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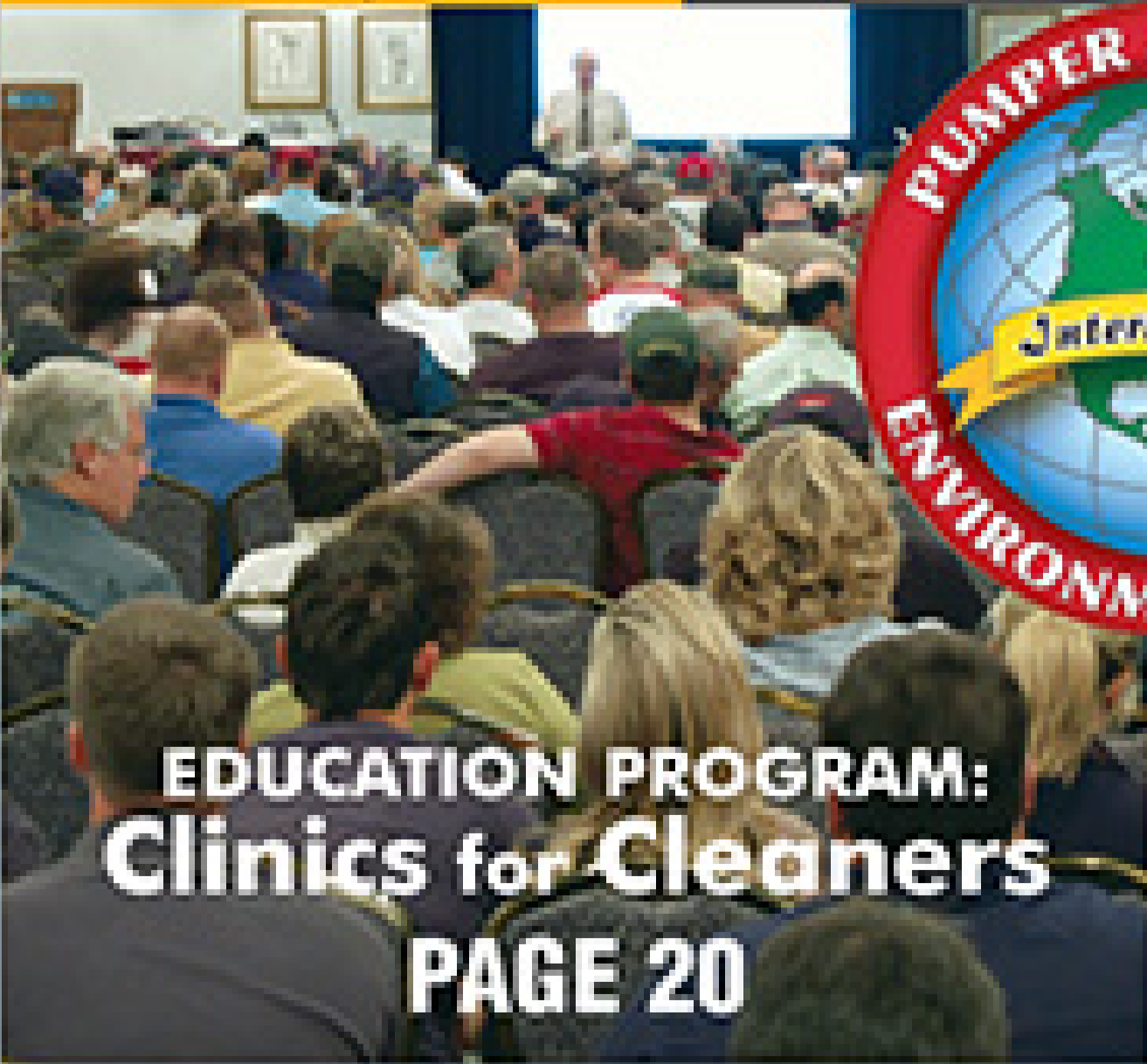


Always Innovation

Pipe Wrench Plumbing uses technology to gain an edge

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Louisville 2008
Feb. 27-29, March 1 MAKE YOUR MOVE



MONEY MANAGER

Resolutions for the new year

SAFETY FIRST

Wisconsin fatalities provide a lesson

TECH PERSPECTIVE

Two approaches to pipe bursting



Booth 3147

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Correction

A story in the December issue of *Cleaner* profiling **Pipe Inspection Services** of Draper, Utah, included incorrect information in a picture caption on page 56. The **chain beater** shown in the picture was manufactured by **KEG Technologies**.

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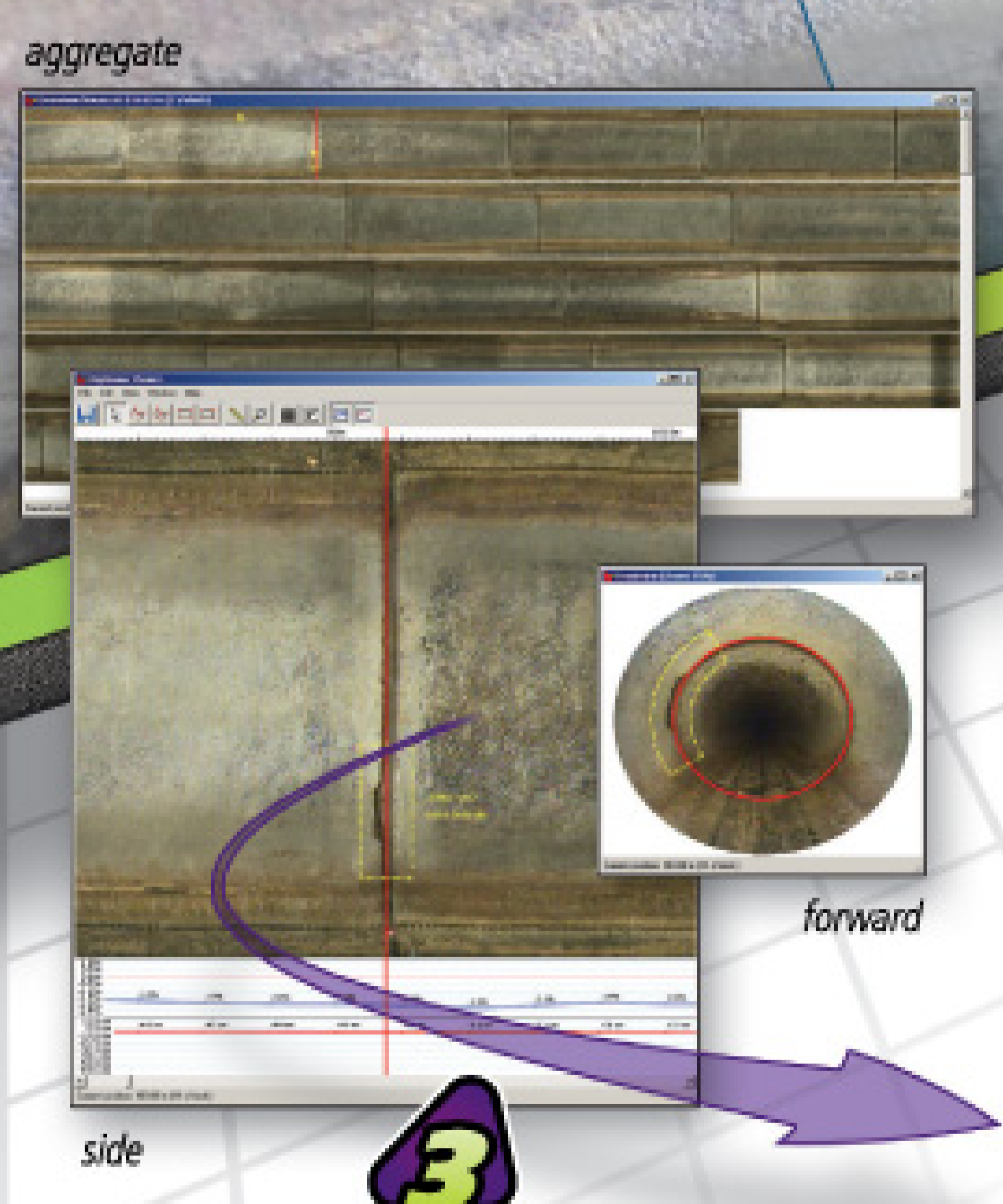
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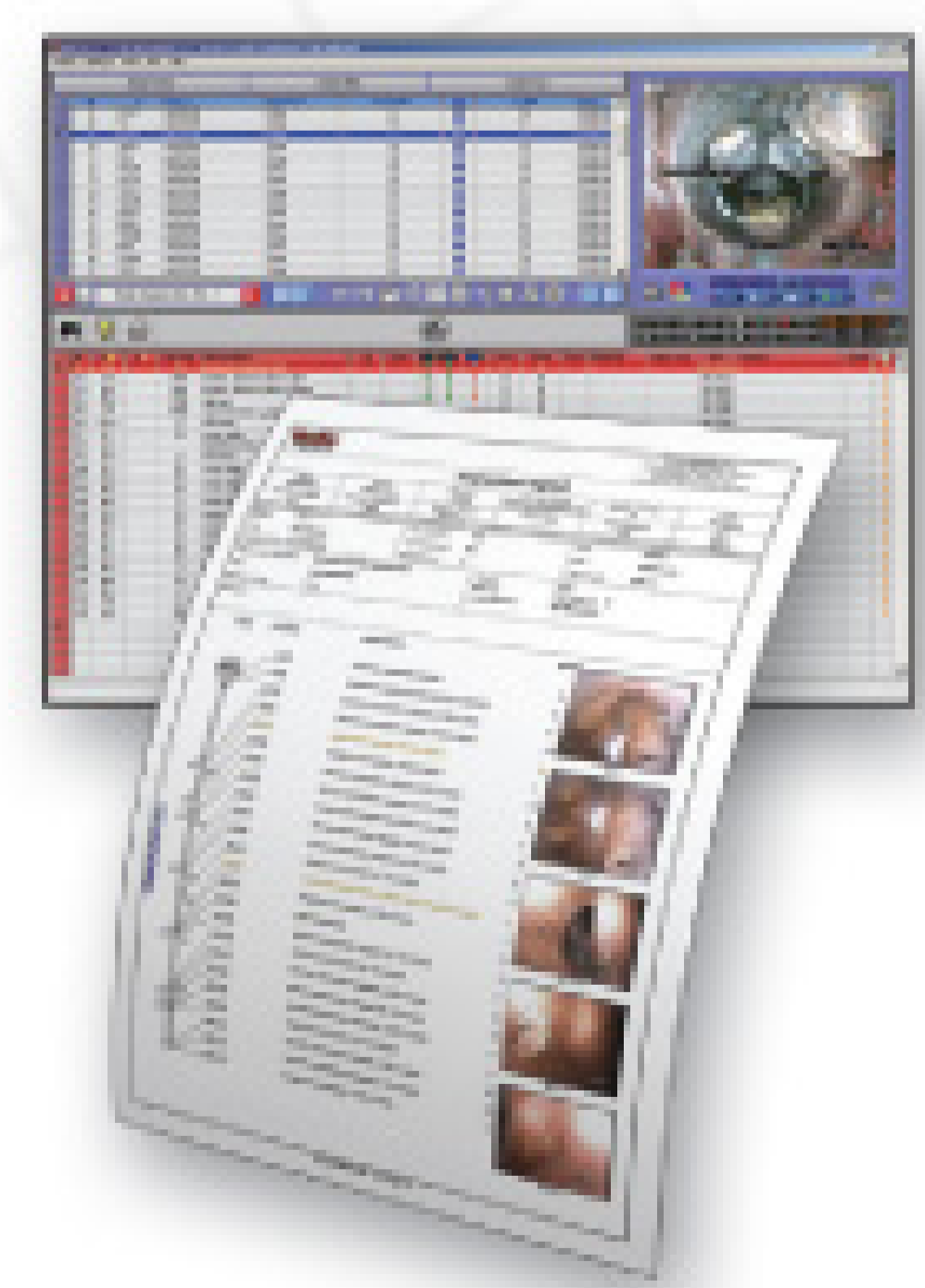
2 High-resolution sidewall scans join to form a complete photo mural of the pipe.



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COMING IN FEBRUARY

2008 Expo Pre-Show Edition/Exhibit Preview

- Reader Pipelines: Counting the benefits of written contracts
- Tech Perspective: Factors that affect waterblast surface preparation
- Safety First: Using cell phones safely in vehicles
- Profile: Expert Plumbing Service Inc., New Lenox, Ill.
- Profile: Roto-Rooter, Parksville, B.C.

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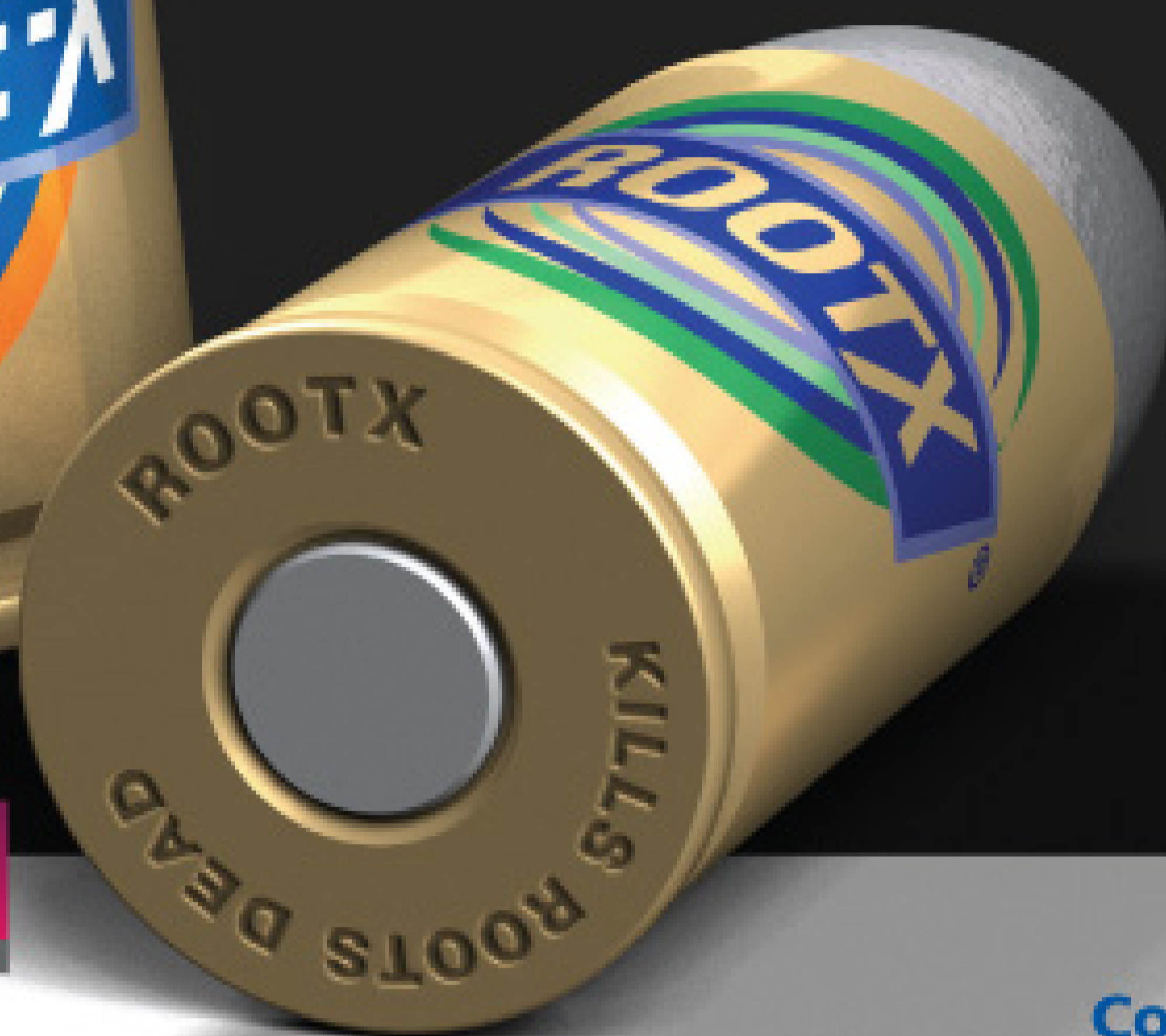
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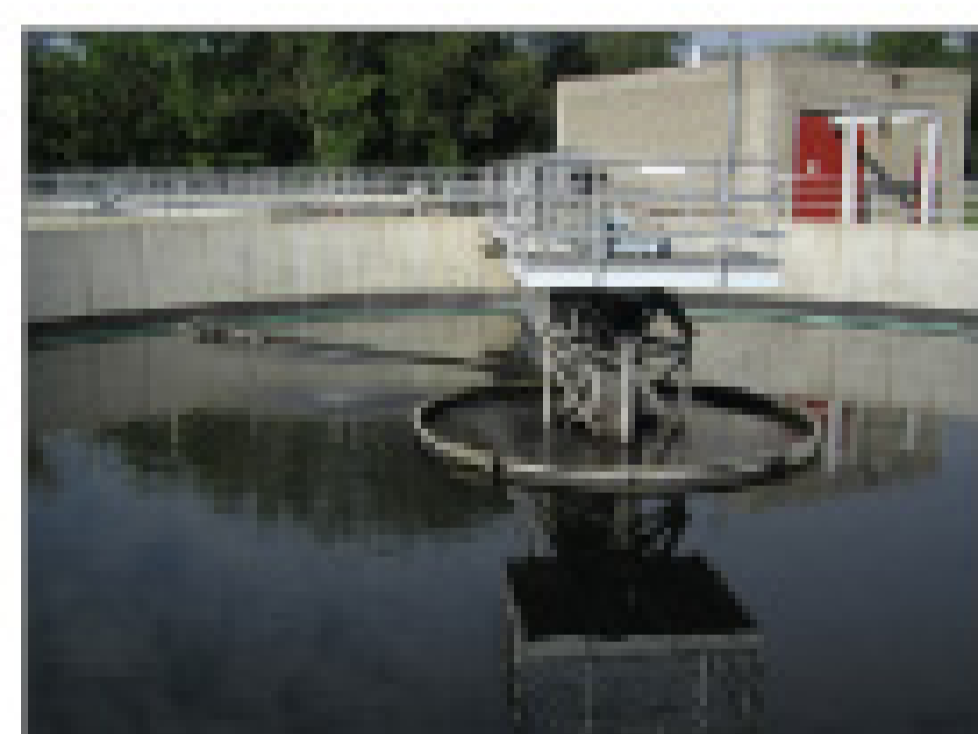
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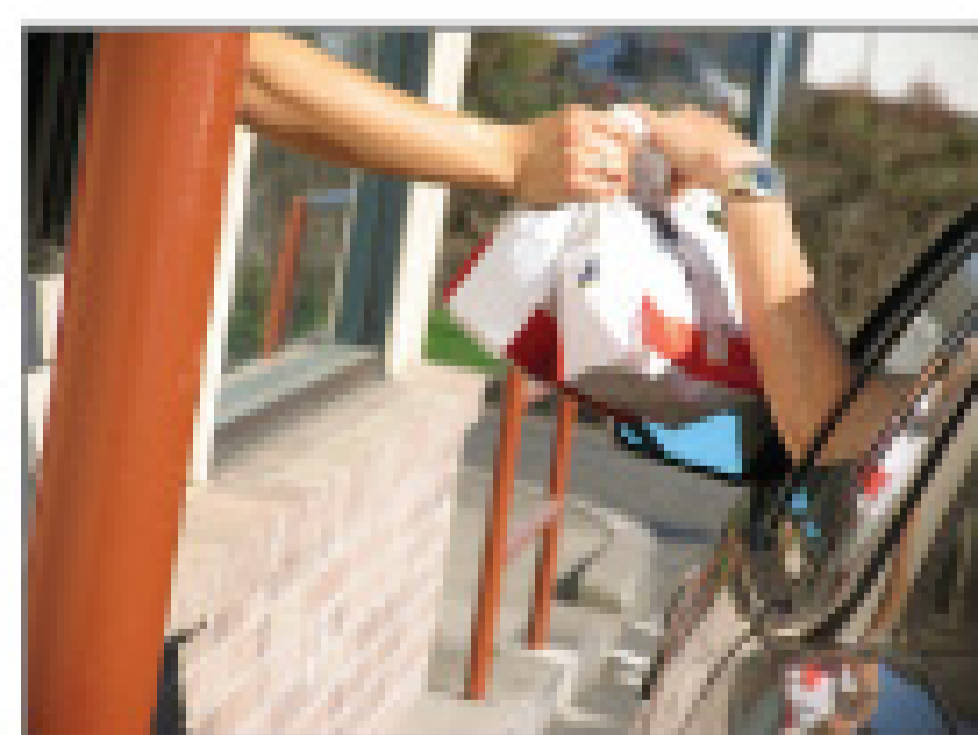


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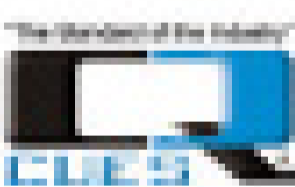
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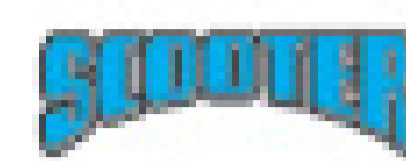


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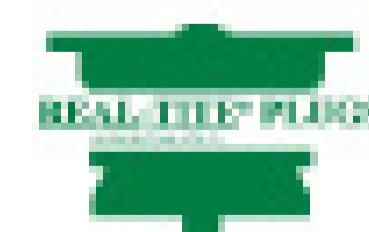
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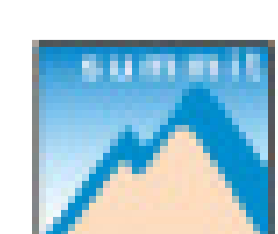
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Ted J. Rulseh

When it comes to investing, everybody wants a sure thing. What business owners often forget is that the best place to invest is not in some hot new stock or mutual fund but in their own enterprise.

After all, a great feature of any investment is being able to control the outcome. There's a help-less feeling to watching the price of a supposedly sure-fire stock drop through the floor. There is nothing you can do except decide when and whether to sell — strangers are in charge of your destiny.

But when you invest in your business, you are in charge. Your own energy, effort and intelligence decide how soon and how well an investment in a new line of business, a new employee, or a new machine will pay off.

Going to the show

For investing in your company, there is no safer bet than attending a major industry trade show. There is simply no such thing as being "too busy" to get away. And you're kidding yourself that you "can't afford" the expense.

How does a trade show pay you back? Let's count the ways. As we do so, let's assume you're not just going to dip your toe in the water, driving in for a day to look at the exhibits. Let's assume you'll be there for the duration, from the opening bell until the lights go down on the last day.

What's your outlay? Transportation costs. Three or four nights in a hotel. Meals and miscellaneous expenses. The tab depends on how you

travel: Car or airplane? Top-of-the-line hotel or "sleep-cheap"? Steak dinners or fast-food burgers? Then there's the show admission. Add it all up (you can do your own math) and it's not a huge expense, at either end of the luxury scale.

Getting it back

Now, let's look at the payback. There are two kinds of return on trade show investment: tangibles, and intangibles that soon become very tangible.

The first tangible is direct savings. You can often find show-special pricing on equipment and supplies that isn't available any other time. By stocking up on items you're sure to need, you can instantly recover some of your costs.

There are many stories of people who got their money's worth from a trade show without even stepping on the exhibit floor — by swapping "war stories" with new acquaintances over dinner the night before the show opened.

Things you learn can quickly save you money, too. Suppose a seminar teaches you how to cut phone and computing costs, route your fleet more efficiently, reduce bad debts, or streamline maintenance? One or two solid tips along those lines might recoup all your show expenses in a year or less.

Then there's the revenue side. Odds are you

will learn things you can take right back and apply in customers' homes or out in the streets and rights-of-way. A new technique that adds value to a job or lets you offer add-on services starts boosting your profits immediately.

Also tangible (though longer-term in its impact) is the discovery of equipment that lets you add a profitable new line of business or gives

you a competitive advantage in an existing line. A new manhole sealing system, video inspection outfit, jetting rig, or trenchless rehabilitation system can open a whole new market and, in time, boost your revenue by 10, 15, 20 percent, or more. That's not a one-time increase in business — it's a source of revenue and profit that continues year after year.

Sure, you can shop for equipment from your office using print ads and the Internet. But a trade show is the place to see firsthand the newest and best of everything. You'll see things there that you could easily miss otherwise. You'll be able to "kick tires," make comparisons, and choose the equipment that best fits your business profile.

Value of intangibles

Don't overlook the intangibles — they can be worth just as much. One of the greatest benefits of attending a trade show is meeting other business people who share your issues and concerns.

Around home, the industry peers you meet are likely to be competitors — not interested in giving you a hand. At a show, you'll meet people from other states and even other countries — people who will gladly share how they solved the same nasty problem that's been nettling you.

There are many stories of people who got their money's worth from a trade show without even stepping on the exhibit floor — by swapping "war stories" with new acquaintances over dinner the night before the show opened.

Those relationships don't begin and end with the show. You might make a friend who welcomes you to call for advice anytime (and would like the privilege of getting similar help from you).

Aiming higher

Finally, attendance at a trade show can change your whole outlook on the industry. It makes you feel a part of something much bigger than your business. It lets you meet highly successful people and discover possibilities you never knew existed. It helps you set loftier goals and gives you the tools to reach them.

