system properly, QuickBooks can calculate payroll taxes and process and send quarterly and annual tax reports.

On a side note, QuickBooks partners, like TSheets, offer digital time sheets and other features to track employee hours.

## PAY BILLS

If you set up a merchant account, you can pay your bills with eChecks through QuickBooks. The payments funnel through your bank account. As an alternative, you can write a paper check and enter the payment information into the computer.

"As long as you're putting everything into the system and balancing out at month's end, you'll have a good idea of where your business stacks up," Martinson says.

## TRACK JOBS

For job costing, QuickBooks tracks labor, money in and out, and inventory for a specific job. All of this information funnels through to the job you're tracking, so you can measure its profitability.

## KEEP IT UP

Just like the math class you took in high school, you need to keep up with QuickBooks to get the best results. For example, you need to assign each check you receive to an account. You specifically record which deposit goes with which invoice. You can't just lump deposits together under sales. By keeping the accounts up to date, you won't have the stress of recreating the past 12 months for year-end reports.

"If you're not organized throughout the year and have to spend a week trying to organize everything for the year, it's very stressful," Martinson says. Plus, it takes time — time that you could have been making money or doing something you enjoy.

## GET TRAINED

To introduce users to QuickBooks, ProAdvisors like CM Business Services offer one-on-one training. In addition, QuickBooks tips are just a few clicks away. You can quickly search for information and find step-by-step instructions, tutorials and videos.

## AUTOMATE YOUR BOOKKEEPING

QuickBooks allows you to accept payments, pay bills, manage payroll and much more. With custom reports, you can evaluate key financial benchmarks. If you don't know where you've been and where you're at financially, it's hard to determine where you're going and at what speed.

"It's a great system for small-business owners," Martinson says. **c**

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## IT STARTS WITH THE NOZZLE

Effective sewer cleaning begins with nozzle selection, and the tier system isn't as helpful as you might think

// By Kent Carlson

**T**HE NOZZLE YOU SELECT makes a big impact during sewer cleaning. Specifically, the selection of cleaning nozzles is a critical element of hydro-flushing.

In the last two decades, advancements in nozzle jets have changed the performance criteria for sewer nozzles. Jets now are far more efficient in delivering more thrust when set at a higher angle to the axis of the pipe. The old-school requirement for lower jetting angles to speed progress has gone out with the debris.

With that said, nozzle selection with higher jet angles and larger orifice jets can be obtained with the ability to still clean efficiently at a rate of 10-20 feet per minute. This cleaning speed can be achieved while reaching the goal of restoring a line to 95% of operational capacity.

To reduce sanitary sewer overflows and the frequency of cleaning required, a sewer pipe should be cleaned to a minimum 95% of its operational capacity (measured at the pipe's internal diameter). To accomplish this, the selection of a sewer cleaning nozzle (rotational, static or specialized) must be based on three important factors:

### 1. Angle of the jet from the axis of the pipe.\*

JET ANGLE	PRIMARY USE
6-15 degrees	Designed for thrust, propelling a nozzle up the line and moving debris. This is generally insufficient to achieve the operational capacity target.
16-20 degrees	Propels the nozzles and moves debris, but only delivers marginal cleaning effectiveness.
21-29 degrees	Balances thrust to impact force cleaning ratio.
30-45 degrees	Adequate for cleaning pipe walls; however, the thrust is marginal.
46-90 degrees	Excellent for removing calcium, roots, calcified grease and other obstructions, but minimal thrust is provided.

### 2. The quality of the jet and cohesive stream flow.\*

High-quality jets or inserts have a cohesive jet stream. Cohesive jet streams travel farther through the air before breaking into droplets and their streams carry energy for a longer distance. A non-cohesive stream can be caused by drilled jets and low-quality inserts.

### 3. The ability of the nozzle to deliver the proper gpm and psi to the pipe.\*

Larger jets hit harder and last longer. Whether it's a rotational or static jet nozzle, a low number of larger orifice jet inserts will ensure greater force and cleaning strength across the pipe circumference. A higher number of inserts with smaller orifices will enable more spreading of the water while the impact force is weaker across the circumference of the pipe.

\* Consult pipe manufacturers' specifications for cleaning methods including jetting angles, gpm, psi and stationary position limitations.

CONTINUED >>



« Jet angles, orifice size and cohesive flow play are important factors in nozzle efficiency. (Photos courtesy of NCPI)






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AS MAINTENANCE AND OPERATIONS PROFESSIONALS CONSIDER NOZZLE OPTIONS, THEY SHOULD ALSO NOT BE OVERLY RELIANT ON THE TIER RATING SYSTEM.

Proper adherence to engineering, installation and maintenance standards is important to realize the best, long-term service from any pipe. As an example, the longest warranty in the sanitary sewer pipe industry is offered by vitrified clay pipe, which carries a 100-year warranty. Keeping the pipelines clean over the entire life cycle is critical to maintaining operational capacity, eliminating inflow and infiltration, and preventing SSOs.

The maintenance of a sewer is not only an integral part of its operations, it is also the most impactful factor in the longevity of the sewer after it is properly installed. Many cities employing a robust cleaning program have operational VCP sewers that are well over 100 years old.

As maintenance and operations professionals consider nozzle options, they should also not be overly reliant on the tier rating system. This system rates a nozzle 1, 2 or 3 (with 3 being the top tier). A common misconception in the sewer world is that this system is based on the “cleaning effectiveness” of a nozzle.

Keep in mind that “cleaning effectiveness” is based on what the water streams do after they leave the nozzle. The meaning of “clean” in the sanitary sewer world is to remove something unwanted.

A recent industry poll asked the question: *What determines whether a sewer nozzle is considered a Tier 1, 2 or 3?* It was a multiple-choice survey with four possible answers. The survey respondents’ answers had the following distribution:

- Cost of the nozzle: 2%
- The type of nozzle: 19%
- Nozzle’s cleaning effectiveness: 31%
- None of the above: 48%

A surprising 31% of respondents believe that the tier rating system represents the “nozzle’s cleaning effectiveness” and 19% believe that it represents “the type of nozzle.” Less than half selected the appropriate answer: “None of the above.” This distribution is just one demonstration of how common misconceptions are regarding this rating system.

The system’s main rating criteria is based on the flow of water *through* the nozzle coupled with the internal and external design of the nozzle and not by the cleaning effectiveness of the nozzle at the pipe wall. The most efficient flow of water through the nozzle garners a higher rating. In this system, the flow of the water through the nozzle is important, but the jet and orifice designs deliver the water stream to the inside of the pipe wall.



▲ An NCPI field training session in Tulsa, Oklahoma, demonstrates aggressive cleaning techniques to reduce SSOs.

Because of the internal and external design criteria of the tier rating system, rotating nozzles, sewer floor nozzles, stoppage nozzles and hydromechanical tools are not rated by this system.

The tier system also quantifies a nozzle’s cleaning based on footage cleaned (speed) but not the resulting cleanliness and restored operational capacity (effectiveness).

Most sewer cleaning crews utilize several types of nozzles to handle a range of issues found while cleaning. Selection of these nozzles requires researching different nozzle manufacturers and their designs while understanding the limitations dictated by the pipe material and condition. Refer to the information that should be provided by the pipe manufacturers to ensure a clear understanding of these limitations.

The National Clay Pipe Institute recommends benchmarking nozzles through actual cleaning processes to assess how the nozzle operates within a given system, under pressure. The ultimate test is if it performs to the user’s standards. NCPI offers a training workshop that includes a review of best practices for maintenance and proper VCP cleaning techniques. This particular workshop is built on my more than 30 years’ experience in the Wastewater Collection Systems Division for the City of Los Angeles and 40 years of designing and manufacturing nozzles. This maintenance workshop qualifies for professional development hours and can include an evaluation of a municipality’s cleaning program.

