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ON THE COVER // It takes time to grow a business, add services and build a roster of happy clients. In 20 years in business in Orlando, Florida, Rick Fender has used a formula for slow but steady growth that has earned his company, Cloud 9 Services, a stellar reputation for tackling tough plumbing and pipeline cleaning and inspection jobs, thanks to cutting-edge technology and experienced technicians. (Photography by Preston Mack)



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Cleaner

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SERVICE BEFORE THE SALE

Treat potential customers as well as your regular clientele and they just might become part of that group

GOOD CUSTOMER SERVICE is an important piece of any successful service-based company.

It's rare to see a profile of a drain cleaner pass my desk that doesn't mention some sort of customer-focused, customer-first philosophy. Whether a drain company large or small, there is always a strong commitment to solving customers' problems.

We discuss many ways you minimize any inconvenience to customers: wearing booties to avoid tracking dirt into the house, showing up with clean equipment, wearing sharp uniforms, giving them options for solutions, investing in trenchless pipe replacement

systems to avoid digging up yards — the list is extensive.

One thing that can get overlooked, however, is making an equally good impression on customers you don't have yet. A lot of businesses are so in demand, they have more than enough work. But even if your phone is ringing off the hook, and you'd have to refer or turn down some jobs, answering every call and responding to every message is still important.

I had a clog in a line at my house cause some issues out of the blue recently. I'm a relatively new homeowner, so I don't yet have a go-to drain company or plumber. It was a Saturday, so I had low expectations about anyone being able to come out that day, but was hoping to get something lined up for Monday.

I called a handful of companies, including two that claimed 24/7 service on their websites. No one answered the phone.

One company's outgoing message did give another number if someone needed emergency service, but my situation wasn't dire so I kept trying some others. One didn't even have room on the voicemail so I couldn't leave a message.

The clog ended up working its way free and I ended up not needing to call again — this time. But I'm already thinking about the next true emergency and hoping I have better luck. I would already have a number saved in my phone if anyone had answered.

Remember that your potential customers will feel the same way. Set up an answering service for when your office staff is off the clock. Leave another number for emergency calls, if you offer those services. Not every company will offer 24-hour service, and that's ok. But if you say you are always on call, be reachable.

Don't forget to clean out your voicemail often. Yes, it makes you seem in demand to have so many messages that no one else can leave one, but it also made me wonder whether that guy ever called anyone back.

While you may be busy now, there could come a time when business slows. Making a good impression now even when you can't take every job can lead to work down the road when you're not as busy.

The way you treat a customer while on a job goes a long way in securing a good review and more work from that household. But treating everyone well before you even get the job is how you keep the customers calling.

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

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MACHINE PERFORMANCE

Diesel Exhaust Fluid Best Practices

In an effort to meet EPA standards, diesel exhaust fluid is commonly used on the latest equipment to reduce nitrogen oxides in emissions. This online exclusive covers a few things you should know about how to use and store it. [>> cleaner.com/featured](https://cleaner.com/featured)



OLD SCHOOL Radio, TV Advertising Spurs Growth for Company

Social media is oftentimes a significant part of marketing campaigns in today’s age, but there is also still a lot of power in radio and TV advertising. In this online exclusive, one contractor explains how those forms of marketing have greatly aided the company’s growth. [>> cleaner.com/featured](https://cleaner.com/featured)



SPEND WISELY

Knowing When to Pull the Trigger on an Equipment Purchase

Sometimes renting equipment for a job is a good option. But there comes a time when making an outright purchase would be better. This online exclusive covers a few factors to keep in mind for determining when you’d be better off purchasing a piece of equipment versus renting it. [>> cleaner.com/featured](https://cleaner.com/featured)

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FAMILY TIES

SIBLINGS POOL DIVERSE TALENTS AND BUILD THEIR PIPELINE REHAB COMPANY INTO A MAJOR PLAYER IN THE SOUTHWEST

// By Suzan Chin-Taylor



▲ NuFlow Services technician Kolten Tescher uses a Picote Mini Miller to clean out a drainline on a job in Paradise Vally, Arizona.

Photography by Mark Henle

Capitalizing on their individual, diverse skills, brothers Paul and Eric Eaves have created a company culture that has propelled them on a rapid growth trajectory. Focusing on specialty trenchless rehabilitation services has opened opportunities to work on some of the Phoenix, Arizona, metro area's high profile commercial properties and industrial facilities.

The co-owners of NuFlow Services of Phoenix and Tucson turned a garage-based startup into a multilocation enterprise and one of the region's highly desirable employers.

A WINDING PATH

Paul Eaves began his post-college career in the field of molecular biology, but it wasn't long before he realized that he wanted to pursue more labor-intensive work. He had previously teamed up in business ventures with his brother Eric, such as a landscaping business in the early 2000s. Missing those physical jobs, he approached Steve Mori, founder of American Pipe Lining and developer of a potable epoxy barrier coating that had recently been acquired by NuFlow. Mori offered him a position at the company, starting out as a helper and technician, allowing him to work his way up to foreman and eventually training other licensees in Europe and the United States.



« Brothers Paul (left) and Eric Eaves teamed up to start NuFlow Phoenix in 2014, expanding to Tucson in 2020.

In 2011, Paul went to Washington, D.C., to start a NuFlow contractor company and remained there until the end of 2014. Because of his prior positive experience working in tandem with his brother, Eric approached the executive team at NuFlow and expressed his desire to become a Certified Contractor and open an operation in Arizona with his brother.

Paul and Eric were granted the license and Paul quickly packed up his family to move to Phoenix to begin the new venture. “I remember packing my little three-year-old daughter and my wife, who was at the time approximately six months pregnant, and our dog into our little Scion XB which was pulling the trailer with all our possessions that probably weighed as much as the Scion itself. We arrived just before Thanksgiving 2014 and my sister was kind enough to open her home to us to help keep our costs down since we knew our new venture wouldn’t be making money right away,” Paul says.



NuFlow Phoenix and Tucson

OWNERS

Paul Eaves and Eric Eaves

AREAS SERVED

Phoenix metro, Tucson metro

EMPLOYEES

60

SERVICES

Trenchless sewer repair, potable and pressurized pipe repair services, sewer and drain repair, commercial sewer repair, pipeline inspection, drain cleaning, jetting, leak detection, vent stack lining

LOCATIONS

Phoenix and Tucson

WEBSITE

www.nuflowphoenix.com

At the start, the new business operated out of Eric’s garage with one Dodge Sprinter van, which was painted yellow and affectionately named Big Bird. Eric continued working his existing job as a schoolteacher for the first few years of



◀ Foreman Antonio Gonzalez, Victor Rivera and Kolten Tescher (from left) mix epoxy to prep for a lining job.



⤴ Rivera trims the NuFlow liner to the proper length.

⤴ Warehouse manager Mario Rodriguez repairs a SeeSnake camera at the NuFlow Phoenix shop.



operations, while Paul performed sales calls, conducted lunch-and-learns and got the word out in the community.

At the beginning they had to use the local library, reserving a study room every day of the week to have meetings and work on proposals. “If I had an appointment or proposal to write, I would just tell the customer ‘I’m going to the office to write it up’ and then I would look for the closest library and get a quiet room to complete the work,” Paul recalls.

Some days Paul and Eric would work together in shifts with Eric coming to help Paul install liners and then return to work leaving Paul to finish up, change clothes in the van and make cold calls. They aggressively went after the business of the top 50 companies in Arizona in property management, construction and engineering. They also participated in local trade shows, attending everything from home and garden shows to property management specialty conferences.

Because of their dedicated efforts, within one year the brothers acquired several large opportunities and projects that allowed them to hire additional staff. In January 2016 they were able to move out of Eric’s garage and into a single unit office-warehouse that they occupied for one year. Business began to grow quickly and in 2017 they expanded into the adjoining unit, hired additional personnel and had two service crews. 2018 was another big growth year for the firm and in 2019, they were able to move out of the side-by-side units and into a larger office building with an enclosed fenced yard. By this time, they had grown to four crews.

In 2020 the firm expanded yet again and opened NuFlow Tucson. Paul had been marketing in the Tucson area since the inception of NuFlow Phoenix and felt that there was enough traction

and work now coming in from the region to justify having a more permanent location with a dedicated crew, sales team, office personnel and service equipment fleet. As of this writing, the company is scaling up to a third crew in Tucson, in addition to the six crews in Phoenix. In 2021 they purchased a building of their own and now employ just over 60 employees — a big jump from two people in a garage six years ago.

STARTING TO SPECIALIZE

NuFlow Phoenix and Tucson offers a wide range of services and at the beginning of their business life, would take general plumbing and jetting work to generate cash flow and get their foot in the door with some customers. “In 2015 we purchased a tow-behind jetter, and this helped to fill in gaps when work wasn’t consistent. But we knew our real bread-and-butter profit center was going to be trenchless pipe relining,” Eric says.

This willingness to take on a variety of projects was a smart move as it attracted the attention of commercial and industrial properties that needed the services of a contractor like NuFlow that had the range of equipment, crews and expertise that smaller independent one-man shops can’t always provide. Profits during the firm’s first few years were driven primarily by residential work, but this has now shifted to 60% commercial-industrial or multi-unit residential property work and 40% single-family residential.



“IF I HAD AN APPOINTMENT OR PROPOSAL TO WRITE, I WOULD JUST TELL THE CUSTOMER ‘I’M GOING TO THE OFFICE TO WRITE IT UP’ AND THEN I WOULD LOOK FOR THE CLOSEST LIBRARY AND GET A QUIET ROOM TO COMPLETE THE WORK.”

PAUL EAVES



NuFlow Phoenix and Tucson boasts an impressive high-profile list of clients that include property management firms such as CBRE and Cushman & Wakefield, school districts like Yuma and Chandler, and the City of Tempe. Because of their expertise, repeat customers and exceptional reputation for quality and problem solving, they have also been tapped by some of the region’s prominent medical facilities, manufacturers and industrial plants. The technologies and tools that they have chosen to use from NuFlow, Neofit (Flow-Liner Systems) and RIDGID allows the crews to perform needed rehabilitation without disruption to a facility’s operations or production.

Case in point was when a food manufacturer had noticed the consistent lack of fluid flow in their system where the pipe level was a foot below the foundation. They recognized that

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Although awareness of the benefits of pipe lining is common in the municipal and civil engineering sectors, the high liability that can often be attached to this method of rehabilitation has created a fear in many decision-makers' minds about the benefits and use of this technology. Add to that the numerous contractors just entering the market who may not have the proper products or training to successfully complete a project, and it's no wonder some cities are shying away from it.

"As contractors, we have run into objections from numerous city and civil engineers who have had a bad experience with pipe lining. So it's important to open dialogue and educate the engineering community about the pros and cons of trenchless technology, and more important, how to select the right vendor and materials for the project requirements as to ensure project success," explains Eric Eaves, co-owner of NuFlow Phoenix and Tucson.

Helping client communities help their residents has also been a very positive way for NuFlow Phoenix to expand its business and establish greater acceptance for pipe lining. Working with the City of Tempe, the city has developed a program where NuFlow is a primary contractor for pipeline renewal or rehabilitation. The city offers a sewer rehab insurance program for all their residents that is billed monthly that will cover the rehabilitation and repair of any sewer main issues near their home that are outside of the city's responsibility. The program creates the ability to perform timely repairs and make them affordable for residents.

It's been such a great success, word has gotten around to other cities in the area and NuFlow is now helping surrounding communities coordinate similar programs and lay the groundwork for programs to be offered throughout the Phoenix metro area.



Technicians Rivera (left) and Tescher install a NuFlow liner through a clean-out.

the line was holding water in the clean-out standpipes just below the floor. The main drain was 8 feet below grade and the meter that indicated how much water the facility was discharging into the sewer system showed there was a discrepancy of thousands of gallons in the amount of

work was scheduled to take place during a short routine shutdown, but after the assessment, the condition of the 6-inch cast iron line that was failing would require more time to be fully rehabilitated. "The entire system was falling apart all over the place, so we quickly had to come up with a plan that would allow us to extend the deadline but at the same time not disrupt the production floor," Paul says.

Instead of a long run, which would have been simpler for the team, the repair needed to be completed using extremely controlled small runs and the installation of clean-outs at numerous locations. This new plan allowed them to plug specific lines, set bypasses to other drains and maintain the flow needed by the factory as it was moving hundreds of gallons of liquid. The failing lines were causing the factory's cooling tunnels to drop around 3,000 gallons when it would go through its cycle creating almost a lakelike effect with everything on the cooling tile floor. The rehabilitation resolved the issues and

"WE KNEW OUR REAL BREAD-AND-BUTTER PROFIT CENTER WAS GOING TO BE TRENCHLESS PIPE RELINING."

ERIC EAVES

water they were taking in from production versus the water they were sending out to the sewer system. The water was ending up somewhere it shouldn't.

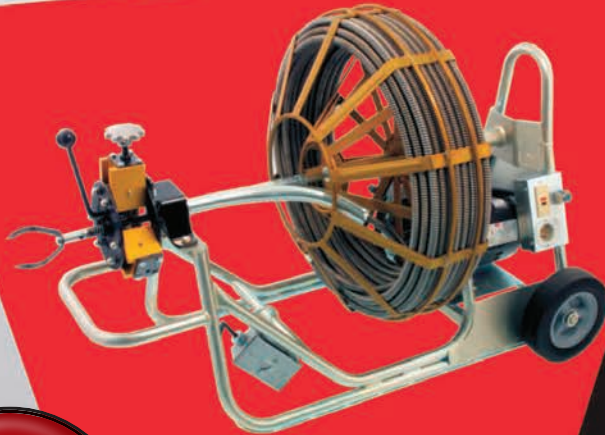
NuFlow was able to come in and pinpoint areas where there were total pipe failures and sections that had experienced severe deterioration. Initially rehabilitation

CONTINUED >>



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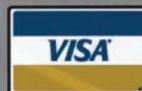
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Part of the NuFlow crew at the Phoenix location. The Phoenix and Tucson branches combined employ 60 people.

restored the plant to optimum performance conditions.

As a result of successfully resolving the issue and keeping plant running while it was taking place, NuFlow Phoenix and Tucson became the go-to pipeline contractor for the manufacturer.

THE RIGHT STUFF

Being able to take on these types of challenging projects and high-profile clients is not by chance. The Eaves brothers have created a smoothly running workplace with three key things: providing a safe environment, proper compensation and culture. Because of this they can recruit, promote and retain highly skilled talent.

“We do our very best to keep our guys safe on the job, keeping them hydrated in our desert climate, making sure that they are properly trained on how to use equipment correctly and safely — but also feel safe that they are in a healthy working environment as far as emotional and mental stress because our industry can be stressful

“WHATEVER THE BUSINESS NEEDED WE DID IT. ONE OF OUR MODELS THAT WE FOLLOW IS TO ALWAYS DO WHAT IS BEST FOR THE BUSINESS; THIS HAS BEEN A GUIDING STAR FOR US WHEN WE HAVE TO MAKE A TOUGH DECISION.”

PAUL EAVES

at times. We are really focused on having a good mojo and bringing on the right people that have the right personality, are respectful and professional in their language. Even though we work with sewers we don't talk like we do,” Eric says.

Providing jobs that also challenge and stimulate their team is key so that crew members can stretch their skill sets and know that

they have a chance to grow within the organization. Along with opportunity, they compensate their staff well to enable them to provide comfortably for their families and enjoy life in their time off as well as providing a 401(k) retirement fund and 100% payment of health care benefits.

COMMUNITY RECOGNITION

In 2018 NuFlow Phoenix was honored with the Maricopa County Small Business Administration Excellence Award against a highly competitive field of other noteworthy small businesses. The Eaves credit this recognition and the success that they've had to their tenacity and willingness to sacrifice. Even when some larger agencies considered them too small to be awarded their projects, Paul and Eric kept moving forward knowing that someday they would be called back as experts to solve issues for organizations such as the Palo Verde Water Reclamation Plant.