Put aside the excuses. Release the fear of stepping away from the business for a few days. Attend your industry's signature trade show. Immerse yourself in it. You'll find out how much better business life can be. ■

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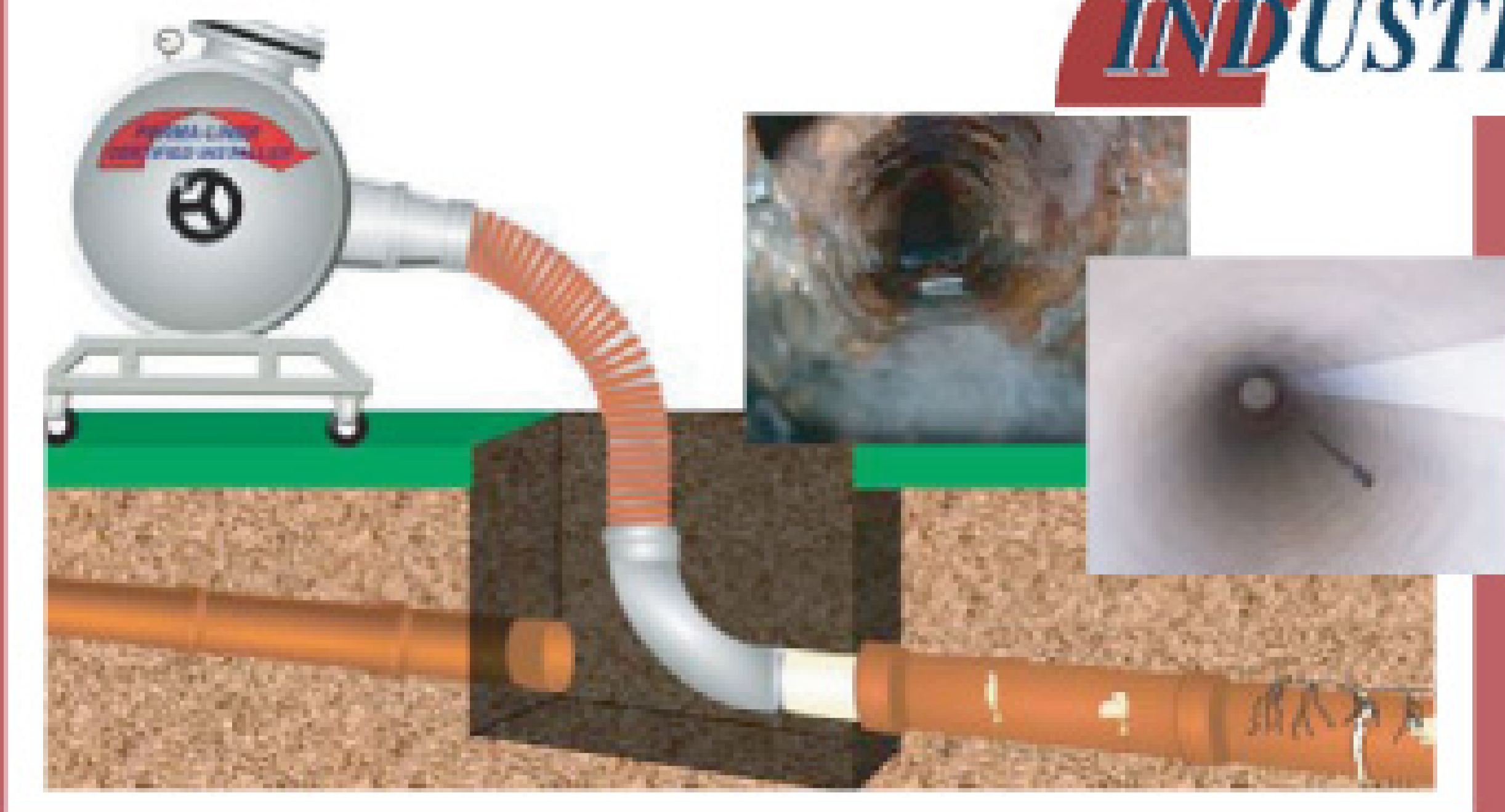
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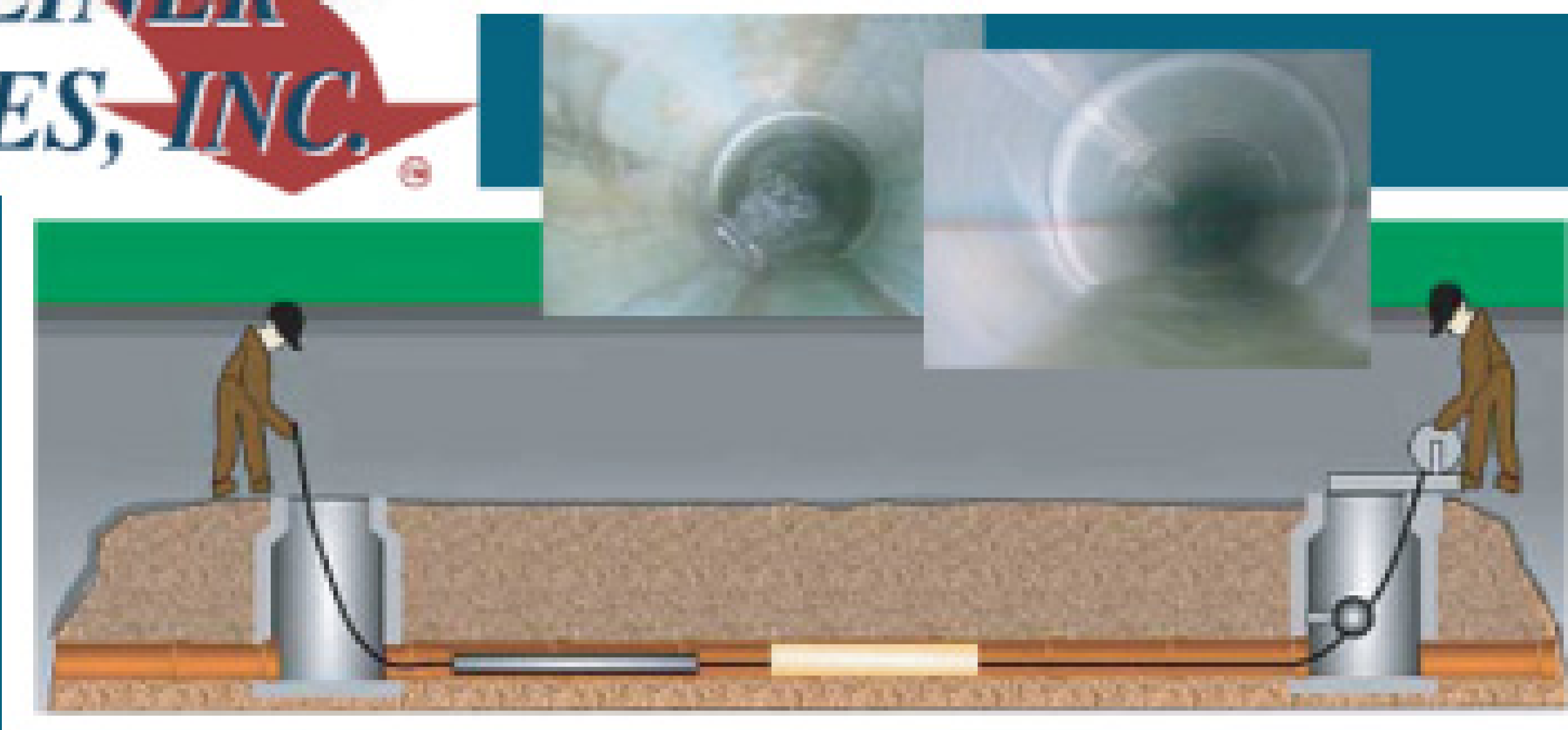
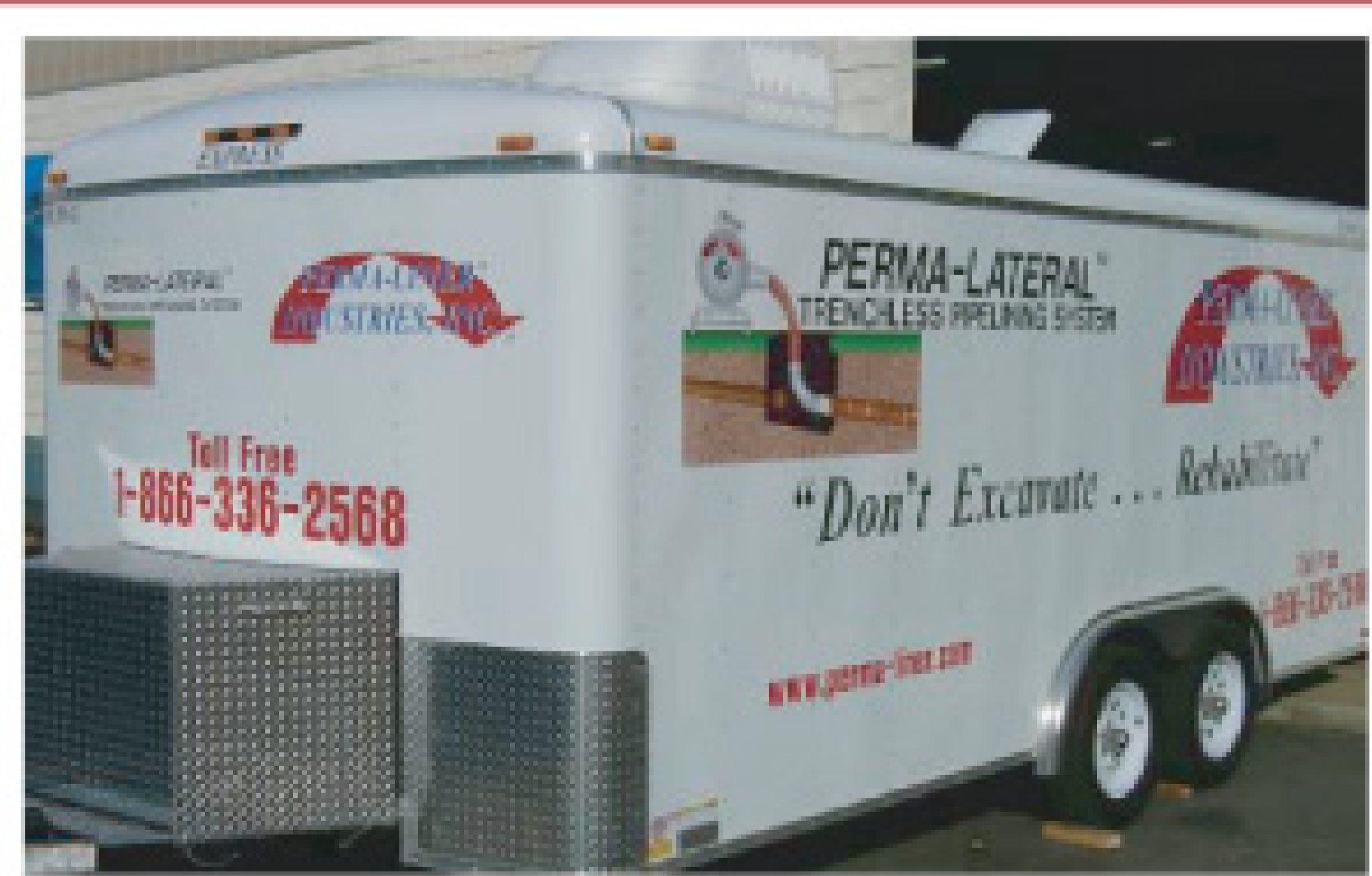




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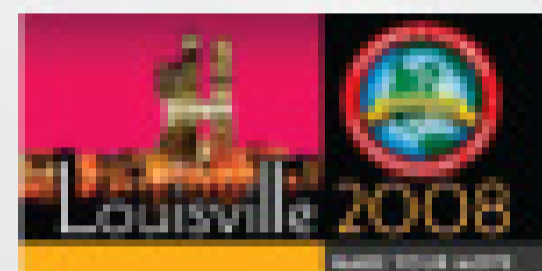
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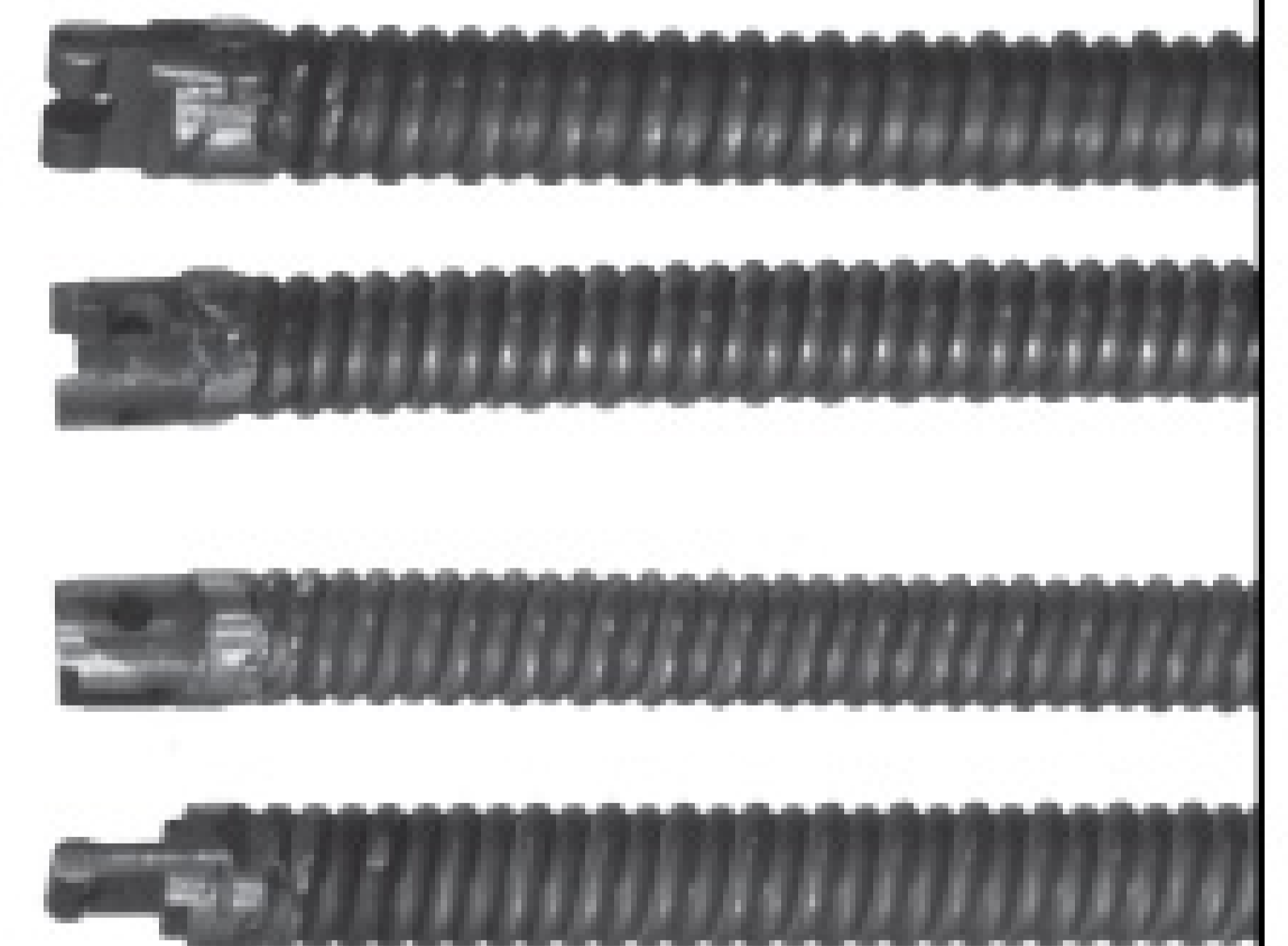
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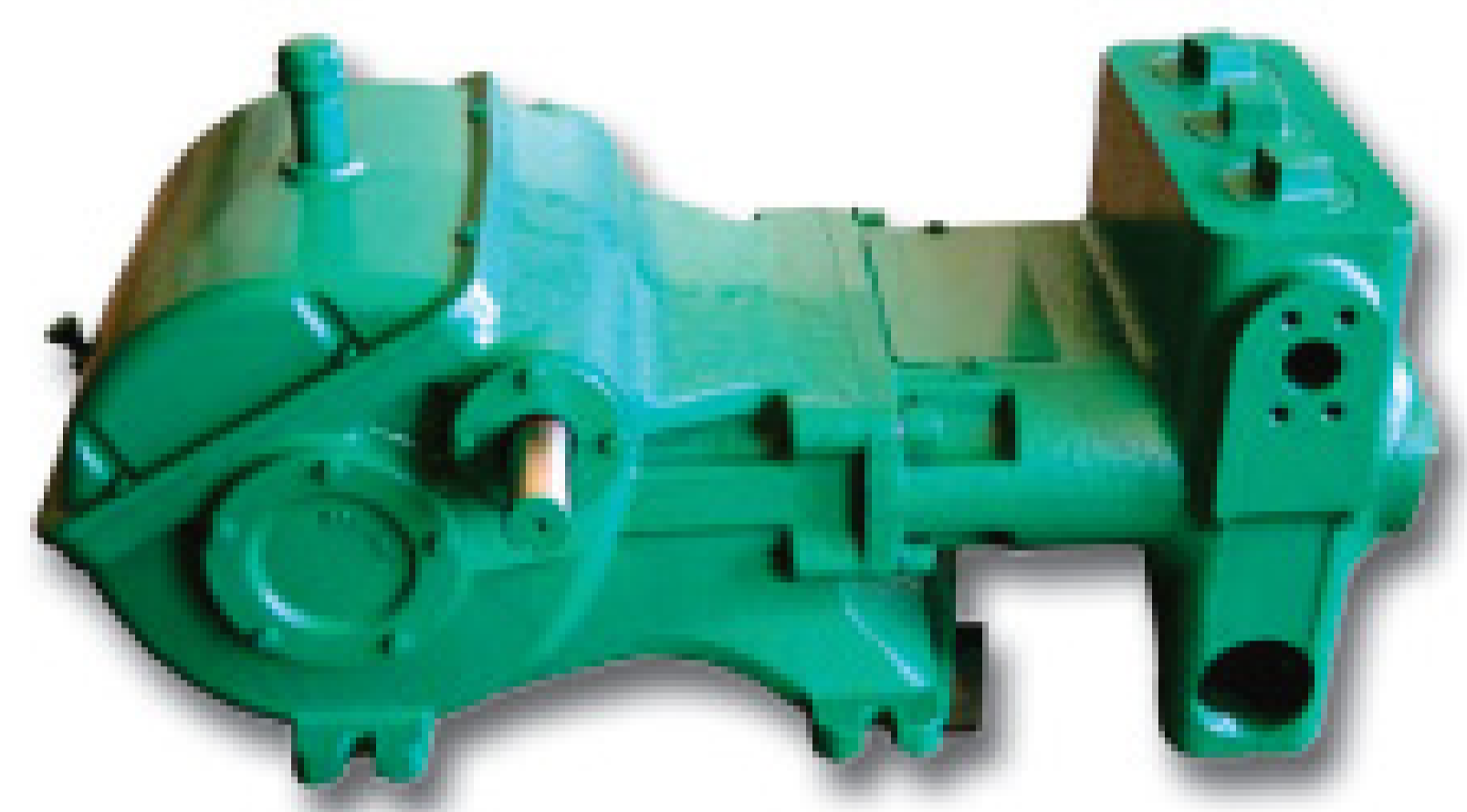
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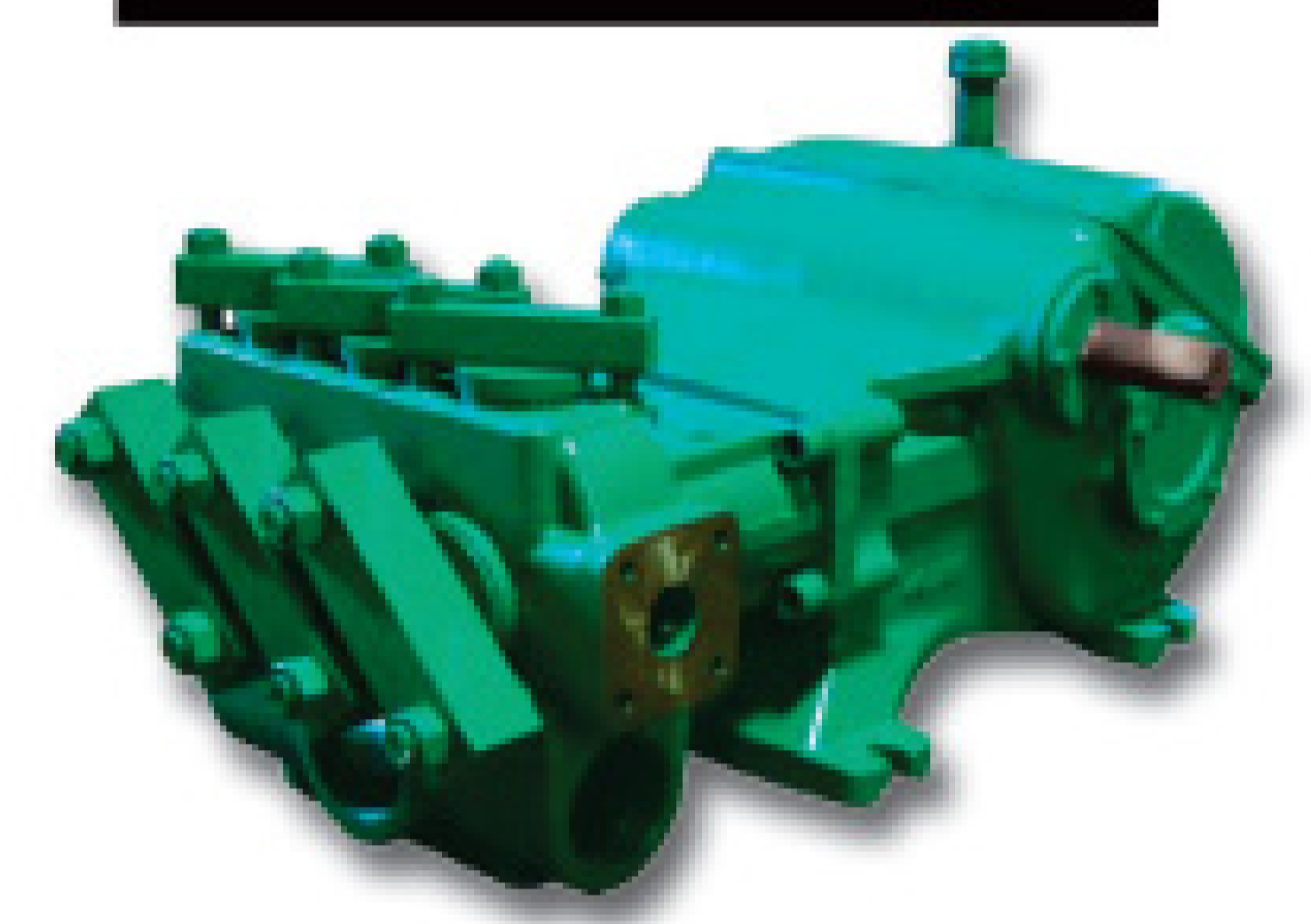
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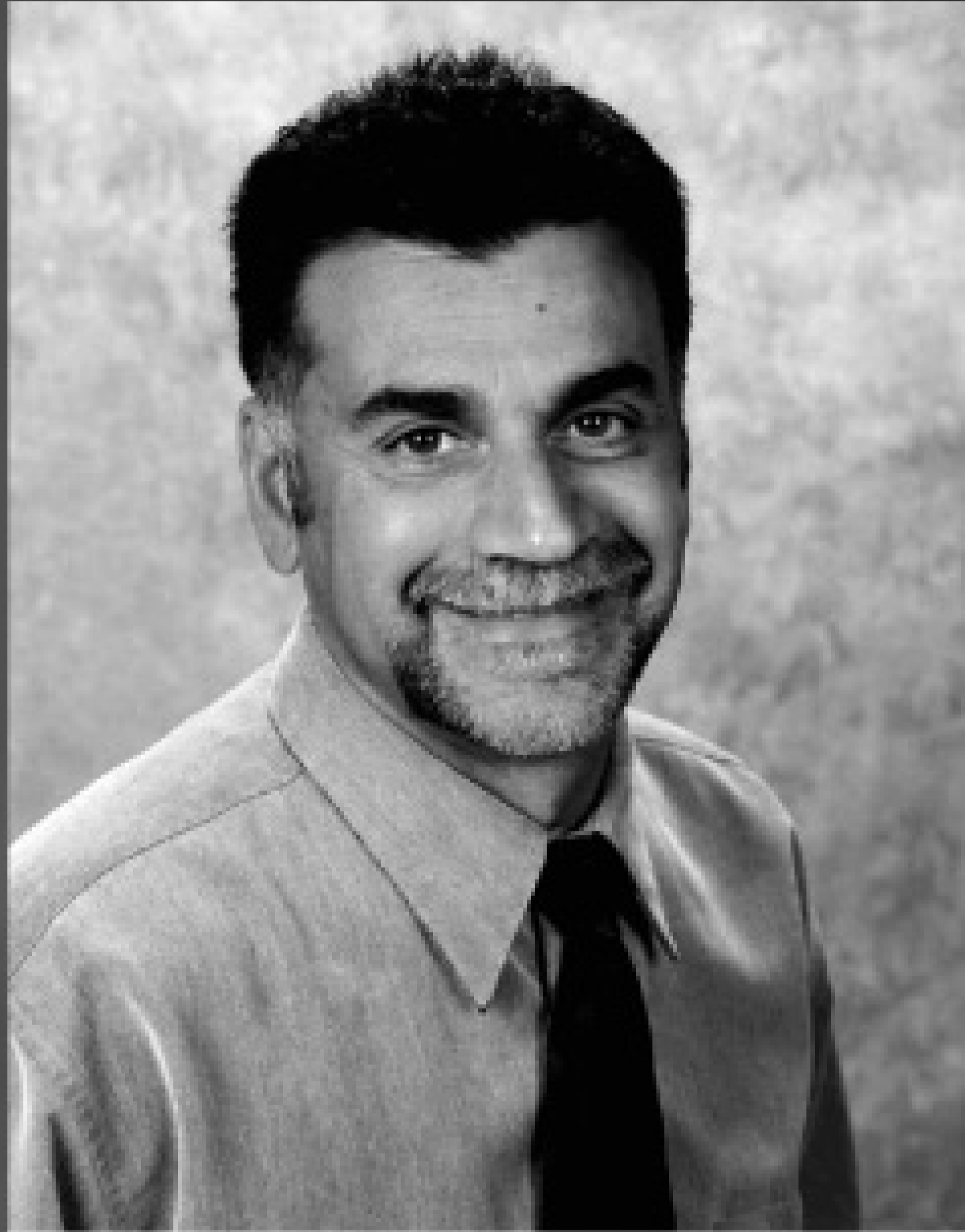
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Object Lesson

Four fatalities in Superior, Wis., underscore the importance of confined-space safety

By Scottie Dayton

Hydrogen sulfide fumes from a 12-foot-deep sewer line killed four workers on Nov. 1 at the Lakehead Blacktop Demolition Landfill in Superior, Wis. The level of deadly gas at the bottom of the 3-foot-diameter manhole was so high that it would have immediately knocked them unconscious, according to experts at the scene.

Paul E. Cossalter, 41, died along with brothers Joseph P. Kimmes III, 44, and Scott A. Kimmes, 40, and Harold Tim Olson, 47. After the first man entered the manhole and collapsed, the others followed as each one saw the previous rescuer succumb. Two other workers at the privately owned landfill called 911 after the men failed to emerge.

Firefighters with breathing apparatus recovered the bodies as workers pumped out water to help. Since hydrogen sulfide is slightly heavier than air, it stayed below ground and didn't threaten the helpers. The deceased were not wearing respirators or safety masks, according to firefighters.

The workers were installing a new pump in a large collection tank that held drainage and leached water from the landfill. The water is eventually pumped into the city sewer system. The landfill holds demolition products, such as razed buildings, and contains no garbage or hazardous materials, according to Joseph Kimmes II, father of the Kimmes brothers and founder

of J. Kimmes Construction, which owns the landfill and several other area companies.

Lethal fumes

The fatalities provide a lesson in the necessity of confined-space safety, as 60 percent of confined-space fatalities are would-be rescuers, many untrained and ill-equipped.

Hydrogen sulfide is poisonous, highly flammable, explosive, and colorless. Levels of 150 parts per



million (ppm) or greater cause the olfactory nerve to lose sensitivity. The first time a person breathes the gas, the nose can detect a rotten egg odor, but on the second or third inhalation, the person can no longer smell it.

At 600 ppm, breathing is inhibited as the gas fills the lungs and causes unconsciousness. The lungs of those exposed to 700 to 800 ppm or greater are paralyzed. These victims die quickly unless they are removed immediately from the gas area and given oxygen. However, many suffer brain damage, often permanent.

Those exposed to lower concentrations of the gas can experience eye irritation, a sore throat and cough, shortness of breath, and fluid in the lungs. These symptoms usually go

away in a few weeks. Long-term, low-level exposure may result in fatigue, loss of appetite, headaches, irritability, poor memory, and dizziness.

The National Institute for Occupational Safety and Health (NIOSH) considers 300 ppm immediately dangerous to life or health and recommends a maximum, 10-minute exposure level of 10 ppm. OSHA sets an acceptable ceiling concentration of 20 ppm and a maximum of 50 ppm allowed for 10 minutes if no other measurable exposure occurs. Firefighters at the scene in Superior recorded a hydrogen sulfide reading of 200 ppm, according to Superior Fire Chief Tad Matheson.

Prevention and protection

The risk of exposure to toxic gases in confined spaces requires workers to take special precautions. OSHA regulations require sewer crews to measure the atmosphere in manholes with a gas detector before removing the lid, as agitating sewage can release hydrogen sulfide into the manhole chimney.

Workers entering manholes must be trained in confined-space entries; learn the proper use of harnesses, hoists, ladders, and ropes; and wear the appropriate personal protection equipment.

"The simple use of an air monitor gives employees a warning of the hydrogen sulfide prior to entry," says Ed Fitzgerald, lead safety trainer for Jack Doheny Supplies in Twinsburg, Ohio. "The use of forced-air ventilation lowers the concentration of hydrogen sulfide to a permissible exposure level, and the use of a tripod-type rescue device prevents other employees from entering the confined space."

For hydrogen sulfide levels up to 100 ppm, NIOSH recommends a powered, air-purifying respirator with cartridge, gas mask with chin-style front- or back-mounted canister, or self-contained breathing apparatus with full facepiece. A continuous gas monitoring device is a sensible addition to respiratory equipment.