Always remember that a \$500,000 sewer truck is only as good as the cleaning effectiveness of the nozzle at the end of its hose and how that system, in combination, delivers to the inside of the pipe wall. **c**

## ABOUT THE AUTHOR

Kent Carlson is vice president of the National Clay Pipe Institute ([www.ncpi.org](http://www.ncpi.org)). Before joining NCPI, he retired as the operations manager for the City of Los Angeles Wastewater Collection Systems Division.





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# A PROVEN PARTNER

APEX CIPP Solutions provides complete lining solutions and expert guidance for every project

// By Kim Peterson

**C**RAIG UNDERWOOD AND James Kicklighter have had long and diverse careers in the trenchless pipeline rehabilitation industry. After years of managing lining companies, installing CIPP throughout the country, they knew firsthand the greatest challenges CIPP contractors face. So, together with their partners, they opened APEX CIPP Solutions three years ago to fill a need in the trenchless industry.

APEX was created to help contractors find everything they need in one place: reliable, field-tested equipment, and the training and support to solve any pipeline rehab challenges they might face. The duo believes strongly in supporting their customers, talking through a complex lining layout over a video call or bringing a demo unit to a job site to help a customer out of a tough spot.

*Cleaner* recently spoke with Underwood, APEX general manager, and Kicklighter, technical director, about the company's goal of providing pipe lining contractors with one place to get all the equipment and guidance they need, how their company is evolving, and what to expect if you partner with APEX CIPP Solutions.

## **CLEANER:** Tell us a little about the history of APEX CIPP Solutions.

**Underwood:** APEX CIPP Solutions originated out of a genuine need within the trenchless industry. After years of operating thriving small-diameter pipe lining companies, we found we were always searching for the very best equipment, materials and installation methods. Although our quest produced incredible business success, it cost us dearly in time, travel and research and development. We knew that if we could bring everything together in one common place and make it easily accessible, we could help CIPP companies throughout the Americas reach new levels of success. So, that's exactly what we've set out to do.

## **CLEANER:** What differentiates your CIPP solutions from the competition?

**Underwood:** At APEX, we will only sell what we believe in. About 70% of the products we test don't make the cut. The items we carry are the same ones we want with us on our job sites, the ones we've traveled the world to find. We don't just sell these products;



▲ A representative from APEX shows a customer's team how to line a 16-story vertical stack using continuous inversion. This 186-foot shot was accomplished with an APEX-branded Tubolino inversion drum, a MaxLiner cal tube and Brawoliner liner.



we actually know how to use them. And we can support you in using them on your projects. Thanks to our field testing, you can go to our website ([apexcipp.com](http://apexcipp.com)) and make a confident purchase at your convenience. We've made it simple to supply your company with the best of the best equipment, materials and training.

Some of our most popular items are the Dancutter robotic reinstatement cutters. These flexible Danish machines, with a wide range of sizes, accessories and 360-degree cutting heads, are practically unstoppable. Plus, we include training, which gives us the chance to work on real projects alongside great lining teams from every corner of the country. We're proud to be the home of Dancutter USA and the United States' only certified service center.

Of course you need more than a great cutter to install CIPP. So, we've pulled together a stellar lineup of equipment and materials designed to help you succeed. Again, these are all products we know and depend on. We call them the overperformers. Whether you're new to pipe lining or a seasoned pro wanting to take your company to the next level, we can get you up and running fast.



**JAMES KICKLIGHTER**

Technical Director

YEARS IN THE INDUSTRY: 15



**CRAIG UNDERWOOD**

General Manager

YEARS IN THE INDUSTRY: 15

We're also seeing a huge interest in our UV systems, spray lining systems, premium transitional liners, fitting liners and more. There have been significant advancements in technology, and we have carefully chosen to partner with proven products that we use and trust. It's an exciting time for our industry.

CONTINUED >>

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## BEHIND THE GEAR



▲ Craig Underwood demonstrates the Dancutter Super Flex. The robotic reinstatement cutter's ability to navigate around multiple bends and one-person operation make this APEX's top pick for CIPP installation.

When you order from APEX CIPP Solutions, we're joining your team. We're here to support you every step of the way. In fact, we get calls from teams working on live projects and we're glad to help talk them through best practices or help them make a decision about a material choice. We're part of your team; that's what we do.

**CLEANER:** What sort of needs do they address? Tell us about your pipe lining products and what applications they best serve.

**Kicklighter:** While we concentrate on small-diameter CIPP (2-16 inches), our products address many needs within the specialty plumbing services. We have a fantastic line of drain cleaning equipment, a nontoxic vapor/fogger that is pet-safe and one of the easiest systems you'll find, and we also carry hard to find add-ons that can help your equipment perform better.

For serious lining teams, fitting liners have been a game changer. Our Repiper wye liners and steam cure products make sectional repairs and 100% sealed system rehabs better than ever. We often perform live demos of these fitting liners at trade shows. It really grabs attention.

One overlooked area of CIPP is vertical stack lining. The market is wide open and in high demand. We've developed a streamlined installation process and quick-start training program that will help your company add this lucrative and much needed service.

If you're currently lining laterals, you probably have most of the equipment you need to add vertical stack lining. With the proper training and support, you can include high-rise condominiums, commercial/retail buildings and more to your list of clients. These jobs can offer a consistent revenue stream and a steady work flow. At APEX, we're committed to helping our customers reach their business goals; adding vertical stack lining is one way to achieve those goals.

**CLEANER:** What are some recommendations for customers shopping for lining systems or products?

**Kicklighter:** When shopping for lining systems and products, it's important to keep in mind that it's not a one-size-fits-all kind

of industry. The right type of equipment and materials will vary depending on the type/scale of projects you have and even the climate you're in. Our no-obligation consults assist you in navigating the variables and prevent you from being stuck with useless purchases. We're going to get you what you need and support your team in onboarding any system you buy from APEX. We empower your team to take you as far as you want to go.

We get to know our customers very well. We want to know what makes the most sense for them, so we ask a lot of questions about what you're trying to accomplish and what your services are.

We're not going to try to sell you something if we don't think it's a good fit. And we'll be the first to tell you if we think there's a better option for you, even if we don't sell it.

When we ran lining companies, we wished we had a company that could provide service on our equipment, help us with training and guide us toward smart equipment and system purchases, but that didn't exist. That's why we created APEX CIPP Solutions. We're the company we always wanted to have working for our pipe lining teams. Now, we work for you.

**CLEANER:** What is the learning curve like on these systems? What types of training and support do you offer customers?

**Kicklighter:** We're real pipe liners and business owners here, so we're not into overcomplicated things. We know it's important to get products working for you as soon as possible. Still, some are easier than others. It also depends on the experience of the technician. For instance, if you've used another brand of reinstatement cutter, you'll be shocked at the simplicity and flexibility of the Dancutters. On the other hand, we have a highly sophisticated spray coating system from Repipe that will allow you to spray-coat with near limitless options and precision, but it will take some training and practice to become proficient. No matter what system you purchase through APEX, you can count on our support.


Training is included in most of our equipment purchases. We have facilities in two Florida locations or we are happy to arrange training at your location for a small fee. Our customers enjoy having



us work along with them to bring a project to completion. It's a total win since your team gets comfortable with the equipment while we're there to ensure your job is completed accurately and on time.

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

**Underwood:** The pipe lining industry is experiencing incredible growth. Increased time spent at home spurred many to invest in property improvements, which likely helped boost the plumbing industry in general. But pipe lining in particular has emerged triumphant throughout an otherwise unfathomable period of difficulty. It offers customers a manageable option to pipe replacement. It's important to note that the health benefit of lowering hazardous waste exposure is reason enough to believe that this industry will continue to expand and evolve.



"AT APEX, WE WILL ONLY SELL WHAT WE BELIEVE IN. ... THE ITEMS WE CARRY ARE THE SAME ONES WE WANT WITH US ON OUR JOB SITES, THE ONES WE'VE TRAVELED THE WORLD TO FIND."

**CRAIG UNDERWOOD**

I believe as more information about this minimally invasive technology becomes available to property owners, the demand for both vertical and lateral pipe lining will increase. Throughout this time of expansion, it's critical that we protect the integrity of this industry. As with many trades, there are subpar installers that aren't following best practices. We've all heard the stories or had to go in and remove a bad liner. It's not fair to the property owners and it's not fair to our industry. APEX CIPP Solutions is here for those who want to elevate our trade.