“Whatever the business needed we did it,” Paul says. “One of our models that we follow is to always do what is best for the business; this has been a guiding star for us when we have to make a tough decision.” Their families have needed to make sacrifices, especially during early years, but all the hard work and the long hours are paying off as the company has grown profitable so rapidly that the brothers now can take time off more often and enjoy the fruits of their labor.

Paul and Eric also share that they have a great office team that they consider the heart and soul of the business. Jokingly they've told these three individuals that they're not allowed to ever quit and if they do, they need to give the brothers a heads up so they can plan on selling the business. “We have been super blessed to find awesome employees as well as having an amazing project management team in place that communicates well and is creative and generates positive energy throughout the entire organization,” Eric says.

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“The lifeblood of our business comes from our sales team,” Paul adds. “We have three salespeople in Phoenix and two in Tucson, who work tirelessly in the heat and cold and all hours day or night. They are the first boots on the ground and generally the last to talk to the customer. We would not be as successful as we are without them.”

With its strong work ethic, business model and workplace culture, NuFlow Phoenix and Tucson is poised for continuing growth and taking on more challenging projects in the region. World-class customer service is the foundation for all of this. The company isn't always the lowest bid, but they always make a point of giving options to assist a client in making good, educated decisions for the project even if they aren't hired as the contractor. By doing this, customers get to know them and see their integrity, which brings them work time and time again. **c**

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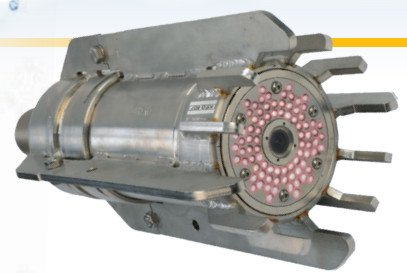
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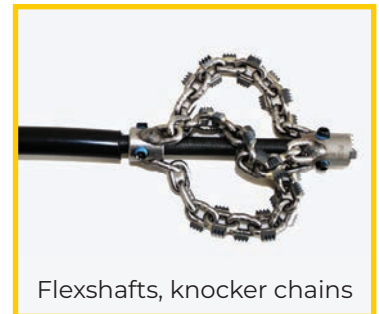
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BUILDING A VERSATILE FLEET

A well-designed box truck can haul bigger equipment and more tools // By Tim Dobbins

SOMETIMES THINKING INSIDE the box is exactly what you want to do when you spend the day on the road carrying a large number of tools, equipment, parts and supplies.

Box trucks are a popular choice among drain cleaners and plumbers. There are plenty of different styles and variances in each model, but box trucks as a whole provide a great solution for taking your equipment on the road.

“I would say that finding the perfect truck is an endless search,” says Josh Shelton, owner of Shelton Plumbing in New Kensington, Pennsylvania. “There’s a different truck that suits every job, so it can be a challenge to find that perfect vehicle.”

“THERE’S A DIFFERENT TRUCK THAT SUITS EVERY JOB, SO IT CAN BE A CHALLENGE TO FIND THAT PERFECT VEHICLE.”

JOSH SHELTON

When picking out a box truck, it’s important to evaluate what aspect of the business you plan on using the truck for most, or as Shelton says, “You have to really think about what’s your bread and butter, and design the truck around that.”

Shelton and his crew have multiple vehicles on the road, and they have found each one fits a different aspect of the business.

“If we are just using the truck for service and repairs, we really like the Ford Transit cutaway with an enclosed Reading service body,” Shelton says. “We have bins on the outside, there’s enough space on the inside and it’s not too heavy.” He adds that his other Transit with a Hackney unicell body attached offers more versatility for various storage options. “It’s definitely one we are going to utilize more in the future because we can pick and choose how to build the truck in a way.”

Roger Botto, owner of Botto Bros. Plumbing & Heating in Hicksville, New York, also relies on box trucks as part of his service



Shelton Plumbing assistant Caleb Graff organizes equipment in a company box truck. (Photo by James Robinson)

fleet. When Botto and his team are looking to haul some weight, they rely on a Ford E-350 cutaway box truck. For hauling a heavy load Botto, says they prefer the 350s or bigger. “We don’t use anything small because when you load them up, you’re going to go through brakes and tires all the time. I’ll use my smaller cargo vans more for alteration work, like putting a boiler in or something.”

Larger trucks not only have the capability to hold more weight, but they will also come with added towing capacity, making them a popular choice for plumbers with a large service trailer or trailer jetties.

“We bought a trailer jetter from Spartan that we absolutely love, except I feel what we should have done is taken a box truck and actually put the skid jetter in the back,” says Shelton. And Shelton plans on doing just that within the next year. With a wide range of size options available, box trucks also offer a great opportunity to mount skid jettors directly inside the truck with adequate room around the jetter to pack other equipment, tools and supplies.

FORM AND FUNCTION

Selecting the proper fit for your business goes back to Shelton’s advice of putting a lot of thought into what the vehicle is primarily going to be used for. Whatever the intended use, there is likely a make and model to perform the task.

Mercedes-Benz cab chassis are offered in a 144-inch or 170-inch wheelbase, and each comes standard with a 3.0L V6 turbo diesel engine. Mercedes also offers factory upfits to customize the vehicle specific to plumbing with multiple options for service bins and storage shelves. Each vehicle comes with technology like Active Brake Assist, rearview camera and Traffic Sign Assist to help your crew stay safe on the road. Mercedes-Benz Sprinter cabs come with box bodies from Knapheide and IVS Hydro designed specifically for that chassis.

Ford’s E-350 and E-450 cutaway series is powered by a 7.3L V8 engine with a six-speed automatic transmission. Like Mercedes-Benz, there is a list of options buyers can choose from like wheelbases ranging from 138 inches to 176 inches. Upgrades in towing packages and interior features are also an option to customize the vehicle specific to your needs.

Ford also sells its popular Transit model as a cutaway, offering another option for smaller box trucks. The Transit cutaway packs a 3.5L PFDi V6 engine and 10-speed automatic transmission. They come in multiple models that vary in length and width and like the E-Series, several packages are available from Ford so users can customize the build to their unique specifications.

CUSTOMIZE YOUR FLEET

Aftermarket unicell boxes and service bodies like the Hackney and Reading options that Shelton uses are made to fit multiple chassis, so there is flexibility in choosing a chassis manufacturer and box to fit the needs of what you are hauling. Whatever box

you chose, the possibilities for custom storage within are almost endless. And that is one the biggest benefits box trucks can offer.

Both Shelton and Botto offer an additional piece of advice to anyone looking into box trucks for a main or supplemental work vehicle and advocate looking into adding an extra leaf spring or helper springs for carrying heavier loads. “We’ve added helper springs to ours, and in our next truck, we are considering a system with air bags that will help even more to stabilize the truck,” Shelton says.

Shop around and explore the benefits that investing in box trucks can bring your business and keep in mind your end goal throughout your search. With a lot of options to choose from, researching and talking to professionals with some miles already on the odometer can go a long way towards putting your investment in the right vehicle. **c**





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BENEATH THE SURFACE

T&T Tools is a family business with a strong commitment to providing safe and durable subsurface hand tools // By Kim Peterson

T &T TOOLS IS A TRUE FAMILY business, now employing third-generation employees as part of a strong team creating probes and other hand tools. The company began when two friends created a couple tools together and realized they had filled a need in the locating market.

More tools with added safety features soon followed, and T&T Tools created a niche providing safe, durable subsurface hand tools for drain cleaners, pumpers, onsite installers, construction workers and pipeline companies.

Robert Thompson joined his father, co-founder Jon Thompson, in the early years of the company. He would commute from Chicago, where he lived with his wife and three children, learning the ropes of the business and the world of manufacturing. As the business grew, he eventually relocated the family to western Michigan to take on a larger role, and he transitioned into the role of president and owner in January 2020.

Cleaner recently spoke with Robert Thompson about the creation and evolution of T&T Tools, and its priority on safety and dependability.

CLEANER: Tell us a little about the history of T&T Tools.

Thompson: Jon Thompson and Tom Tschannen were friends and neighbors working in two different industries in the late 1980s. Tom had experience in the pumping/cleaning business and Jon had a manufacturing background. As social gatherings turned to work talk, Tom would express his struggles to find good tools to make his workdays more efficient. During further discussions, solid ideas formed and Jon utilized his manufacturing contacts and knowledge to make some tools for Tom. These first tools were for Tom's use, but as more and more people kept 'borrowing' them, they realized they had a tool that filled a market need and the Smart Stick probe was born.

Their first sales occurred in 1992. The following year, Tom Tschannen chose to concentrate primarily on his pumping business

and Jon Thompson became the sole owner of T&T Tools. Jon attended an early Nashville Pumper & Cleaner show with a couple of tools and utilized the corner of a friend's booth to talk to people. The show helped him realize there was a need for a tool that provided additional safety. So in 1994, Jon created the Mighty Probe. This was the first 'insulated' tool of its kind in the market.

T&T Tools is currently based out of Holland, Michigan, and is a second-generation, family-owned business. My cousin, Sarah, and all three of my children, Alex, Jennifer and Stephanie (third generation) are currently working for the company. We treat all of our employees like family, which creates a strong team.

CLEANER: How have the tools evolved? What sort of features became important? What was the philosophy behind those developments?

Thompson: The evolution of our probes is best seen through pictures. Back in the early days of the company, it was common for pumpers and cleaners to weld together whatever materials they might have on hand — this is shown in the first photo where a piece of rebar is welded to a piece of pipe. This probe was replaced with our Smart Stick (second photo). Design features of the Smart Stick include having a replaceable tip and shaft. This tip provides a clearance hole as the probe is being pushed into the ground, helping to ensure that the customer is not dragging against the probe shaft as it moves deeper.

The next evolutionary step is the Mighty Probe (third photo). This probe brought about a whole new level of safety in probing. The handle is molded into a high-strength composite material which provides an electrical disconnect between the handle and the shaft of the probe to help keep the user safe. We've had this tool tested up to 50,000 volts.

Next, we introduced the option to add a 'slide adapter,' which turns the probe into a mini slide hammer. This allows the user to pound their way through hard spots.

Following the slide adapter, we have introduced additional shaft



⤴ In the past, contractors often created probes out of whatever materials they had on hand (left). Those DIY tools were the precursor to the Smart Stick (center) by T&T Tools. Then came the Mighty Probe, which provides an electrical disconnect between the handle and shaft to keep the user safe (right).

sizes, such as a 3/8-inch hex shaft which is about 20% stiffer than the 3/8-inch round shaft and a 7/16-inch hex shaft which is about twice as stiff as the round shaft. The greater stiffness makes it easier to push the probe into the ground without it bowing; however, more material is being pushed into the ground, which can take more effort. Ultimately, a lot of having the best tool for the job depends on the soil conditions that the user is working against.

CLEANER: What differentiates your hand tools from the competition?

Thompson: T&T Tools’ business philosophy is to manufacture durable, safe and high-quality tools. We will put additional costs into our product to make sure that it is the best that it can be. For example, we heat treat our manhole hooks. That’s a step that a lot of companies will skip to save on costs. However, it’s a necessary step to make sure the hooks don’t bend and deform immediately.

Making tools here in the U.S. is very important to us and we source and produce everything here in the states. T&T Tools will continue to produce hand tools that will last for years and will surpass standards of other similar tools that are available in the market.

CLEANER: What sort of needs do they address? Tell us about some of the various tools and what applications they best serve.

Thompson: The probes are used mainly to locate septic tanks and pipelines but can be useful for locating drainlines. We also have a line of heat-treated hooks and pry bars that are great for removing manhole covers, caps and lids. Our Handy Hook (HL30P) has been especially useful for opening hand hole covers.

CLEANER: What are some recommendations for customers shopping for hand tools/probes/hooks?

Thompson: One of the most important aspects of shopping for hand tools is keeping the ergonomics of the product in mind. It

“T&T TOOLS WILL CONTINUE TO PRODUCE HAND TOOLS THAT WILL LAST FOR YEARS AND WILL SURPASS STANDARDS OF OTHER SIMILAR TOOLS THAT ARE AVAILABLE IN THE MARKET.”

ROBERT THOMPSON

is becoming more and more important to make sure that the size of the tool fits the user. We offer our hooks and probes in many different lengths.

Safety is another hugely important aspect. Not realizing what is buried in the ground makes the use of an insulated probe that much more important. And because our hooks are heat treated, they won’t deform or ‘bend out’ on the user. All of these items increase the level of tool safety.

CLEANER: How do you see the drain cleaning/pipeline industry evolving?

Thompson: It’s amazing to see how this industry has evolved over the 23 years that I’ve been around it. The industry shows keep getting bigger and bigger. There are more and more products in the marketplace now to meet different user needs. Pipe bursting and lining technologies seem to keep evolving and improving. I can’t imagine the changes slowing down anytime soon.

CLEANER: What’s new for T&T Tools in 2022? What can customers expect out of T&T Tools in the future?

Thompson: We hope to keep introducing products that make the lives of our users easier. We are currently working on some solutions to make opening manhole covers easier and hopefully we will introduce new ways to make probing easier. We are excited about what the future will bring.

CLEANER: What do you want your customers to think of when they hear the name T&T Tools?

Thompson: I hope that they think of high-quality products and great customer service. We always try to do what’s right and provide great tools that meet the specific needs of our customers.

It’s always been a pleasure working with the people in this industry. The people I have interacted with over the years are always very professional and nice. Everyone in the industry wants to move the industry forward in a positive way and help each other out where they can. Ultimately, I hope that we can make the lives of the men and women doing the work out there in the field easier. If you have specific tool needs that aren’t being met, give us a call. **c**



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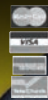
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AGE OF ENLIGHTENMENT

FLORIDA CONTRACTOR INVESTS IN NEW EQUIPMENT AND TRAINING TO FULFILL SERVICE NEEDS AND KEEP CUSTOMERS HAPPY

By Ken Wysocky



When construction-industry veteran Rick Fender was thinking about what to name his new plumbing and utility company back in 2001, he set the bar high and chose Cloud 9 Services, an aspirational name if there ever was one.

“I was looking for a catchy name,” he says. “I’d visited Singapore at the time and had Buddhist friends, plus I was reading a book about the Dalai Lama. I figured we wanted happy customers who’d feel like they were on cloud nine [a stage of enlightenment in Buddhism].”

“It seems to be working for us.”

Creating happy customers doesn’t happen overnight, however. Building a reputation and generating word-of-mouth referrals occurs job by job over the course of time. It also requires significant investments to buy advanced equipment and machines that boost customer satisfaction by helping the company complete jobs faster and at competitive prices, Fender says.

Moreover, it takes time to add complementary services — such as hydroexcavation, pipe lining and pipe coating — that also create happy customers by fulfilling all their service needs with just one call.

But after 20 years in business in Orlando, Florida, Fender’s formula for slow but steady growth has created a customer-centric company with a reputation for tackling tough plumbing and

« Cloud 9 Services technician Elio Reyna cleans a wastewater filter at the city of Orlando water treatment plant. (Photography by Preston Mack)



✔ Technician David Carti operates an Aquatech B10 combination sewer truck to clean out storm drainlines at an warehouse construction site in Orlando.



Cloud 9 Services Inc.

ORLANDO, FLORIDA

OWNER Rick Fender

FOUNDED 2001

EMPLOYEES 20

SERVICES Jet/vac and inspection for site-development contractors, road contractors

SERVICE AREA Central Florida

WEBSITE www.cloud9services.com

underground utility jobs (with an emphasis on pipeline cleaning and inspections), thanks to a combination of cutting-edge technology and experienced technicians.