"The use of only respiratory pro-

TECTIVE equipment is not the answer," says Fitzgerald. "Training in hazardous material gives people the knowledge and understanding to handle toxic atmospheres."

Training matters

Employers are responsible for establishing safety programs for their companies. "The ability to recognize when crews are in over their heads or beyond their training level is one of the most important things you can accomplish in your training sessions," says Fitzgerald. "The use of monitoring, ventilation, and rescue equipment must be backed up by a company-written health and safety program."

The lack of specific procedures to ensure safe entry into areas containing hazardous gases too fre-

"The ability to go home in good health at the end of the day is priceless."

Ed Fitzgerald

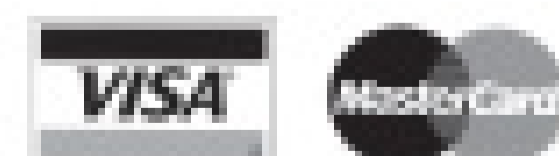
quently causes fatalities. Employers who implement carefully written and enforced procedures can help prevent potentially deadly accidents.

"If you take the time to build, maintain, and enforce a health and safety program, the productivity, professionalism, and attitude of your employees will increase to a level that every customer will notice and appreciate," says Fitzgerald. "The ability to go home in good health at the end of the day is priceless."

Visit www.osha.gov to review health and safety standards or to learn how to create a program using the standards as a step-by-step road map. Building a health and safety program takes time and employee involvement. According to Fitzgerald, the greatest mistake employers make is copying a program off the Internet without the ability or knowledge to follow through. ■

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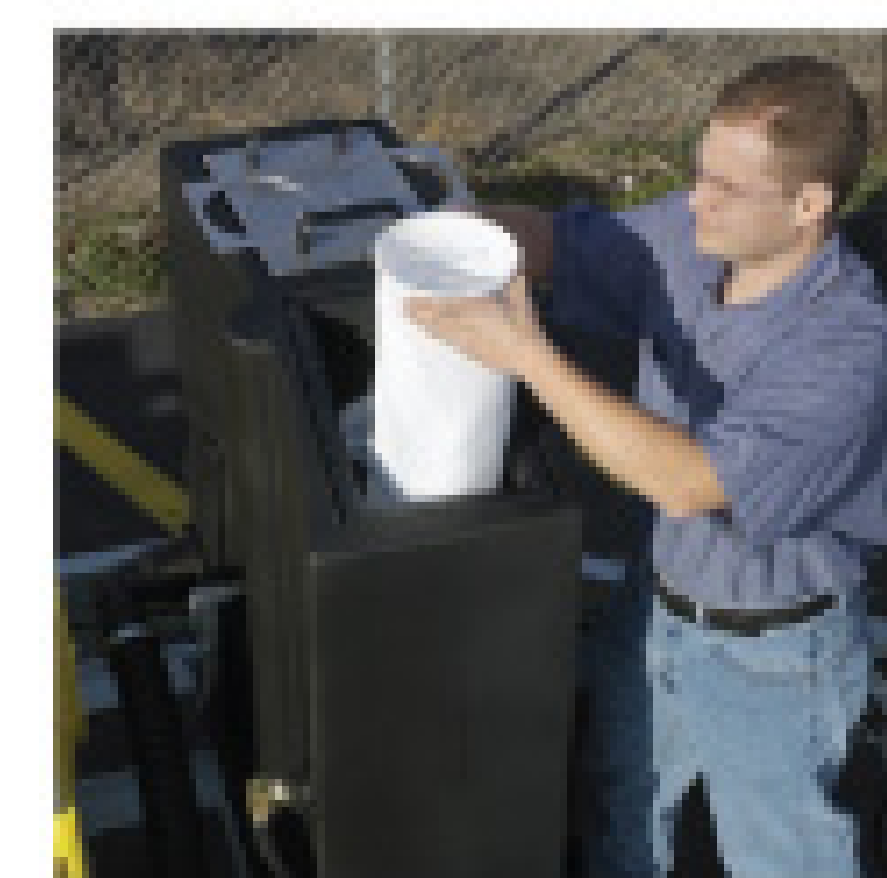
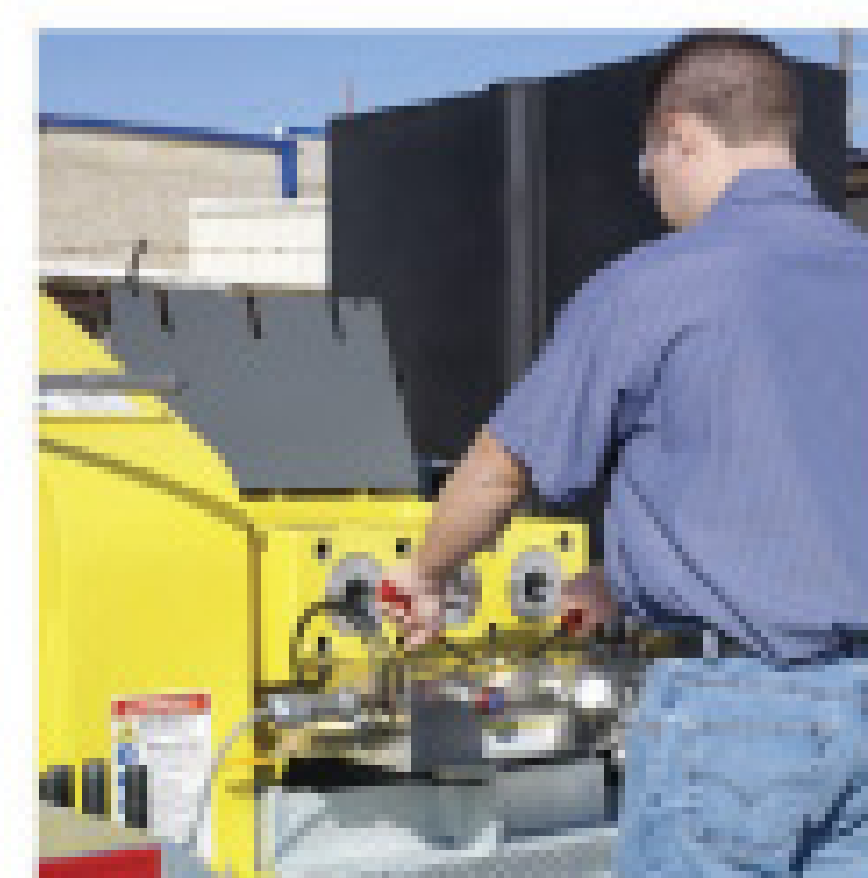
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Clinics for Cleaners

The education program at the 2008 Pumper & Cleaner Expo provides ample learning opportunities for contractors serving accounts of all types

By Ted J. Rulseh

Whether you service homes and small businesses, work in major industrial complexes, or clean and repair pipes for cities and utilities, you can learn a great deal from the education program at the 2008 Pumper & Cleaner Environmental Expo, Feb. 27 to March 1, at the Kentucky Exposition Center in Louisville.

Education Day on Wednesday, Feb. 27, offers two entire tracks of seminars dedicated to pipe cleaning and rehabilitation methods. Other seminars on Thursday and Friday, Feb. 28 and 29, cover topics of interest to a wide range of cleaning contractors. Here is a summary of the seminar offerings.

Education Day

The Education Day program includes seminar tracks offered by the Southern Section Collection Systems Committee (SSCSC), the National Association of Sewer Service Contractors (NASSCO), and the Waterjet Technology Association (WJTA).

The SSCSC program covers topics related to municipal infrastructure repair and maintenance. Sessions are:

- **Line Cleaning, Nozzle Selection and Truck Maintenance**, Rick Lewis, American Hydro-Vac Equipment Co., 8 to 9 a.m.
- **CCTV Nuts & Bolts**, Duane Johnson, vice president, Affordable Pipeline Services, 9:30 to 10:30 a.m.
- **Building a Strong CCTV Inspection Program**, Jim Aanderud, president, Innerline Engineering, 11 a.m. to noon.
- **Pipeline Lining and Rehabilitation**, Dave Badgley, business development, Sancon Technologies, Pipeline Rehabilitation Division, 1 to 2 p.m.
- **Finding Your Way With As-Built Drawings**, Mark Hill,

project manager, RBF Consulting, 2:30 to 3:30 p.m.

- **Confined Space: The Real World**, Rick Lewis, American Hydro-Vac Equipment Co., 4 to 5 p.m.

The NASSCO seminar track also looks at a variety of issues and techniques of interest to contractors serving the municipal market. Sessions are:

- **PACP/NACP/LACP**, Irvin Gemora, executive director, NASSCO, 8 to 9 a.m.
- **Advancements in Pipeline Inspection**, Neville "Doc" Bennett, BSAE, MBA, international vice president, CUES Inc., 9:30 to 10:30 a.m.
- **Sewer Main Cleaning Best Practices**, Stephen Tilson, president, Tilson & Associates LLC, 11 a.m. to noon.
- **Overview of Bypass Pumping**, Joe Abbott, national sales manager, Godwin Pumps, 1 to 2 p.m.
- **Pipe Bursting for Laterals and Mains**, Collins Orton, California regional sales manager, TT Technologies Inc., 2:30 to 3:30 p.m.
- **Water Main Rehabilitation using Trenchless Technology**, Gerhard "Gerry" Muenchmeyer, PE., technical director, NASSCO, 4 to 5 p.m.

The WJTA program covers topics of interest to high-pressure cleaning and industrial vacuum contractors. Sessions are:

- **Introduction to High-Pressure Water Blasting**, Gary Toothe, Thompson Industrial Services LLC, 8 to 9 a.m.
- **An Introduction to Industrial Vacuum Trucks/Air Movers**, Gary Toothe and Tony Fuller, Guzzler Mfg., Vactor Mfg., Jetstream of Houston, 9:30 to 10:30 a.m.
- **Keys to Productive, Profitable, Quality Waterjetting**, 11 a.m. to noon.

Education Day also includes a program on utility cross-bores from the Cross-Bore Safety Association from 4 to 5 p.m. Presented by Mark Wallbom and Joe Purtell, the seminar will address the keys to eliminating existing cross-bores and educating pipeline installers to prevent cross-bores in the future.

Thursday, Feb. 28

The Thursday program offers seminars given by experts representing industry manufacturers and service providers. Topics of special interest include:

- **Blower Troubleshooting and Repair**, Mike Fender, Pat's Pump & Blower: Uses of blowers; blower failures, causes and remedies; blower life extension, 8 to 9 a.m.
- **Safety in Excavation**, Gary Hooks, Safety Corporation of America: Training employees in the hazards of excavations, 8 to 9 a.m.
- **Increasing Profits**, Joel Smith, Clear Computing: Using business practices and software

to improve sales from existing customers, 9:30 to 10:30 a.m.

- **Water Blasting Applications and Solutions**, Scott Hardy, StoneAge Inc.: Surface cleaning, tank and vessel cleaning, pipe cleaning, and heat exchanger cleaning, 9:30 to 10:30 a.m.
- **How to Develop an Employee Training Program**, Donald MacDonald, ACORP/Rooterman: Step-by-step approach to organizing and conducting training for a business team, 11 a.m. to noon.
- **Job-Based Selection of Vacuum Truck Options for Industrial Applications**, Brian Ott, GapVax: Developing specifications and selecting equipment for hydroexcavation, wet/dry vacuuming and other jobs, 11 a.m. to noon.
- **Hydroexcavation Safety and Procedures**, Belinda Bain, Soil Surgeon Inc.: Regulations, permitting, utility marking, site safety plans, excavation regulations, protective sys-

Seminars attracted many attendees at the 2007 Pumper & Cleaner Environmental Expo International.



tems, and other safety topics, 11 a.m. to noon.

Friday, Feb. 29

The Friday program offers additional seminars given by industry experts and covers topics of special interest to cleaning contractors. Sessions include:

- **Pipe Bursting and Pipe Splitting**, Gerry Robinson, Pipe Genie: Techniques to replace sewer and water lines and install sewer and water lines in tandem, 8 to 9 a.m.
- **Smoke Testing Sewer Mains and Plumbing Systems**, Lynn Hurley, HURCO Technologies: Safe use of smoke products and the importance of smoke test data, 9:30 to 10:30 a.m.
- **Temporary Diversion Systems: Reliability is Everything**, Joseph Abbott, Godwin Pumps: Installing reliable bypass pumping systems, 11 a.m. to noon.
- **Equipment Needs to Grow Your Business**, Sewer Equipment Company of America:

Equipment to meet the needs of startup sewer service contractors, 8 to 9 a.m.

- **Taking Your Business from Good to Great**, Mary Kennedy Thompson, Mr. Rooter: Five basic steps to take a service business to new heights, 9:30 to 10:30 a.m.
- **Overview of Sewer and Drain Cleaning Equipment**, Shane Wyant, Allan J. Coleman Co.: Overview of machines from hand-held sink units to mainline sewer machines; comparison of sectional and drum machines, 11 a.m. to noon.

Learn more and register

Check the listing in this magazine for the room locations of these seminars and for a complete schedule of education programs. **To find out more about the 2008 Expo, or to register, visit www.pumpershow.com or call 800/257-7222.** The early registration fee of \$40 applies until Jan. 25, 2008. Registration at the door is \$60. ■

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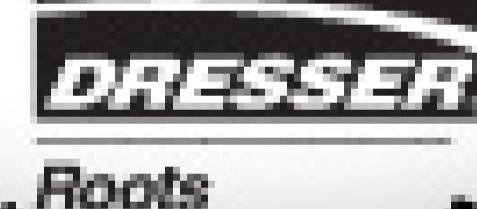
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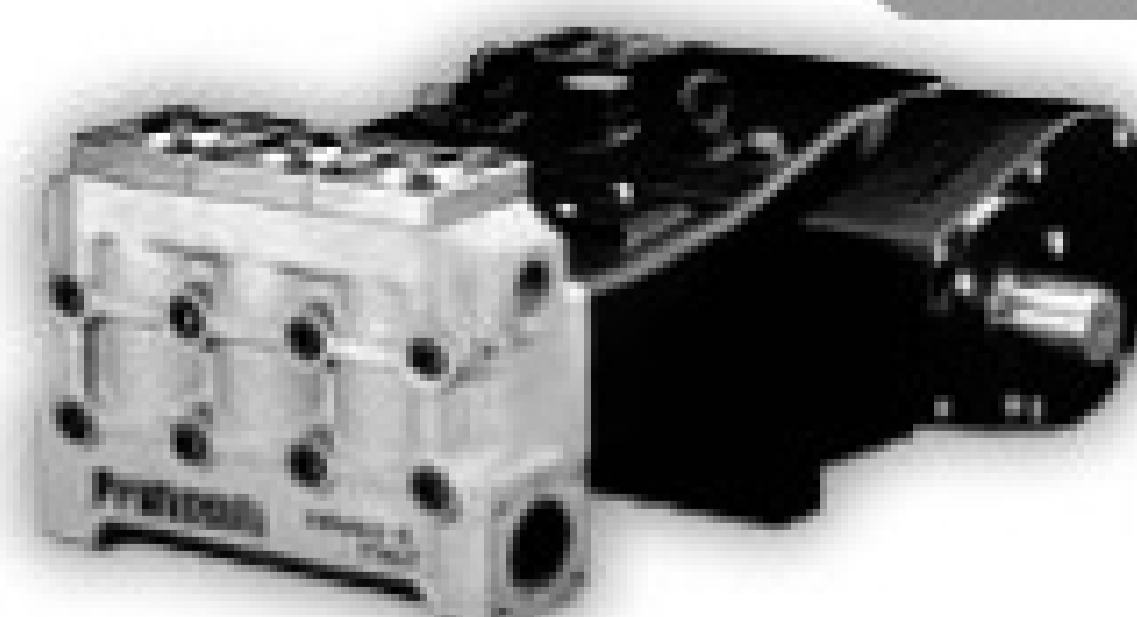
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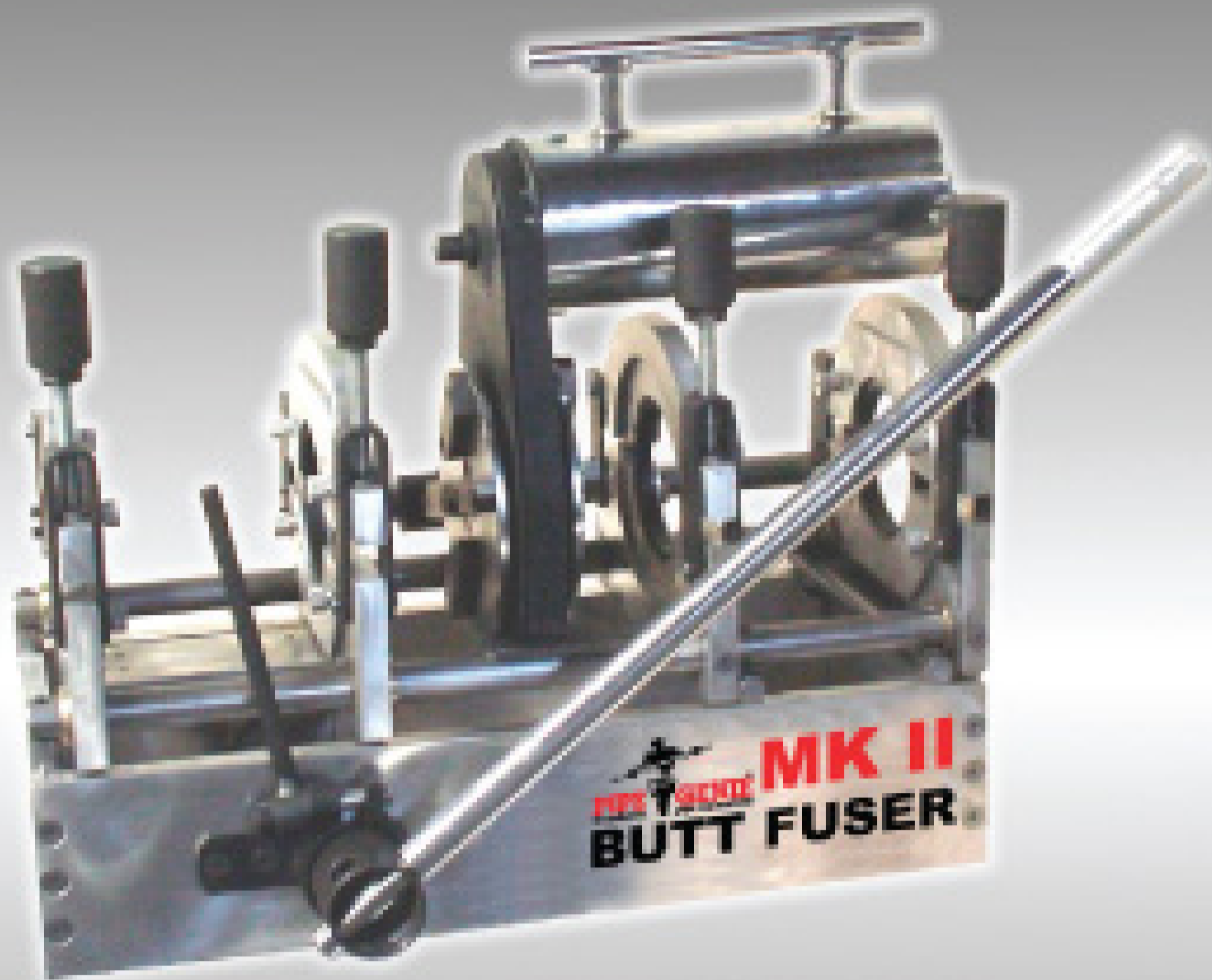