As mentioned, vertical stack lining will likely grow as the demand continues to increase. In the near future, we believe UV curing will gain in application. Spray-on, brush-on and spot-fix options will probably become more common, and materials such as liners and resins will continue to advance in composition and range of use. Who knows, we may someday see wireless connectivity and AI integrated so that our drainage lines will actually alert us when there's buildup forming or a tree root approaching.

Until that happens, we can look for innovative lining companies to play a key role in what is to come. Manufacturers

are listening carefully to feedback from users and translating it into product enhancements. We've already seen this from some of our amazing manufacturers from around the globe (that's why we partner with them). Customer- and data-driven improvements are absolutely the way of the future.

### **CLEANER: What's new for APEX CIPP in 2021?**

#### **What can customers expect out of APEX in the future?**

**Underwood:** We are so honored to be working in CIPP at this time. It's been a long road getting here. We've put nearly two decades of practical research and development behind it. Our team has experts in installation, business management, sales, marketing and operations. We know how tough it can be to run a lining company and we've made every effort to take some of that burden off of you.

Whether you're looking for training in the single-step inversion installation method or wanting to know what type of cutting head works best for concrete, we're your support system. We can get you bulk epoxy in 500 gallon drums or send you our smallest sample to test with your crew. We'll even do a complimentary virtual consult and demo if there's a piece of equipment you're interested in.

Our goals include continuing our commitment to transparency. We currently have 24/7 ordering and openly list all of our prices, which is rare for a retail distributor, but we wouldn't have it any other way.

### **CLEANER: What do you want your customers to think of when they hear the name APEX CIPP Solutions?**

**Underwood:** We chose the name APEX because it represents the peak or pinnacle, and we truly feel that our products and services offer a way for your lining company to reach the top of the field. The Solutions portion of our name means that as your support team, we're going to offer solutions that are custom fit for your company and meet your current and future needs. Simply put, we're going to help you reach your highest potential.

We want you to think of APEX CIPP Solutions as part of your team, here to support you in every area of your business. Your success is our best compliment. **c**



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# MAKING A NAME

JULIUS VOSS USES  
PROFESSIONALISM AND HIS  
PLUMBING “SUPER TRUCK” TO  
BUILD A BROAD CUSTOMER BASE

// By Ken Wysocky



Julius Voss Plumbing employees Willison Voss (right) and Adarlyn Price take survey measurements to prepare for a sewer line installation.



Owner Julius Voss started his business in 2000 with this 1978 pickup truck and \$200 in his pocket.

DURING THE PAST TWO DECADES, JULIUS VOSS HAS SLOWLY BUT SURELY ASSEMBLED A FLEET OF PRODUCTIVITY- AND PROFITABILITY- ENHANCING EQUIPMENT THAT'S SURPRISINGLY LARGE FOR THE OWNER OF A TWO-MAN PLUMBING SHOP IN CLEVELAND, A SMALL TOWN IN RURAL NORTHWESTERN MISSISSIPPI.

From a trailer-mounted PipeHunter water jetter and a color sewer camera from Forbest Products Co., to newer excavation equipment and a 17-foot box truck that's a warehouse on wheels, Voss, owner of Julius Voss Plumbing & Construction, has built a well-diversified business since he established the company in 2000.

Not bad for someone who started out with a 1978 Chevrolet pickup truck with no working heat or air conditioning, \$200 in his pocket, a 5-gallon plastic bucket, some basic hand tools and a toolbox.



**Julius Voss Plumbing & Construction Inc.**  
CLEVELAND, MISSISSIPPI

<b>OWNER</b>	Julius Voss
<b>FOUNDED</b>	2000
<b>EMPLOYEES</b>	3
<b>SERVICES</b>	Plumbing, cleaning and inspecting drainlines and sewers, installing septic treatment plants, pumping septic tanks
<b>SERVICE AREA</b>	60-mile radius around Cleveland
<b>WEBSITE</b>	<a href="http://www.juliusvossplumbingco.com/index.htm">www.juliusvossplumbingco.com/index.htm</a>

A third-generation plumber, Voss built his company through two key strategies. The first is an unconventional approach to marketing, centered on what Voss calls his “super truck” — a 2018 Chevrolet Express 3500 outfitted with a 17-foot aluminum box body built by Reading Truck Body.

The second is a continual emphasis on reinvesting profits into equipment that helps him expand his services and markets, differentiate from competitors and better serve customers in Cleveland and surrounding Bolivar County. Cleveland is a small town of about 12,300 residents, located roughly 115 miles south of Memphis.



“I sacrificed a lot to plow money back into my company,” Voss explains. “If I made \$100, I knew I had to save \$85. I saw what my daddy and granddaddy went through [as plumbers]. ... I wanted to take my business to a whole new level — do something no one else had done in this area, especially an African American.”

That last comment speaks to another factor that drives Voss’ passion for continual growth and improvement: It’s not easy to be an African American businessman in a small town in the Deep South. Ever since Voss was young, working for his father, he encountered challenges imposed by racism.

“I get crumbs compared to what other companies get,” Voss says. “I’m often the second or third call people make and I get the worst jobs. The deck is kind of stacked against you.”

But the 55-year-old tradesman and entrepreneur isn’t someone who spends time feeling sorry for himself or expecting pity from others. Instead, he saw injustices as a challenge to overcome and used them as motivation to be better than his competition.

“It made me always want to do a little more, as well as do things differently to make sure my company stood out,” he says. “I knew I wasn’t always going to get the first opportunity, so I had to think outside the box. But after I get my foot in the door for top-shelf jobs, I make sure my customers see something they’ve never seen before. And after they get a taste of my professionalism and see the kind of work I do, I have customers for life.”



## DEEP PLUMBING ROOTS

Voss comes from a long line of plumbers. His late grandfather, the Rev. John Henry Voss, a licensed plumber in Cleveland, established John H. Voss Plumbing & Gas in 1943.

“He became a plumber because he didn’t want to be a sharecropper earning \$1 a day,” Voss says.

Then there’s Voss’ grandfather’s half-brother, Buddy Robinson, who operated Buddy Robinson Plumbing Co. in Cleveland, starting in 1935. And Voss’ father, the Rev. Willison Voss, was a licensed plumber in Cleveland; now retired, he worked for his father before forming the Voss Plumbing Co., and Voss’ uncle, Andrew Voss (Willison’s brother), opened a plumbing company in Milwaukee.

« Julius Voss looks over archival photos of his family’s plumbing business that he displays inside the Julius Voss Plumbing warehouse in Cleveland, Mississippi.





▲ Julius Voss, Willison Voss and Adarlyn Price (from left) excavate a site for a sewer line installation.

Voss and his brother, Bobby, worked for their father as teens and hated it. “Other kids made fun of us and bullied us because we did such dirty work,” he recalls. But after Voss graduated from high school and his father told him to move out and find his way in the world, he stuck with what he knew: plumbing.

“It was tough love at age 18,” he says.

### SOMETHING TO PROVE

Voss moved to Milwaukee, where he worked for two plumbing companies. About four years later, he moved to Los Angeles, where he got a job with a large and prominent plumbing company. That’s where he saw how trucks could be used as marketing tools, he says.

“They had five of what they called ‘super trucks,’” Voss says. “I was so impressed with how those trucks were set up that I said to myself, ‘Someday I’m going to have me a big truck and fix it up just like this.’”

Voss got that opportunity when he moved back to Cleveland in May 2000 and established

“AFTER I GET MY FOOT IN THE DOOR FOR TOP-SHELF JOBS, I MAKE SURE MY CUSTOMERS SEE SOMETHING THEY’VE NEVER SEEN BEFORE. AND AFTER THEY GET A TASTE OF MY PROFESSIONALISM AND SEE THE KIND OF WORK I DO, I HAVE CUSTOMERS FOR LIFE.”