Fender also gives much credit to his wife, Lucy Fender, a certified public accountant who serves as the company's president and chief executive officer. She's also the majority owner, he says.

“CUSTOMERS MIGHT USE SOMEONE ELSE BECAUSE THEY CHARGE LESS, BUT EVENTUALLY THEY REALIZE THAT YOU GET WHAT YOU PAY FOR.”

RICK FENDER

“When she took over the books, we started doing much better,” Fender says. “We had acquired a lot of debt during the [2008-09] recession, but we kept working to pay it down. And within four years, we were looking pretty good — and we’ve done really well since then.”

GAINING EXPERIENCE

Fender, 68, has worked in the construction industry for decades. In the early 1980s, he and his brothers — Pat, Mike and Kevin — formed Pat's Pump & Blower, which focused on installing and repairing lift stations and performing sewer-utility construction work and repairs. After a stint in residential remodeling, Fender then moved into marine construction, work that included building boat houses and sea walls throughout Florida.



« Technician Manny Rivera prepares a Rausch KS135 robotic camera to do a video inspection of the new storm drains at a warehouse in Orlando.

The investment made sense at the time because competition was limited and the price of even a used vacuum truck deterred competitors from entering the market. That's not true anymore, Fender says, noting that upstart companies tend to low-ball their prices to win work.

“But that's where being around so long and having built a good reputation pays dividends. Customers might use someone else because they charge less, but eventually they realize that you get what you pay for.”

BRANCHING OUT

As customer needs expanded, so did the company's services, which now include hydroexcavation (primarily exposing underground lines for utilities), pipe lining, pipe coating and pipeline inspections. Primary customers are general contractors, industrial plants, state agencies and municipalities, commercial businesses and property-management companies, he says.

“Our services work hand in hand. If we didn't video pipelines, for instance, we wouldn't get as much jet-vac work. And if we didn't do jet-vac work, we wouldn't get as much video work. It's all about offering logical extensions of services.”

Eager to do something different, Fender in 2001 turned again to the field he says he knew best: doing repair and maintenance work at wastewater treatment plants and for lift stations.

Around 2005, the company entered the market for waterjetting/vacuuming and inspecting sewer lines.

“My brother Pat suggested it because I was looking for someone to do a jet-vac job for us,” Fender recalls. “He said, ‘Why don't you just get your own vacuum truck?’ Once we started to focus on that market, we knew that was it.”

READY TO LAUNCH

Over the years, Cloud 9 Services has established a reputation as a company that isn't afraid to take on challenging projects. Such was the case when NASA officials at the John F. Kennedy Space Center discovered a leak in a water main.

But this was no ordinary water main. The 10-inch-diameter, extra-reinforced ductile-iron pipe was buried under a 7- to 10-foot-thick reinforced concrete slab located just outside the space center's famous Vertical Assembly Building. Built in 1965, the 525-foot-tall, 518-foot-wide behemoth — which covers 8 acres of land — has been the final assembly point for space flight icons ranging from the Saturn V rockets used in the Apollo moon missions to the space shuttles and more.

The slab is so thick because it must support the weight of the massive, 6.6 million-pound crawler-transporters that carry space vehicles from the VAB to launch pads. Replacing the pipe wasn't an option because with a scheduled launch coming up, the center couldn't afford disruptions to daily operations, says Curtis Walker, general manager of Cloud 9.

“Trenching it out and replacing the main would've shut things down for weeks, if not months,” he explains. “Plus there was a huge cost savings to coat it, versus digging it up.

“Plus, if you dig up that concrete, they have to load the rocket crawler with a crazy amount of weight after you're finished and drive it across the

slab to make sure it's okay.” (The crawler-transporter can carry up to 18 million pounds, or the weight of more than 20 fully loaded 777 airplanes, according to NASA.)

The solution was sealing up a 120-foot section of the leaking pipe with layers of epoxy coating, using a Picote Solutions brush-coating system, Walker says.

“The location of the pipe made it very difficult to fix it any other way.”

The first step was cleaning the pipe, using a jetting nozzle made by NozzleTech and a combination sewer vacuum truck made by Aquatech.

The Cloud 9 crews also used a Picote Maxi Miller drain machine to clean the line with a chain knocker.

“They get the inside of pipes looking like they're brand new,” he says. “Then we brush-coated the line with six coats of epoxy.”

Cloud 9 technicians also used a sandpaper attachment on the Maxi Miller to lightly sand the epoxy coats in between applications.

In a proactive move, NASA also contracted Cloud 9 to coat another 120-foot-long section of pipe nearby, just as an insurance against possible future leaks, Walker says.

Cloud 9 used an inspection crawler camera built by Rausch Electronics USA to inspect the pipes before and after the coating process. After that, the repaired line was pressure-tested.

A good example is pipe lining, which the company started doing around 2015.

“There were emerging opportunities, and it went hand in hand with what we already did. So we said, ‘Let’s do it.’”

When new services are added, employees typically get on-the-job training from onsite manufacturer’s reps who show them the ins and outs of using systems, such as pipe lining and pipe coating, Fender says.

“Our veteran employees train new employees on things such as pipe lining. We start them out with small-diameter-pipe jobs and work up from there.”

One of the biggest pipe lining jobs the company ever handled came via a contract with the Florida Department of Transportation to line storm drains and culverts during an expansion of I-75 near Tampa.

“We were there for two months as a subcontractor, mostly lining pipes and doing some point repairs, too,” he says. “We got a lot of experience there.”

“Everything turned out great,” Walker says.

The job took about four days to complete. It could’ve gone even faster, but NASA only allows contractors to work 12-hour shifts, so the Cloud 9 crews could only do two epoxy coats per day. (Each coat must dry for about four hours before another coat can be applied.)

A Rausch push camera taped to the coating system cables allowed workers to watch the application process.

The successful project is a strong reflection of the company’s capabilities. “People know that when they call us, we’ll come up with a solution,” Walker says. “And we’re not afraid to invest in new equipment, like the brush-coating system. We may not use it all the time, but when we need it to solve customers’ problems, it’s there.”

“THERE WERE EMERGING OPPORTUNITIES, AND IT WENT HAND IN HAND WITH WHAT WE ALREADY DID. SO WE SAID, ‘LET’S DO IT.’”

RICK FENDER

SMART INVESTMENTS

Of course, becoming a multifaceted company requires ongoing investments in equipment. The backbone of the fleet: six B10



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“OUR COMMITMENT TO CUSTOMERS HAS BEEN CRITICAL TO OUR GROWTH. IF YOU SAY YOU’RE GOING TO DO SOMETHING OR BE SOMEWHERE AT A CERTAIN TIME, YOU HAVE TO FOLLOW THROUGH.”

RICK FENDER

combination sewer vacuum trucks with hydroexcavation packages, built by Aquatech (a brand owned by Hi-Vac Corp.) on Freightliner, Mac and Peterbilt chassis.

The trucks feature a rear-mounted, 180-degree articulating hose reel, a 2,000-gallon water tank, a 10-cubic-yard debris tank, a blower made by either Roots (a brand owned by Howden) or Hibon, a triplex water pump (up to 80 gpm at 2,500 psi) and a top-loading boom with a 360-degree operating capability.

The company also owns four camera vehicles (three Mercedes-Benz Sprinter vans and one Ford F-550 truck), outfitted by Rausch Electronics USA with KS 135 crawler cameras; a 4,000-gallon vacuum truck built on a Peterbilt chassis and a Masport pump, used for sewer bypasses; a Perma-Liner pipe-lining system; a Ford F-550 truck featuring a crane made by Auto Crane; and a Ford F-550 dump truck with a dump body made by Knapheide.

The company also relies on a pipe brush-coating system from Picote Solutions; Picote drain machines; and a QuickLock pipeline point-repair system developed by Rausch.

LESSON LEARNED

Investments in new productivity- and profit-enhancing equipment is a big factor in the company’s success. Fender says he learned the hard way that saving money by buying used equipment actually ended up costing him more money in the long run.

“Our commitment to customers has been critical to our growth,” he says. “If you say you’re going to do something or be somewhere at a certain time, you have to follow through.

“Our main goal is to live up to our commitments. Customers are happiest when they can depend on what we say, and new equipment helps ensure that we show up on time. You can’t have machines breaking down all the time, so under Lucy’s guidance, we don’t buy used equipment anymore — only new.”

New equipment also provides a less tangible but equally important benefit: It reinforces in customers’ minds that Cloud 9 is a professional outfit.

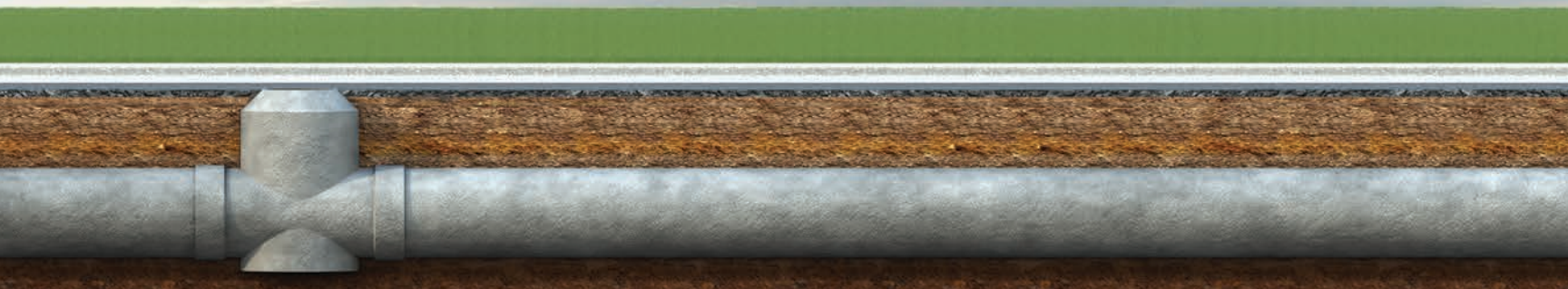
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« Manny Rivera and David Carti retrieve the Rausch robotic camera after the video inspection is complete.

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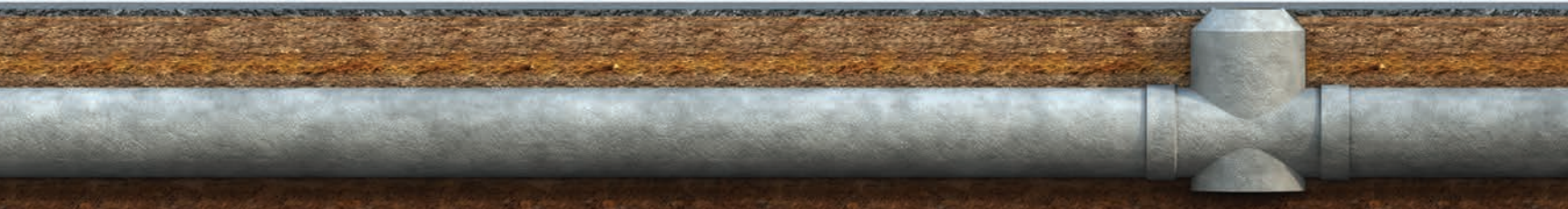


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» Carti sprays down a manhole after cleaning a storm drain at a construction site in Orlando.

» Rivera enters pipe system information before the system inspection begins.



“When we pay off a truck, we usually trade it in for a newer one,” Fender says. “We look good when we roll onto a job site with clean new trucks and equipment and trained technicians with personal protection equipment. You don’t want customers to see piece-of-crap equipment on the job.

“These are the reasons people call us, even though we’re not the least expensive company out there.”

A GOOD TEAM

Good equipment that minimizes downtime also serves as an employee-retention tool, Fender says.

In addition, the company offers competitive pay, 401(k) and profit-sharing programs, and health insurance. Fender says the company also provides good training, which is attractive to technicians, and he also tries to promote from within, which boosts morale.

“We have several top managers who’ve been here for a long time,” he notes.

To find quality employees, the company uses social media and recruiting platforms such as Indeed and Craigslist, plus referrals from employees, Fender says.

“We’re always asking our employees if they have friends who are looking to make a career change.”

Looking ahead, Fender expects continued growth, through potentially opening new offices in Jacksonville, Tampa and either Fort Lauderdale or West Palm Beach.

“We believe there’s strong demand for our services in those areas,” he says. As well as customers looking for a cloud-nine experience. **c**

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DO THE MATH

Drain machines finish jobs faster, which equals more work and more money for Alabama plumber

// By Ken Wysocky

PLUMBERS LIKE CLINT SINGLETARY understand that the path to better profitability is paved by increased productivity. Do jobs faster and you make more money. Full stop.

As such, it's easy to see why the owner of Singletary Plumbing in Birmingham, Alabama, invested in two Renssi Finland Oy drain machines to prep pipes for lining, one of many services offered by the company, established in 1984.

The RCM-15 is designed to scour smaller pipes from 3 to 8 inches in diameter and the bigger RCM-36 can handle pipes from 3 to 12 inches in diameter. Both units feature flexshaft technology — the cable is enclosed in a nylon sheath that prevents it from spinning around inside a pipe during cleaning.

"IT REALLY SPEEDS UP OUR PROCESS. THAT ALLOWS US TO BE MORE COMPETITIVE PRICE-WISE, AND IT INCREASES OUR BOTTOM LINE BY GETTING JOBS DONE AND MOVING ONTO THE NEXT ONE FASTER."

CLINT SINGLETARY

That explains much of the Renssi units' appeal for Singletary. Without a cable gyrating wildly inside a pipe, he can attach his RIDGID SeeSnake inspection camera to the cable and watch as he cleans, as opposed to repeatedly pulling the camera and the cable in and out of a pipe to gauge what's happening, he says.

"It makes it very easy to clean specific spots in a pipe because you can see what you're doing, compared to cleaning the pipe over and over as you push it in and pull it out," he explains. "It's more efficient, too. ... When you get out there 100 feet, it takes a lot of time to push and pull the camera and then the cable in and out repeatedly."

The flexshaft technology also improves customer service by making it easy to show customers how the cleaning is progressing.

SINGLETARY PLUMBING INC.

BIRMINGHAM, ALABAMA

OWNER Clint Singletary

MACHINES RCM-15 and RCM-36 cable drain machines from Renssi Finland Oy

FUNCTION Cleaning/prepping lines for pipe lining

FEATURES Flexshaft cable technology. RCM-15: Clean pipes from 3 to 8 inches in diameter; weighs about 58 pounds; carries 50 feet of approximately 3/8-inch-diameter cable; measures 26 inches long by 28 inches high by 11 inches wide. RCM-36: Cleans pipes from 3 to 12 inches in diameter; weighs about 282 pounds; carries 118 feet of roughly 1/2-inch-diameter cable; measures approximately 22 inches wide by about 34 inches long by nearly 47 inches tall; 1,500-watt electric motor.

COST Approximately \$4,230 for the RCM-15; about \$10,945 for the RCM-36

WEBSITE www.singletaryplumbing.com

"It allows them to actually see things such as root infiltrations," he says. "We can show them live on the video screen what we're doing and show them a blockage was removed.

"It really speeds up our process. That allows us to be more competitive price-wise, and it increases our bottom line by getting jobs done and moving onto the next one faster."

SMALL BUT STRONG

The lightweight, easy-to-transport RCM-15 is designed for cleaning pipes from 3 to 8 inches in diameter and is well suited for pipes with tight turns, Singletary says. The unit weighs about 58 pounds and features an aluminum frame with a telescoping handle.

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MONEY MACHINES

» Singletary Plumbing technician and pipe lining specialist Walker Crane (left), with help from plumbing assistant Charlie Horn, uses a Renssi RCM-15 drain machine and a RIDGID SeeSnake camera to clean a drainline.