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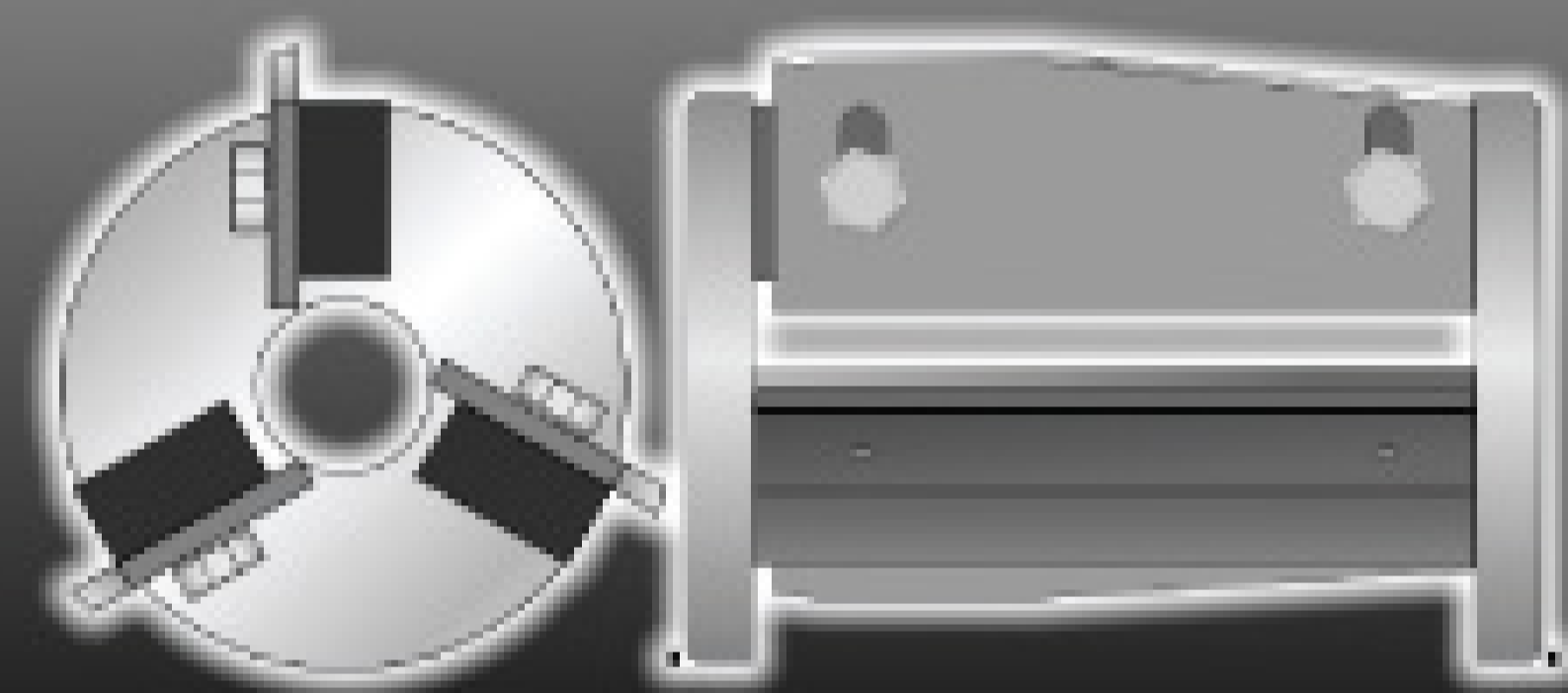
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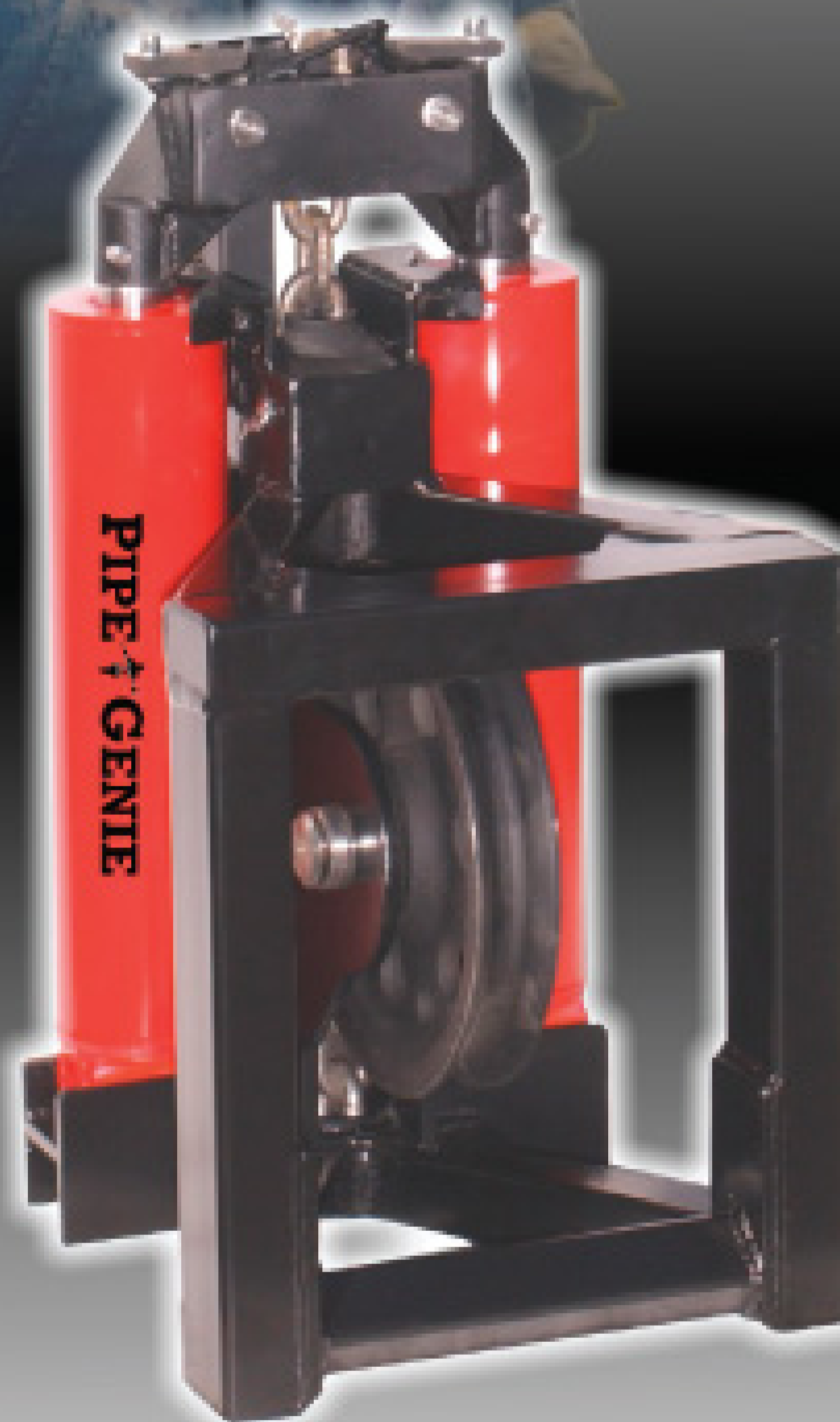
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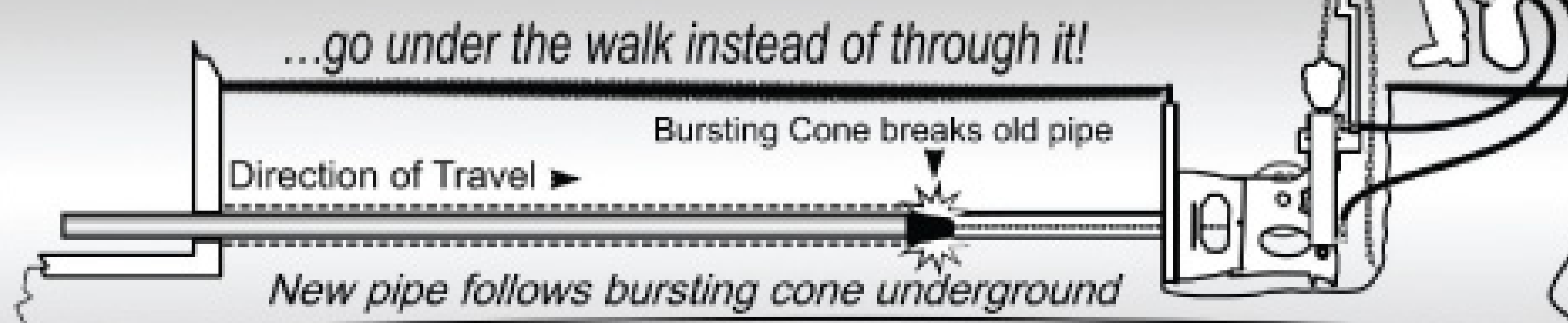
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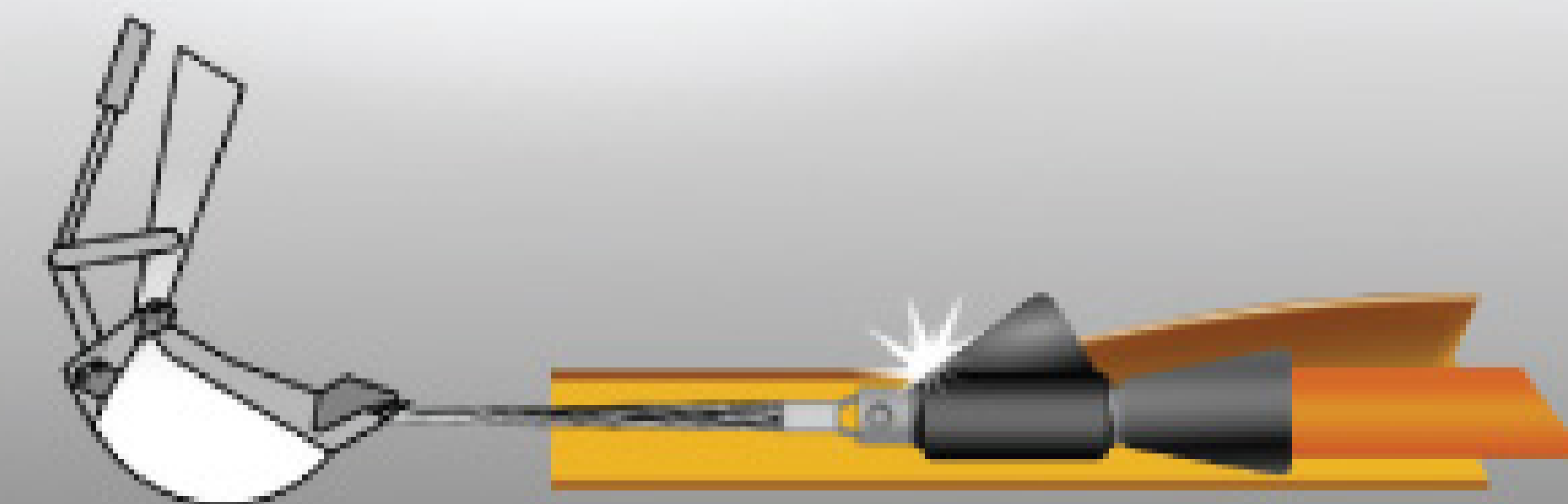
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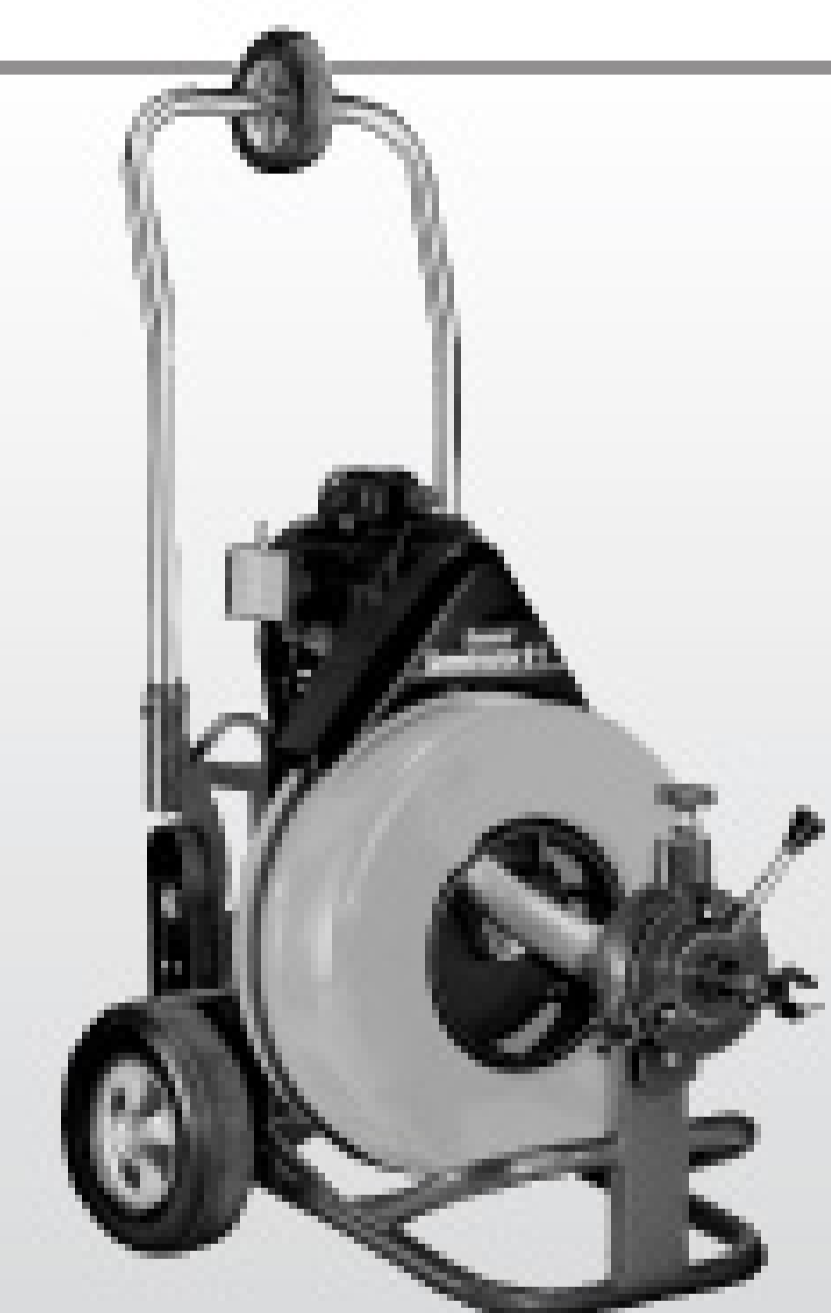
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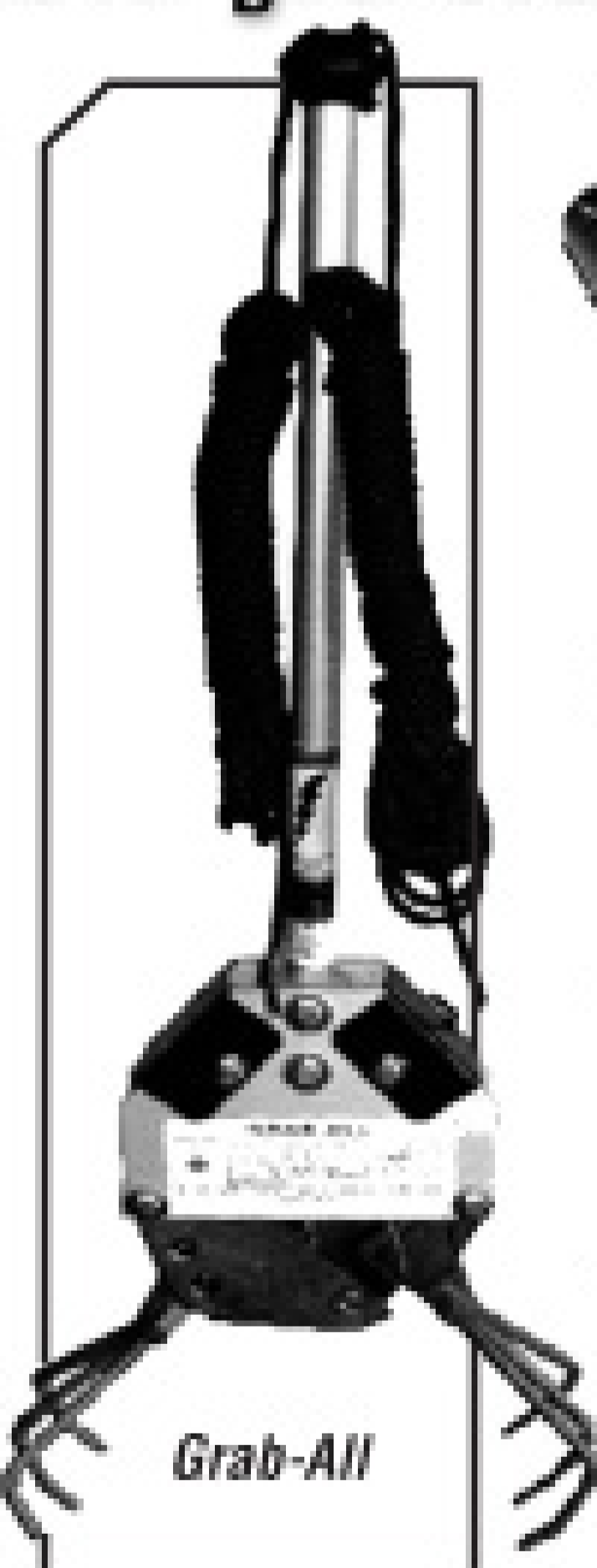
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Be It Resolved

Here are 10 ideas for the new year that can increase your odds of achieving personal and financial success in 2008 and beyond

By Erik Gunn

With 2008 on our doorstep, it's time for New Year's resolutions. Here are 10 to help you manage your money better.

1. Read (or re-read) two books on better managing your money in your business and in your personal life. Here are five suggestions:

- *The Only Investment Guide You'll Ever Need*, Andrew Tobias. An accessible, sensible, irreverent and no-frills guide to making and keeping more of the money you put aside to make more money.
- *Business Plans for Dummies*, Paul Tiffany and Stephen D. Peterson. Just what it sounds like, except you don't have to be a dummy to benefit from this straightforward, well-organized book.
- *Customers for Life: How to Turn that One-Time Buyer into a Lifelong Customer*, Carl Sewell and Paul B. Brown. This book, by a highly successful auto dealer, teaches superior customer service.
- *The E-Myth Revisited*, Michael Gerber. The sequel/rewrite to Gerber's previous book, *The E-Myth*, preaches building business success by adopting the fundamental premises of successful franchises: clear and consistent procedures and operations.
- *The Business of Contracting*, Frank Blau (self-published). Don't let the photocopied printing fool you. This collection of columns by one of the plumbing industry's most admired innovators offers a wealth of useful advice.

2. Review your expenses. Where can you cut back, or even eliminate costs to your business? Don't just buy something because "it's deductible." Remember, you have to earn the money to pay for it first.

3. Check your pricing. Are you adequately

covering your overhead? Are you getting the margins you're capable of? Don't race your competitors to the no-margin bottom; charge what your work is worth, and then make sure you deliver service that's worth what you're charging.

4. Get bookkeeping software, or upgrade the software you already have. QuickBooks from Intuit is the most widely recommended in this category, and it offers a good package adaptable to a wide range of businesses. But there are also some industry-specialized applications that are worth a look, some designed to work with QuickBooks, others in place of it.

Clear Computing of Tinton Falls, N.J., sells *Total Activity Control*, a package useful for septic, drain and sewer contractors. TAC adds to QuickBooks

A saying has it that no business has ever failed because of its accountant fees — but many have failed because of poor accounting. A good accountant isn't just a bookkeeper — he or she can (and should) offer you sound, big-picture advice.

features needed to generate reports on operations, production, and sales and marketing, and it links back to QuickBooks to report gross sales or to recap customer or market types and to align both applications' data with bank statements.

Ritam Technologies of Eagle, Idaho, offers *Service Profit Builder*, which provides dispatching, job-tracking and accounting features. Ritam also has specialized packages for specific industries, including rendering and portable restroom rental.

GMF Associates of Johnstown, Pa., offers

Datsan Computer Software, which provides applications for the septic industry and the portable restroom business. Both systems offer order entry, automatic billing, accounts receivable tracking and database query; the portable restroom product also includes routing and inventory control features.

5. Hire a CPA. A saying has it that no business has ever failed

Erik Gunn is a magazine writer and editor in Racine, Wis., where he operates Great Lakes Editorial Services, consulting for businesses, non-profits and individuals. Readers may direct inquiries to him by contacting this publication at 800/257-7222 or e-mailing editor@cleaner.com.



because of its accountant fees — but many have failed because of poor accounting. A good accountant isn't just a bookkeeper — he or she can (and should) offer you sound, big-picture advice. Get an accountant, but not on impulse. Research candidates and interview more than one to make sure the person you hire really understands your business.

6. Accept credit cards. Plastic puts cash in your pocket faster, and for some customers it can make the difference between you or your competitor winning the sale. It's worth the initial cost of setting up a merchant account and the fraction of each sale that the credit card companies take.

7. Review your insurance. Do you have too little? Too much? When did you last bid out your insurance coverage? You may have earned a discount on your premiums by putting all your work with one insurer and by maintaining a good claims record over the year. But don't assume that — investigate.

8. Study your benefits. Training and losing employees is a big money sink for some businesses. Offer your workers things that can make a difference in whether they stay or go. Some are costly (health insurance), but better deals are out there. Other benefits — flexible scheduling, certain kinds of supplemental insurance, or even a more attractive break room — can be fairly inexpensive, yet pay dividends in employee satisfaction.

9. Set up a retirement plan. This goes for your employees and yourself. There are many ways to help your workers get started on retirement plans without spending a lot of extra money. And you should do the same for yourself. Retirement plans provide security for you and your family as you get older and free you from depending on the business. If you have a retirement plan already, fund it to the best of your ability.

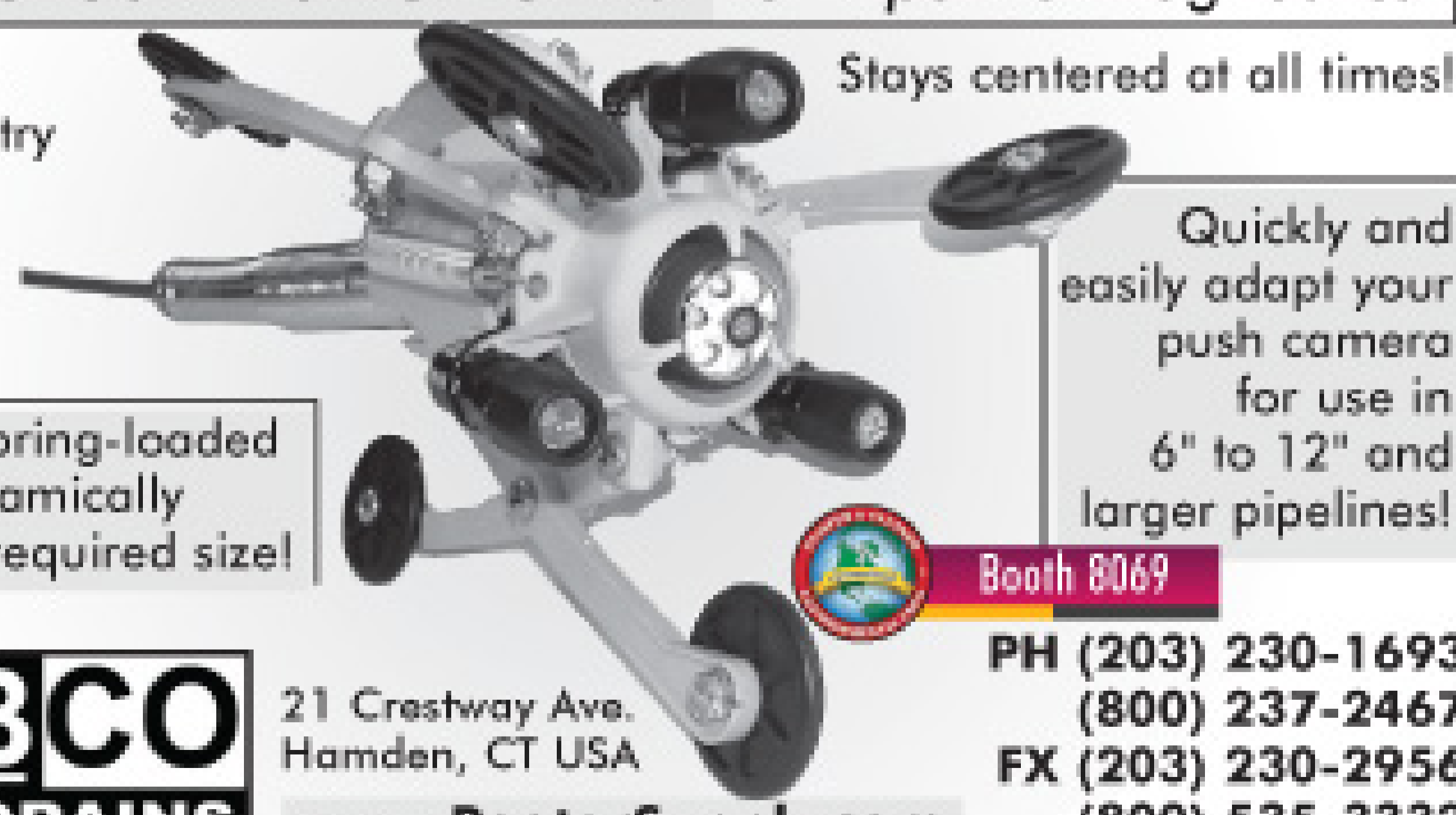
10. Consider offering service contracts. Consider whether your business can accommodate some sort of prepaid maintenance or service plan. It can guarantee you business and provide a financial floor for your operation. Design one that's easy to maintain and helpful for your customers, and get sound professional advice on setting it up. Then make sure you promote it.

The point of this list isn't to overwhelm you. Few if any of us could make 10 resolutions and follow them all through to success. Look at this list and find three, two, or even one item that looks particularly good. Then make it a priority and stick to it. And when 2009 rolls around, pick up this column again, and keep going. Happy New Year! ■

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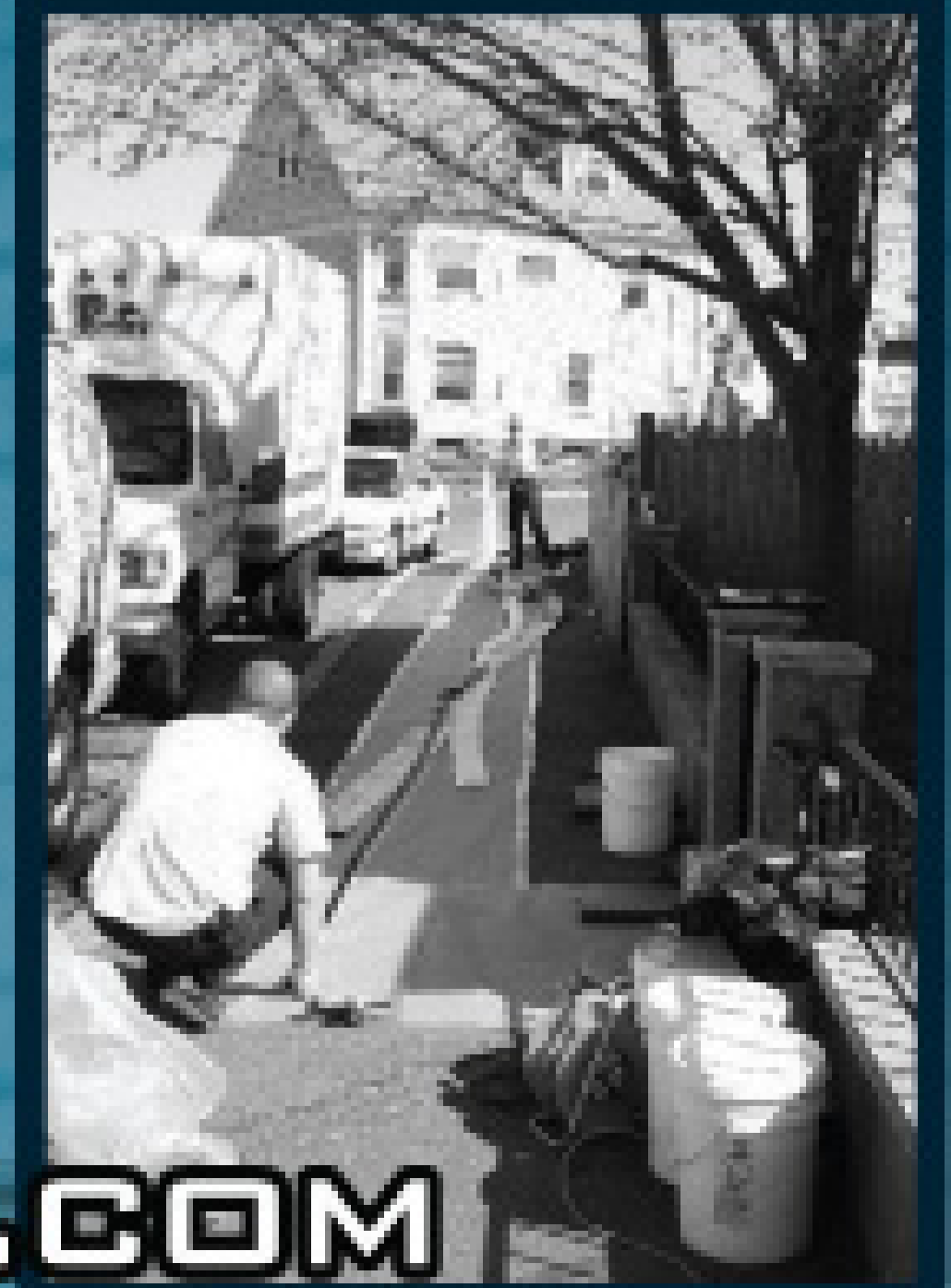
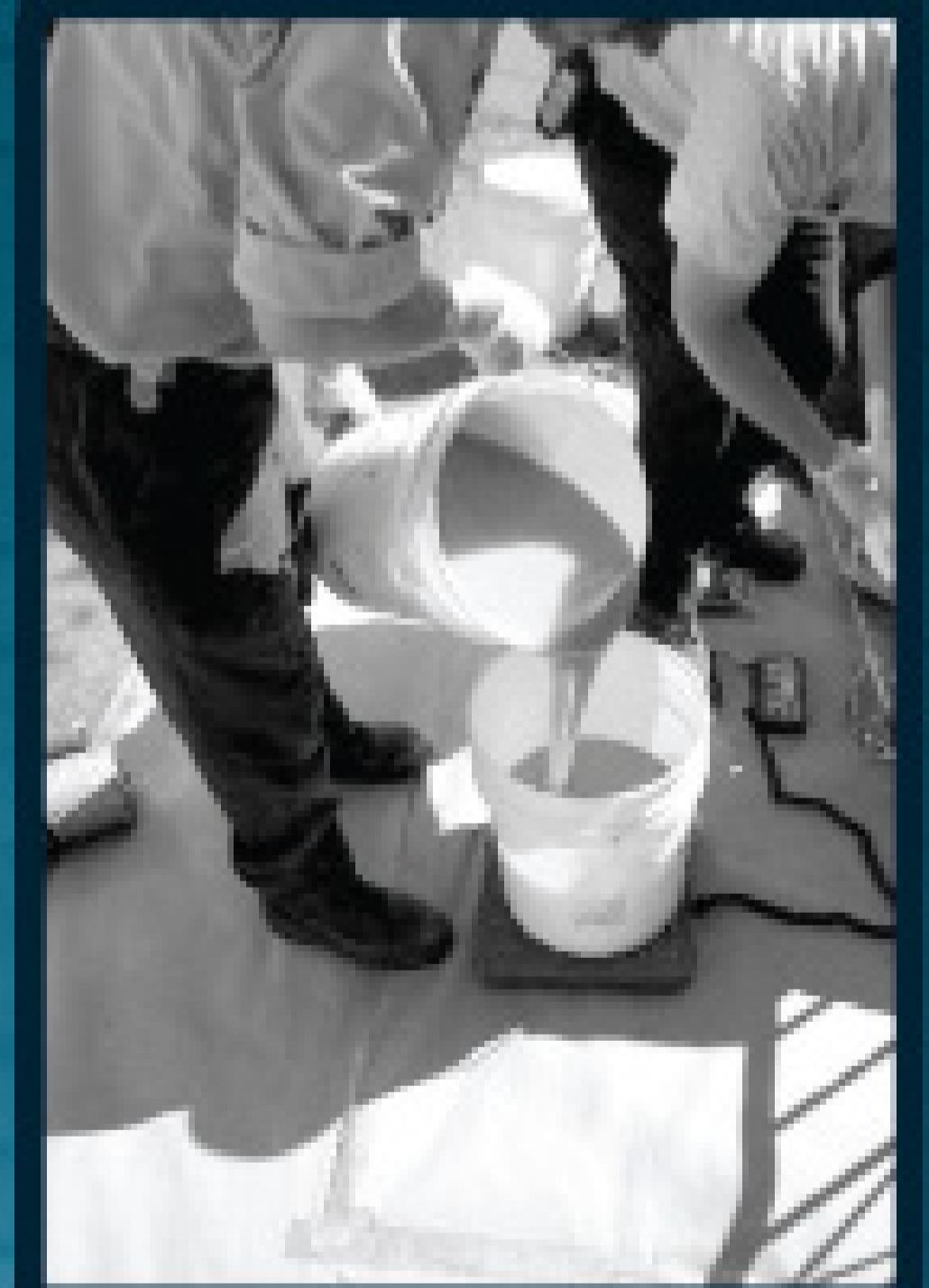
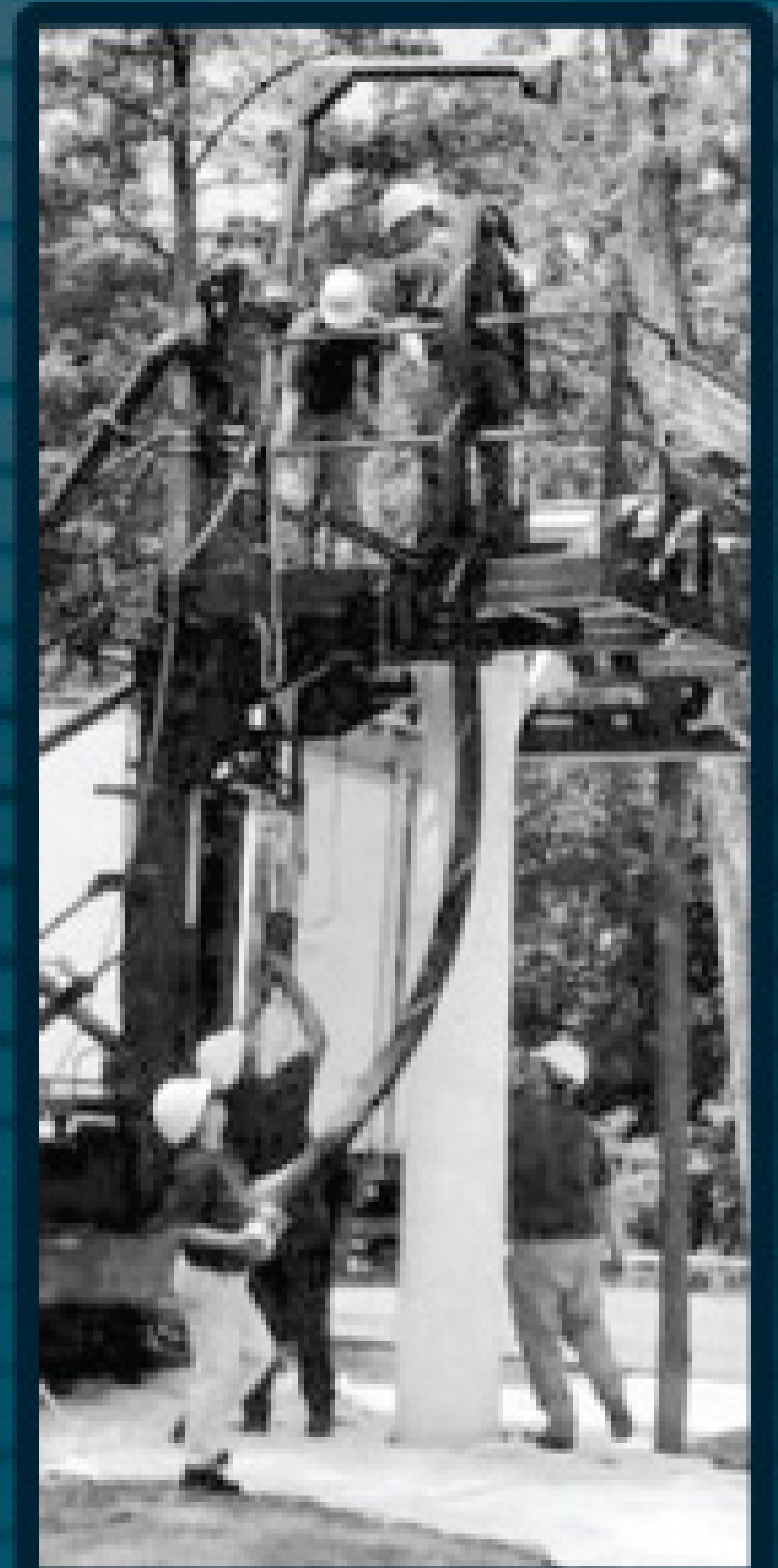


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Put It on Autopilot

Business systems can help owners break away from day-to-day demands, focus more on growth, and gain more personal freedom

By Alan Bayham

If you're like many small-business owners, you love what you do, but you may feel trapped in your work. You want the business to continue after you retire, but because you have such a hands-on role in nearly every aspect of the company, you wonder how you'll ever be able to walk away.