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Julius Voss (right) and Adarlynn Price perform maintenance on a Best Enterprises septic vac unit.

Julius Voss Plumbing & Construction, carrying on the family name and trade. Although he started his journey with meager resources, he was convinced he could succeed.

“The Voss name already was there — all I had to do was step up and perform. I also had a strong work ethic, just like my daddy and granddaddy, and I didn’t believe in cutting corners and doing crappy work. I also felt like I had something to prove. People always told me I wouldn’t amount to much of anything, but I used that negativity as motivation.”

That motivation is reflected by the four different master licenses Voss holds in plumbing, gas-fitting, installing septic systems and pumping out septic tanks.

Much of how Voss operates was informed by his father and grandfather. One important lesson: It’s all about customer service and differentiating from competitors. That means wearing a uniform, providing impeccable craftsmanship on jobs and cleaning up afterwards, he notes.

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## SEPTIC WORK BOLSTERS GROWTH

"Customers don't know what you did under the cabinet. But what they're going to look at is the finished product, so it better look really professional. And I always bring a mop, a broom, a dustpan and some bleach ... the walls and floors where I work are going to look and smell really nice.

"I often get thank-you notes from customers who say they never had a plumber do things like that before."

### STRATEGIC PARKING AND LIGHTING

The Chevrolet "super truck" is central to Voss' marketing efforts. It features a \$6,000 blue, orange and white vinyl wrap emblazoned with the company's name, phone number and slogan, "One call, that's all" — a testament to his one-shop-stop business mentality.

Several years after Julius Voss established Julius Voss Plumbing & Construction in Cleveland, Mississippi, the entrepreneur noticed that few companies in the rural area wanted to pump out septic tanks.

So he quickly embraced a time-honored business strategy: Capitalize on underserved markets that competitors ignore. Around 2003, he subsequently became a licensed septic tank pumper as well as a licensed septic treatment plant installer.

Ironically, many of the reasons other businesses weren't interested in pumping septic tanks also helped his entry into the market by imposing high barriers to entry — things such as licensing requirements and the high cost of liability insurance.

Moreover, vacuum pump trucks are expensive. And last but not least, it's "nasty work," Voss says.

To sidestep a major capital startup cost, Voss opted for a trailer-mounted, slide-in pump-and-tank unit. Made by Best Enterprises, the skid-mounted unit cost about \$20,000 and features a 550-gallon stainless steel waste tank and a Conde vacuum pump made by Westmoor Ltd.

While \$20,000 is a lot of money for a small business, it's still significantly less than the price of a new or even used vacuum truck. And Voss says he felt comfortable making the investment because he knew it was lucrative market.

"A lot of plumbers don't want to pump out septic tanks, but it's a very profitable business. There are at least 10 other plumbers in this town, but only two pump out septic tanks. If you can't get the quality, top-shelf jobs, you have to take the back-shelf jobs," he says. "But there's thousands of dollars' worth of work out there, so I just put on some gloves and make good money."

As Voss expected, the unit quickly paid for itself.

"It's one of the most profitable machines you could ever buy."

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« Adarlyn Price, Willison Voss, and Julius Voss in the warehouse at Julius Voss Plumbing.

Inside, Voss built his own shelf-and-bin storage system. To make it lighter, he used steel supports instead of wood for the framework. The result is better gas mileage and less wear and tear on the engine and tires, he says.

“A truck’s appearance reflects on the kind of work you’ll do. You never get a second chance to make a first impression. I get compliments all the time how neat and clean the truck is. When I’m out running errands or on jobs, I leave the rear door open so people who walk by can see how neat and organized it is. It lets people see me as a professional. I can’t count how many customers I’ve gotten from displaying my truck like that.

“I OFTEN GET THANK-YOU NOTES FROM CUSTOMERS WHO SAY THEY NEVER HAD A PLUMBER DO THINGS LIKE THAT BEFORE.”

**JULIUS VOSS**

“Sometimes a customer’s neighbor comes over and sees the truck and says, ‘This is impressive — I’ve got some work you could come and do.’ Some people might call it bragging. But I call it marketing — strategically parking in places where everyone can see my truck.”

And if the vinyl wrap and well-organized interior don’t catch peoples’ eyes, the yellow-and-white flashing light atop the cab does the job. Featuring nine different flashing patterns, the lighting fixture is street legal, and a key marketing tool.

“When I come down a road, you cannot miss me. It keeps me at

the forefront of peoples’ minds when they need a plumber because they remember that guy with the flashing light.”

## THE FLEET TO BEAT

Voss also prides himself on being at the forefront of technology. The backbone of his drain cleaning efforts is a trailer-mounted PipeHunter water jetter (PipeHunter is a brand owned by Texas Underground). Featuring a 700-gallon water tank, a water pump made by Giant Pump (5,000 psi at 75 gpm) and 700 feet of 1-inch-diameter hose, the jetter can clean pipes up to 48 inches in diameter.

The machine not only differentiated him from competitors, it opened up new markets for his company for cleaning municipal sewers.

“I’m the only plumber in the area with that kind of power and capability. After the word got out, I started getting work from neighboring towns and municipalities, which broadened my business base.”

Voss says his machine is a very basic model; he decided to not add any bells and whistles in order to whittle the price down to about \$40,000. That’s a big chunk of change, but if businesses want to be competitive, they have to spend money to make money, he says.

## SEEING IS BELIEVING

Investing in a color sewer camera made by Forbest Products also helped Voss to burnish his company’s reputation. Purchased more than a decade ago, the inspection camera helps him sell jobs by allowing customers to see a problem in an underground pipe, not just take his word for it that something is wrong.

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» Julius Voss (left) and Adarlyn Price organize equipment in the primary service truck before heading out on a job.



“They can see the problem in full color and make up their own mind,” he says. “At the time, there were only one or two plumbers around here with sewer cameras.”

The company also owns medium- and full-size cable drain machines made by Marco Products Co. (now defunct). Voss also uses power tools made by Milwaukee Tool and DEWALT, including a family keepsake: a Milwaukee right-angle drill that his father handed down to him.

“It still does the job,” he says.

For excavation work, such as installing new sewer lines or doing septic system work, Voss relies on a 2019 Caterpillar 303.5E mini-excavator with a 17-foot arm. He also owns a full-size Case 580D backhoe for larger excavation projects, as well as a Ditch Witch 3610 trencher/backhoe that he uses to install water lines.

The company also owns a 20-foot flatbed trailer made by Texas Bragg Trailers and a 14-foot enclosed trailer made by Arising Industries.

Two Ford pickup trucks and a Dodge Bighorn pickup truck round out the fleet.

## GIVING BACK

Voss measures success by more than just revenue or equipment. He also strives to give young people jobs and open their eyes to career opportunities in the trades.

“Not everyone is cut out to sit in an office and wear a suit and tie, but lot of people can work with their hands,” he says. “I let them know that just because they don’t get a college degree and won’t wear a suit and tie doesn’t mean they can’t make a darn good living. Look what plumbing has done for me.”

Voss says he speaks at Ruleville High School in Ruleville, Cleveland Vocational Technical School in Cleveland and Amanda Elzy High School in Shelby.

Voss also sponsors a flag-football team for youths ages 8 through 11. The team has won two championships and Voss says he enjoys taking the players and their parents out for burgers and fries after games, just like his youth coach used to do.

## A LASTING LEGACY

Voss is hopeful that the Voss name will continue as a local plumbing tradition. A daughter is thinking about coming on board and learning the business, and he also has two cousins in Milwaukee that might move down and eventually take over the business.

“The name is already here — all they have to do is step into it, just like I did,” he says. “I’d love to see a next generation come in; you don’t

“I LET THEM KNOW THAT JUST BECAUSE THEY DON’T GET A COLLEGE DEGREE AND WON’T WEAR A SUIT AND TIE DOESN’T MEAN THEY CAN’T MAKE A DARN GOOD LIVING. LOOK WHAT PLUMBING HAS DONE FOR ME.”

JULIUS VOSS

want your name to die out. I believe it’s part of our family legacy to show another generation how to make an honest and profitable living.”