It comes with 50 feet of approximately 3/8-inch-diameter cable and measures 26 inches long by 28 inches high by 11 inches wide. It's powered by an electric drill gun that's included with the unit.

"One person can pick it up and easily carry it up and down stairs," Singletary says. "But it's still powerful enough to do what you need it to do."

The heavier yet still portable RCM-36 is made to clean pipes from 3 to 12 inches in diameter. It weighs about 282 pounds and its aluminum reel carries 118 feet of roughly 1/2-inch-diameter cable. It measures approximately 22 inches wide by about 34 inches long by nearly 47 inches tall.

The unit features a 1,500-watt electric motor and generates up to 2,800 rpm of cleaning power, a foot-operated pedal and two lockable swivel wheels in front and two larger wheels in back.

Singletary bought both machines in December 2019. A representative at Pipe Lining Supply recommended the machines when he purchased a lining trailer and a Quik-Shot pipe lining system, made by Quik Lining Systems, which is owned by Pipe Lining Supply, the product's distributor.

TACKLING TOUGH JOBS

Both machines proved their mettle on a very challenging job in March 2021 when a local school district hired the company to line a failing 5-inch cast iron drainline at one of its schools. Employees cleared a 300-foot-long stretch of the tuberculated pipe that was almost completely blocked with built-up iron oxide deposits, Singletary says.

The job took about nine days to complete, he says.

"We took a Renssi chain head in there and removed all the scale and buildup, which is necessary to do a good lining job. We



primarily used the RCM-36, but also used the RCM-15 to handle pipe bends and for reinstatements with a Renssi attachment."

He says he'd never heard of Renssi drain machines until he visited Pipe Lining Supply.

"They got my attention because they seemed to be a very good value," says Singletary, who has seven employees and runs three service vehicles: a 2020 Dodge 4500 with a Knapheide box body and two 2016 3500 cutaway vans equipped with box bodies from Bay Bridge Mfg.

"The machines seem to be well engineered by a company that's not necessarily all that well known to the industry here," he says. "But it should be.

"If you're looking for flexshaft technology, this is the way to go. They provide a very good return on investment." c

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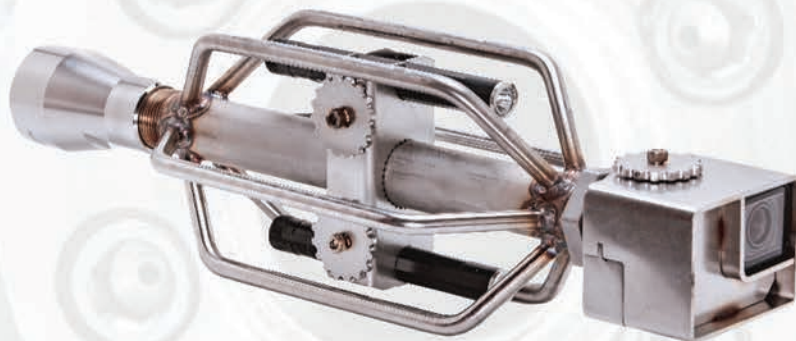
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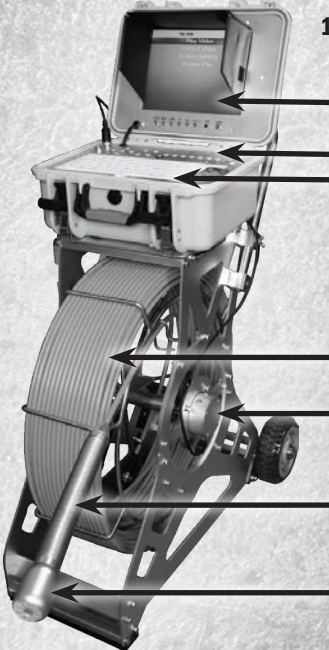
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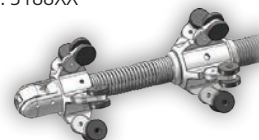
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16mm Color Camera
W/ 512Hz transmitter
Model: CHD-T-C16B

FORBEST

www.forbestgroup.com

Western USA:

44130 Old Warm Springs Blvd, Fremont, CA 94538

TF: 1 877 369 1199 P: 510 226 7988

Eastern USA:

701 Dawson Dr, Newark, DE 19713

P: 510 226 7988

Canada:

44 E Beaver Creek Rd, Unit 6, Richmond Hill, ON L4B 1G8

TF: 1 877 369 1199 P: 905 709 6226

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**2021
Cleaner**

SEWER NOZZLE

COMPANY DIRECTORY



MANUFACTURER


ALL JETTING TECHNOLOGIES, INC.
 2740 Martin Downs Blvd., Ste. 318,
 Palm City, FL 34990
 772-286-1218
 (f) 772-286-0069
 www.alljetting.com
 info@alljetting.com
 SEE AD ON PAGE 76

MANUFACTURER	NAME OF NOZZLE	APPLICATION	PIPE DIAMETER	FLOW RATE (GPM)	MAX OPERATING PRESSURE (PSI)	WEIGHT	# OF AVAIL FRONT JETS	# OF AVAIL REAR JETS	HOSE SIZE/ CONNECTING THREAD
All Jetting Technologies, Inc.	1/4" - 28 UNF Sapphire Nozzles and Plugs	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		
	3/8" - 24 UNF Sapphire Nozzles and Plugs	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		
	7/16" - 20 UNF Sapphire Nozzles and Plugs	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		
	Long Stem Sapphire, 60° seating angle	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		
	M10 x 1.5 thread - 5MM Hex Key	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		
	5/16" Hex with 3/8" - 24 UNF	Ultra High Pressure waterjetting up to 55,000 PSI	NA	3 to 30	20,000 - 55,000		1		


ARTHUR PRODUCTS CO.
 ENGINEERED SOLUTIONS
 1140 Industrial Pky.,
 Medina, OH 44256
 800-322-0510 • 330-725-4905
 (f) 330-722-2698
 www.arthurproducts.com
 apc@apclsq.com
 SEE AD ON PAGE 56

ARTHUR PRODUCTS CO.	Eg-A-Nator-2 Tier 2	Clearing Blockages	4" - 12"	8 to 80	10,000	varies per NPT size	1	6@10°	3/8" - 1/2"
	Yellow Jacket 22 port Tier 2	General cleaning - able to configure to situation	4" - 18"	8 to 80	10,000	varies per NPT size	4	18	3/8"-1/2"-3/4"
	Chizel 10 port Tier 2	General Stubborn Blockages - sharp cutting edge	4" - 12"	8 to 80	10,000	varies per NPT size	4	6	3/8" - 1/2"
	Flat Nose	General Cleaning	4" - 12"	8 to 80	10,000	varies per NPT size	Cust Spec	Cust Spec	1/2"
	Button Dual Groove	General Cleaning	2" - 12"	2.5 to 80	15,000	varies per NPT size	Cust Spec	Cust Spec	1/4"-3/8" - 1/2"
	Tow Hook	Pulled by Cable or to Pull A Cable	2" - 12"	2.5 to 80	15,000	varies per NPT size	Cust Spec	Cust Spec	1/4" - 3/8" - 1/2" - 1"
	Mini-Mole	Special tapered thread for use in small tube cleaning on rigid lance	.200" - 1"	1.7 to 20	10,000	varies per NPT size	Cust Spec	Cust Spec	Special tapered thread
	Rodder Jets	General tube cleaning for use on Rigid Lance - male thread	.250" - 1"	1.7 to 40	15,000	varies per NPT size	Cust Spec	Cust Spec	Various male thread sizes
	Cnt-r-KUT™ EMAX	Roots and Other Blockages Rotating Chain & Cable	3" - 12"	4 to 80	10,000	varies per NPT size	Cust Spec	Cust Spec	1/4" - 3/8" - 1/2"
	Cnt-r-KUT™ CDMAXe	3 Flexible Guide Vane Kit for nozzle centering - for your existing nozzles	3" - 12"	1.7 to 80	10,000	varies per NPT size	n/a	n/a	1/4"-3/8" - 1/2"
	Mega-Thruster PX Revolver	Full 360° rotating nozzle for cleaning & polishing; designed for long runs	2" - 24"	1.7 to 80	10,000	varies per NPT size	Cust Spec	Cust Spec	1/4"-3/8" - 1/2"


ENVIROSIGHT
 111 Canfield Ave., Unit B3,
 Randolph, NJ 07869
 866-936-8476 • 973-252-6700
 (f) 973-252-1176
 www.envirosight.com
 office@envirosight.com
 SEE AD ON PAGE 5

Envirosight	JetScan	HD video nozzle for jetter trucks and trailers	6" - 30"	40 to 80	2,000 - 3,000	16.3 lbs.		6	3/4" or 1"
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ENZ USA INC.
 1585 Beverly Ct., Unit 115
 Aurora, IL 60502
 877-369-8721 • 630-692-7880
 (f) 630-692-7885
 www.enz.com
 salesusa@enz.com
 SEE AD ON PAGE 40

ENZ USA INC.	Bulldog Antiblast	Anti-Toilet Blowing in Residential	8" - 24"	55 to 80	1,500 - 1,800	17 lbs.	6		1" - 1 1/4 "
	Bulldog	Cleaning grease, roots, deposits, etc.	8" - 24"	50 to 120	2,000 - 2,900	17 lbs.	7	6	1" - 1 1/4 "
	Rotodrill	Cleaning blocked pipes, frozen pipes, heavy debris	2" - 14"	13 to 80	2,000 - 4,000	25 lbs. to 1.5 lbs	1	6	1/2" - 1"
	Grenade	Flushing heavy debris	6" - 12"	40 to 80	2,000 - 3,600	11 lbs.		10	1"
	Chisel 60.100L	Penetrating clogs, root masses, frozen pipes	6" - 16"	50 to 80	2,000 - 3,600	6 lbs.	4	6	1"
	10.125TR Chain Scraper	Root removal, hard grease, hard deposits	5" - 12"	14 to 80	2,000 - 3,600	6 lbs.		6	1"
	10.200R Rotating Chain Scraper	Removal of root masses, clogs, hard deposits	8" - 16"	50 to 80	2,000 - 3,600	78 lbs.		6	1"
	10.400R Rotating Chain Scraper	Removal of root masses, clogs, hard deposits	16" - 32"	80 to 120	2,000 - 3,600	105 lbs.		6	1"
	14.200 Milling Cutter	Removal of concrete & mineral deposits	8"	80 to 120	2,000 - 2,200	178 lbs.		6	1" - 1 1/4 "
Bulldozer 50.100G	Flushing debris from larger pipe	16" - 40"	40 to 80	2,000 - 3,600	57 lbs.	1	8	1"	

MANUFACTURER



GENERAL PIPE CLEANERS
 1101 Thompson Ave.,
 McKees Rocks, PA 15136
 800-245-6200 • 412-771-6300
 www.drainbrain.com
 info@drainbrain.com
 SEE AD ON PAGE 2

GP SEWER CAM
 250 IMI Kala St. #2391
 Wailuku, HI 96793
 310-774-9468
 www.gpsewercam.com
 info@gpsewercam.com
 SEE AD ON PAGE 45



HYDRA-FLEX, INC.
 8401 Eagle Creek Pkwy.,
 Savage, MN 55378
 952-808-3640
 www.hydrflexinc.com
 eby@hydrflexinc.com



JESTREAM OF HOUSTON
 5905 Thomas Rd
 Houston, TX 77041
 832-590-1351
 www.waterblast.com
 ecepeda@waterblast.com
 SEE AD ON PAGE 71



KEG TECHNOLOGIES, INC.
 6220 N Pinnacle Dr.,
 Spartanburg, SC 29303
 866-595-0515 • 864-804-6637
 (f) 864-804-6629
 www.kegtechnologies.net
 sales@kegtechnologies.net
 SEE AD ON PAGE 22



MYTANA LLC
 746 Selby Ave.,
 St. Paul, MN 55104
 800-328-8170 • 651-222-1738
 (f) 651-222-1739
 www.mytana.com
 mytana@mytana.com
 SEE AD ON PAGE 31

NAME OF NOZZLE	APPLICATION	PIPE DIAMETER	FLOW RATE (GPM)	MAX OPERATING PRESSURE (PSI)	WEIGHT	# OF AVAIL FRONT JETS	# OF AVAIL REAR JETS	HOSE SIZE/ CONNECTING THREAD
Chisel Point Nozzle	Penetrating, breaking up debris	4" - 10"	12	2,500	4 oz.	4	6	1/2"
Traction Nozzle	Sand and mud removal	4" - 10"	12	2,500	8 oz.	1	6	1/2"
Cleaning Nozzle	Maintenance Cleaning	4" - 10"	12	2,500	12 oz.		8	1/2"
Spring Leader Nozzle	Guiding hose around tight bends	2" - 10"	1.5 to 8	1,500 - 3,000	4 oz.		3 to 4	1/8" - 1/4" - 3/8"
Downhead Nozzle	Dropping down T's	2" - 4"	1.5 to 4	1,500 - 3,000	2 oz.		3	1/8"
Chain Saw Nozzle	Cutting roots	4" - 10"	4 to 12	2,500 - 3,000	2 lbs.		2 to 4	3/8" and 1/2"
Rotary Nozzle	Scour pipe walls clean	2" - 10"	1.5 to 12	1,500 - 3,000	2 oz. to 10 oz.		2 to 4	1/8" - 1/4" - 3/8" - 1/2"
GP Sewer Cam	Connects directly to Jetter hose	6" - 18"	9	10,000	4.5 lbs.		6 - 8	3/8" - 1 1/4"
Reaper 3/8"	Cutting through and removing blockages and flushing debris in sewer lines	3" - 6"	6 or 9	4,000	1.12 lbs.	1	4	3/8" NPT
Reaper 1/2"	Cutting through and removing blockages and flushing debris in sewer lines	4" - 8"	12, 15 or 18	4,000	1.54 lbs.	1	4	1/2" NPT
Reaper 1"	Cutting through and removing blockages and flushing debris in sewer lines	6" - 18"	50, 60 or 80	3,000	4.7 lbs.	1	8	1" NPT
Marksman	Cutting through and removing debris at distances of 20-30 feet. Could be used in locations like lift stations or manholes. To be used with a gun + lance.	N/A	15, 20 or 25	2,500	1.93 lbs.	1		1/2" NPT
DrillJet	Tube and Heat Exchanger Cleaning	9.5 mm and 13 mm	4.5 to 10 GPM	up to 22,000 psi (1500 bar)	1 oz.	7	2	1/16", 1/4", 1/8" or 3/8"
Commander Rotor 1" Tier 2	Reverse Cleaning Technology	6" - 16"	50 to 125	1,000 to 3,000	7.2 lbs.	4	4	3/4" - 1 1/4"
Stallion 1" Tier 3	360° Cleaning-Heavy Debris	6" - 48"	30 to 125	1,000 to 3,000	9.4 lbs	1	6	3/4" - 1 1/4"
Aqua Power 700 Tier 2	Control Rotation - Grease & Roots, Mineral Deposits	6" - 24"	50 to 125	2,000 to 3,000	23 lbs.	6	4	3/4" - 1 1/4"
Aqua Power Jr. Tier 2	Grease & Roots	4" - 16"	30 to 80	2,000 to 3,000	8 lbs.	5	4	3/4" - 1"
Royal Tier 3	360° Wall Cleaning Storm & Sewer	12" - 48"	40 to 180	1,500 to 3,000	17.6 lbs.		12	3/4" - 1 1/2"
Cleaning Tier 3	Everyday Routine Cleaning	3" - 16"	8 to 80	1,000 to 4,000	1 lb. - 6.6 lbs.		8	3/8" - 1"
Traction Tier 3	Hill Climbing - deteriorated/damaged or cracked pipes	2" - 12"	6 to 125	1,000 to 4,000	0.6 lbs. - 6 lbs.	1	7	3/8" - 1 1/4"
Floor Cleaner 5,6,8,10, 12 & 14 Tier 3	Clean from Spring line down	6" and Up	18 to 180	1,000 to 4,000	18.75 lbs. - 51.35 lbs.		5,6,8,10, 12 & 14	1/2" - 1 1/2"
Torpedo Tier 3	Heavy Debris Removal - All Around Cleaning	6" to 16"	30 to 125	900 to 3,000	14 lbs.		8	3/4" - 1 1/2"
OMG Tier 3	Sanitary/Storm - flushing nozzle deteriorated pipe no bottom	12" and Up	60 to 125	1,500 to 3,000	36 lbs.	1	12	1 1/2" down to 3/4"
Cornering	Flushing through corners, general cleaning	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.	1	3	1/8" - 1/4" - 3/8" - 1/2"
Penetrating Thrust	Pulling while boring through soft blockages	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.	1	3	1/8" - 1/4" - 3/8" - 1/2"
Monster Flush	General cleaning, flushing, pulling	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.	1	6	1/8" - 1/4" - 3/8" - 1/2"
General Flusher	Flushing while pulling	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.		6	1/8" - 1/4" - 3/8" - 1/2"
Blind Thrust	General cleaning at long distances	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.		4	1/8" - 1/4" - 3/8" - 1/2"
Degreasing-Deicing	Flushing ice and grease	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.	3	6	1/8" - 1/4" - 3/8" - 1/2"
Rotating	Sidewall cleaning, rinsing	2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.		4	1/4" - 3/8" - 1/2"
Drophead	Cleaning through tight bends and drops	1 1/2" - 2"	2	1,500	< 8 oz.		3	1/8" - 1/4"
Hex Nose	Pulling, penetrating, cleaning	1 1/2" - 8"+	2 to 8	1,500 - 3,000	< 8 oz.	0, 1	6	1/8" - 1/4" - 3/8" - 1/2"
Radial Nose	Cleaning, penetrating, flushing	4"+	12 to 18	3,000 - 4,000	< 8 oz.	0, 1, 3	4, 6	1/2"

MANUFACTURER

NOZZTEQ INC.