You dream of being able to take a month-long vacation, but you fear the business would suffer without you there every day. While you love the financial rewards being a business owner affords, you wish you could reap those rewards without having to do all the work yourself.

The real problem for many business owners is not the inability to walk away from the office and leave work at work, but rather a lack of formal business systems that would essentially automate the company's processes.

Since many owners have always handled business issues themselves, they feel there's no need for systems. They believe customers need personal interaction from them, and they have a hard time delegating tasks and duties effectively.

However, by simply systematizing your business and creating policies and procedures, you can break free from the chains that keep you tethered to the desk. You can then focus on business-building activities and personal interests.

Setting up systems

While the exact systems, policies and procedures you create depend on the nature of your business, here are some guidelines to keep in mind.

1. Set your priorities. Often, business owners are so wrapped up in day-to-day activities that they lose sight of what they really should be doing as leaders. Take a timeout and ask yourself: How can I grow my business? What activities are the most rewarding to me, professionally and personally?

You'll likely realize that in order to grow your company and feel more personal satisfaction, you need to spend your time on such things as networking for new business, building client relationships, planning the company's future growth, or simply enjoying some time away from the business. Once you realize what you should be doing on a regular basis, you can let go of the day-to-day tasks your employees can easily take over.

2. Make a list of your current activities. Next, keep a journal of how you spend your time

at work. What specific tasks are you doing? How much time are you spending on the technical aspects of what your company offers? How much of a hands-on role are you taking? What percentage of your time do you spend on strategic activities?

You'll likely find that you spend the majority of your time doing the same or similar tasks that you pay employees to do. Why? Because most small-business owners started as technicians in particular fields and then decided to open their own businesses. So they feel comfortable in a technician role, but lack business management and leadership training. For most owners, it's eye-opening to evaluate on paper how much time they spend doing technical tasks.

By taking the time to systematize your company, you'll have a more efficient business, and you'll be more effective in your leadership role. You'll actually have time to do things you enjoy and that are important to the business.

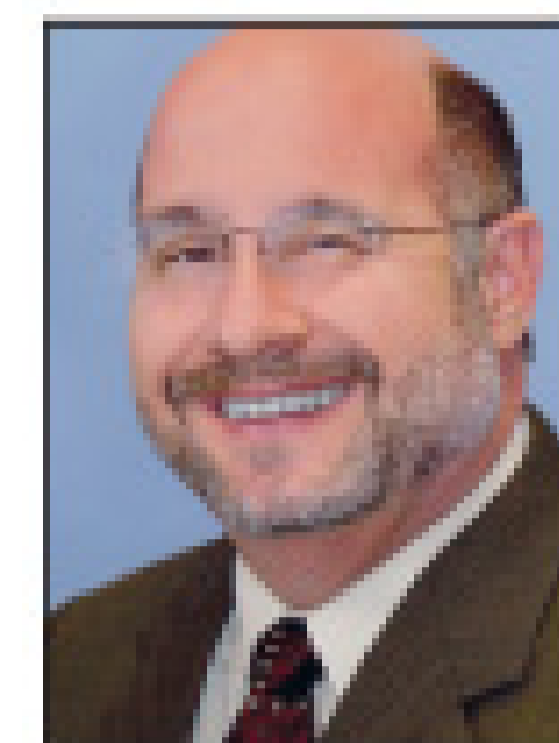
3. Delegate effectively. Delegate all tasks not related to the list of what you should be doing, created in step one. But don't hand someone a task and say, "do it." You need to delegate correctly. That means giving the person clear directions and being sure he or she understands what you want done, how much time and money it should take, and when the task is due.

While you should make yourself available for questions, you should not have hands-on involvement with the task. Follow up with the person in writing, reiterating the agreed-to task and all the details. When you complete this step, you will have systematized your first process!

4. Get everyone involved. Putting processes in writing applies to everyone in the company. It needs to happen laterally as well as vertically. Think of it as creating an owner's manual for each position. Have each person list all the tasks his or her position is responsible for.

Consider that someone in the payroll department would detail how to run payroll, how to pay the withholding taxes, and how to process 401(k) deductions. This way, if that person were to go out

Alan Bayham, president of Bayham Consulting LLC, is a Licensed Professional Business Coach with more than 30 years of experience in leadership, management and marketing training. He can be reached at abayham@bayhamconsulting.com.



sick or suddenly quit, another person could pick up the process description and do the job. Every person needs to go through this process for every aspect of his or her job.

Be sure the written processes are based upon a job description and not based upon a person. You can't have systems based on what Mary or John does. It needs to be based upon the actual job description of the position. That way, if John leaves the company, you don't have to find someone just like him. You need to be able to replace people easily.

5. Share the systems companywide. Once something is written down and systematized, put it into a policy and procedure manual. Have people cross-train for different positions so they can step in when needed, even if only to help during a crunch.

Since all the tasks are tied to specific job descriptions, also make sure they're tied to that person's performance evaluation. That will ensure that the task is done according to the prescribed system every time.

Make success a system

While the process of creating systems companywide may seem overwhelming, remember that you don't have to do it all at once. Systematizing your business is a long-range project, not something you can do in a week. Start by systematizing just one position and then move onto another.

Once you do have one thing systemized, be sure to re-evaluate your system on an annual basis to see if you need to make changes based on new events, information or regulations. By taking the time to systematize your company, you'll have a more efficient business, and you'll be more effective in your leadership role. You'll actually have time to do things you enjoy and that are important to the business.

You'll be able to focus on things that will make your company more successful, and you'll be able to reap the profits from your business even when you're not physically there. Begin the systemization process today and you'll enjoy rewards for years to come. ■

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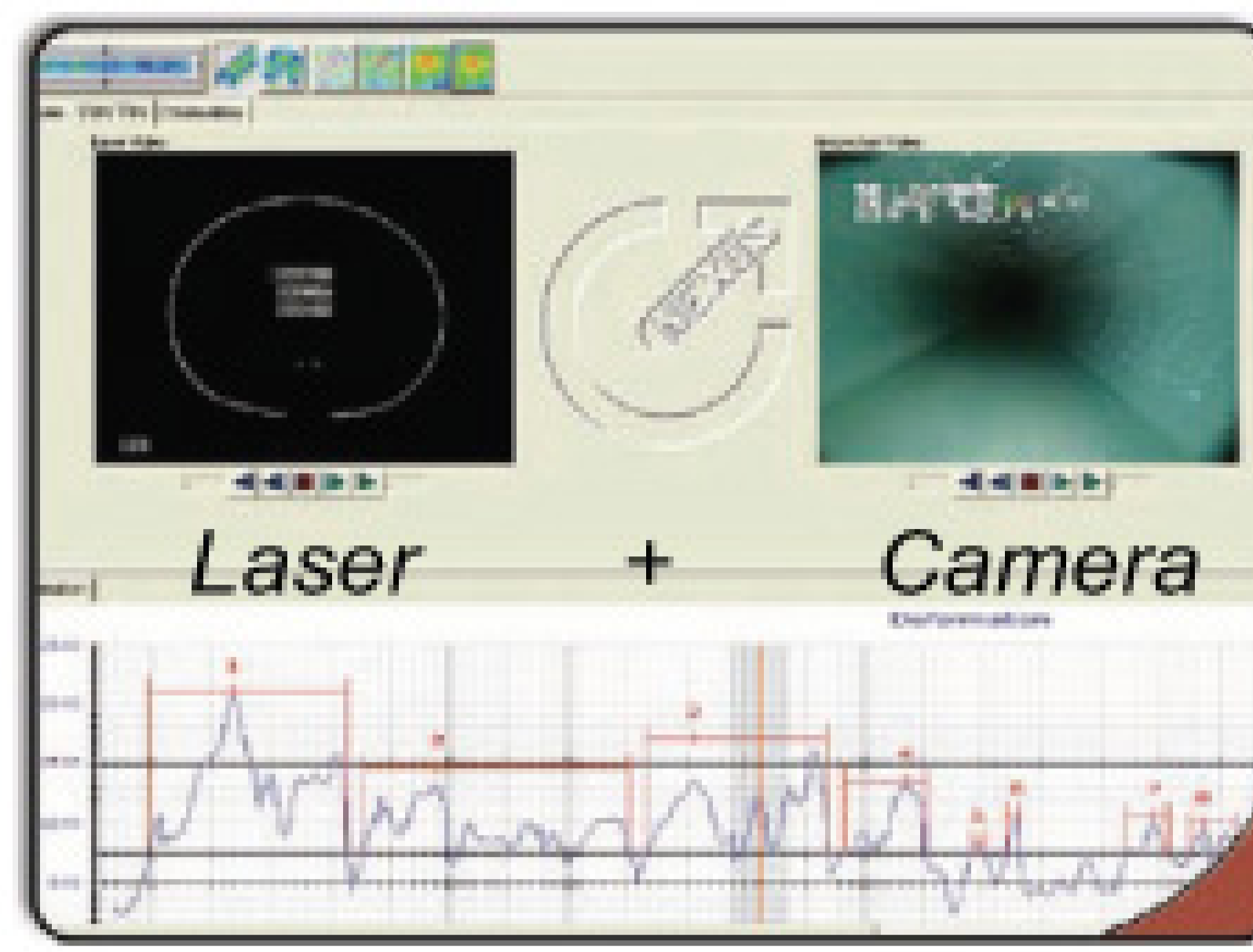
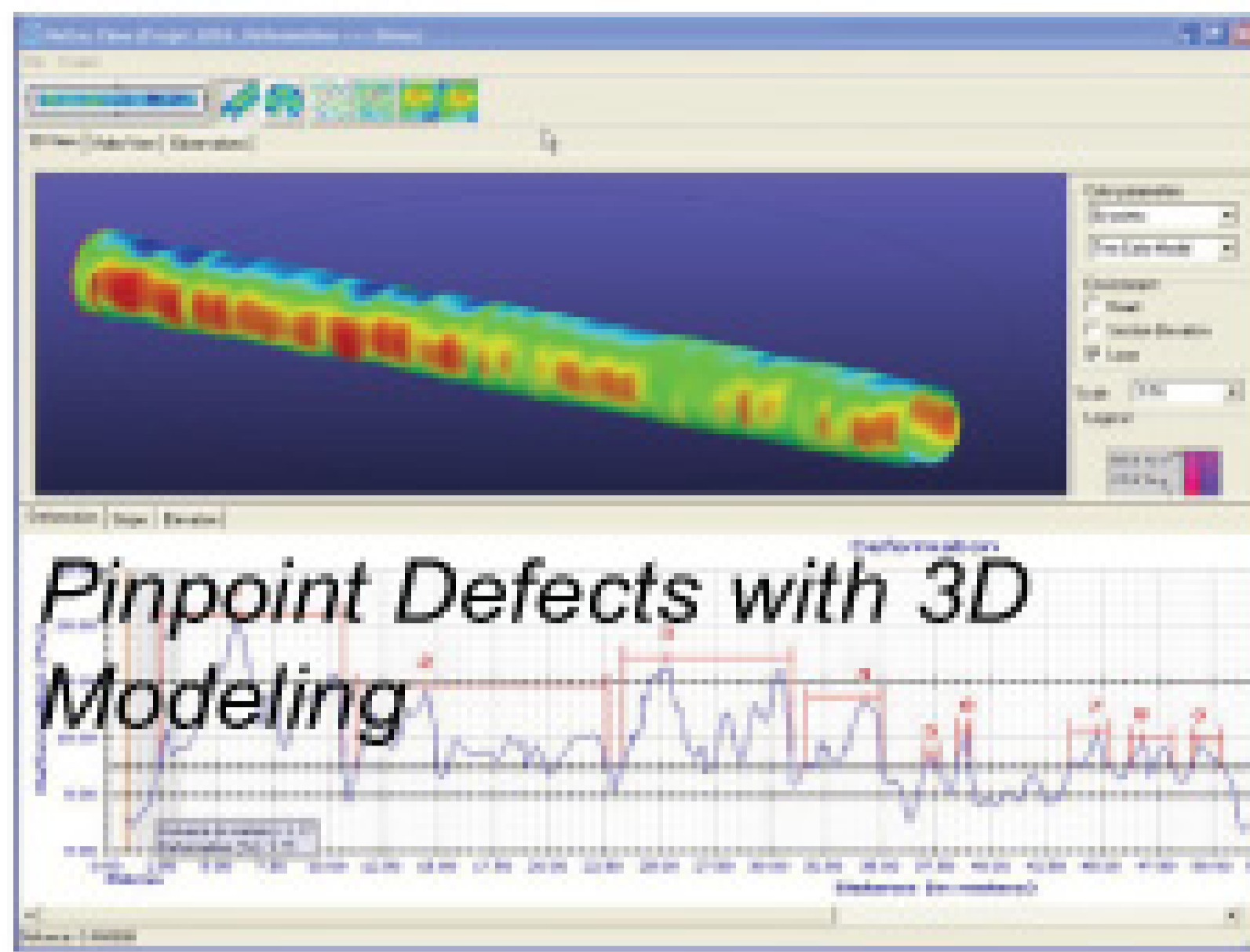


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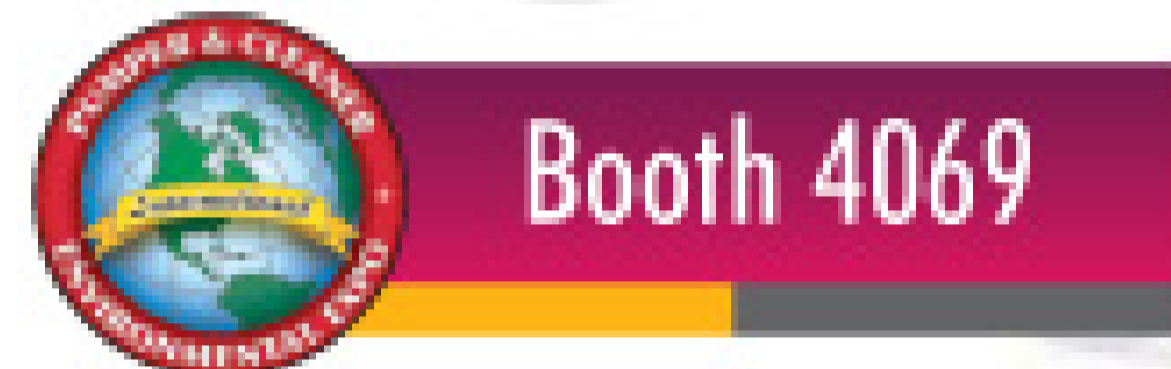
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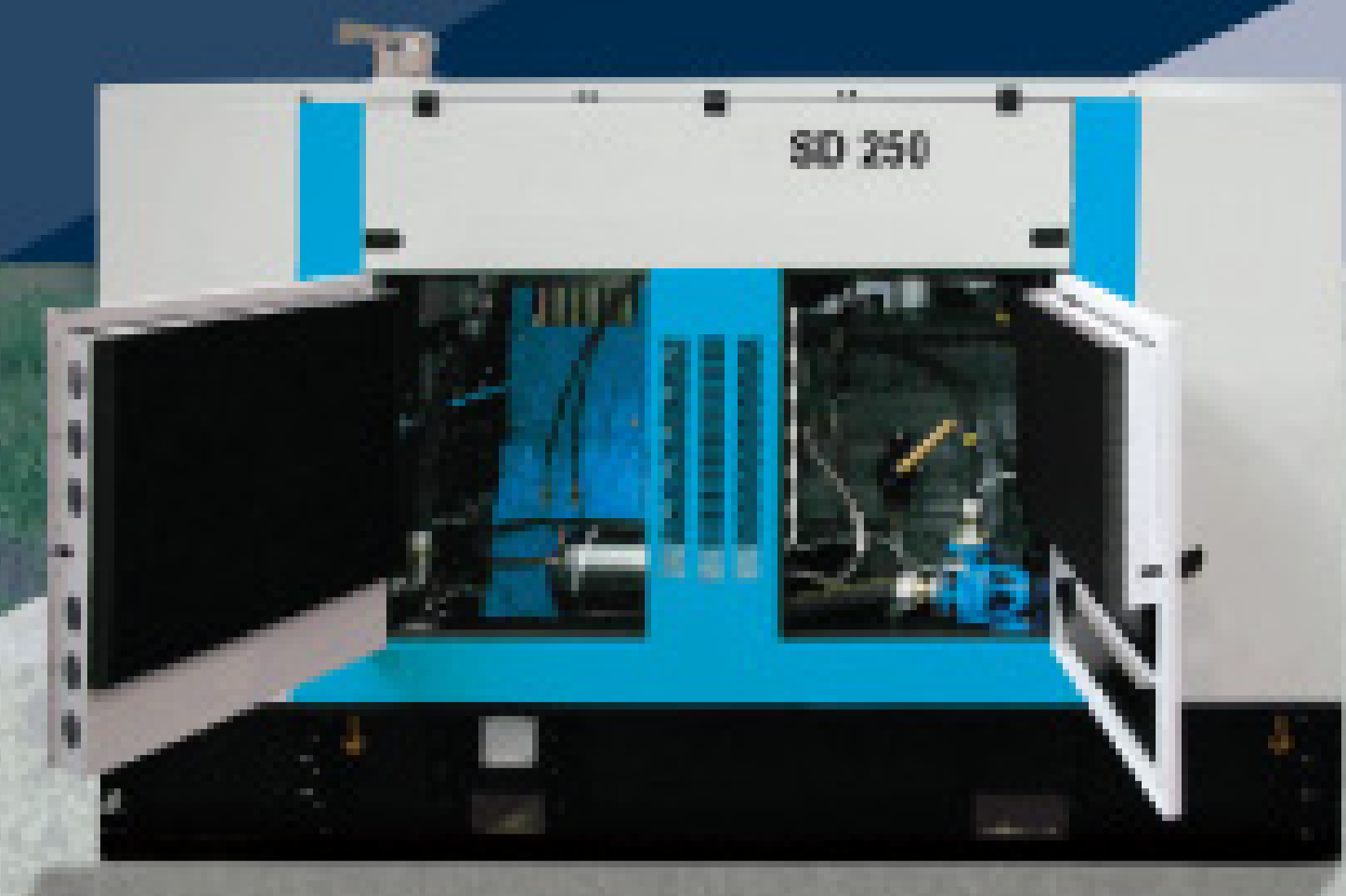
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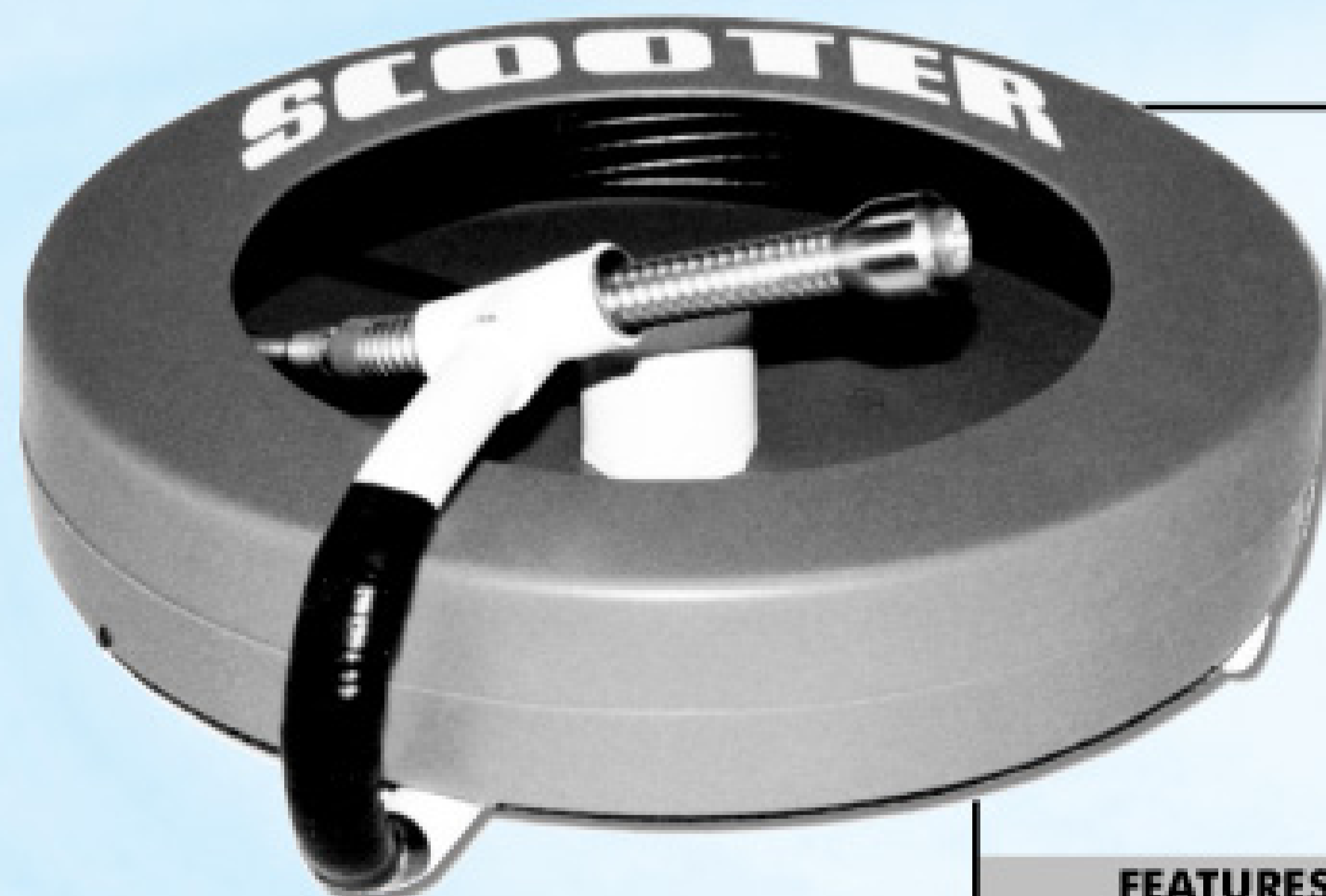
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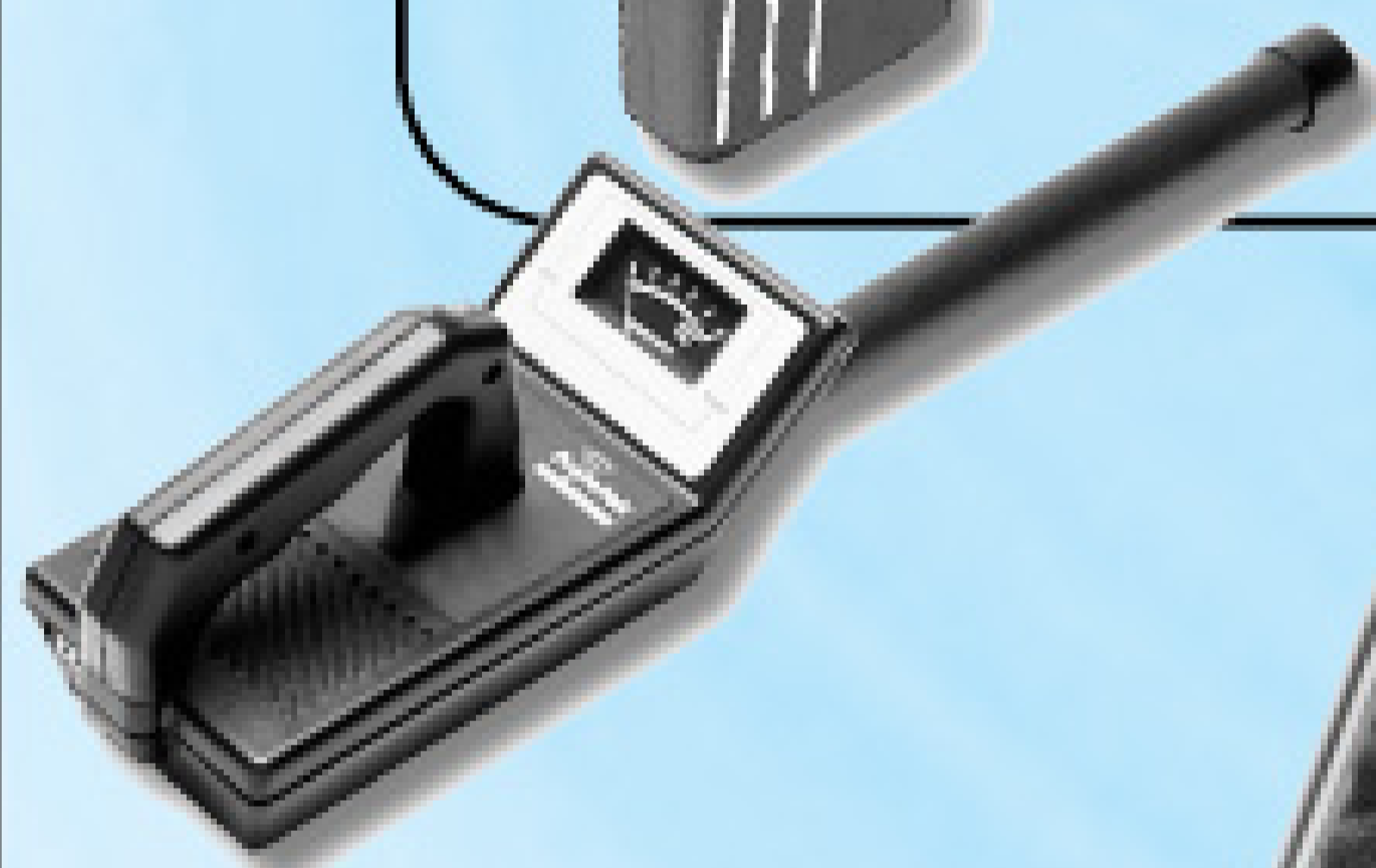
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Always Innovation

From pipe bursting, to trenchless water line repair, to new ways of dispatching and invoicing, Pipe Wrench Plumbing gains an edge with technology

By Erik Gunn

At Pipe Wrench Plumbing in Knoxville, Tenn., owners Tom Cambron and Trent Eidemiller have two overriding principles.

One is to provide service that is ahead of the competition. Pipe Wrench is forever exploring innovations, in the office and in the field. "We want to be on the cutting edge in service, in the products we provide, and in our operations," Eidemiller says.

The other is the way they run their business. "I believe in a systematic approach to a business," Cambron says.

Being on the cutting edge means taking on technologies like pipe bursting, trenchless water line repairs, and even a computer-based system for dispatching workers and invoicing customers. And systems mean making sure that everybody who works for Pipe Wrench Plumbing does things the same way.

Cambron compares his operation to the giant of fast foods. Customers at McDonald's, he notes, can count on a highly predictable experience whether they eat in Knoxville or San Francisco. His goal is to do the same for his company's customers.

"No matter who we send out, we want the customer to have the same experience, time after time after time," Cambron says.