While Voss says he never doubted he would succeed as a plumber, his company’s growth has exceeded his expectations.

“I never imagined I’d be quite this successful. But I knew that with my work ethic and the training my father gave me, I could do something different. And when I got a chance to prove myself, I stepped up to the plate. When those people who used to make fun of me see me now, they don’t laugh at me anymore.” **c**

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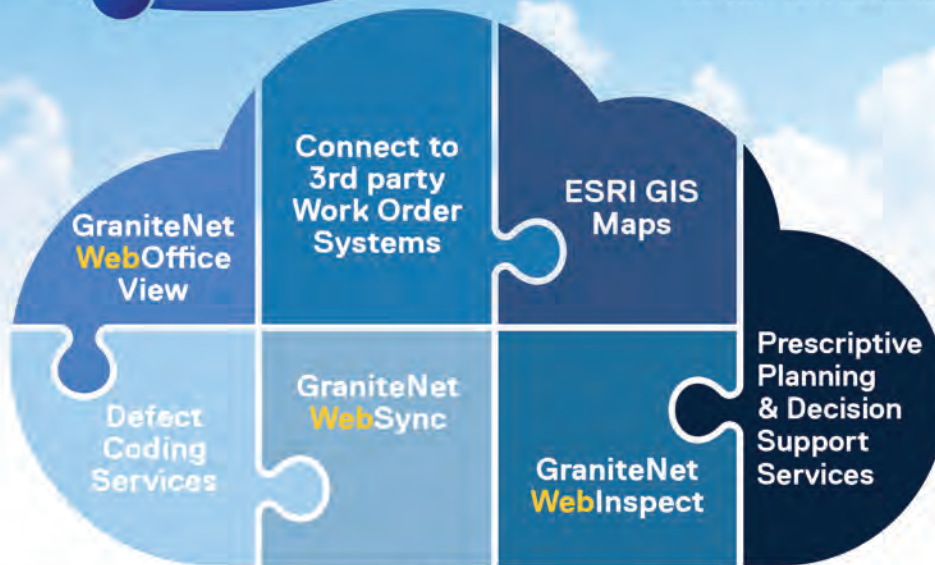
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## SEE WHAT'S AHEAD

A jetting nozzle that records video while it cleans provides a one-two productivity punch

// By Ken Wysocky

**IMAGINE THE PRODUCTIVITY** and profitability jump achieved by jetting and inspecting a sewer line simultaneously.

Jon Korotko doesn't have to imagine it. The field superintendent at PowerVac of Michigan experiences it every time he turns his vac truck into a camera truck with the Jetscan high-definition video nozzle from Envirosight.

"It's hard to quantify, but it absolutely does increase our profitability," says Korotko, who is also a division manager at the municipal and industrial cleaning company based in Novi, about 25 miles northwest of downtown Detroit. Established in 1995, the company employs about 110 people and primarily serves customers in southeastern Michigan.

"We see about a 25% time savings on an average job, which allows us more time to expedite additional service calls," he says.

Most of the time Korotko saves money by eliminating the need for time-consuming step cleaning. Any sewer cleaner knows the drill: Insert a jetting nozzle into a line, clean a certain distance, vacuum up the pulled-back debris, move the vac truck, position a camera truck, insert the camera and take a look at what's ahead, remove the camera, move the camera truck and restation the vac truck. Rinse. Repeat.

This process also adds costs for customers because they get charged for the vac truck when it sits idle and the camera truck is working, and vice versa. The Jetscan unit eliminates the need for a camera truck, which allows the company to better deploy its assets — and save customers money, Korotko says.

### SAVING WATER

The Jetscan also has reduced the company's water usage on an average job by about 50%, thanks to shorter cleaning time, says Korotko, a certified inspector via the Pipeline Assessment Certification Program run by the National Association of Sewer Service Companies.

"When you're jetting a pipe at 1,200 psi at 80 gpm, you use

## POWERVAC OF MICHIGAN

NOVI, MICHIGAN

<b>OWNER</b>	David Janks
<b>MACHINE</b>	Jetscan video nozzle from Envirosight
<b>FUNCTION</b>	Simultaneously waterjetting and video-recording sewer lines
<b>FEATURES</b>	Easily attaches to jetting hose; high-definition camera head with 124-degree field of view; powered by lithium-ion battery; quick video uploads to cellphones or tablets; wireless charging; two quick-change, stainless-steel skids allow work in pipes from less than 6 inches to 8 inches in diameter and 8 to 24 inches in diameter; high-intensity LED lights; measures 7 inches long and 3 inches in diameter and weighs 2.5 pounds (without skid).
<b>COST</b>	Approximately \$14,000
<b>WEBSITE</b>	<a href="http://www.yourworkorder.com">www.yourworkorder.com</a>

a lot of water quickly. And once you run out of water, you either have to bring out a water truck or go back to the yard and water up. But now, since the camera shows us what we're dealing with while we clean, we might be able to clean, say, a 400-foot-long, 12-inch-diameter line in two passes and use 1,000 gallons of water, compared to emptying the truck out while doing multiple passes," Korotko explains.

Seeing what's ahead inside the pipe also boosts efficiency because the crew can determine early on what kind of specialty nozzle might be needed to cut through roots, clean grease, handle gravel or sludge and so forth, he adds.

A key feature is an SD memory card on which high-definition video is recorded. When a cleaning job is finished, an operator removes the card, inserts it into an adaptor and plugs

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# MONEY MACHINES

» Jon Korotko, a field superintendent and division manager at PowerVac of Michigan, says the Envirosight Jetscan nozzle makes his crew more efficient because it combines cleaning and inspection in one process.

it into a cellphone or a tablet. At that point, the video file automatically uploads for immediate viewing. (Footage also can be streamed wirelessly to a tablet.)

“You know the conditions you’re facing right away,” Korotko says. “It saves so much time compared to multiple camera truck and vac truck setups. In effect, we’re cameraing and jetting at the same time.”

Korotko says he can email video files to customers right away, too. “It makes us look like we’re a high-tech company. And customers love to get information virtually instantly. ... It gives them peace of mind.”

## SIMPLE OPERATION

The unit is easy to use. It screws onto a jetting hose, just like a conventional jetting nozzle. Then press the record button and go to work, he says.

The Jetscan costs about \$14,000, including the skids. It’s battery powered and charges wirelessly; on a full charge, Korotko says it can run for about six hours. The unit also features high-

“OUR GUYS FIGHT OVER WHO GETS TO USE THE JETSCAN BECAUSE IT SAVES SO MUCH TIME. IT’S BEEN SUCH A GOOD INVESTMENT THAT WE PLAN TO BUY THREE MORE.”

JON KOROTKO

intensity LED lights, two quick-change sleds designed for pipes from less than 6 inches up to 8 inches in diameter and from 8 to 24 inches in diameter.

Korotko also praises the Jetscan’s rounded, bullet-shaped skid/cage, which features rounded corners that make it easier to navigate on pullbacks and minimize snagging on offset joints or protruding taps.

That’s not to say the Jetscan has made other inspection cameras unnecessary, Korotko cautions.



“The Jetscan is a purpose-built camera that we use for general sewer cleaning and scheduled maintenance. You can’t see what the camera recorded until you pull it out and view the video. Camera trucks still have a place for PACP inspections, where you need a live view while you’re recording pipe defects and so forth.”

PowerVac owns six camera trucks it outfitted in-house. It relies on inspection cameras made by Advanced Inspection Technologies, Envirosight, R.S. Technical Services and Insight | Vision.

Established in 1995, the company also runs 15 Vactor 2100 combination sewer vacuum trucks, nine Vactor HXX hydroexcavation vacuum trucks and one industrial vacuum truck built by Guzzler. Crews use jetting nozzles manufactured by StoneAge, KEG Technologies and Enz USA.

## IMPRESSIVE RESULTS

Korotko says customers are impressed by how quickly the Jetscan can diagnose sewer line problems, and they appreciate the cost savings that results from eliminating the need for camera trucks. And employees like it, too.