2901 Peoria St., Ste. 3,
Peru, IL 61354
866-350-0624 • 779-201-5130
www.nozztequsa.com
info@nozztequsa.com
SEE AD ON PAGE 12

NAME OF NOZZLE	APPLICATION	PIPE DIAMETER	FLOW RATE (GPM)	MAX OPERATING PRESSURE (PSI)	WEIGHT	# OF AVAIL FRONT JETS	# OF AVAIL REAR JETS	HOSE SIZE/ CONNECTING THREAD
BL Swiper (Med)	Reduces blown toilets/services	4" - 36"	10 to 266	400 - 4,000	2 - 12 lbs.		4 to 6	1/2" - 3/4" - 1" - 1 1/4"
JAWS 100	High performance sewer cleaning or storm water cleaning	6" - 12"	5 to 80	400 - 4,000	4 lbs.		4	1/2" - 3/4" - 1"
Multi-Global Nozzle	Sewer and pipe cleaning for penetration	2" and Up	4 to 170	400 - 4,000	2 lbs.	4	1 to 6	1/2" - 3/4" - 1" - 1 1/4"
JAWS	High performance sewer and pipe cleaning heavy debris	6" - 30"	30 to 265	400 - 4,000	7 lbs.		5	1/2" - 3/4" - 1" - 1 1/4"
IceBear Penetrating Nozzle	Sewer and pipe cleaning penetrating nozzle	1" and Up	4 to 170	400 - 4,000	1 - 3 lbs.	3		1/4" - 1/2" - 3/4" - 1" - 1 1/4" - 1 1/2"
C-RAY 200	Bottom cleaning for sewer and pipe	12" - 36"	30 to 265	400 - 4,000	22 lbs.	1	6	1/2"
C-RAY 400	Bottom cleaning for sewer and pipe	15" and Up	40 to 350	400 - 4,000	42 lbs.	1	8	3/4" - 1" - 1 1/4" - 1 1/2"
BL Swiper (large)	Ventura effect type nozzle to clean with water in the line and sucks the water down	15" and Up	40 to 265	400 - 4,000	13 lbs.		39	
Spinner Nozzles (No rebuilds)	Grease and other obstructions	4" and Up	14 to 350	400 - 4,000	3 - 15 lbs.	2		1/2" - 3/4" - 1" - 1 1/4" - 1 1/2"
Goblin Grease Eater	Grease nozzle sewer lines or storm lines	6" and Up	40 to 350	400 - 4,000	12 lbs.	1	10	3/4" - 1" - 1 1/4" - 1 1/2"
MONRO-JET	Hydro-Excavation	2" - 8"	3 to 20	2,000 - 36,000	2 lbs.	1		1/2"
ORCA	Two truck operation at either end of the pipe	15" - 60"	40 to 350	400 - 4,000	15 lbs.		8	3/4" - 1" - 1 1/4" - 1 1/2"
MANTA	Bottom cleaner for recycled water trucks	12" - 72"	60 to 528	900 - 3,000	45 - 60 lbs.	1	8 to 12	1/2" - 3/4" - 1" - 1 1/4" - 1 1/2"
FIR	All stainless type penetrators	2" - 12"	5 to 80	400 - 4,000	1 lb.	1	3 to 6	1/8" - 1/4" - 3/8" - 1/2" - 3/4" - 1"
C-RAY 800	Dual truck operation for double the flow for large pipes	36" - 96"	120 to 350	400 - 4,000	50 lbs.		8	3/4" - 1" - 1 1/4" - 1 1/2"



ROOT RAT

PO Box 740,
Bolivar, OH 44612
800-288-7873 • 330-874-4300
(f) 330-874-4448
www.rootrat.net
kelly@chempure.com
SEE AD ON PAGE 66

1" Root Rat	Roots and Encrustations	8" - 30"	40 to 120	Up to 5,000	5 lbs.		3	3/4" or 1"
1/2" Root Rat	Roots and Encrustations	4" - 10"	5 to 18	Up to 8,000	1 lb.		2	1/2" or 3/8"
3/8" Root Rat	Roots and Encrustations	2" - 6"	4 to 12	Up to 5,000	8 oz.		2	1/4" to 3/8"



SEWER EQUIPMENT

1590 Dutch Rd.,
Dixon, IL 61021
815-477-7611
www.sewershop.com
sales@sewerequipment.com
SEE AD ON PAGE 53

Avanti	Rotating penetrator for ice, roots and mineral deposits	3" - 12"	15 to 80	2,000 to 4,000	0.75 - 2 lbs		6	1/2" - 3/4" - 1"
Tri-Star	Chisel penetrator for ice, grease, and hard scale	3" - 20"	15 to 80	2,000 to 4,000	0.25 - 4 lbs	4	6	1/2" - 3/4" - 1" - 1 1/4"
Rondo	Final cleaning for pre-commissioning pipe and cleaning before re-lining	3" - 18"	12 to 80	2,000 to 4,000	0.5 - 3 lbs		3	1/2" - 3/4" - 1"
HW	Flushing for heavy debris	6" - 24"	30 to 80	2,000 to 4,000	0.5 - 17 lbs		12	1/2" - 3/4" - 1" - 1 1/4"
Roto-Max	Rotator for roots, grease, solids, and heavy debris	4" - 32"	18 to 80	2,000 to 4,000	2 - 16 lbs	1	6	1/2" - 3/4" - 1" - 1 1/4"
Dual Degree	General cleaning with excellent flushing power	4" - 18"	18 to 80	2,000 to 4,000	2.5 - 9 lbs	1	8	1/2" - 3/4" - 1"
RDS	Rotator for grease and general cleaning	3" - 24"	15 to 80	2,000 to 3,500	1.3 - 14 lbs		6	1/2" - 3/4" - 1" - 1 1/4"
Wiesel	General cleaning for long-distance jetting	4" - 18"	18 to 80	2,000 to 4,000	0.5 - 1.5 lbs	1	8	1/2" - 3/4" - 1"
Combi Chain Cutter	Aggressive cleaning for complete removal of roots and concrete residue	6" - 24"	30 to 80	2,000 to 2,500	5 - 19 lbs		6	3/4" - 1" - 1 1/4"
Mega	Heavy flushing for debris in large lines and culverts	4" - 120"	18 to 80	2,000 to 4,000	3 - 50 lbs	1	11	1/2" - 3/4" - 1"
Power Jet	Ejector-style flushing for 16" and larger water filled pipes and ditches. Increase flow volume 4X with low working pressure for debris removal	16" - 120"	60 to 80	2,100	82 lbs		12	1" - 1 1/4"
Wamax	The ultimate milling system for removal of concrete, grout, protruding taps, roots, and anything that can block a line	4" - 40"	30 to 100	2,000 to 2,900	17 - 82 lbs		8	3/4" - 1" - 1 1/4"
Rotojiggler	Vibrating nozzle for removal of mineral deposits, concrete, and slag	4" - 16"	15 to 65	2,000 to 2,900	2 - 6 lbs		6	3/4" - 1" - 1 1/4"
K114 Chain Rotor	Adjustable to aggressively clean up to 62" diameter pipe	10" - 62"	80 to 100	2,000 to 2,900	44 lbs		6	1 1/4"
Eel Cutter	Chain cutter with short body and flexible centering skid to maneuver through bends and bad offsets	4" - 8"	18 to 65	2,000 to 2,900	3 - 6 lbs		6	1 1/4"



SEWERPROSHOP, LLC

1061 Triad Ct., Ste. 1,
Marietta, GA 30062
877-864-9394 • 470-592-1715
(f) 770-984-2802
www.sewerproshop.com
info@sewerproshop.com
SEE AD ON PAGE 54

Emperor Nozzle	Flushing debris from large lines	12" - 32"	80 to 120	2,000 - 2,500	19.8 lbs.		12	1" - 1 1/4"
Penetrator Nozzle	Flushing heavy debris in lines with off sets	6" - 16"	50 to 80	2,000 - 4,000	15.4 lbs.	1	8	3/4" - 1 1/4"
Power Pull Nozzle	Mud, Sand, Silt	4" - 12"	18 to 80	2,000 - 4,000	1.5 - 9 lbs.		8	1/2" - 1 1/4"
Spear Nozzle	Penetrating clogs/blockage, root mass	8" - 24"	50 to 80	200 - 4,000	6.2 lbs.	4	6	3/4" - 1"
General Nozzle	All around sewer cleaning, prevent maint.	4" - 16"	18 to 80	2,000 - 4,000	1.5 - 9 lbs.	1	8	1/2" - 1"
Arrow Nozzle	Penetrating clogs/blockages, frozen pipes	4" - 16"	18 to 80	2,000 - 4,000	1 - 2.5 lbs.	3 + 1	8	1/2" - 1"
Stealth Nozzle	Flushing heavy debris	8" - 24"	60 to 80	2,000 - 4,000	17.6 lbs.		8	3/4" - 1 1/4"
Raptor Nozzle	Penetrating clogs, roots/grease masses	4" - 24"	18 to 80	2,000 - 4,000	2.4 - 5.5 lbs.		3(1/2")6(1")	1/2" - 1"
Big Foot Nozzle	Flushing debris from floor of large pipes	16" - 48"	40 to 120	2,000 - 3,000	33 - 56 lbs.		6 to 14	1" - 1 1/4"
Twister Nozzle	Cleaning grease, light roots, mineral deposits	8" - 24"	50 to 120	2,000 - 4,000	15.4 lbs.	5	4	1" - 1 1/4"
Typhoon Nozzle	Grease, light crust, light roots	6" - 12"	18 to 80	2,000 - 4,000	11 lbs.	4	6	1/2" - 1"
Antiblower	Shallow sewer line or close to home	6" - 16"	40 to 80	2,000 - 3,000	9 lbs.	1	8	3/4" - 1"

MANUFACTURER

NAME OF NOZZLE

APPLICATION

PIPE DIAMETER

FLOW RATE (GPM)

MAX OPERATING PRESSURE (PSI)

WEIGHT

OF AVAIL FRONT JETS

OF AVAIL REAR JETS

HOSE SIZE/ CONNECTING THREAD

SOUTHLAND TOOL MFG. INC.

1430 N Hundley St.,
Anaheim, CA 92806
714-299-3563
(f) 714-632-8228
www.southlandtool.com
jair@southlandtool.com
SEE AD ON PAGE 7

ST-PRO CAM

Sewer Camera Inspection Nozzle

6" and Up

60 to 80

2,000 - 2,500

7 lbs.

8

1/2" - 3/4" - 1"



SPARTAN TOOL

1619 Terminal Rd.,
Niles, MI 49120
800-435-3866
www.spartantool.com
sales@spartantool.com
SEE AD ON PAGE 80

Sandshoe

Sand, dirt and rocks

4" - 18"

12 to 18

2,000 - 4,000

7 lbs.

4

3/8" - 1/2"

Rotating

Scrubbing pipe walls

2" - 12"

4 to 18

2,000 - 4,000

1 - 3 lbs.

3

1/4" - 3/16" - 3/8" - 1/2"

Q Nozzle

Downhill jetting

4" - 12"

12 to 18

2,000 - 4,000

1 - 2 lbs.

3

4

3/8" - 1/2"

Rocket Nozzle

Long distance jetting

4" - 12"

12 to 18

2,000 - 4,000

2 lbs.

1

4

3/8" - 1/2"

Closed Nozzle

Standard jetting

2" - 12"

4 to 18

2,000 - 4,000

1 lb.

4

4

3/8" - 1/2"

Open Nozzle

Standard jetting

2" - 12"

4 to 18

2,000 - 4,000

1 lb.

1

4

3/8" - 1/2"

Brass Ball

Stainless steel hose jetting

2" - 8"

4 to 18

2,000 - 4,000

1 lb.

4

3/16"

USB-USA LLC

7565 Owl Creek Dr.,
Douglasville, GA 30134
844-285-5770
www.usb-usa.com
usbusalco@gmail.com
SEE AD ON PAGE 73

Primus 3D

Grease, Crusts, Light Roots

4" - 24"

18 to 120

2000 - 4,000

2.6/7.0/8.3/20.1

1

3/4/5/6

1/2 - 3/4 - 1 - 1 1/4

Rocket 3D

Sand, Silt, Large Debris

4" - 24"

12 to 120

2,000 - 4,000

6/2.6/4.85/11.4/44

6/8/10/12

1/2 - 3/4 - 1 - 1 1/4 - 1 1/2

Pipe Wolf 3D

Total Blockages from Roots, Grease & other Organic Matter

4" - 24"

14 to 120

2,000 - 4,000

2.4/5.7/11.9

6

1/2" - 3/4" - 1" - 1 1/4"

Bagger Max 3D

Sand, Silt, Solids, Sludge & other Heavy Debris

18" - 96"

50 to 120

2,000 - 3,000

33/53/66/114.5

5

6/8/10/12

3/4" - 1" - 1 1/4" - 1 1/2"

Chisel

Total Blockages from Roots, Grease, etc.

2" - 15"

8 to 120

2,000 - 4,000

22/33/66/1.54

4

1/4" - 3/8" - 1/2" - 3/4" - 1" - 1 1/4"

FS 3D

Total Blockages from Roots, Grease & other Obstructions

2" - 15"

8 to 80

2,000 - 4,000

22/44/66/1.54/3.7

4

6/5/6/8

1/4" - 3/8" - 1/2" - 3/4" - 1"

Tri-Jet 3D

Mud, Sand, Silt - Everyday Cleaning

4" - 48"

60 to 120

2,000

4.8/12.1/17.6/23.1/44

12/15

1" - 1 1/4"

FD 2 3D

Half-Open or Complete Open Drains - Mud, Sand, Silt

4" - 12"

14 to 120

2,000 - 4,000

2.6/4/8.3/14.3

6/8

1/2" - 3/4" - 1" - 1 1/4"

3D Extreme

Mud, Sand, Silt

6" - 15"

40 to 120

2,000 - 3,000

9.4

8

3/4" - 1" - 1 1/4"

3D Cleaning

Everyday Cleaning - Sand, Mud, Silt, Grease

4" - 15"

14 to 80

2,000 - 4,000

6/12.1/17.6/23.1

1

6/8/10/12

1/2" - 3/4" - 1" - 1 1/4"

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Warthog WGR Magnum

Sewer jetting

8" - 36"

50 to 80

1,500 - 5,000

13 lbs.