Cambron and Eidemiller believe that helps explain why Pipe Wrench has stood out among competitors in the greater Knoxville area, achieving double-digit growth annually since the company's founding in 2001. Cambron says the biggest challenge ahead may be keeping the pace of growth manageable.

Joining forces

Cambron first set his career goals when he started college at the University of Tennessee, intending to be a nuclear physicist. "I got kind of distracted," he says. He decided instead to train as a plumber. From there he went to work for Union Carbide, criss-crossing the country building nuclear power plants in the early 1980s.

But the travel got to him, so in 1984 he started his own plumbing business in Cary, N.C. A decade later he moved back with his family to his hometown of Knoxville. In 1998, he bought Kingston Pipe Plumbing, a local plumbing business.

Business was good — growth was on the order of 60 to 70 percent a year — but Cambron had bigger goals. And that's where Eidemiller came in. Eidemiller had worked in procurement for government contractors. When contracts ended, he'd get laid off. "After going through that a couple of times, I began to look for something more stable," Eidemiller says. "That's when I met Tom."

The two met through their church. "I knew where I wanted to take my business," Cambron says. "And I knew I'd have to surround

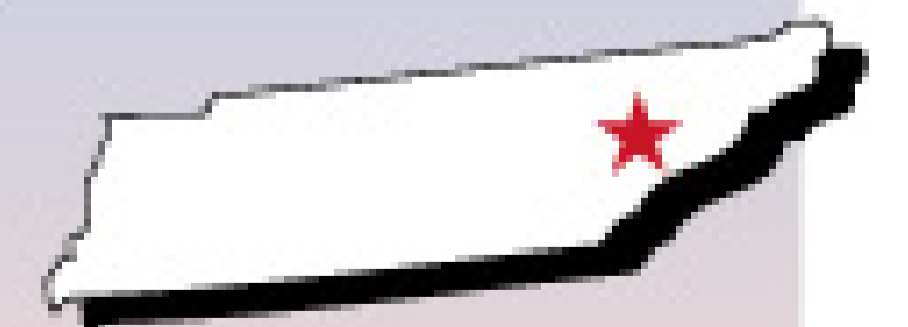


Pipe Wrench Plumbing service technician Brian Dunn uses a pipe bursting system from TRIC Tools to repair a sewer line and pull in a new 4-inch replacement pipe on a job in Knoxville.

P R O F I L E

PIPE WRENCH PLUMBING KNOXVILLE, TENN.

OWNERS:	Tom Cambron and Trent Eidemiller
FOUNDED:	2001
EMPLOYEES:	16
ANNUAL REVENUE:	\$2.3-2.5 million (2007)
SERVICE AREA:	Four counties
SPECIALTIES:	Drain cleaning, sewer inspection, water line repair, trenchless repair



myself with good counsel. Trent had good character. He was ambitious and intelligent.”

In January 2001, the two established Pipe Wrench Plumbing. Cambron's aim was to build a company big enough and with strong enough standards so that it might one day be able to go public, selling its stock to investors. Cambron serves as chief executive officer, Eidemiller as chief operating officer.

On the cutting edge

The pipe bursting service embodies the company's dedication to innovation in the trade. A couple

“We can replace their sewer line without taking out their yard. If you have a lot of asphalt, such as at a commercial building, we can replace your sewer line without digging it up. That's going to save the customer thousands of dollars.”

Trent Eidemiller

of years ago, Pipe Wrench acquired its pipe bursting technology from TRIC Tools Inc.

The timing was good. In 2005, the Knoxville Utility Board embarked on a project to inspect the private sewer laterals of all its 64,000 customers: as many as 12,000 are expected to require repairs over a 10-year period.

“We went before the Knoxville plumbing board in December 2005 and asked them to consider this process,” Eidemiller says. After reviewing specifications, the board gave its approval. Since then, Pipe Wrench has been busy collecting testimonials from satisfied customers.

“We can replace their sewer line without taking out their yard,” Eidemiller says. “If you have a lot of asphalt, such as at a commercial building, we can replace your sewer line without digging it up. That's going to save the customer thousands of dollars.”

That wasn't the first time Pipe Wrench tried something new — far from it. For several years, Pipe Wrench has been offering trenchless water line replacement. Cambron was inspired by watching cable TV



Technician Chris Phillips, left, digs down to connect a new sewer line as Brian Dunn watches.



Pipe Wrench Plumbing co-owners Tom Cambron, left, and Trent Eidemiller.

installers at work. Without ever digging up existing pavement, “They went under driveways and parking lots,” he says. The key is a machine that bores underground.

Opportunity knocking

Cambron quickly saw the opportunity for his own business. “We're thinking, pipe's pipe,” he says. To carry out the installation, crews first send the borer through from the water main to where the service line connects to the building's water system.

“After we get from Point A to Point B, then we attach the pipe and we pull it back through the hole we just bored,” Eidemiller says. Adds Cambron, “It's working out very well for the homeowner and for us.” Until recently, the company offered

HIGH-TECH INVOICING

Pipe Wrench Plumbing has always been quick to embrace new technology, but its latest foray is exciting, even to owners Tom Cambron and Trent Eidemiller. It's a new dispatching/invoicing software, and it works just like putting pen to paper. In fact, that's how it works.

“Normally a service technician will take an invoice out to a customer's home and fill it out with an ink pen and then bring it back,” Cambron says. Teaming up with Knoxville-based Business Information Group and using technology from Microsoft and Logitech, Pipe Wrench uses a new system.

The pen that is used to write the invoice is equipped with wireless Bluetooth technology. The invoice paper, meanwhile, has an electronic sensor in one corner. “You write your invoice just like you normally would,” Cambron says. After completing the special invoice form, the technician touches the corner sensor.

“The ink pen communicates to the cell phone using Bluetooth,” Cambron says. “The phone sends in all the information back to the office just like he wrote it.” The information automatically goes into the computer database. That eliminates the redundancy of entering data on paper and then re-entering it in the computer.

The innovations don't stop there. From each kind of job, the computer mines data tied to each employee. Over time, the computer uses an algorithm to determine which technician has the best possibility of making a given type of sale. In the future, when a customer calls about a problem, the system will evaluate which worker is likely to do the best job of solving it, based on experience with similar problems.

“Every individual is different,” Cambron says. “They all have different skill sets. We want to send the best-qualified person out there — not only who will do the best job, but who will have the best success rate in closing that job.”

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pipings. The air drives an abrasive through the pipes to clear out scaling and corrosion, then blows epoxy through to seal pinhole leaks.



Technician Chris Phillips prepares for a pipe bursting job.

“As a business owner I want to help create a successful business. But I realize one of the best investments I can make is to make my guys successful in life. If I can do that, that will help me be successful in business.”

Trent Eidemiller

Eidemiller believe in the ideas of consultant Michael Gerber in his book, *The E-Myth*. “It talks about having a systematic approach to everything you do,” Cambron says. It has become a guiding force in the way they run their company.

Gerber’s basic message, they say, is that the skills it takes to run a business are much different than the technical skills tradespeople bring with them when they set up shop. He also preaches the importance of standardizing how a business does things.

“With systems in place, the people aren’t running the business — the systems are,” Cambron says. “A system could be as simple as a script for the customer service rep.” Pipe Wrench people are trained to answer the phone on the second ring. A mirror by the phone reminds the person answering to smile when greeting the customer.

“A person can tell if the person on the other end of the phone is smiling or not,” Cambron says. And customer service people get a script so that they handle calls as uniformly as possible. The company also employs a sales system taught by motivational speaker Matt Smith of The Contractor’s Friend and plans to host training workshops for Smith’s group in 2008 as part of The Contractor’s Friend’s “Circuit Club.”

Daily get-togethers

Pipe Wrench employs 16 people: 10 plumbers, two apprentices, a warehouse inventory specialist, two customer service representatives, and an accounts manager. Employees meet daily at 7:30 a.m. sharp, for 30 minutes. Mondays start with the *Pledge of Allegiance to the Flag*, followed by a “loosening up” activity, such as a game.

“Tuesdays, we focus on cleaning the fleet and organizing the trucks,” Eidemiller says. “Wednesday’s focus is on sales and life lessons.” Those lessons can range from looking at how business works or specific sales skills to more personal matters, such as helping employees manage personal finances or reflecting on

integrity on the job.

Wednesday meetings begin with the recognition of service techs who have achieved weekly and monthly performance goals. Those whose performance reaches or exceeds designated levels qualify for annual bonuses.

Thursdays focus on technical training, and Fridays are for winding up loose ends and looking ahead to the next week. Cambron and Eidemiller say that organized approach to employee relations is part of the systems-thinking they believe will help Pipe Wrench prosper over the long haul.

“As a business owner I want to help create a successful business,” Eidemiller says. “But I realize one of the best investments I can make is to make my guys successful in life. If I can do that, that will help me be successful in business.”

It seems to be working. Pipe Wrench, serving four counties around Knoxville, has been growing steadily and projects annual revenues of \$1.8 million in 2007. In 2002, business grew 39 percent; 2003 saw 23 percent in growth; and growth topped 50 percent each of the next two years. In 2006, business was up another 38 percent.

“I’m hoping to hold the growth down to 20 percent this year,” Cambron says. “If you grow too fast, you can take your eye off the squirrel in one area and actually lose money. We’re not greedy, but we want to make money.” With the plan in place and the track record built, chances for continued success seem strong. ■

MORE INFO:

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Eidemiller and Cambron remain big believers in the program and have held on to their ACE DuraFlo franchise, but decided to sell their equipment because at present demand is lacking.

Being innovative is an old story for the company. In its first year, Pipe Wrench designed a new service truck that is now its standard. Based on the Isuzu NPR model with a short-wheelbase chassis, the vehicle has a tight turning radius. “You can make a U-turn on a two-lane road,” Cambron says.

The truck, customized to the company’s specifications by Eddie’s Truck Bodies in Knoxville, includes ample room for supplies and equipment. “We wanted our plumbers, when they rolled up to a customer’s house, to have about 95 percent of the parts they need,” Eidemiller says. Pipe Wrench has eight such trucks and two other service vans. Every vehicle has a GPS unit.

Systems thinking

What really makes the company work, the two believe, isn’t just technological bells and whistles. Instead, it’s thinking about the company in systematic terms. Cambron and

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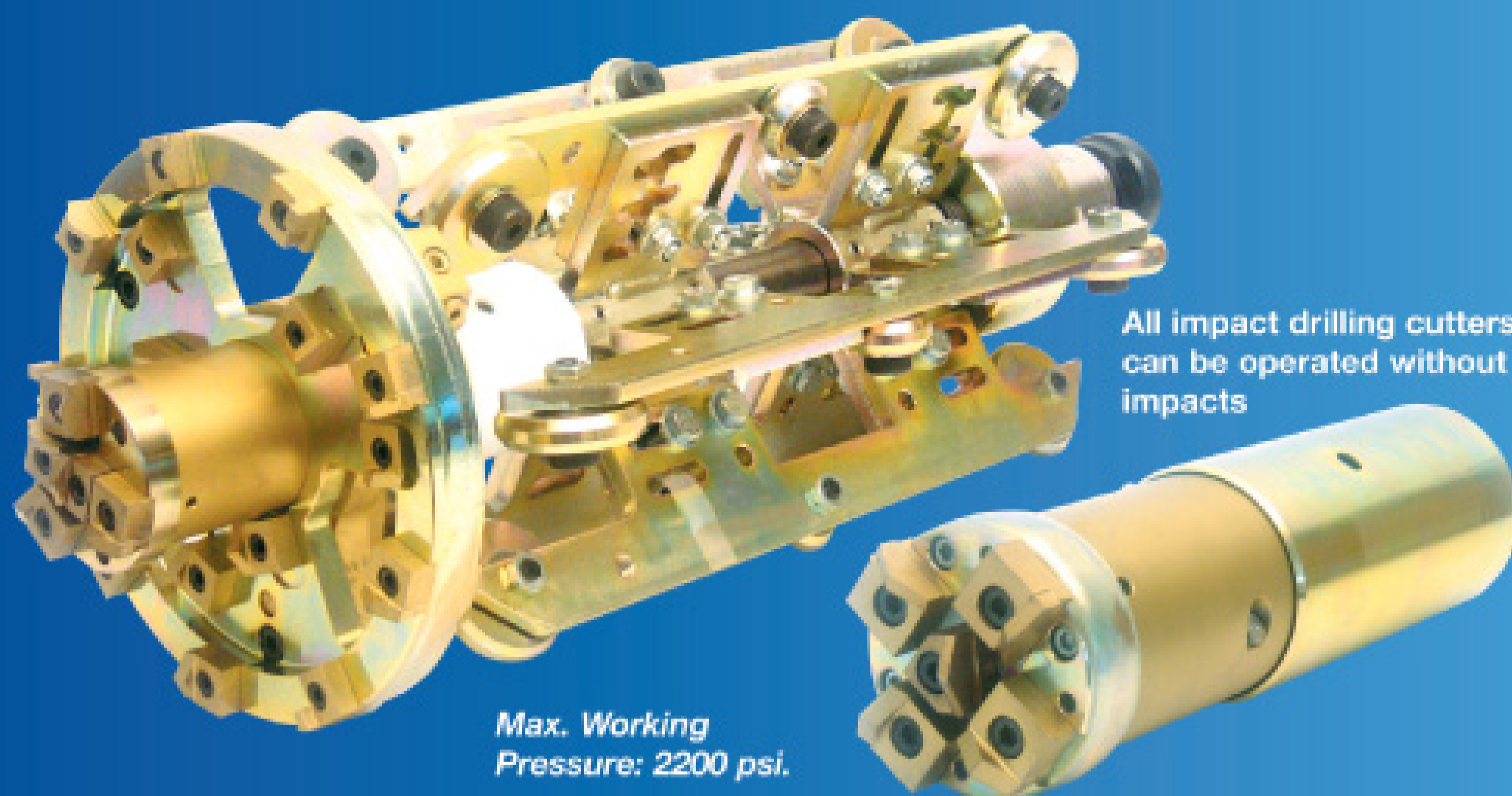


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Question:

I am using a jet with 2,100 psi/11 gpm. Recently I have encountered an 8- and 10-inch main with sand. Though it was not blocked up, the residents on the street in the complex complained of a strong sewer smell. The manholes have some sewage accumulation. I was not able to flush out all the sand using a nozzle with three forward and six rear jets. What would be the best nozzle type for my jetter to use? Or is an upgrade in gpm needed? Or both?

Answers:

The 8- and 10-inch pipe might be a bit much for the pressure and flow you have on that machine. If you have a wide spray nozzle with a loop attached to the front of it, you could attach a camera to it and watch what you are jetting and cleaning. It would take a lot of work, but it could



be done. You might be able to get a large nozzle drilled to meet your machine's size.

The psi and gpm of a machine equals a cleaning pressure unit (CPU). I do know one of the manufacturers had a CPU to what size pipe it could clean in a certain amount of time. Manholes are vents, too. They will give off smells from time to time. If you can, try a rain guard in it or silicone it up big-time.



Is the sand hard and settled, or is it easy to stir up? If the sand is easy to get moving (not hard and settled), and is all on the pipe bottom, and is not plugging the line, then you could work it with a flusher nozzle that has all jets back at a

wide angle and none forward. Note that forward jets do nothing for you when you do not need to unplug the line; they just are a waste of precious gpm that could add to the back-jet's flow for maximum flushing power (and hose-pulling power).

Another thing that can help is to add some weight to the nozzle to keep it down in the sand. You should be using a nozzle extension (10-inch-long Schedule 80 pipe-nipple between the nozzle and the hose) to keep the nozzle from wandering into laterals, and if you weigh down the extension nipple, it will help keep the nozzle down in the sand. Some guys even jet up to the next manhole and then tether a brick or some other weight to the nozzle to help keep it down in the sand and debris as you pull back.

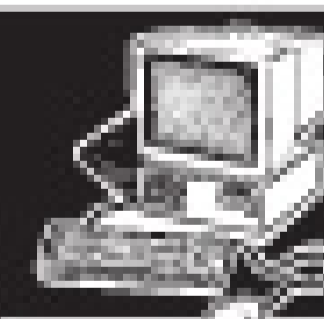
Also, a nozzle with fan-type jets (that fan out the spray like the hand-guns at a self-service car wash) will do better at keeping the sand in suspension as you pull the nozzle back to remove the sand.

But, if it is hard-settled sand, then I'd definitely recommend the Warthog head, which will slowly rotate and dig up the hard stuff so you can flush it out with a nozzle like I just described. Also, your 11 gpm is a bit light for working 8- to 10-inch pipe. It's not bad — it will just take you a while. ■

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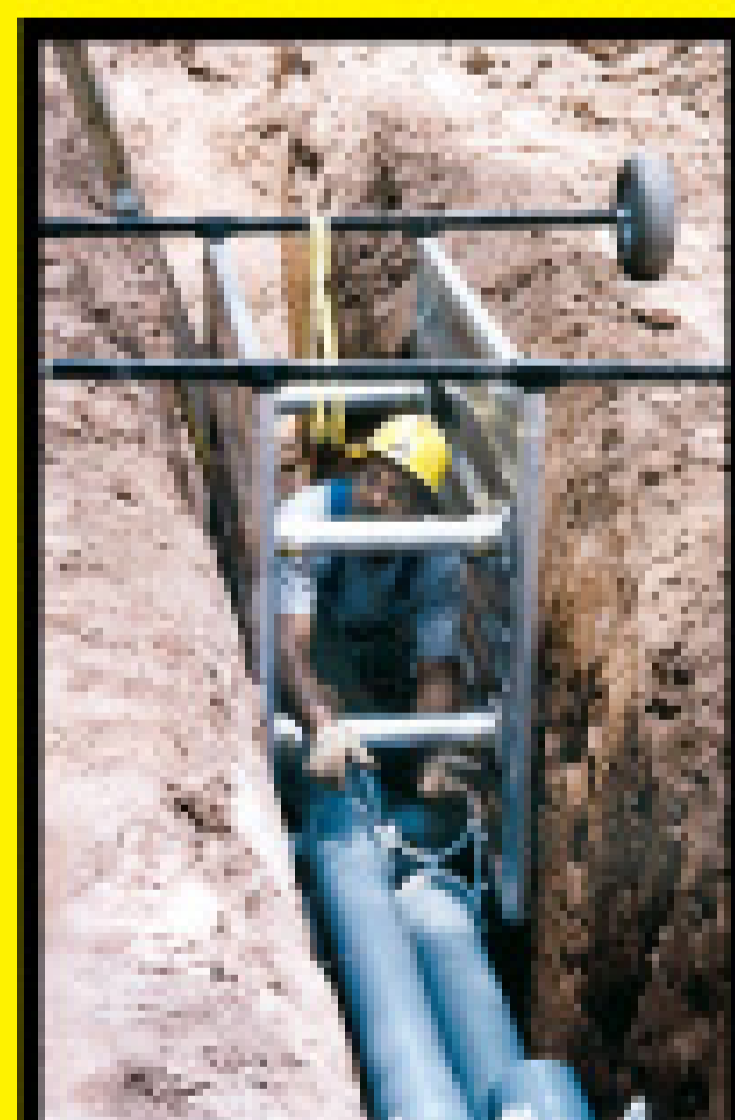
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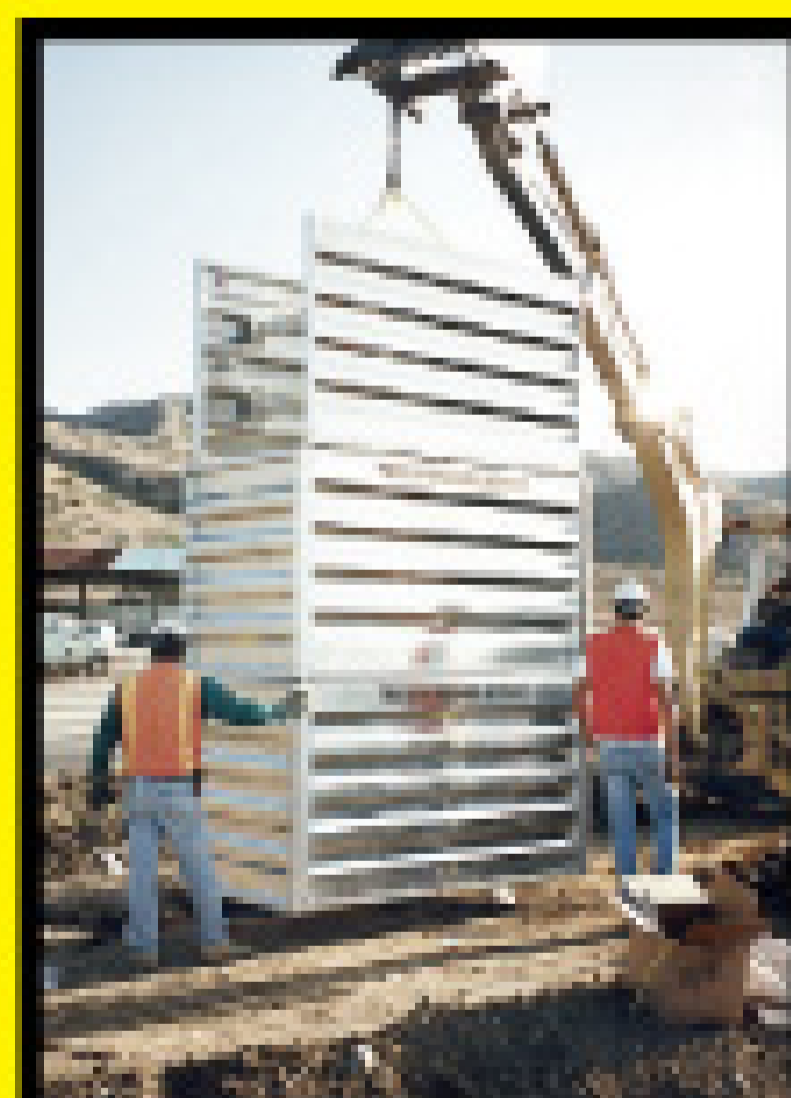
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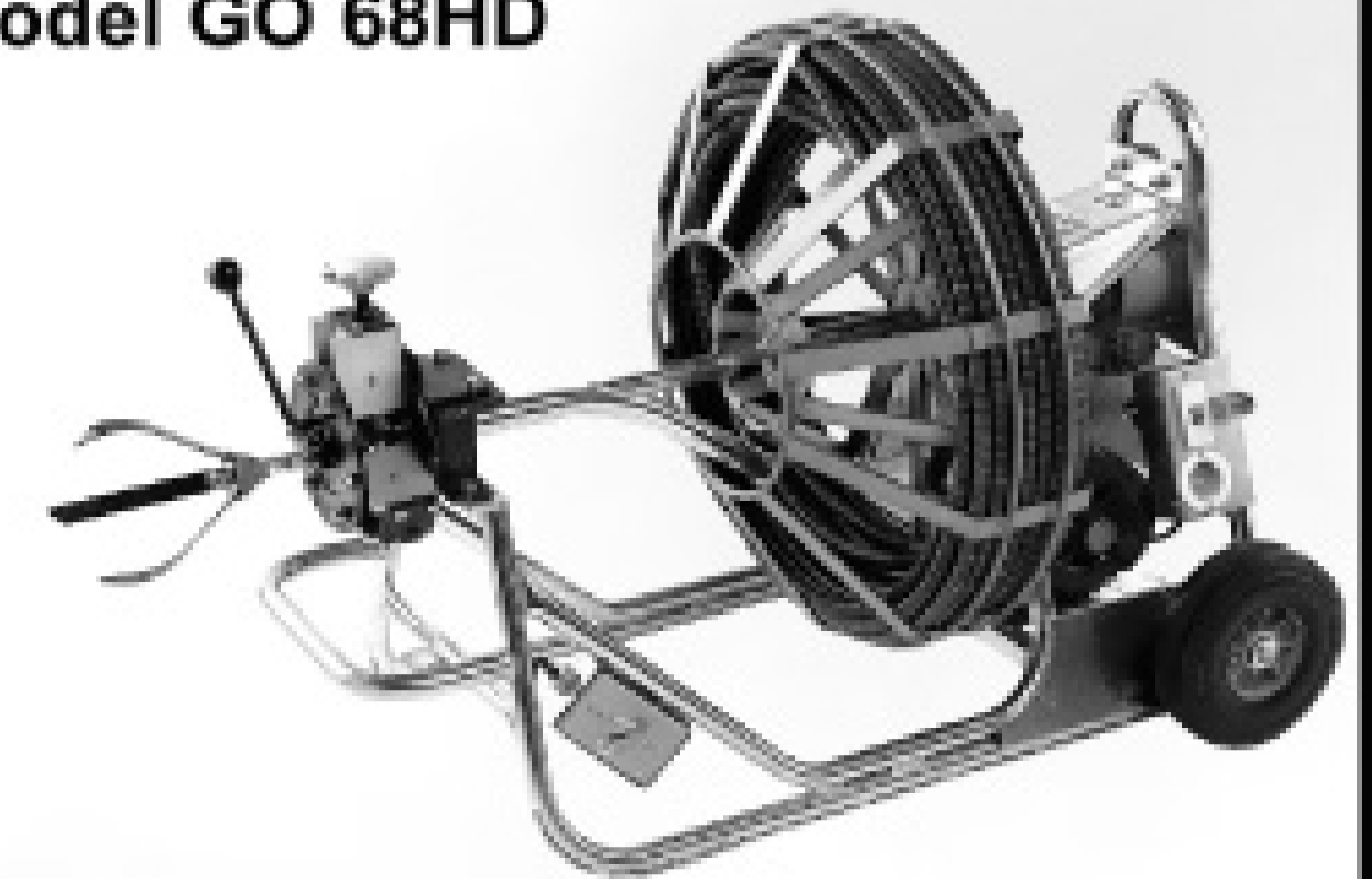
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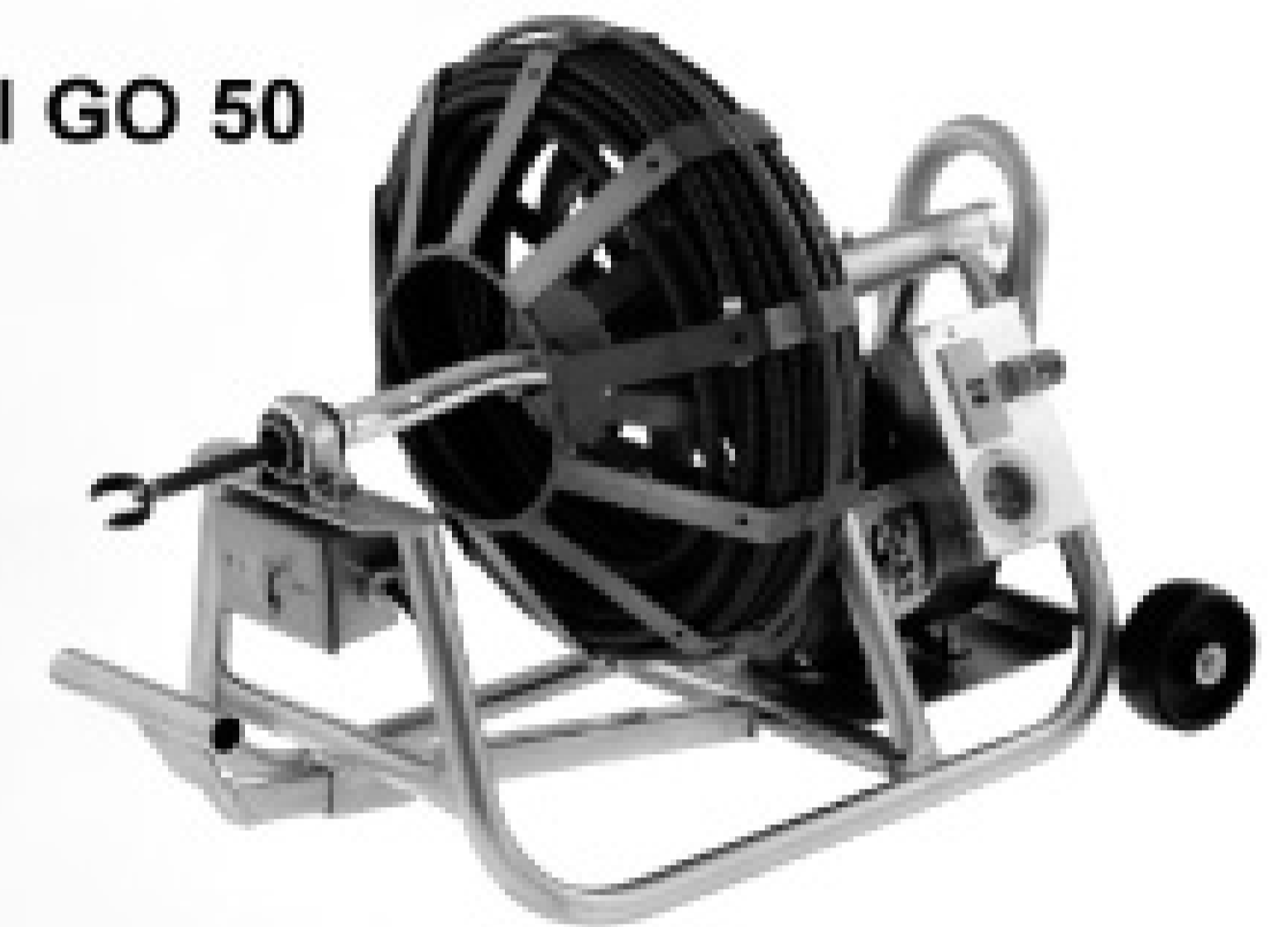
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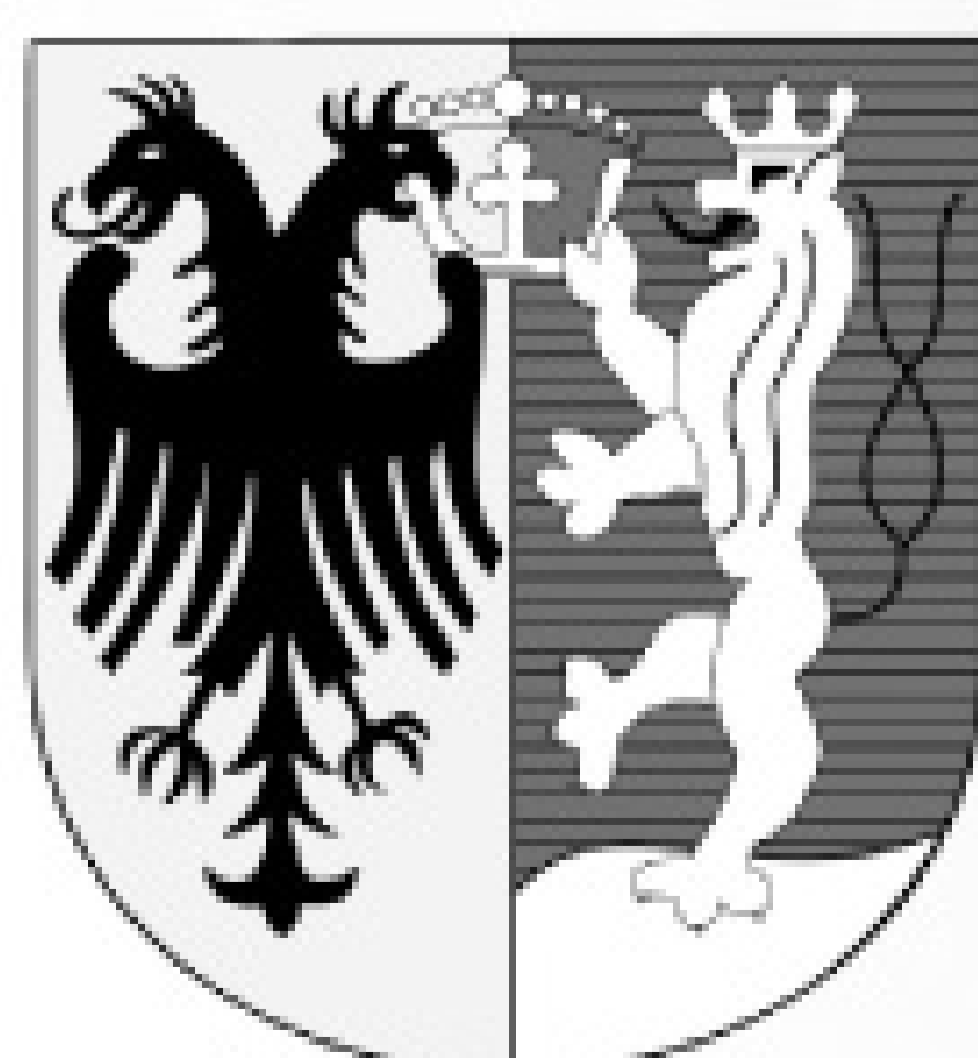
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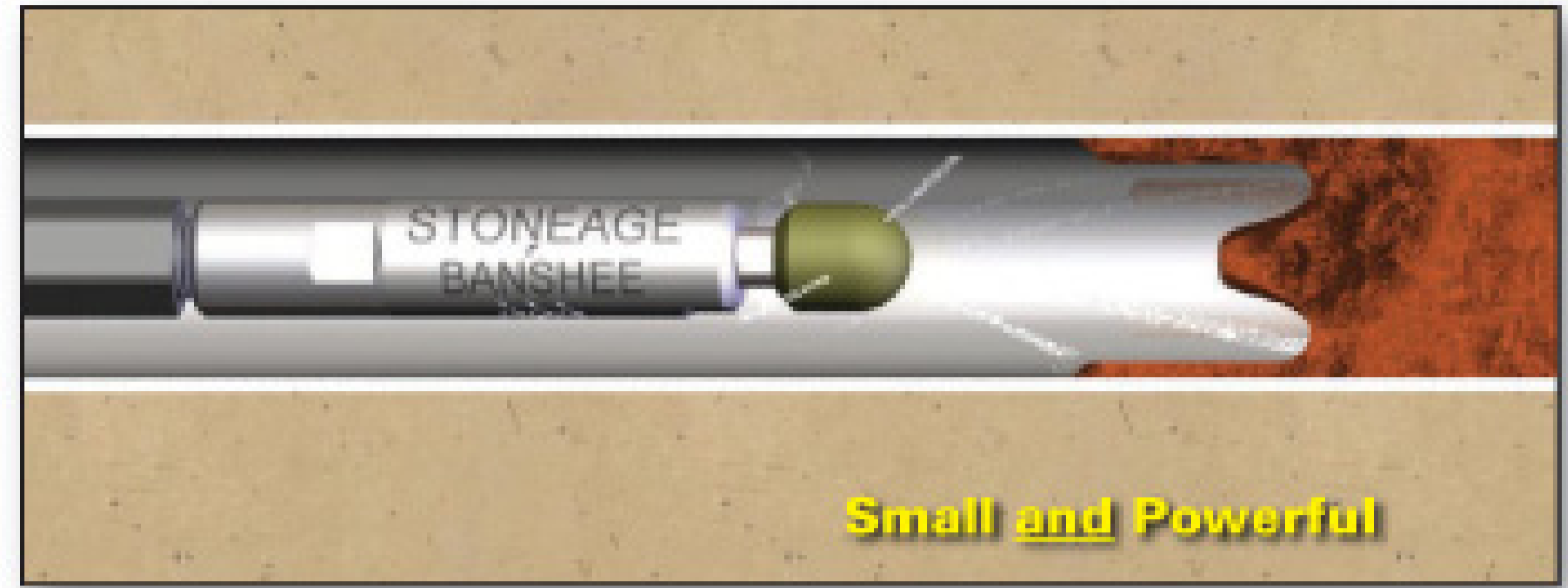