“It’s one of those technologies where you think, ‘Why didn’t someone think of this years ago?’” he says. “Our guys fight over who gets to use the Jetscan because it saves so much time. It’s been such a good investment that we plan to buy three more.” ■



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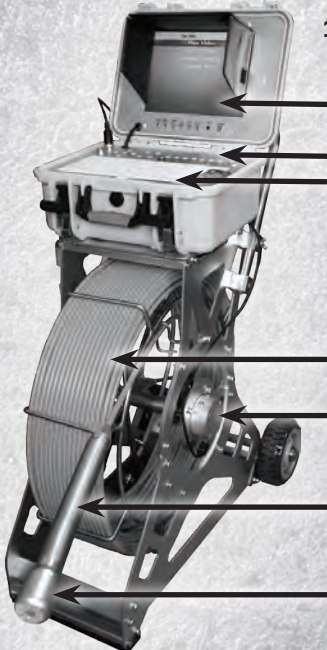
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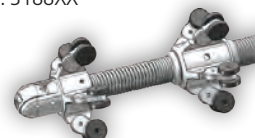
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## WATERBLASTING AND WATERJETTING CLEANING AND ACCESSORIES

By Craig Mandli

### » HOSE

#### 1 // ALL JETTING TECHNOLOGIES PARKER HANNIFIN TOUGHJACKET

Parker Hannifin TOUGHJACKET water blast hoses, distributed by All Jetting Technologies, are designed to eliminate the need for an additional PVC sleeve and reduce the hose weight by up to 16%. This allows for ease of handling, improved productivity and reduced operator fatigue. They have polyurethane jackets, are tested to DIN EN 1829-2 standards and exceed the abrasion resistance and durability of standard PVC-covered assemblies by more than 100%. ColorGard technology means the primary hose jacket is a different color than the abrasion-resistant WJTA-compliant colored outer jacket to provide easy visual identification of abrasion issues, allowing for efficient inspections and reducing unscheduled downtime. 772-286-1218; [www.alljetting.com](http://www.alljetting.com)



#### 2 // KURIYAMA OF AMERICA ALFAGOMMA WATERBLAST

Alfagomma Waterblast hydraulic hoses from Kuriyama of America are made with an oil- and water-resistant synthetic rubber tube. The reinforcement is four high-tensile steel spirals, and the cover is oil, water and ozone resistant synthetic rubber. The hose is designed for very high-pressure waterjetting service. The WATERBLAST WB10 Series hose provides 10,000 psi service for ID sizes 06, 08, 12 and 16. The WATERBLAST WB15 Series hose provides 16,000 psi for the dash 08 ID size and 14,500 psi for the dash 12 ID size. The WATERBLAST WB20 hose provides 20,000 psi service for the dash 08 ID size. 847-755-0360; [www.kuriyama.com](http://www.kuriyama.com)



#### 3 // TRANSFER OIL ECOLOGY

Transfer Oil's ECOLOGY line of jetter and mainline sewer cleaning hoses are offered in sizes from 3/16 to 1 1/2 inches and working pressures from 2,500 to 4,000 psi for the cleaning of residential, commercial and industrial sewer lines. They have a tough polyurethane jacket impregnated into braided reinforcement for high resistance to abrasion and fungal attack, increasing longevity, while a smooth and seamless inner core increases water flow and reduces backpressure. All hoses have a compact and lightweight construction, which allows for easier routing and less friction and increases total reel capacity, maximizing overall pump performance. All are additionally color-coded to industry standards as it applies to working pressures. 844-474-6737; [www.transferoil.com](http://www.transferoil.com)



### » HOSE REELS

#### 4 // COXREELS 1125 SERIES

COXREELS 1125 Series reels have a sturdy one-piece all-welded A-frame base, a low-profile outlet riser and an open drum slot design that provides a noncrimping, flat, smooth hose wrap. It features professional heavy-duty grade steel construction, rolled edges and ribbed discs, and a long-lasting, chip-resistant, powder-coated finish. Two upgraded swivel options include medium pressure (up to 4,000 psi — solid brass) and high pressure (up to 5,000 psi — super swivel). They







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## 5 // BUCHER MUNICIPAL NORTH AMERICA REMOTE REEL

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



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## 6 // HANNAY REELS 6000 SERIES

The 6000 Series manual or power rewind reels from Hannay Reels are suitable for applications that require longer lengths of hose like waterblasting and sewer cleaning. This heavy-duty reel is available in aluminum or stainless steel construction and ruggedly designed to handle daily use in the most demanding environments. A gear-driven crank rewind or a chain and sprocket drive-powered rewind are available in a reliable steel hub assembly. These reels can handle pressures up to 2,000 psi, with an upgrade available for pressures up to 5,000 psi. 877-467-3357; [www.hannay.com](http://www.hannay.com)



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## >> NOZZLES 7 // ENZ USA UC LINE

The UC Line with CrossJet Technology from Enz USA offers a complete line of high-pressure solutions for tough industrial cleaning projects. The nozzles are suitable for cleaning tubes such as heat exchangers in nuclear power plants or in the sugar industry. This CrossJet Technology offers ideal cleaning performance with lower leakage and long durability. The nozzles are available up to 22,000 psi. They are available in 9, 13, 18, 22 and 28 mm sizes. 877-369-8721; [www.enz.com](http://www.enz.com)



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## 8 // HYDRA-FLEX REAPER

The Reaper rotating jetting nozzle from Hydra-Flex is engineered specifically for water jetting applications including pipe cleaning and sewer jetting projects for the residential, municipal, industrial or contractor market. It successfully cleans drains, industrial pipes, sewers and tubes by clearing blockages, grease and roots with fewer passes, saving time and money all while generating less wear and tear on hoses and operators. Its rotating front jet is a 0-degree, straight water stream that blasts at up to 4,000 psi while rotating at an optimal speed to form a 24- or 30-degree cone of coverage. Optimized stream quality results in greater impingement, allowing the user to use one tool for various applications, including cutting blockages, cleaning grease and removing roots. Repair kits are available for extended life and lower overall operating costs. 952-808-3640; [www.hydraflexinc.com](http://www.hydraflexinc.com)



## 9 // SEWERPROSHOP BLUE STAR

SewerProShop's Blue Star sewer cleaning nozzles are manufactured with optimized 3D hydromechanics by Intersewer, located in Germany. Water coming from the pressurized sewer hose is first divided by a conically shaped piece and turned around in the nozzle chamber, then guided directly to the stainless steel nozzle inserts via five-axis computer numerical control (CNC) precision. The nozzles are made in one piece, reducing the chance of failure under pressure for greater safety and performance. Utilizing case-hardened steel, stainless steel and ceramic inserts, the nozzles can also be used with recycled water. 877-864-9394; [www.sewerproshop.com](http://www.sewerproshop.com)



## » PORTABLE JETTERS

### 10 // ELECTRIC EEL EEL-JET EJ3000

The EJ3000 from Electric Eel can clean 2- to 8-inch-diameter lines up to 300 feet. It offers 3,000 psi at 4.7 gpm and a 13 hp overhead valve engine for smooth, quiet running and dependable operation with electric start available. It has a 2-1 gear reduced triplex pump with pulsation for longer life, a 300-foot-capacity hose reel, a heat shield to protect the hose and convenient nozzle storage on the unit. Its steel nozzles penetrate and clean tough clog problems from drainpipe walls with a variety of spray angles. Throttle back control automatically adjusts engine speed. It comes with a low-tone muffler for quiet operation and 12-inch pneumatic tires on a rugged steel base for easy maneuverability. 800-833-1212; [www.electriceel.com](http://www.electriceel.com)