1

4

1"

Warthog WG-1

Sewer jetting

8" - 36"

50 to 80

1,500 - 5,000

10 lbs.

1

4

1"

Warthog WGP-1

Sewer jetting

8" - 36"

50 to 80

1,500 - 5,000

10 lbs.

1

4

1"

Warthog WHP

Sewer jetting

6" - 18"

15 to 50

1,500 - 4,000

4 lbs.

1

2

1/2" - 3/4"

Warthog WH

Sewer jetting

6" - 18"

10 to 45

1,500 - 8,000

4 lbs.

1

2

1/2" - 3/4"

Warthog WS - 1/2

Sewer jetting

4" - 8"

8 to 20

1,500 - 5,000

3 lbs.

1

2

1/2"

Warthog WT - 3/8

Sewer jetting

3" - 6"

5 to 12

1,500 - 5,000

1 lb.

1

2

3/8"

Warthog WV - 1/4

Sewer jetting

2" - 4"

3 to 8

2,000 - 5,000

1 lb.

1

2

1/4"

Warthog WD 1-1/4

Sewer jetting

8" - 36"

80 to 120

1,500 - 5,000

11 lbs.

1

6

1-1/4"

Warthog WT - 1/2

Sewer jetting

3" - 6"

5 to 12

1,500 - 5,000

1.2 lbs.

1

2

1/2"

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ENZ USA

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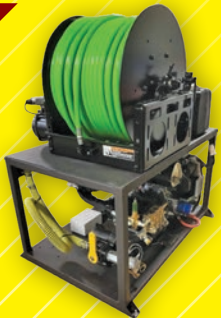




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3012H Compact Skid

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»800 cc EFI Honda Engine on DC Powered Reel

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NEW



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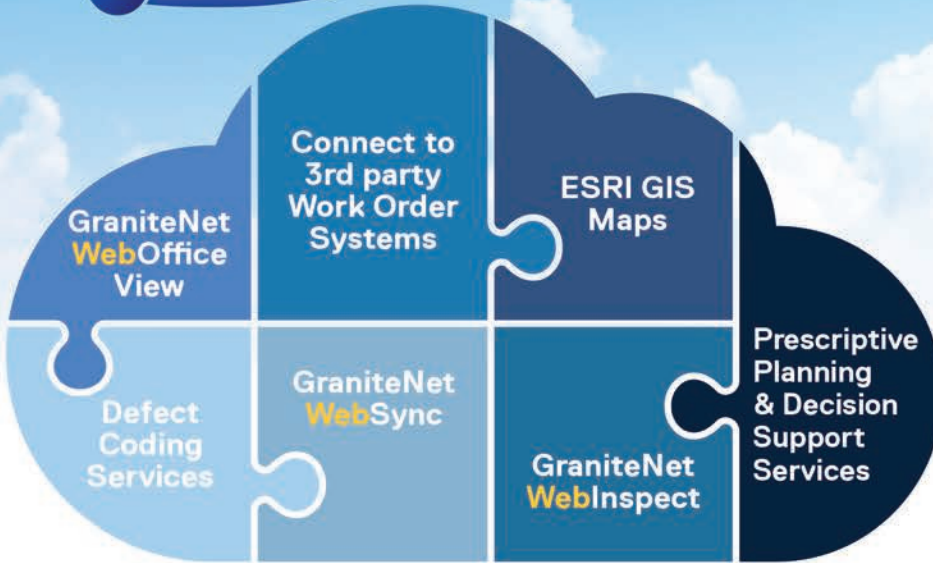
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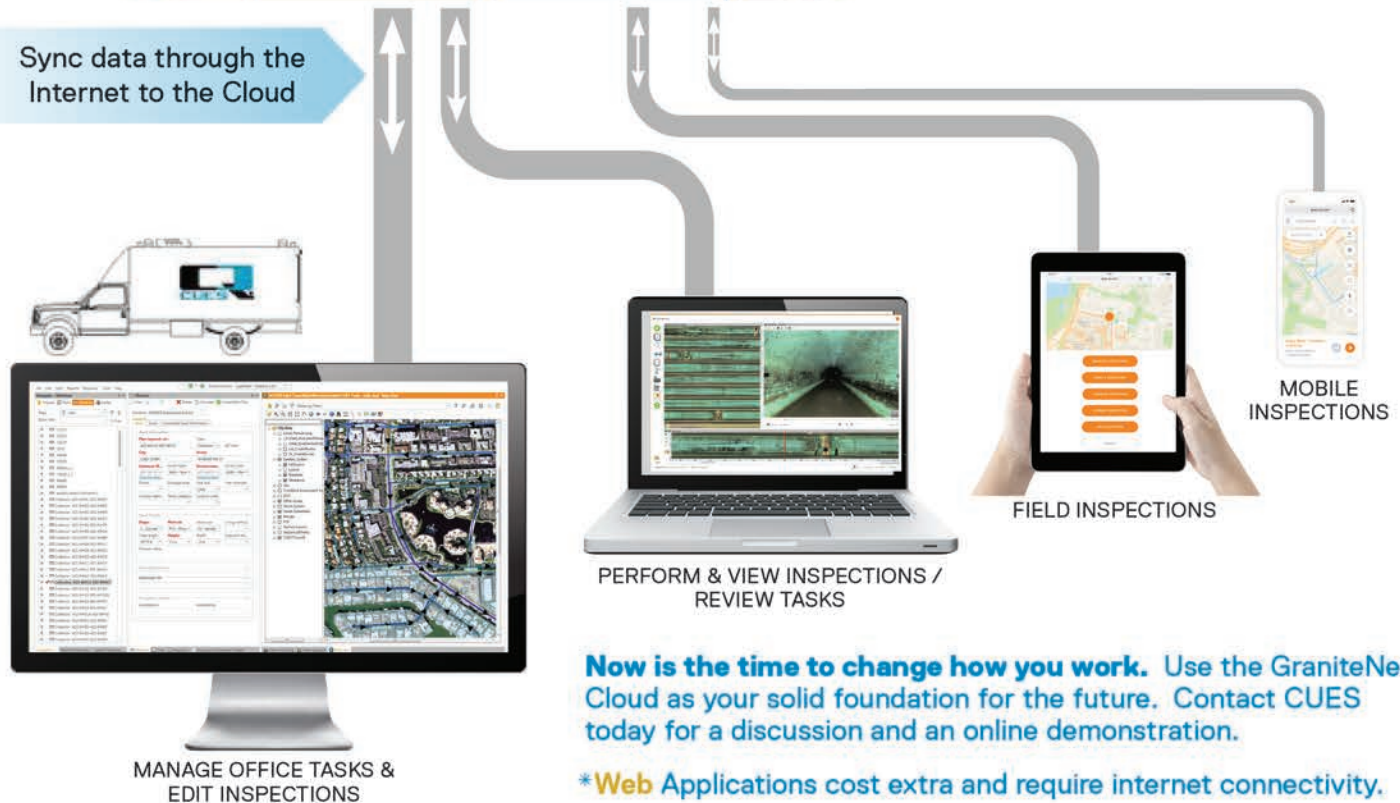
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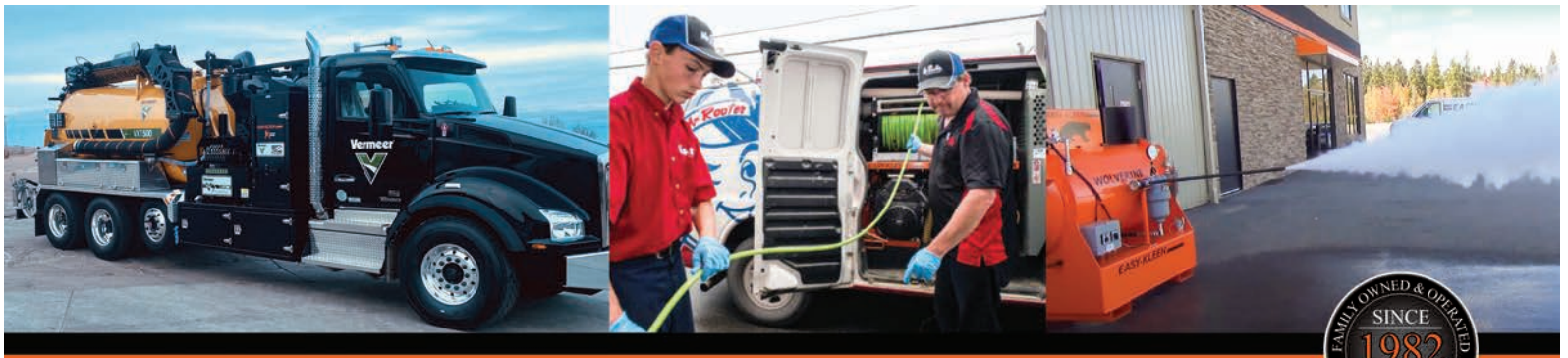


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HYDROEXCAVATION AND INDUSTRIAL JET/VAC SERVICES, SEWER NOZZLES

By Craig Mandli

» CLEANING NOZZLES

1 // HAMMELMANN RD MASTERJET

The RD MASTERJET nozzle from Hammelmann has HPS sealing technology and adjustable-speed rotation. It is designed for use with shotguns, robotic lance systems or replacement of any rotating tool. It is lightweight at 2.2 pounds and has a compact, ergonomic design 2.2 inches in diameter and 6.5 inches long. It can be used at operating pressures up to 46,500 psi with optimum internal flow. It has a universal nozzle hub for working with nozzles with two or four inserts. Nozzle inserts are countersunk in the nozzle carrier with blast-back shields. Speed is controlled by an infinitely variable magnetic brake. It can be used for cleaning and washing, expansion-joint removal, coating and paint removal, blasting pipe externals, paint booth grid and skid cleanup, superstructure surface preparation, heavy-machinery cleanup and surface preparation. 800-783-4935; www.hammelmann.com



2 // HYDRA-FLEX REAPER

The Reaper rotating jetting nozzle from Hydra-Flex is engineered for waterjetting applications including pipe cleaning and sewer jetting projects for the residential, municipal, industrial or contractor markets. It cleans drains, industrial pipes, sewers and tubes by clearing blockages, grease and roots with fewer passes while creating 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. 952-808-3640; www.hydraflexinc.com



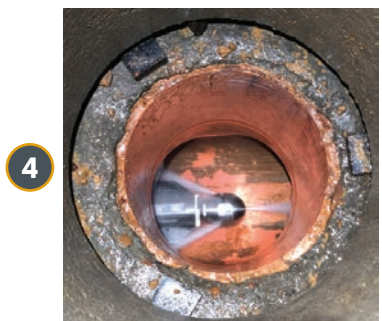
3 // SEWERPROSHOP BLUE STAR

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 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



4 // WARTHOG NOZZLES BY STONEAGE SWITCHER

Removing calcified grease, mineral deposits and plaster concrete deposits can be challenging, time-consuming and stressful. Having the proper tool ensures confidence for success without repeated passes or an open cut dig. With two sets of jetting angles in one tool, there's no need to change nozzles or shut down equipment with the Switcher from Warthog Nozzles by StoneAge. One set of jet angles provides efficient pulling power and one set of jets is angled for highly effective cleaning, with the ability for the operator to switch between pulling or cleaning while still in the line. 866-795-1586; www.warthog-nozzles.com



» HYDROEXCAVATION EQUIPMENT

5 // 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

6 // DITCH WITCH HX75



The Ditch Witch HX75 vacuum excavator boosts operator productivity and versatility on a variety of underground construction job sites. It has a 74 hp Kubota Tier 4 Final engine and 1,300 cfm blower for maximum productivity. It is designed to meet customer needs on a wide range of applications, including compact projects and more large-scale excavation, potholing and cleanup tasks. With advanced sound-reducing technology, it creates minimal disturbance in noise-sensitive areas. It features a cyclonic three-stage filtration system and maximum protection of key components. With a standard, reverse-flow feature, it allows for quick and easy spoil off-loads for improved productivity. Tank options include a choice of a 500- or 800-gallon debris tank to meet the requirements of any sized cleanup. A lockable hose-storage design helps optimize operator efficiency and ease of use. 580-336-4402; www.ditchwitch.com



7 // DYNABLAST HV420

Custom Dynablast HV420 hydrovac water heaters produce 420,000 Btu with an output temperature of 175 degrees F at 5 gpm, making them suitable for colder climates and improved digging in clay-filled areas. All models come with ETL certification for safety, which also includes certification on the coil for higher efficiency and heat transfer, a stainless steel target plate for increased coil life and momentary override control. They include an Interpump Group T 2040 water pump package providing 10.5 gpm at 2,900 psi and 1,750 rpm, as well as a hydraulic package with a Sunfab 34 cc motor. All components are custom-mounted in a 24-by-24-inch cabinet. 905-867-4642; www.dynablast.ca

8 // KAISER PREMIER URBANX



The UrbanX mid-size hydrovac from Kaiser Premier is designed to maximize payload while maintaining an overall weight under Federal Bridge Law guidelines. It can be custom configured with optional cold-weather protection and an air digging option. It is equipped with an integrated pressure off-load system and self-cleaning cyclone for dry digging. 970-542-1975; www.kaiserpremier.com

PRODUCT FOCUS

9 // RIVAL HYDROVAC T7 TANDEM

The T7 Tandem hydrovac from Rival Hydrovac was designed primarily to be loaded with debris and driven within legislated road limits with most types of debris on board. The unit comes standard with a scale that reads real-time weights both in the cab and on the wireless remote to confirm weights prior to travel. An air option is available on both the T7 and T10 models. These units also have the same hydro system as any other Rival unit. This hydraulically driven compressor runs in both a low- and high-pressure range allowing for 150 psi and 150 cfm for the operating of air tools or 200 psi and 200 cfm for the operating of an air knife. 403-550-7997; www.rivalhydrovac.com

10 // SOIL SURGEON HYDROEXCAVATING TOOL

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

11 // TORNADO GLOBAL HYDROVACS F4 ECO-LITE

The F4 ECO-LITE from Tornado Global Hydrovacs has a 12-cubic-yard mud tank and holds 1,550 gallons of freshwater. The unit is more than 7,000 pounds lighter than the company's older models and offers more than double the payload. The boom has a 342-degree rotation and 26-foot reach. The smaller F3 ECO-LITE is a 10-cubic-yard, 1,250-gallon tandem-axle unit that more than doubles older payload capacities. It features an 8-inch boom and 3,800 cfm blower. 877-340-8141; www.tornadotrucks.com

12 // VACALL ALLEXCAVATE

AllExcavate models from Vacall efficiently remove dirt around utility lines, as well as foundations where mass excavation is not practical. Water pumps generate 24.5 to 120 gpm and pressures to 3,000 psi. The water system, wand, control panel, tools and worker apparel are protected in a heated compartment. Its standard AllSmartFlow CANbus intelligent control system has a programmable LCD display that monitors engine, water flow and vacuum performance, allowing for precise boom and reel adjustments. Aluminum water tanks carry 1,000 to 1,300 gallons. Options include a remote control high-dump system that raises the debris tank 76 inches and then slides it back 21 inches for dumping into roll-off containers. 800-382-8302; www.vacall.com