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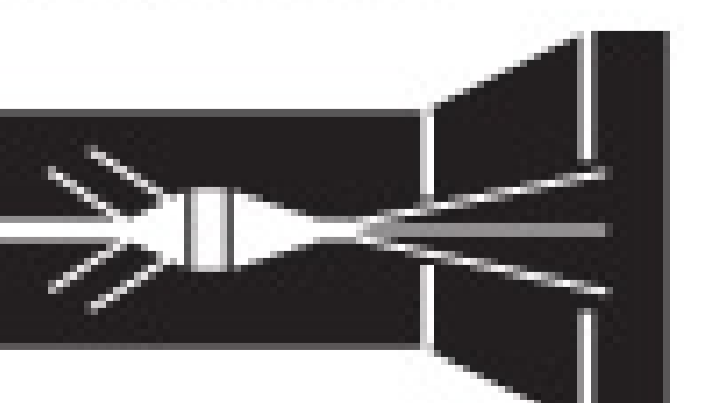
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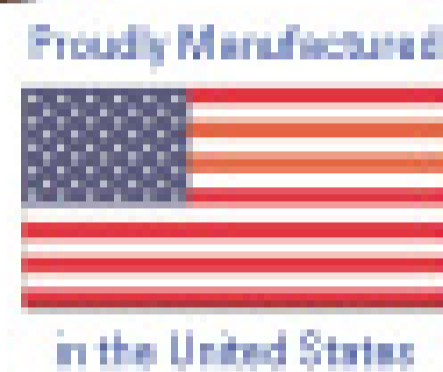
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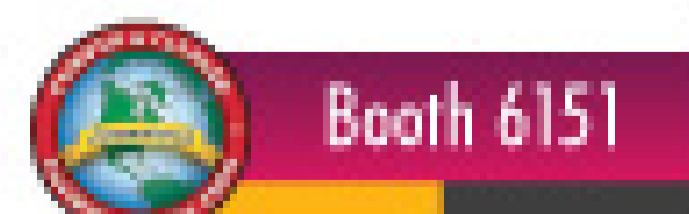
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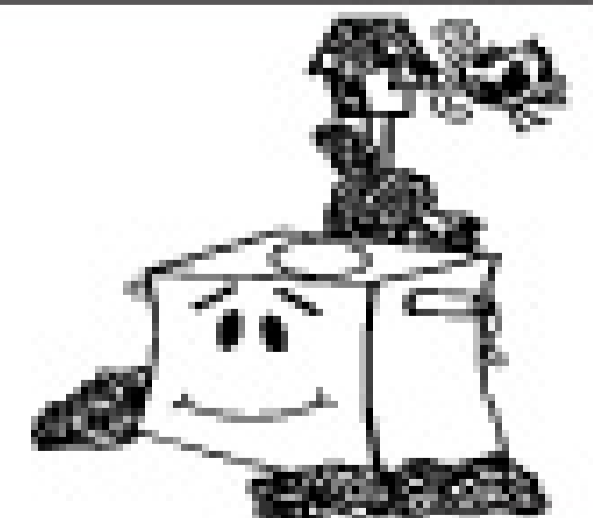
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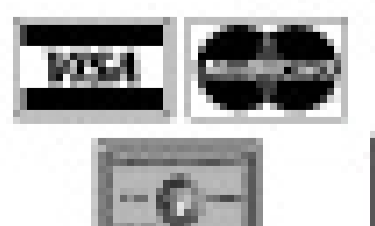


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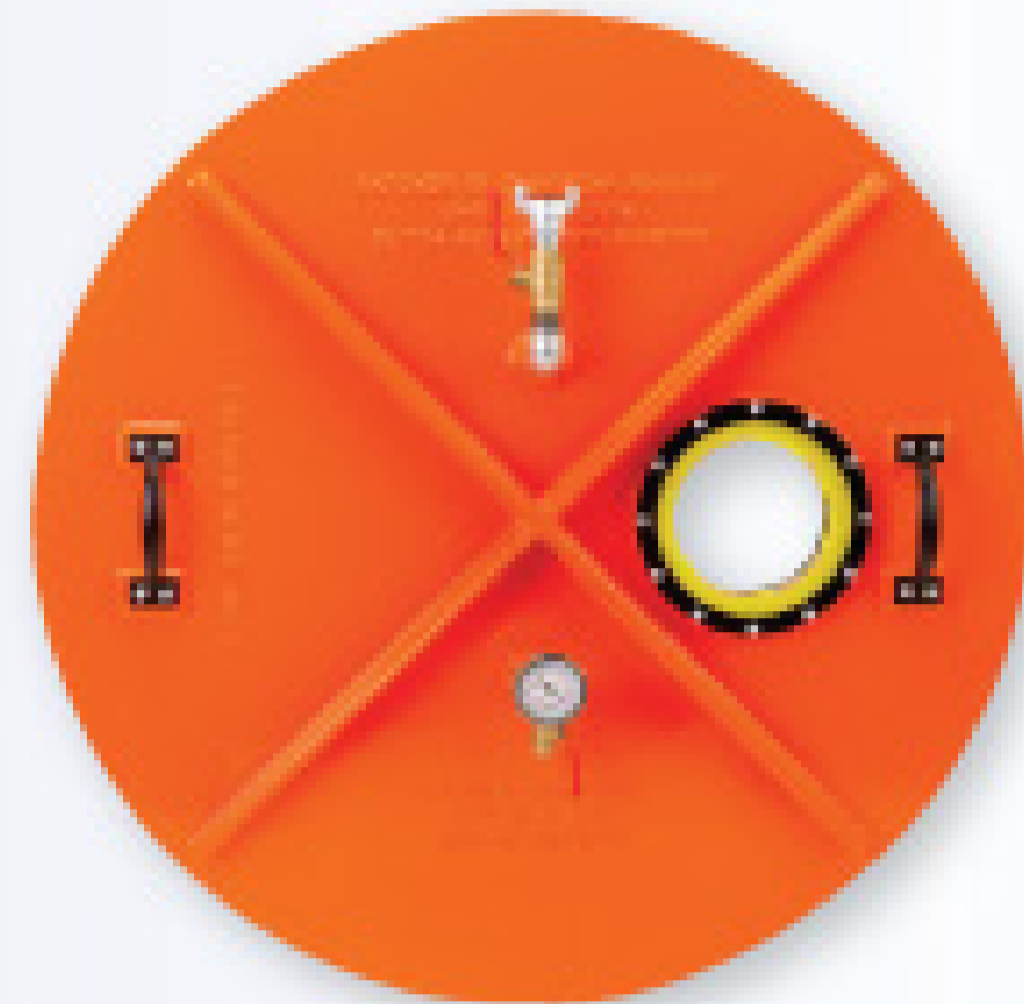


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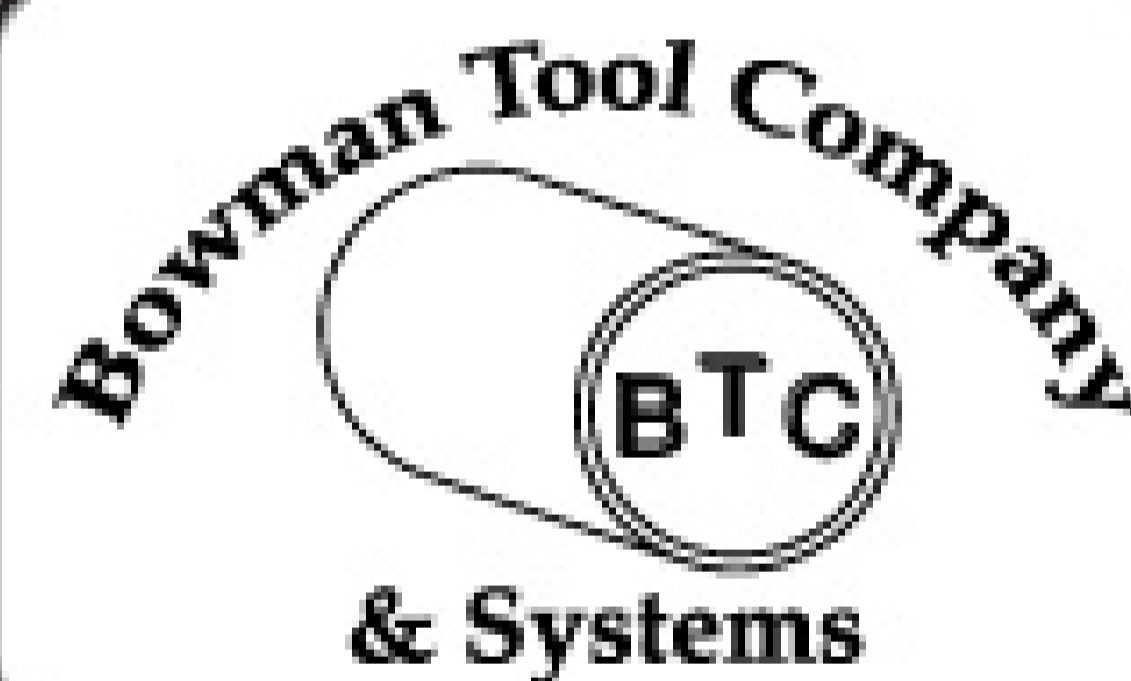
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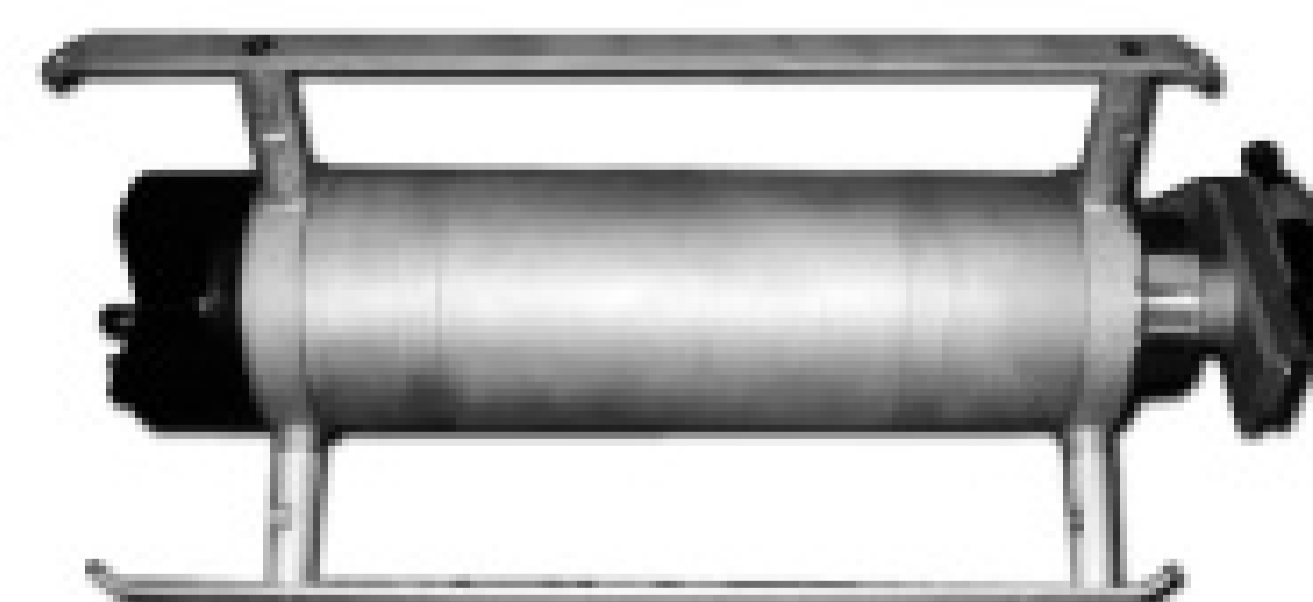
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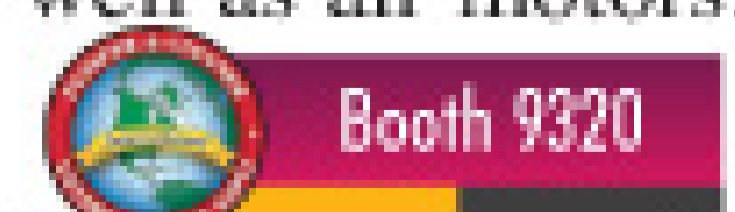


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Jeff Palady of Budget Rooter attaches a bursting head to a puller cable before replacing a customer's old sewer pipe using the UnderTaker pipe bursting system from Spartan Tool LLC. (Photography by Pat Crowe II.)



Overtaking Competitors

Pipe bursting helps a growing contractor in Delaware gain an edge and expand its services into profitable commercial and county contracts

By Peter Kenter

It can be challenging to maintain a competitive edge in a regional plumbing and drain cleaning business.

When Budget Rooter of Bear, Del., saw a chance to move ahead of the pack as an early adopter of pipe bursting technology, it jumped in with hip waders to differentiate itself from other regional players.

The service helps the company undercut the prices of traditional drain services — while working faster and with less damage to client properties.

In addition, pipe bursting has helped the company gain a strong foothold with commercial and government entities. Its success is built not just on the technology itself, but on skillful marketing, quick reaction to competitive threats, and financial tools that make the procedures affordable for customers.

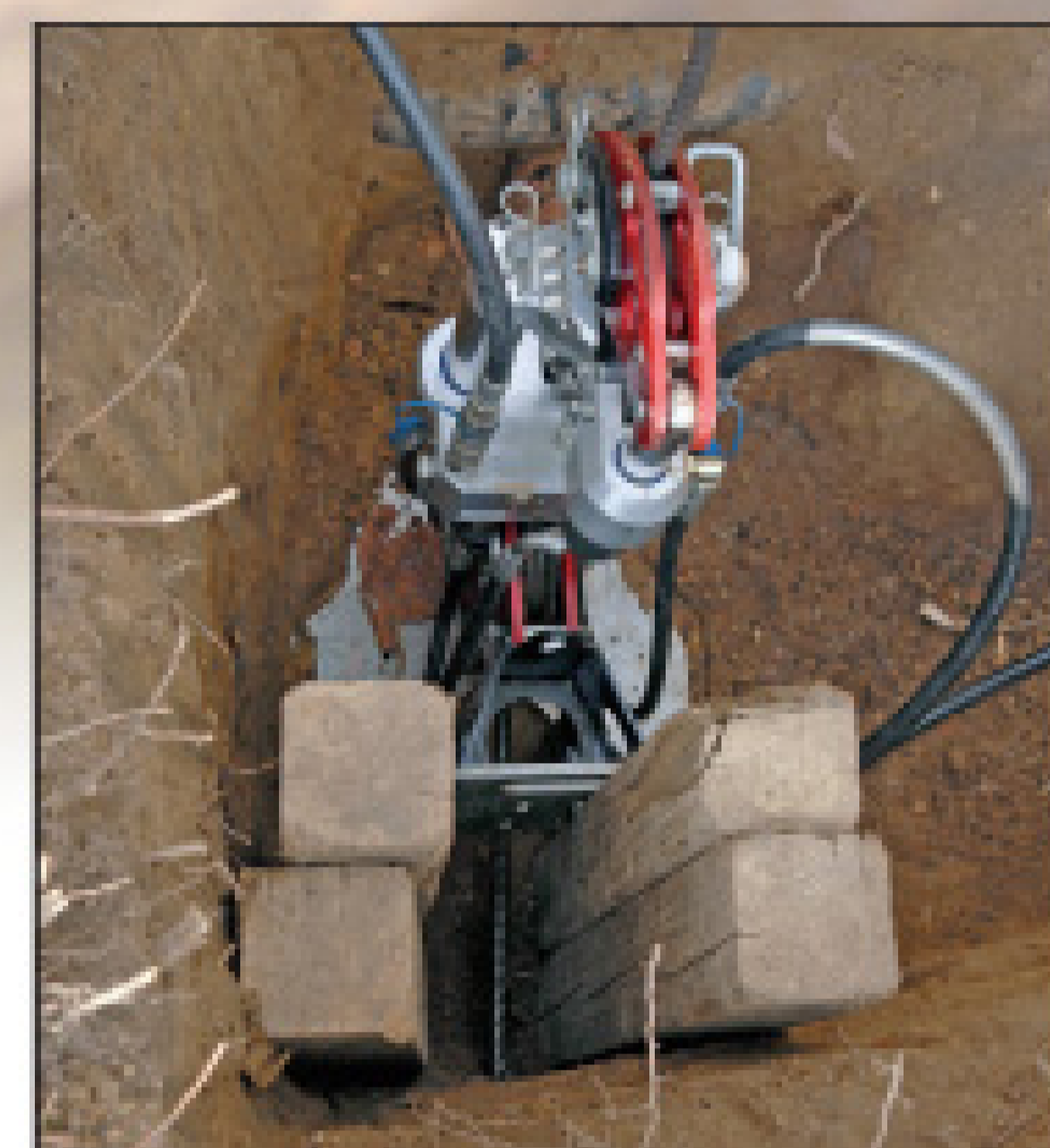
Out of adversity

Budget Rooter today has a fleet of eight service trucks and two trailers. It employs seven field and three office workers. The firm's drain and

pipe cleaning, pipe repair and video inspection work is performed by registered master plumbers and certified drain technicians.

The firm was founded in 1992 by Suzanne Palady. Formerly a meat wrapper in a supermarket, Palady became disabled in 1991 after being struck on the back while working. Her husband, a plumber, commuted each day to Philadelphia.

"When I realized I wasn't the mule I used to be and couldn't lift heavy loads, I knew I had to make a buck somehow," she says. Armed with advice from her husband and \$500, she bought four telephone lines and the name Budget Rooter. A single truck and drain machine soon followed.



The UnderTaker from Spartan Tool pulls a new sewer pipe into place.

Palady plied the telephones, acting as a one-woman marketing and dispatch service. Her son, Jeff, who had learned the plumbing and drain cleaning trade from his father, provided the horsepower.

Bear is a loosely defined series of communities and sprawling housing developments located a few miles south of Wilmington. To be a viable plumbing business in the area requires a broad geographic reach, not only across Delaware, but into

Maryland and Pennsylvania.

"Initially, things didn't take off like I'd hoped," Palady says. "In the first year we were taking home maybe \$800 to \$1,000 a month, and we realized we had to work harder to build a reputation."

Making a mark

For the first three years, Jeff was the company's sole field employee, often working past midnight on assignments while going to plumb-

PROFILE

BUDGET ROOTER, BEAR, DEL.

OWNER:	Suzanne Palady
FOUNDED:	1992
SPECIALTY:	Plumbing and sewer jetting
EMPLOYEES:	10
ANNUAL REVENUE:	\$1.5 million
AFFILIATIONS:	Plumbing-Heating-Cooling Contractors Association
WEB SITE:	www.budgetrooter.biz
FLEET:	8 trucks, 2 trailers



“The competitors were typical plumbers using all kinds of rooters. We were basically competing on the same technological level and succeeding by providing good service. Our prices are not the lowest and not the highest, but we always come when we say we’ll come, so we pulled ahead on our integrity.”

Suzanne Palady

ing school for his master’s license. “People used to say that they knew our company was busy because they saw our trucks all over,” Palady says. “But that was just Jeff at work.”

Budget Rooter had competitors in the drain cleaning business, but fast construction growth in the New Castle County area surrounding Bear meant there was plenty of work for all of them.

“The competitors were typical plumbers using all kinds of rooters,” Palady says. “We were basically competing on the same technological level and succeeding by providing good service. Our prices are not the lowest and not the highest, but we always come when we say we’ll come, so we pulled ahead on our integrity.”

In 1998, Palady’s husband became disabled, putting even greater pressure on the business to turn a healthy profit. He died in 2001. But Palady remained determined to grow her business.

By 2006, Budget Rooter had gained a solid foothold in the market and was now shifting to a more commercial client base. Its high-profile clients included The Home Depot, Applebee’s restaurants, and civic contracts with New Castle County. Clients spanned a 40- to 50-mile radius.

“We also took on the dirtiest drain cleaning jobs imaginable,” says Jeff. “Some of the plumbing companies in the area don’t really want to touch a dirty drain or get into that debris — they only like to work on faucets and clean water. We thrive on restaurant grease and baby wipes.”

Technology booster

Jeff is the company technology buff, always looking for ways to out-distance other area drain cleaners. “If we can get an edge by doing something a little cheaper, a little faster or a little less expensively, he wants to go that way,” says Palady. “Even if it requires some initial investment.” After reading literature on pipe bursting equipment about two years ago, the company decided to investigate further.

Initially, Palady was inclined to buy a pipe bursting unit from Spartan Tool LLC, because of her husband’s allegiance to the brand. “My husband swore by Spartan,” she says. “After I married him, I learned all about drain cleaning — and Spartan.”