### 11 // GENERAL PIPE CLEANERS JM-2900 JET-SET

The JM-2900 Jet-Set gas-powered water jet from General Pipe Cleaners can quickly clear grease, sand and ice in 4- to 8-inch drainlines. It is designed to be light and maneuverable, and it is driven by a 13 hp Honda engine connected directly to a 3,000 psi, 4 gpm triplex pump. Vibra-Pulse helps the hose slide around tight bends in small lines and down long runs. A 200-foot-capacity hose reel with reel brake is mounted on a heavy-duty frame with two 10-inch flat-free foam-core tires. It has a thermal relief valve to protect the pump from heat damage, along with a backflow check valve and inlet filter. An optional spray wand is available. 800-245-6200; [www.drainbrain.com](http://www.drainbrain.com)



### 12 // MYTANA MV80 JET PRO CART

MyTana's MV80 Jet Pro Cart is a dual cart, mainline jetter that delivers 8 gpm at 3,000 psi cleaning power. Designed for portability, the jetter is powered by an electric start 690cc Honda engine. The super-duty triplex pump has accessible controls, as well as pressure and thermal protection. A 12-gallon water tank offers continuous resupply from the water source. Motor, pump and tank are housed on a compact cart with 12-inch wheels for easy maneuverability. The separate hose cart has two reels: One holds 250 feet of 3/8-inch Piranha jetter hose with a ball valve control, while the other reel has a 50-foot jumper hose to let you reach difficult access points or jet indoors. Both carts are made of powdered-coated steel for durability with balanced weight. It includes a set of nozzles. 800-328-8170; [www.mytana.com](http://www.mytana.com)







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### 13 // RIDGID KJ-2200

The RIDGID KJ-2200 water jetter propels a highly flexible hose through 1 1/4- to 6-inch lines to remove sludge, soap and grease blockages. As users pull the hose back, it power scrubs the line, flushing debris away and restoring drainlines to full, free-flowing capacity. A working pressure of 2,200 psi and flow of 2.4 gpm provides fast, effective cleaning of lines. It comes standard with a 6.5 hp recoil-start gasoline engine for quick start and a FV-1 foot valve to make remote or indoor operation simple and convenient. The user controls the jetting action at the drain while leaving the jetter outdoors. Guide the hose into the drain while the thrust propels the hose down the line. Activate the pulse action to easily navigate difficult bends and traps. The optional H-30 cart makes for easy transport. 800-769-7743; [www.ridgid.com](http://www.ridgid.com)



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## » TRUCK/TRAILER JETTERS

### 14 // CAM SPRAY CV SERIES

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



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### 15 // EASY KLEEN PRESSURE SYSTEMS GROUNDHOG JETTER

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



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### 16 // GAPVAX GJET

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



## 17 // HOTJET USA HOTJET II

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



## 18 // MONGOOSE JETTERS BY SEWER EQUIPMENT MODEL 184

The **Mongoose Jetters by Sewer Equipment Model 184** comes with a run-dry pump offering 18 gpm at 4,000 psi, a tubular steel frame, corrosion-resistant prepainted subassemblies, state-of-the-art controls, strong hose reel and high-quality gas engine. It is suitable for drain cleaning and sewer jetting, remote access locations, mainlines up to 12 inches in diameter and commercial and industrial lines. The trailer unit comes with a water tank capacity of 300 gallons and standard hose reel capacity of 600 feet of 1/2-inch hose. The trailer setup consists of a 6,000-pound-rated single-axle trailer, and the addition of a wireless remote-control system makes this equipment a true one-man operation. It is also available as a van pack or truck-mounted unit. 815-835-5566; [www.sewerequipment.com](http://www.sewerequipment.com)



## 19 // SUPER PRODUCTS SUPERJET

The **SuperJet** truck-mounted jetter from **Super Products** is used to blast debris to clear blockages and maintain sewer lines when vacuuming extraction is not required. It uses a strong and smooth single-piston water pump to create consistently high water pressure. Units come standard with rotationally molded polyethylene water tanks in a modular design to accommodate water capacities ranging from 1,080 to 3,240 gallons. Additionally, they offer convenient standard curbside and street-side fill. The hose reel has 1,000 feet of 1-inch-diameter sewer hose, 200-degree rotation and a digital monitor. This allows operators to work efficiently while positioning themselves out of traffic and away from other hazards. The monitor displays a hose footage count, offers 20 saved settings for hose reel payout and is designed with LED panel lights to enable readability in a variety of environments. 800-837-9711; [www.superproducts.com](http://www.superproducts.com)



## 20 // VAC-CON VJ SERIES

The **VJ Series** of jetters from **Vac-Con** is designed to provide operators with an economical, portable and powerful system in two configurations. The VJ375 offers a 375-gallon water capacity on a single-axle trailer. The VJ750 boasts a 750-gallon water capacity on a tandem-axle trailer. Standard features include Tier 4 diesel engine, cold weather recirculation and air purge system, hydraulically driven hose reel and a reel-mounted, weatherproof electronic control panel. Units are available in multiple water pump pressure and flow configurations. Optional features include gas engine, wireless remote and an antifreeze tank system for cold-weather use. 904-284-4200; [www.vac-con.com](http://www.vac-con.com)





## » WATER PUMPS

### 21 // HAMMELMANN HDP-500



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The newly designed HDP-500 series low-profile trailer unit from Hammelmann is powered by a 750 hp diesel engine and comes in either a “packing free” fluid-end design or traditional high-pressure packed fluid-end. The design of this pump unit complements the “L” design 26,000 psi tank cleaning head. The addition of the higher pressure range allows for increased production when cleaning pipes, tanks and large vessels while significantly reducing water consumption. It offers 43,500 psig at 20 gpm, 23,500 psig at 45 gpm and 10,000 psig at 100 gpm. Units can be custom built on skids or trailers or into sound-damped containers. All units come standard with a galvanized rigid base frame and trailer, Tier 4 diesel engine, insulated spiral silencer installation with exhaust, ES3 electronic control and monitoring system with digital display for pump and diesel engine, and a pneumatic high-pressure control system with shaft driven compressor. 800-783-4935; [www.hammelmann.com](http://www.hammelmann.com) c

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## WATERBLASTING AND WATERJETTING CLEANING AND ACCESSORIES


// By Craig Mandli

### REMOVING HEAVY ROOT BLOCKAGES IN LIMITED ACCESS ENVIRONMENTS



**PROBLEM** / A two-story building in Southern California was experiencing a backed-up line despite the efforts of a previous plumbing company to snake the line. Nicholas Krewson of San Diego Drain Krew found that the line was blocked by heavy root intrusions. To be positioned effectively, the hose would need to be run into the building from its roof. Adding further complexity to the situation, the roof could not be easily accessed by ladder, and the building was designed with back-to-back toilets. In order to prevent an emergency dig-up, the property needed a solution to resolve the blockage and restore flow without damaging the pipe walls.

**SOLUTION** / A 1/2-inch Warthog Flexible SuperSpin nozzle (WS-1/2) from StoneAge was used in conjunction with a water jetter to effectively clear the roots. Equipped with the nozzle and jetter hose, Krewson climbed to the roof of the two-story building to gain the access needed. First, the line was scoped with a camera to identify the extent of the root intrusions. As the hose was lowered 120 feet through the building via a roof vent, the side-to-side flexibility of the unit's inlet hose shortened its rigid length to more effectively navigate the limited access environment and remove the roots.

**RESULT** / The nozzle cut through the roots blocking the line to restore flow without causing damage to the pipe walls. Resolving the root blockages enabled the property to complete installation of a set of two-way clean-outs for easy future maintenance. 866-795-1586; [www.warthog-nozzles.com](http://www.warthog-nozzles.com) 

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## PRODUCT SPOTLIGHT

### CAMERA SYSTEM SIMPLIFIES INSPECTION REPORTING

By Craig Mandli

For sewer and drain cleaners, time is money. Camera inspections typically are quick jobs, but reviewing and putting together reports based on the inspection results can be time-consuming. The Pearpoint flexiprobe P540c portable push system from CUES aims to take many of those responsibilities out of the contractor's hands.