» JET/VAC COMBO UNITS

13 // SEWER EQUIPMENT MODEL 900 ECO

The Model 900 ECO from Sewer Equipment is available in 6-, 9-, 12- or 15-yard debris capacities, equipped with Duraprolene water tanks carrying 900 to 2,100 gallons of onboard water. Its Hydro Drive powertrain system eliminates the need for a transfer case. Both single-piston and triplex pump options are available at 55 to 80 gpm at 2,000 to 3,000 psi with a 4,400 cfm blower and 18 inches Hg, and they are built on an eco-friendly platform that provides greater fuel efficiency and offers noise reduction. 888-477-7611; www.sewerequipment.com





14

14 // SUPER PRODUCTS CAMEL MAX SERIES

The versatile Camel Max Series combination sewer cleaner from Super Products comes in a variety of model configurations: 900 Dump, 1200 Dump, 1200 Eject and 1200 Wastewater Recycle. All three 1200 models come standard with a high-dump subframe, eliminating the need to back up a ramp for debris removal. The 1200 Eject model allows operators to have the only controlled way to dump safely into a 48-inch container without the need of additional containment products. The 1200 Wastewater Recycle model enables operators to clean sewers without the use of freshwater — capable of cleaning nearly 3,000 feet of sewer pipe per day and saving 60,000 gallons of water per week. Optional features offer increased performance capabilities, such as a hydroexcavation package that allows operators to jet, vacuum and excavate continuously, or a pusher axle that allows for increased legal payload. 800-837-9711; www.superproductsllc.com



15

» ROOT CONTROL EQUIPMENT

15 // ARTHUR PRODUCTS CNT-R-KUT G2 EMAX2

The Cnt-r-KUT G2 EMAX2 from Arthur Products is an interchangeable cutter nozzle to clear roots and debris. The centering devices can be modified for custom applications. They help operators tackle tough jobs, including when using drain cleaning nozzles in tight spaces in damaged sewers, and technicians can expect to achieve maximum cleaning spread in drains and other pipes. 800-322-0510; www.arthurproducts.com



16

16 // ELECTRIC EEL MODEL C

The Model C dual-cable sectional drain cleaner from Electric Eel runs up to 200 feet of 1 1/4-inch, self-feeding dual cable in 8- or 10-foot sections that require no handling when rotating. It spins cable at twice the revolutions per minute of a continuous cable machine for cleaning 3- to 10-inch lines for distances up to 200 feet. One-man operation means less time and labor expense. A heavy-duty, 1/2 hp motor comes standard, and 3/4 and 1 hp motors are also available. A custom-designed gearbox ensures higher quality, lower cost and parts availability. The heavy-duty, fully adjustable safety clutch keeps cable and tool breakage to a minimum and provides overload protection. A fold-down handle allows for easy transportation, storage and use in crawl spaces. Its carry handle allows for balance and easy transport. 800-833-1212; www.electriceel.com



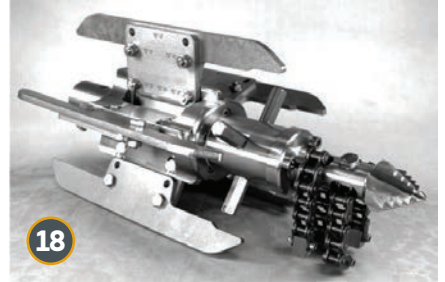
17

17 // ENZ USA 10.300R ROTATING CHAIN SCRAPER

The 10.300R Rotating Chain Scraper from Enz USA is an upgrade from the 10.200R chain scraper. It has a pipe cleaning range from 8 to 20 inches. The chains are arranged for a multistage cutting concept and the chain plates are harder and more durable. Because of its sealed bearings, this nozzle can be operated with both clean and recycled water while being relatively maintenance free. It is a powerful root remover and conquers incrustations, concrete residues and other deposits. It can be used to prepare for restoration work, such as relining, grouting or applying coatings. Accessories include tap cutters for protruding taps, and a wire rope head attachment for gentle cleaning in compromised pipes. 877-369-8721; www.enz.com

18 // KEG TECHNOLOGIES HEAVY-DUTY CHAIN CUTTERS

KEG Technologies heavy-duty chain cutters are high-speed, high-torque, water-powered cutting tools. Their rugged stainless steel construction requires only soap and water to clean. Along with root cutting, they are designed to remove protruding laterals, mineral deposits, grease and concrete. The roller chain is forgiving on pipe walls, and chain blocks are available for tough roots and hardened deposits. Users can vary the rpm and torque output by changing the spinner length along with jet size, pressure and flow. They are available in three models — 150, 200 and Supernova — and work in pipes from 6 to 48 inches when equipped with proper skids and distance plates. 866-595-0515; www.kegtechnologies.net



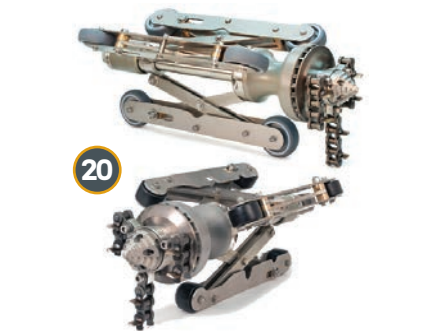
19 // ROOT RAT CUTTING NOZZLE

Root Rat cutting nozzles are used with jetters from 11 hp to large truck-mounted models. The cutters are made of hardened stainless steel and come with a toolbox with two interchangeable rotors — one with cables and the other with chains. The combination kit includes extra chain, cable and bearings. They need no repair or rebuilding other than bearing replacement, which can be completed in less than two minutes for under \$10 in parts. 800-288-7873; www.rootrat.net



20 // USB-USA TURBO CHAIN CUTTERS

The heavy-duty Turbo chain cutter series from USB-USA are tough and extremely powerful. These cutters continuously adjust from 8- to 15-inch (Turbo S200) or 12- to 24-inch (Turbo S600) and easily fit into the pipe. Turbine technology powers the durable chain retainer on a robust body to remove roots, concrete, calcium deposits, hardened grease and tuberculation from sewer lines. They are designed to be very aggressive for the hardest materials. The heavy-duty cutters are very beefy and have double the amount of turbine driving water jets as the company's other cutters, generating tremendous cutting power. Easily adjust the cutter to within 1/16 inch by spinning the rear to make it larger or smaller. Internal 3D fluid mechanics in conjunction with one-piece ceramic nozzle inserts allow the cutter to be used with recycled or clean water. 844-285-5770; www.usb-usa.com



» SAFETY EQUIPMENT

21 // CREWPLEX

CrewPlex is a hands-free communication solution to help crews overcome the challenges of continuous communication in environments where noise, distance and task complexity can affect safety and productivity. It connects the entire vacuum truck, camera truck and support personnel crews with one system. Users can talk and hear each other in real time without delay and without voice triggering or pushing a button. Excellent audio quality provides better communication in all environments, especially in vacuum truck operations where noise levels can exceed 100 dB. Available connectivity to two-way radio systems keeps workgroups in touch with a supervisor and extends the communication reach of an entire work crew. 833-321-2739; www.crewplex.com





» **TRUCK/TRAILER JETTERS**
22 // AMERICAN JETTER 51T SERIES 2040

The 51T Series 2040 trailer jetter from American Jetter offers 20 gpm at 4,000 psi in cold- and hot-water models. Consistent power is provided by dual Kohler electronic fuel injection gasoline engines that create 76 hp, saving up to 20% on fuel, while avoiding problems associated with carbureted engines. Low water shutoff prevents pump damage if the optional 330- to 800-gallon tanks run low. Hose reel speed control allows for precise cleaning in both directions. A long-range wireless remote option allows for water on/off, engine shutdown and hose reel control. The heavy-duty square tubing trailer offers standard electric brakes on both axles. 866-944-3569; www.americanjetter.com



23 // BUCHER MUNICIPAL NORTH AMERICA REMOTE REEL

The Remote Reel from Bucher Municipal North America helps users reach where sewer cleaner units can't and allows for easy and safe access to difficult jetting tasks. Its smart design allows the user to go off-road and even handle stairs. 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



24 // CAM SPRAY CV SERIES

The CV Series cargo van drain jet from Cam Spray offers diesel-fired hot water for added 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. It comes with a 5-gallon fuel tank, heavily built, powder-coated frame with full deck, a 130-gallon water capacity, a 12-volt DC reel with 2-1 clutch drive allowing for free spooling and a powered hose return. It's 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



25 // 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

PRODUCT FOCUS

26 // GAPVAX G7 JETTER

The G7 Jetter from GapVax is built on a heavy-duty, contractor grade NATM-certified trailer. Several engine choices including Cummins diesel, are certified and sized appropriately for the water pump combinations. The unit's hose reel is hydraulically powered with a direct-drive gearbox and variable-speed control. The hose reel offers a 3-foot (curbside) articulation from center of bearing, 180-degree rotation and a capacity of 800 feet of 3/4-inch jetter hose. The polyethylene plastic water tank is available in 300-, 500-, 600- or 700-gallon capacities. The water pump is center-fed for optimum performance. The controller is interlocked with safety features that will show low fuel levels and low water, and is capable of a complete engine shutdown in an emergency. 888-442-7829; www.gapvax.com



27 // GENERAL PIPE CLEANERS JET-SET TYPHOON

The Jet-Set Typhoon from General Pipe Cleaners delivers 12 gpm at 2,500 psi to blast grease, sediment and debris from 4- to 12-inch drainlines up to 400 feet long. A 200-gallon holding tank carries enough water to handle remote locations where access to water is limited. It offers electric brakes, safety strobe light, safety cones, rear fold-down stabilizer jacks, retractable hose guide arm and antifreeze system as standard equipment. Its reliable 24 hp Honda engine with electric start and 7-gallon fuel tank ensures extended performance on stubborn stoppages. On-demand Vibra-pulse helps slide the nozzle around tight bends and propels the hose down long lines. Two hose reels — a jet hose reel with 400 feet of 1/2-inch hose featuring variable-speed electric rewind, and a water supply hose reel carrying 150 feet of 3/4-inch hose — are mounted at the rear of the unit next to the pressure gauge and output valve. 800-245-6200; www.drainbrain.com



28 // HOTJET USA VAC 'N JET SERIES

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



29 // JETTERS NORTHWEST EAGLE 200

The Eagle 200 midsize trailer jetter series from Jetters Northwest is available in 12 gpm/3,000 psi (model Eagle 200/3012) with 1/2-inch I.D. jet hose or the 9 gpm/4,000 psi (model Eagle 200/4009) with 3/8-inch I.D. jet hose. It comes with either a Kawasaki (liquid-cooled) or Kohler (air-cooled) fuel-injected engine, an industrial-duty trailer with brakes for safety and an A-frame tongue that allows it to be towed when full of water. Flat-top fenders allow for additional mounting surface. Chrome wheels give it a sharp appearance. It comes with a super-duty triplex UDOR U.S.A. pump, 12-volt power-wind hose reel with wind-speed controller, 200-gallon water tank, 60-inch lockable tool storage bin, 300 feet of jetting hose on the main 12-volt reel, 100 feet of 3/4-inch water-supply hose on a second reel, adjustable pulsation control and four jetting nozzles. 877-901-1936; www.jettersonorthwest.com





30

30 // MYTANA COMPACT JETTERS

MyTana's compact skid- or truck-mounted jetters are suitable for unblocking and cleaning house connections and sewer lines, providing the flexibility to take on residential jobs and light industrial work. That can be customized with many options to choose from. The Compact Pro is suitable for work in lines up to 20 inches, with 270 feet of 1/2-inch high-pressure hose on a hydraulic reel that delivers water flow up to 18 gpm or cleaning pressure up to 3,000 psi. The Economic fits medium-duty commercial vehicles for work in lines up to 24 inches, with water flow up to 26 gpm or pressure up to 3,000 psi. A hydraulic hose reel swivels 225 degrees and holds 400 feet of 1/2-inch high-pressure hose. 800-328-8170; www.mytana.com



31

31 // 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 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

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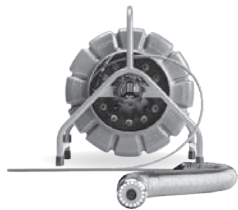
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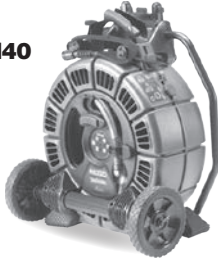
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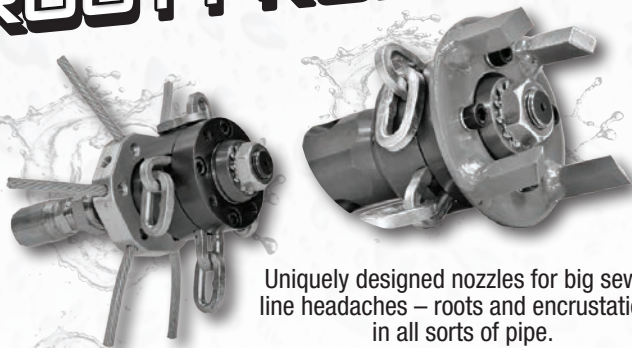
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The logo for WWETT 22 features a stylized blue wave icon above the text "wwett™ 22". The "wwett" is in a lowercase, sans-serif font, and "22" is in a larger, bold, blue font.

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PRODUCT SPOTLIGHT

POWERFUL WATER-BLAST SYSTEM DELIVERS OPTIMAL VERSATILITY AND PERFORMANCE

By Craig Mandli

High-speed, pulsating water from ultra-high pressure hydroblasting is ideal for industrial cleaning, surface preparation and cutting applications. To provide a new, more powerful option for contractors, Jetstream announced the launch of the heavy-duty 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 simplified and integrated trailer. According to Ronnie Felts, product manager for Jetstream, the unit can function in three different ways, giving operators flexibility to perform various jobs in the field.

"Operators can choose to use the unit as a large-capacity 800 hp 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," he says.

As the successor to the existing Jetstream TwinForce 650 hp model, it offers higher horsepower options resulting in 23% more flow. The unit provides a host of available features designed for a wide range of applications.

"The TwinForce series has a proven record of performance and success, and we're noticing that our customers enjoy the versatility it offers," Felts says. "This new addition to the line provides more advanced flow capabilities and delivers the same Jetstream benefits — flexibility, reliability and durability — that customers have come to expect, and can yield even greater productivity in the most demanding environments."



According to Felts, the Jetstream TwinForce 800 hp offers simplified servicing to cut downtime and boost efficiency. Built with the interchangeable Jetstream UNx fluid end technology, the unit is designed to easily convert operating pressures from 6,800 to 40,000 in minutes. An additional key advantage includes in-the-field maintenance repairs and conversions without any special tools or torquing. Delivering greater operator ease, the unit comes equipped with dual secondary-sealed control panels that allow operation on either side of the unit.

The unit delivers new and enhanced advantages including improved on-site towing with a lower center of gravity and a durable, galvanized frame that provides top-of-the-line corrosion protection. Additional features include reduced deck height, yielding easier access to pump components while performing routine maintenance. Geared jack stands provide more efficient adjustment and leveling and upgraded rigid hard pipe connections improve durability. 800-231-8192; www.waterblast.com

1 // SUPER PRODUCTS MUD DOG 700 VACUUM EXCAVATOR

Super Products' new Mud Dog 700 is a compact, versatile vacuum excavator that is ideal for urban environments. It features a 7-yard debris body and 600-gallon water tank to maximize the legal payload, and it comes standard as a dump body with an electric vibrator. The unit has a 50-degree dump angle with the capability of dumping into a 48-inch container while maintaining a low overhead height and center of gravity for increased stability. Additionally, the 700 is equipped with a rear-mounted, extendable, 8-inch-diameter boom that reaches 18 feet, has 270-degree rotation and pivots 10 degrees downward, which minimizes job site restoration and eliminates traffic congestion near roads. 800-837-9711; www.superproducts.com



2 // MILWAUKEE TOOL PACKOUT ROLLING TOOL CHEST

Milwaukee Tool expanded the PACKOUT modular storage system with the new PACKOUT rolling tool chest. The chest stores larger tools and equipment, while providing the ability to transport two PACKOUT stacks onto the site with the new dual-stack top. Featuring an industrial-grade handle and 9-inch all-terrain wheels, it can be rolled anywhere on the job site. An impact-resistant body and metal reinforced locking points provide maximum strength and durability. This 35-gallon tool chest has a 250-pound weight capacity and an interior organization tray, and a locking lid support feature keeps the top securely open, preventing sudden lid closure. 800-729-3878; www.milwaukeetool.com



3 // COXREELS OPTIONS FOR V-100 VACUUM SERIES REEL

Coxreels V-100 Series product line now offers a 1 1/4-inch vacuum hose reel, model V-112-735 without hose and model V-112H-735 with hose. It has

a smaller frame size featuring 12-inch-diameter discs instead of the original 17-inch-diameter discs and is designed for use with 35 feet of 1 1/4-inch vacuum hose. The outlet connecting to the hose remains 1 1/2-inch and the 1 1/4-inch hose comes equipped with 1 1/2-inch slip cuffs on both ends for maximum flow. A new swivel design allows for the connection of multiple hose sizes by using the inside and the outside of the housing, but a greater gradual taper has increased the amount of compatible inlet hose cuffs. The hose has a flexible, crush-proof smooth interior hose suitable for commercial cleaning applications and is equipped with standard 1 1/2-inch threaded hose cuffs on both hose sizes. 800-269-7335; www.coxreels.com

4 // SNAKE TRAP UNIVERSAL CLOSET AUGER COVER

Snake Trap's universal closet auger cover solves the problem of how to transport toilet augers to and from job sites without making a mess or spreading infected drippings. Fitting the majority of major brands including RIDGID, General Pipe Cleaners, BrassCraft, DrainX and Cobra, the Snake Trap's closet auger cover line assures transport of your tool one-handed to and from jobs with no drips. It eliminates the need to use two-handed, unsanitary methods such as towels, spackle buckets or garbage bags. The Snake Trap's drip prevention has been endorsed by Long Island's Association for Professionals in Infection Control and Epidemiology, and has been used in New York's Northwell Hospital system. 631-813-3433; www.thesnaketrap.com c



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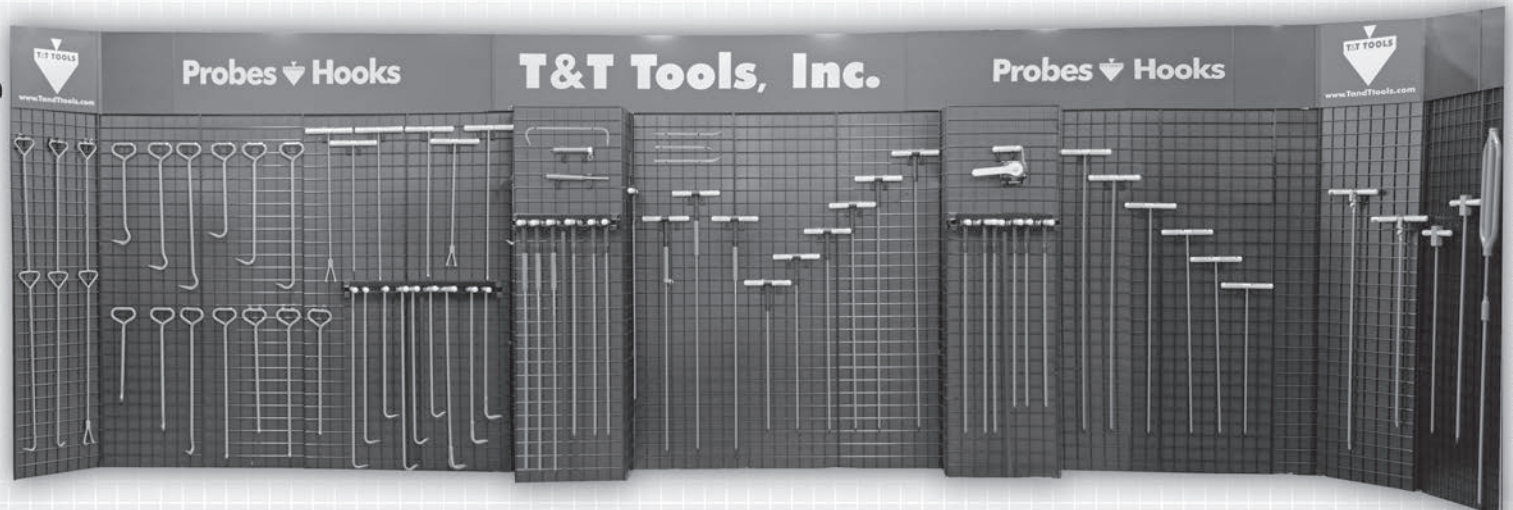
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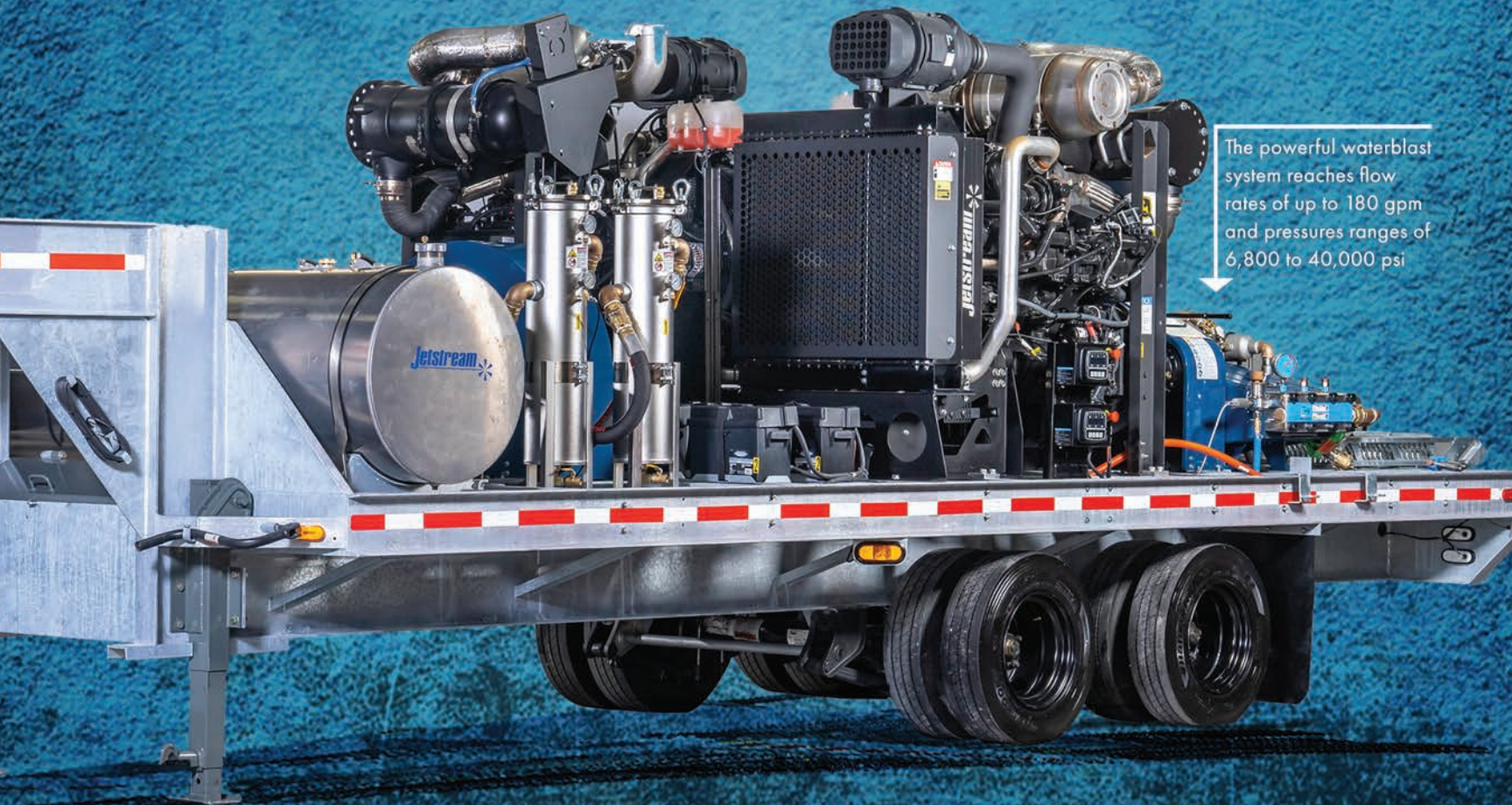
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Power meets versatility in the latest TwinForce™ 800-hp waterblast unit by Jetstream of Houston. The advanced waterblast system is equipped with dual 400-hp units on a compact frame to provide operators with increased power, performance, and in-the-field flexibility to tackle the most demanding applications. Downtime and maintenance are minimized due to the innovative and proven UNx™ fluid end technology that allows for quick and easy on-site conversions.

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WJTA releases new recommended practices for vacuum equipment use

The WaterJet Technology Association released the new fourth edition of the *Recommended Practices for the Use of Industrial Vacuum Equipment*. Featuring updates and a redesigned, full-color layout, the new manual is available in both full-sized and pocket-sized formats. Revisions include several noteworthy changes, including medical alert cards for operators, a new example of confined-space entry procedures and recommended hand signals for starting and shutting down a vacuum unit. Additional updates include revisions to the best practice methods for loading and off-loading flammable and combustible liquids, a brief treatment of automated/robotic vacuum tools and several new definitions added to the glossary.

The WJTA's *Vacuum Recommended Practices* form the basis of the association's vacuum operator training and certification program and are referenced extensively by contractors, manufacturers, asset owners, regulators, researchers, consultants and more.

Internal Pipe Technologies expands into Canada

Internal Pipe Technologies announced the launch of IPT Canada. The launch into Canada with partner Aloha Plumbing and Drain in Winnipeg, Manitoba, will allow for code-compliant pipe lining material to be available across the country. IPT Canada will be representing the following brands: IPT CIPP products and technologies, Gator Drain Tools and IPT inspection cameras. IPT Canada meets the Uniform Plumbing Code, which means easier approval at the local level.

Vortex acquires Germany-based Flee-Tech GmbH

As part of its European expansion strategy, Vortex Companies completed the acquisition of Germany's Flee-Tech GmbH, a trenchless sewer rehabilitation contractor. Founded in 2001 and based in Lehrte, Germany, Flee-Tech has steadily increased its services, while remaining focused on delivering cost-effective no-dig solutions.

RIDGID hosts local high school students for career program

RIDGID, a part of Emerson's professional tools portfolio, hosted students from Elyria Catholic High School at the brand's headquarters and manufacturing center in Elyria, Ohio. The program was part of the high school's Engineering and Technology Career



Trek, a weeklong initiative designed to introduce students to potential career paths, while broadening their understanding of Lorain County technical and manufacturing companies.

Vacuum Truck Rentals opens 17th location

Vacuum Truck Rentals opened its 17th location in Roxana, Illinois. This location will serve customers in eastern Missouri, Illinois and the surrounding areas and will be fully equipped to handle rentals, sales, service and parts needs. Missouri native Eric Wilson will serve as branch manager and brings more than 25 years' experience to the team.

Trenchless Equipment announces new team members

Trenchless Equipment, based in Turlock, California, announced four new members to its team, Michael Lien, Miriam Brenner, David Huff and Bill Seals. Lien, with over 20 years' experience at TRIC Tools managing all aspects of the business, has taken the position of managing director with Trenchless. Brenner comes to Trenchless Equipment with over two decades of experience. She has taken the position as international sales specialist with the company. Huff comes to Trenchless Equipment with four years' experience and was the national sales manager with TRIC Tools. He joins the company as director of sales. Seals comes to Trenchless with four decades of working with service professionals at both Spartan Tool and TRIC Tools. **c**

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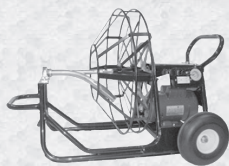


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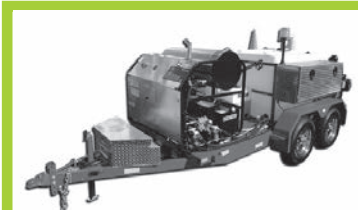
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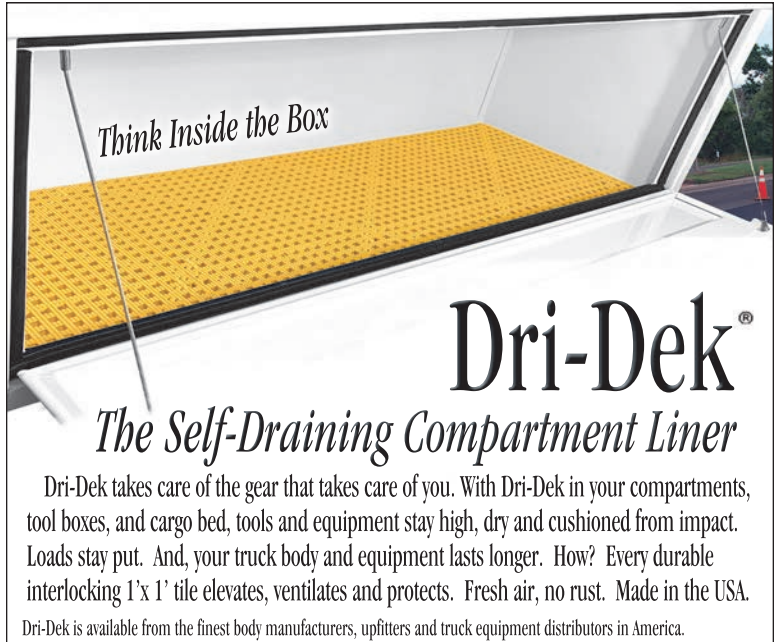
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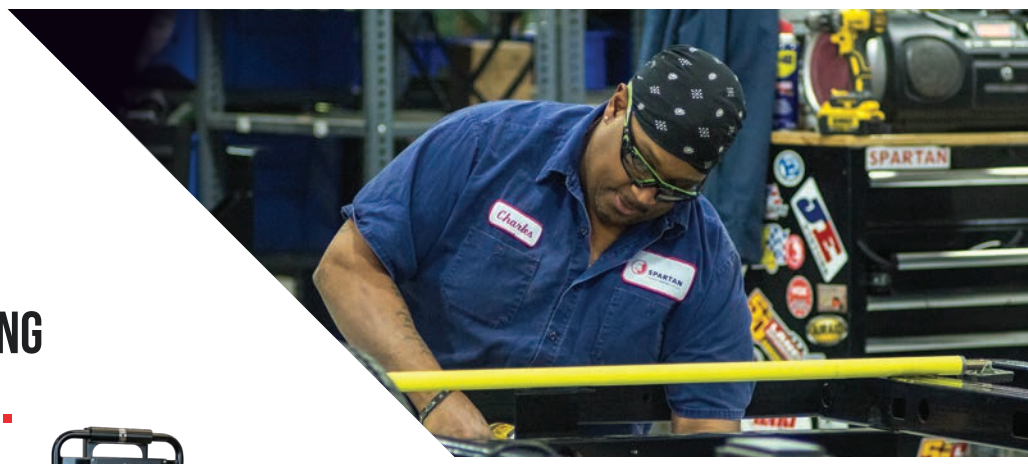
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