The system simplifies operations by automatically creating a survey report, allowing the user to concentrate on other inspection tasks. It also allows the user to share reports quickly and easily via email or the Dropbox file-sharing service. Onboard Wi-Fi connectivity allows the user to use a smartphone or dongle as a hot spot, letting him or her immediately share a survey with a customer, manager or accounts department. Video footage can also be shared directly to a compatible device such as a customer's phone or colleague's tablet. This, along with the overall versatility of the camera, makes it a suitable fit for drain cleaners.

"The Pearpoint flexiprobe P540c series push systems cover all applications from plumbing to mainline applications," says George Milkowski, director of portable products business for Pearpoint. "The series offers six reel configurations from the P541 plumber reels, P541 mini reel, P542 reels for laterals and the P543 reel system for mainline condition assessment."

Engineered to provide all-day use in rugged conditions, the flexiprobe P540c offers a variety of rods for different applications. Not only can its upgraded command module produce automatic survey reports, but it can also be used on any of the six available push



systems and be used continuously for up to five hours on a single charge. A choice of a 1- or 2-inch camera is available and can be used interchangeably between most systems. In addition, a built-in 512 Hz sonde is provided for locating purposes.

"Pearpoint's fully modular range has been designed to work in the treacherous terrain of storm and sewer infrastructure, delivering condition assessment capabilities from 1 1/4- up to 60-inch pipelines," says Milkowski. "The compatibility with our portable mainline system makes for one of the most versatile systems available on the market today."

According to Milkowski, feedback on the system has been positive. "Our customers have been most impressed by the extensive list of standard features that are integrated into the system, including survey reporting and the onboard Wi-Fi, which allows you to share the reports via email and Dropbox." 800-688-8094; [www.pearpoint.com](http://www.pearpoint.com)

### 1 // JETSTREAM TWINFORCE 800 HP WATERBLASTING UNIT

Jetstream, a subsidiary of Federal Signal Corp., launched the heavy-duty Jetstream TwinForce 800 hp waterblasting unit, the company's highest-producing water-blast system to date. The system combines power and versatility on a compact frame equipped with two Jetstream 5200 Bareshaft Pumps on one integrated trailer. The unit can function in three different ways for increased flexibility: as a large capacity 800 hp unit for high-flow applications, as an independent 400 hp unit with the secondary unit that serves as a backup or as two independent units running at different pressures or applications. The unit provides a host of available features including hydrodemolition, 2D/3D tank cleaning, tube/line cleaning, surface preparation, railcar cleaning and more. 800-231-8192; [www.waterblast.com](http://www.waterblast.com)







## 2 // MILWAUKEE TOOL RATCHETING COMBINATION WRENCHES

Milwaukee Tool's new line of flex-head ratcheting combination wrenches feature a flexible head design that allows better access in hard-to-reach spaces. With 2.5 degrees of arc swing and 144 ratcheting positions, the wrenches allow for work in tight and awkward spaces. The double-stacked pawls within the ratcheting mechanism are engineered to increase durability and extend the life of the tool. The MAX BITE Open-end grip improves the wrench's grip on nuts and bolts, and the ergonomic I-Beam handles are designed for comfort in high-torque situations. The ink-filled size labels provide easy size identification and are color-coded for quick distinction between SAE and metric sets. 800-729-3878; [www.milwaukeetool.com](http://www.milwaukeetool.com)



## 3 // WINCAN SEWERMATICS AI-POWERED SERVICE

WinCan's Sewermatics is a new collection of AI-powered services that help inspection teams work more efficiently, gain new insights and make data-driven decisions. It offers four core services: AI-powered defect coding, data conversion, platform integration and cloud hosting. Sewermatics' AI-supported defect coding lets municipalities hand off inspection footage for observation entry and quality assurance. In addition to alleviating workload, it minimizes user error and extracts value from legacy data. The Sewermatics team can also help transfer data from any software or database into WinCan standardized to NASSCO's PACP 7 or any other inspection standard. 877-626-8386; [www.wincan.com](http://www.wincan.com)



## 4 // PYRAMEX HEAVY-DUTY UTILITY VEST

Pyramex's heavy-duty utility vest (RVZT44B Series) is built tough to withstand day-in and day-out use. The back features a D-ring pass-through slot for ease of use with a fall protection harness. It also has a reach-through pocket with a zipper closure on the back for access to construction plans, a clipboard or tablet. The vest has a solid black front bottom that includes an inner microfiber towel making cleaning eyewear a breeze. It also has metal front grommets, accessory loops, mic tabs and plenty of pockets including two large expandable waist pockets with hook and loop closure. The hi-vis lightweight vest is made from 120 gsm polyester mesh and has 2-inch silver reflective material with 1/2-inch contrasting trim, and it meets ANSI/ISEA 107-2015 Type R Class 2 standards. 800-736-8673; [www.pyramexsafety.com](http://www.pyramexsafety.com) **c**

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## Aries adds new East Coast dealer

Aries Industries added MJ Friedl and Associates to its dealer network. Based in Stevensville, Maryland, MJ Friedl will offer Aries' sewer inspection and rehabilitation equipment, and water well inspection products. The company will also sell and service Aries' grouting system trucks and electric cutters, and sewer and water well inspection systems, serving customers in Delaware and Maryland.

## Trench Shoring opens new facility, adds bilingual classes to TSU

Trench Shoring Co. opened its 11th location in San Leandro, California. The company has ten other branches from San Diego to the Bay Area, plus a location in Las Vegas. The new San Leandro facility is central to the Bay Area, near the Oakland Airport and close to all major freeways.

The company also announced it expanded its Trench Shoring University program with bilingual classes via its newest trainer, Fred Estrada. In the near future, Estrada will be offering Spanish-only training classes through TSU. Under the management of NAXSA-certified trainer, Greg Shreenan, TSU can be adapted for both online, remote learning and in-person classes.

## WJTA introduces medical alert card for vacuum operators

In response to inquiries regarding vacuum suction injury potential, the WaterJet Technology Association has introduced a new medical alert card for operators of industrial and municipal vacuum equipment. The card provides information on the potential nature and treatment of the injury in the event of an incident with the vacuum hose end under suction.



## Vacuum Truck Rentals welcomes Jeff Mueller

Vacuum Truck Rentals welcomed Jeff Mueller as its corporate parts director. He will oversee the parts operations throughout the company's 16 nationwide locations. A native of Texas, Mueller began his career as a millwright in the industrial machine business before taking a maintenance superintendent position. He has also served in a senior general manager role and has opened multiple equipment branches.



Jeff Mueller

## Super Products changes domain name

Super Products has moved their online presence to [www.superproducts.com](http://www.superproducts.com). The new domain will also affect the company email addresses, changing to the format [@superproducts.com](mailto:@superproducts.com). All incoming emails will work if they are sent to the old addresses, but updating to the new domain will ensure delivery after the old addresses are phased out. Old links and bookmarks will be automatically redirected to [www.superproducts.com](http://www.superproducts.com).

## Milwaukee Tool expanding corporate operations

Milwaukee Tool announced the expansion of its corporate operations into downtown Milwaukee. The company's current global headquarters in Brookfield, Wisconsin, will remain the central location for the company's corporate operations. The new expansion will provide increased space to accommodate the company's rapid growth. Anticipated to open in October, the building will house 1,200 employees within the next three years.

## Logiball receives award from NASTT

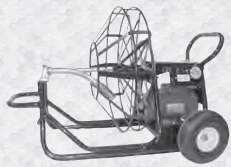
USL America announced that Logiball was recognized for its Long Span Grouting Packer by the North American Society for Trenchless Technology. The Abbott Innovative Award is granted each year to companies with state-of-the-art products that make a significant impact in advancing the trenchless industry. The award recognized the custom-made packers that are used by specialty contractors to seal longitudinal cracks and fractures in municipal sewers. **c**

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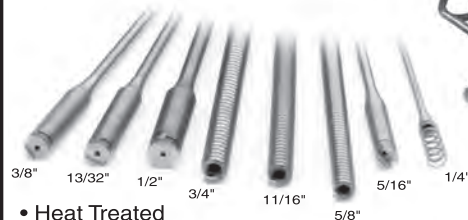
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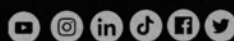
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