Jeff, on the other hand, was more circumspect about equipment. The company already had two Spartan waterjetters for heavy-duty drain cleaning, but advertising from other pipe bursting companies had also caught his interest.

“I investigated some likely companies, but the decision came down

Technician Jeff Palady loads one end of a new pipe into a pipe clamp that is used to fuse two sections of pipe together in preparation for a pipe bursting project.



THE FIRST BURST

When Budget Rooter took on its first pipe bursting contract, the firm couldn’t have chosen a better place to test the technology.

“The first application was at Hope Lutheran Church in New Castle, says company owner Suzanne Palady. “The church operates a day-care service that needed to continue operating, and we were working on the same day as a big church meeting that required the parking lot to be kept open. They were sold on the idea of trenchless technology because it would keep disturbances to a minimum.”

The church had an old terra cotta drain line that had collapsed or become clogged with root growth somewhere along its 220-foot run. About 150 feet of the pipe ran underneath the blacktop parking lot.

“Instead of digging up the entire parking lot we were able to complete the entire job digging four holes,” says Palady’s son Jeff, who is the master plumber for the company. “We could have done it with even fewer holes, but the local code requires clean-outs to be installed every 75 feet. The whole time, cars were able to come and go from the parking lot, something they could never have done without using trenchless.”

Even though the process offers less to see than traditional trench digging, the novelty of the approach drew quite a crowd, including Palady. “I’m a carpenter’s daughter and I love to see machines in action,” she says. “Knowing that a machine like this is actually working underground is fascinating. The first job didn’t only sell the idea to a lot of people watching — it sold me.”



less to differences in technology and more to the type of support offered by the company," says Jeff. "Some of the companies had good products but were located too far away and had no local dealer networks to provide support.

"When we called the Spartan sales rep in New Jersey, he came right over to demonstrate what he offered with a unit on his truck. If we're getting into a technology that's new for us, we want to be sure we get the technical support we need to make it work. I want to know who I can call in the middle of a pull if something goes wrong."

Flexible system

Budget Rooter eventually settled on Spartan's UnderTaker system, a 210-pound unit that could pull pipe sizes from 2 to 6 inches with up to three 45-degree bends in the pipe. Jeff also liked the idea that the unit could be powered either through the 3,000-psi hydraulic system of a backhoe or by a 13-hp Honda engine that comes with the unit. The company took possession of the unit at the beginning of 2006 and immediately incorporated the branding into its advertising campaigns.

"Even from a local marketing perspective, the UnderTaker is a cool name that gets customer interest," says Jeff. "We can take advantage of the distributor's marketing in our own sales pitches. The name helps to explain what it does, and the sign on the side of our truck helps to sell the idea."

Most customers in the area were unfamiliar with bursting technology. While some larger commercial clients understood the principle behind it, residential clients were not yet up to speed.

"When we explain to a homeowner that we're going to work on their pipes, but leave their rose bushes and sidewalk intact, it doesn't take much to sell them on it," says Palady. "I've even made up a small model that fits in a suitcase to explain it to people who can't visualize it. It features a dollhouse in HO scale to help people to understand the technology better. If I can show you something tangible like this model, I can make you want that service."

Commercial clients are often sold on the safety factor of trenchless technology. Eliminating digging also

Jeff Palady looks inside a customer's old sewer pipe for obstructions before starting a pipe bursting run.



"When we explain to a homeowner that we're going to work on their pipes, but leave their rose bushes and sidewalk intact, it doesn't take much to sell them on it. I've even made up a small model that fits in a suitcase to explain it to people who can't visualize it."

Suzanne Palady

eliminates the liability involved in having workers enter a 9-foot-deep hole on their property.

Fighting back

Budget Rooter was the first company in the area to go trenchless, but not the only one. A large competitor offered pipe bursting a few months later, while an out-of-state contractor began to snatch jobs

that the company had counted on, including a large contract for a local apartment complex.

"It wasn't the technology or the service alone," says Palady. "We found out that the company was offering direct financing packages to clients." Budget Rooter had to adapt to the new market conditions by offering financing as well, through a third-party, American General Financial Services. "If we're doing a

large bursting job, now, instead of having the client go to the bank for a loan, we hand them the financing paper work on the spot," she says.

Pipe bursting jobs haven't replaced traditional sources of revenue. "It doesn't dominate the business," says Jeff. "It's just one part of our strategy. We've been performing about three to four of these contracts per month on average, but it isn't spread out evenly. In July and August, for example, we didn't use the unit at all."

Jeff is still the company's trenchless technology point man, although three other employees are gradually being trained in its use. "I have nothing bad to say about the technology," says Jeff. "But there has been a bit of a learning curve."

"One of the factors I didn't consider initially was the condition of the soil. The unit stabilizes itself against the soil when it pulls, so if the soil is wet, the unit can start pulling itself right into a wet soil bank, instead of pulling the pipe. You need a dry and solid base for the unit to sit on. That's the kind of knowledge you gain by experience."

Good experience with pipe bursting has helped Budget Rooter expand its capability, broaden its clientele, and continue on a growth trajectory established more than a decade ago. ■

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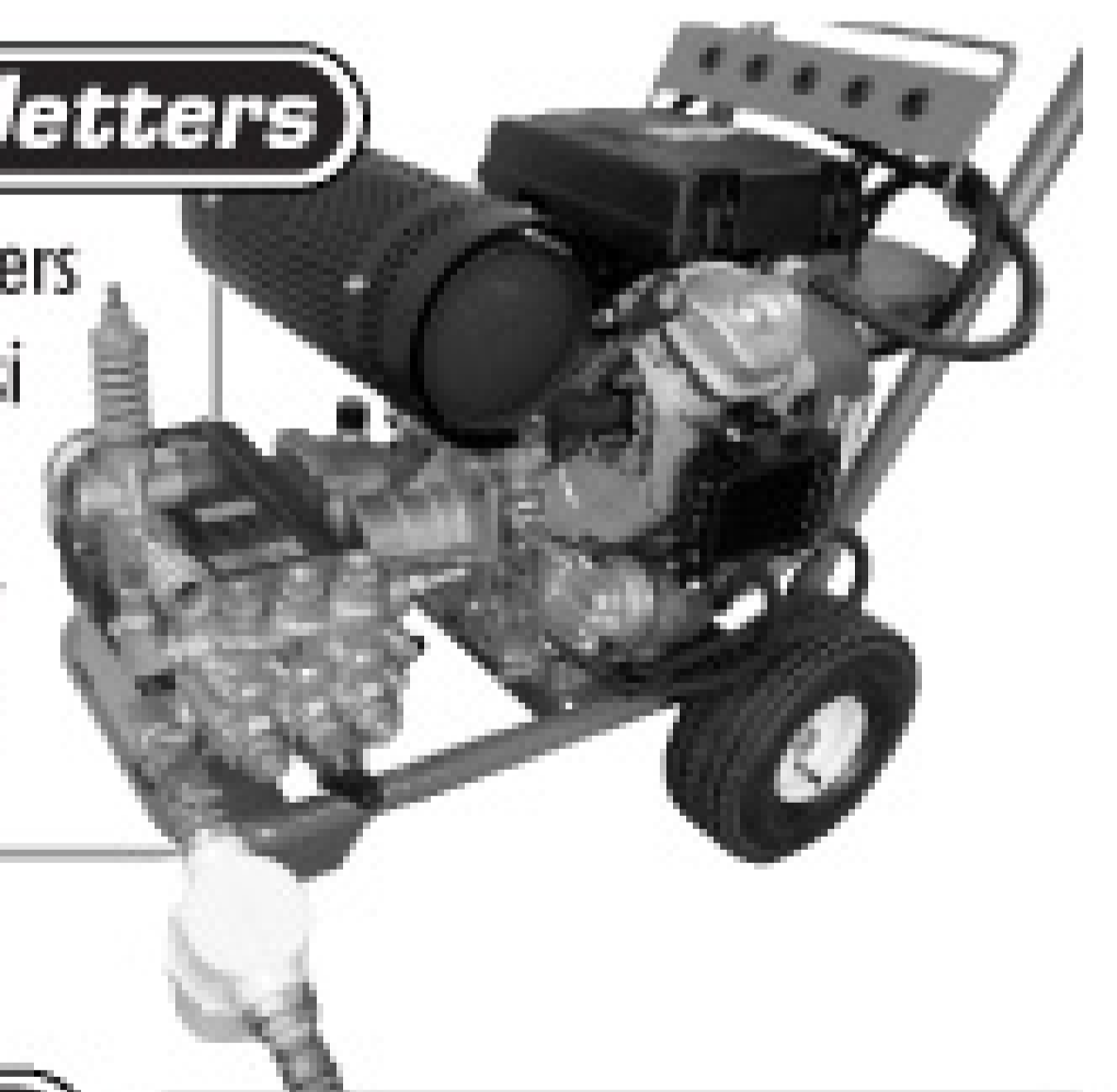


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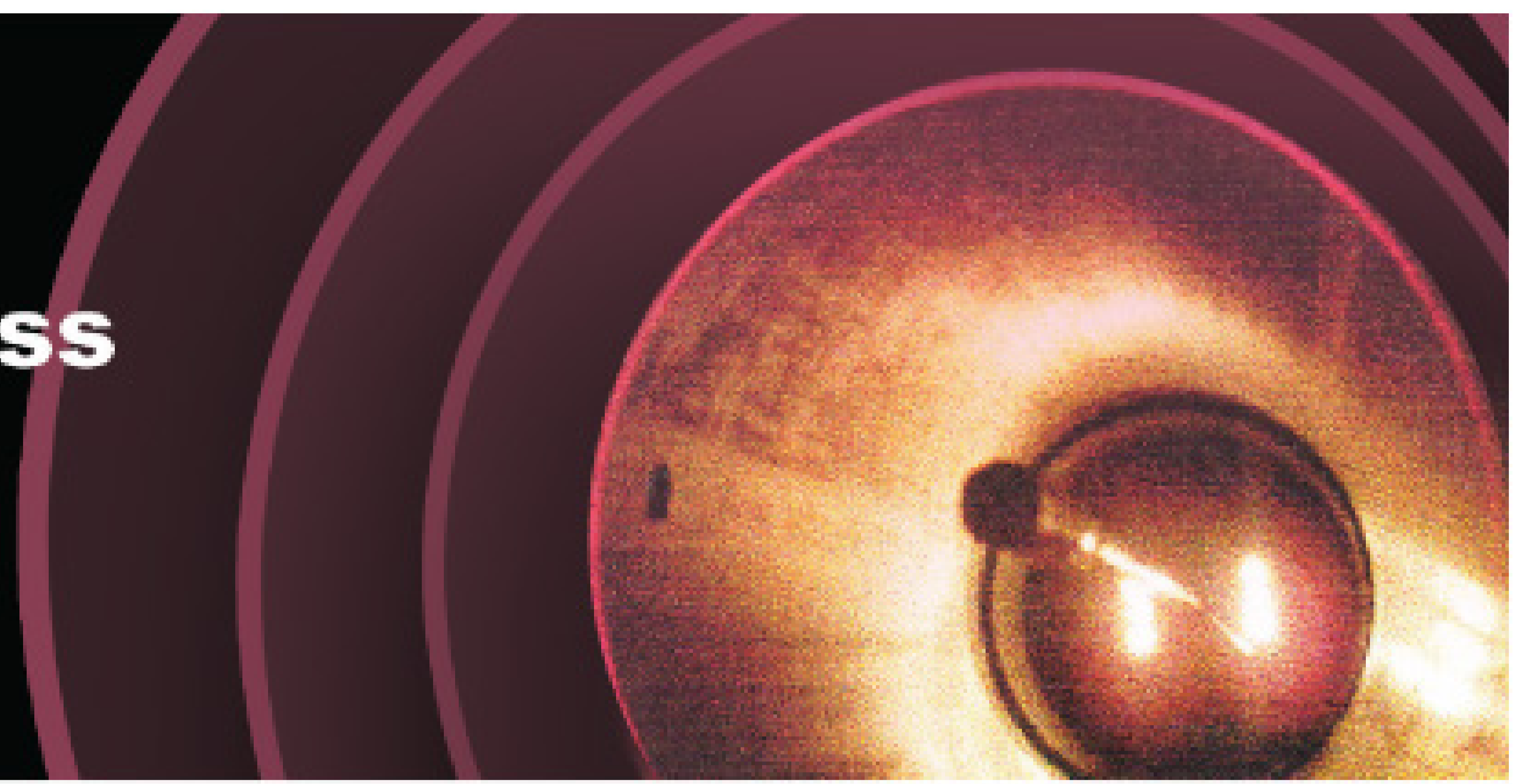


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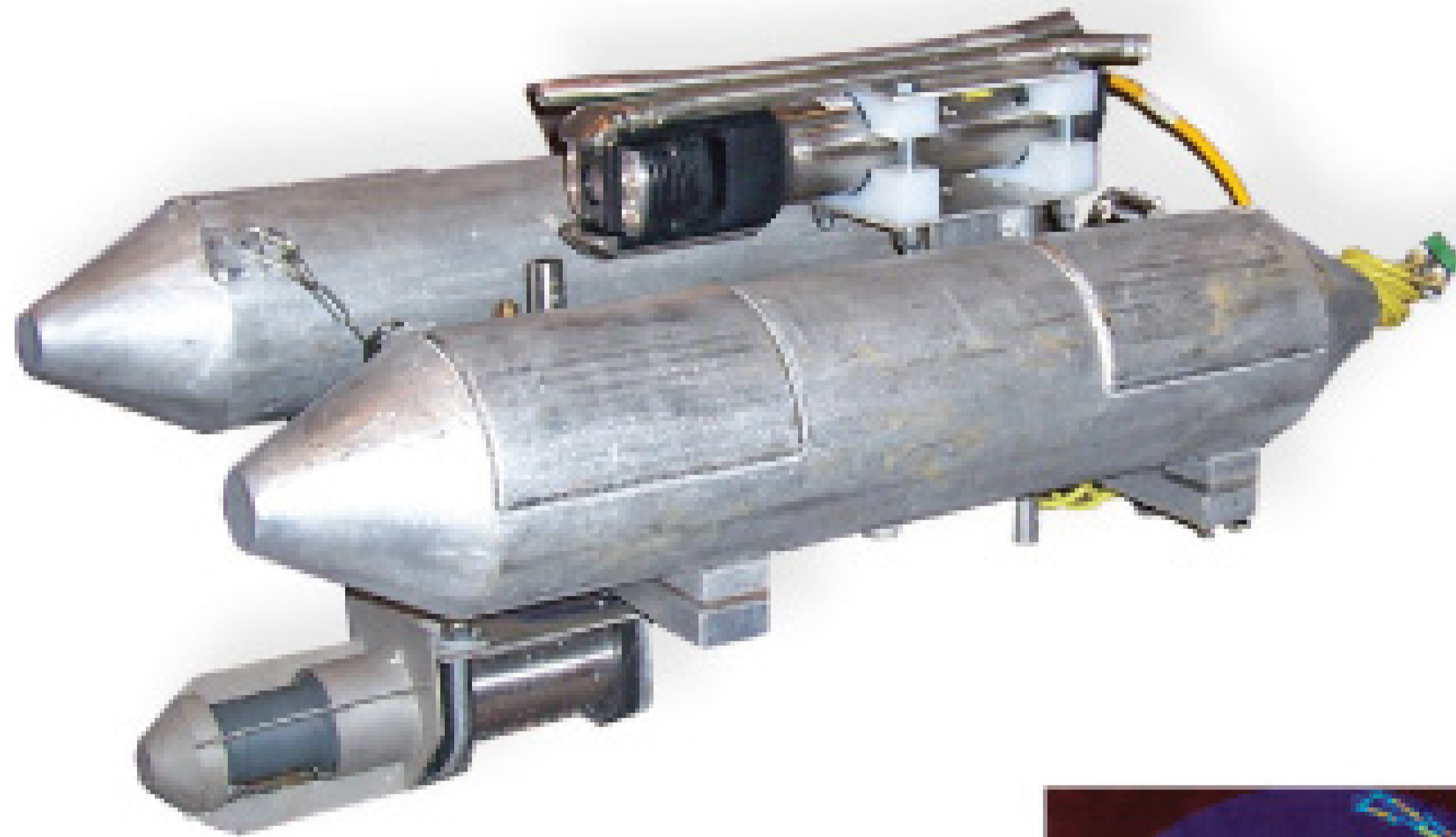
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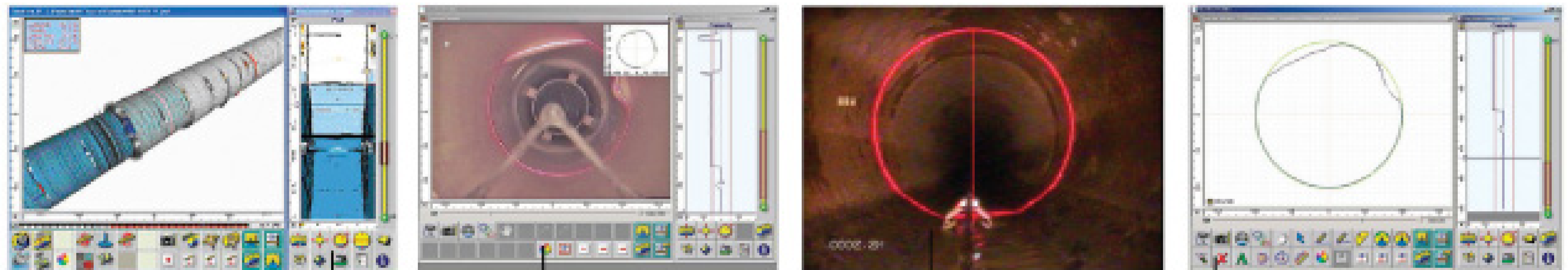
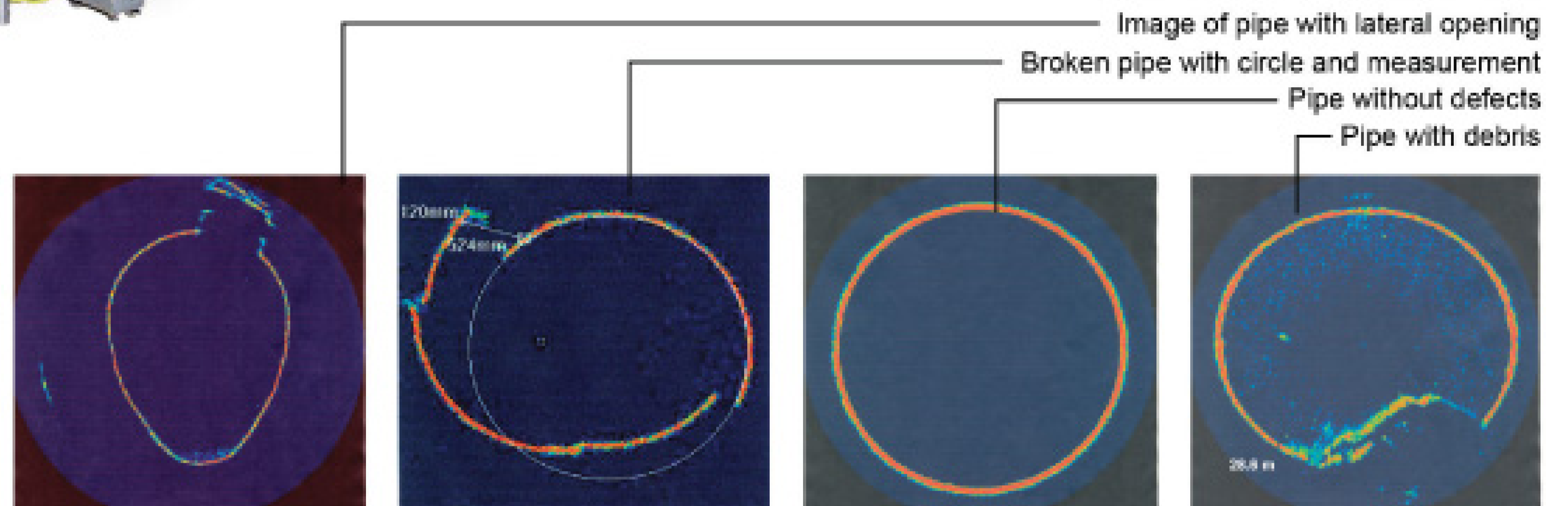
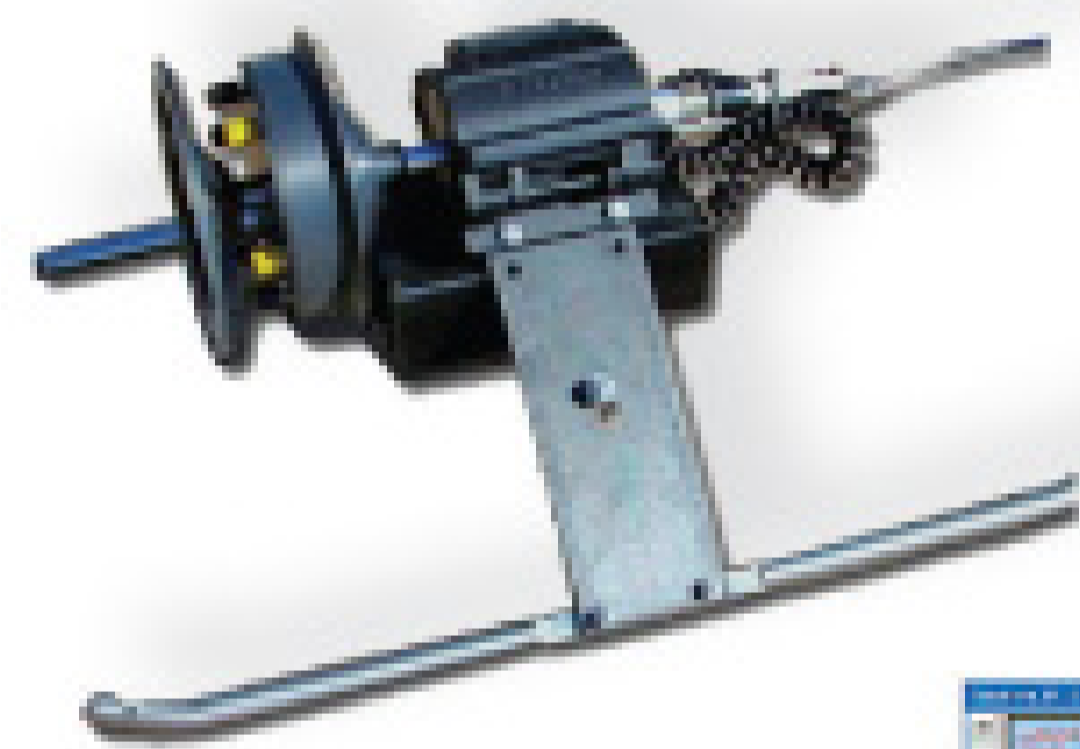
Achieve accurate measurements of pipe loss with CUES Laser and Sonar Pipe Profiling Systems.



Sonar Pipe Profiler



- View the pipe profile, profile comparison, and dimension data of significant items or defects below the waterline.
- Provides accurate dimensional data on silt level, grease accumulation, pipe deformation, offsets, etc., below the waterline.
- In charged lines or siphons, provides the visual profile, profile comparison, and dimension data of significant items or defects.
- A sonar inspection of a fully or partially charged line provides a two-dimensional profile of the interior pipe wall similar to a medical MRI.
- Accurate measurements can be made between any two points within the sonar image.



Laser Pipe Profiler

- The Laser Profiler is designed to provide the contractor, municipality, or consulting engineer with the ability to determine internal pipeline conditions prior to and/or after rehabilitation.
- The Laser Profiler simply attaches to your existing CCTV camera and the resulting CCTV images are analyzed using innovative machine vision software to collect survey data for analysis of pipe deformation and ovality, true pipe diameter, corrosion, capacity, and verification of liner installation. Reports are also available in 3D or 2D renderings.



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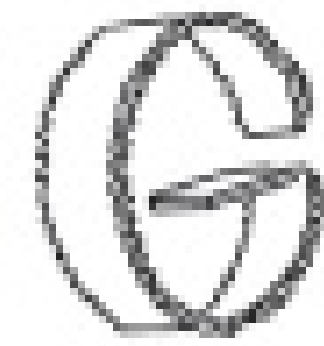
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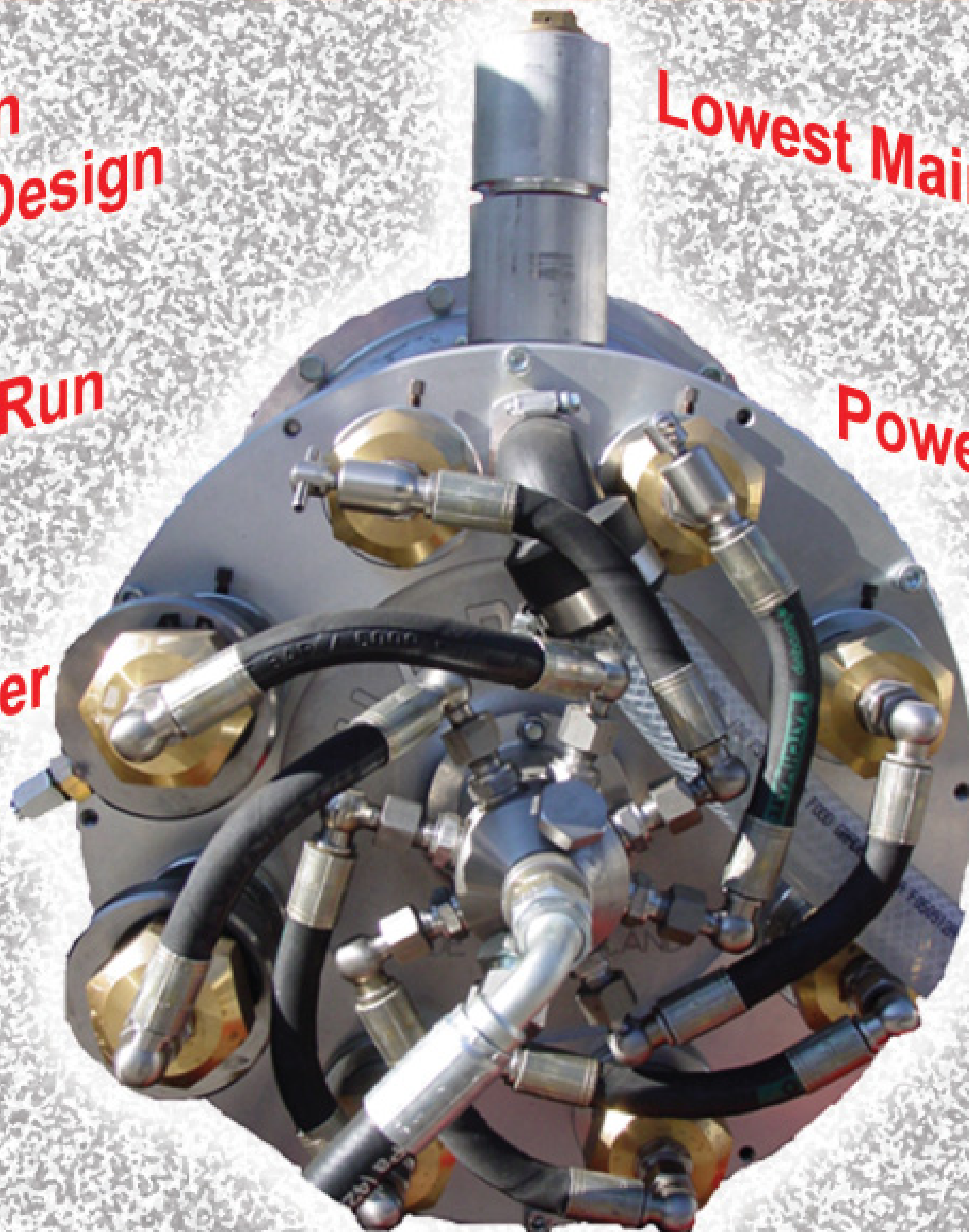
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Hitting the Target

New systems and tools help contractors enhance efficiency in a full range of horizontal directional drilling applications

By **Scottie Dayton**

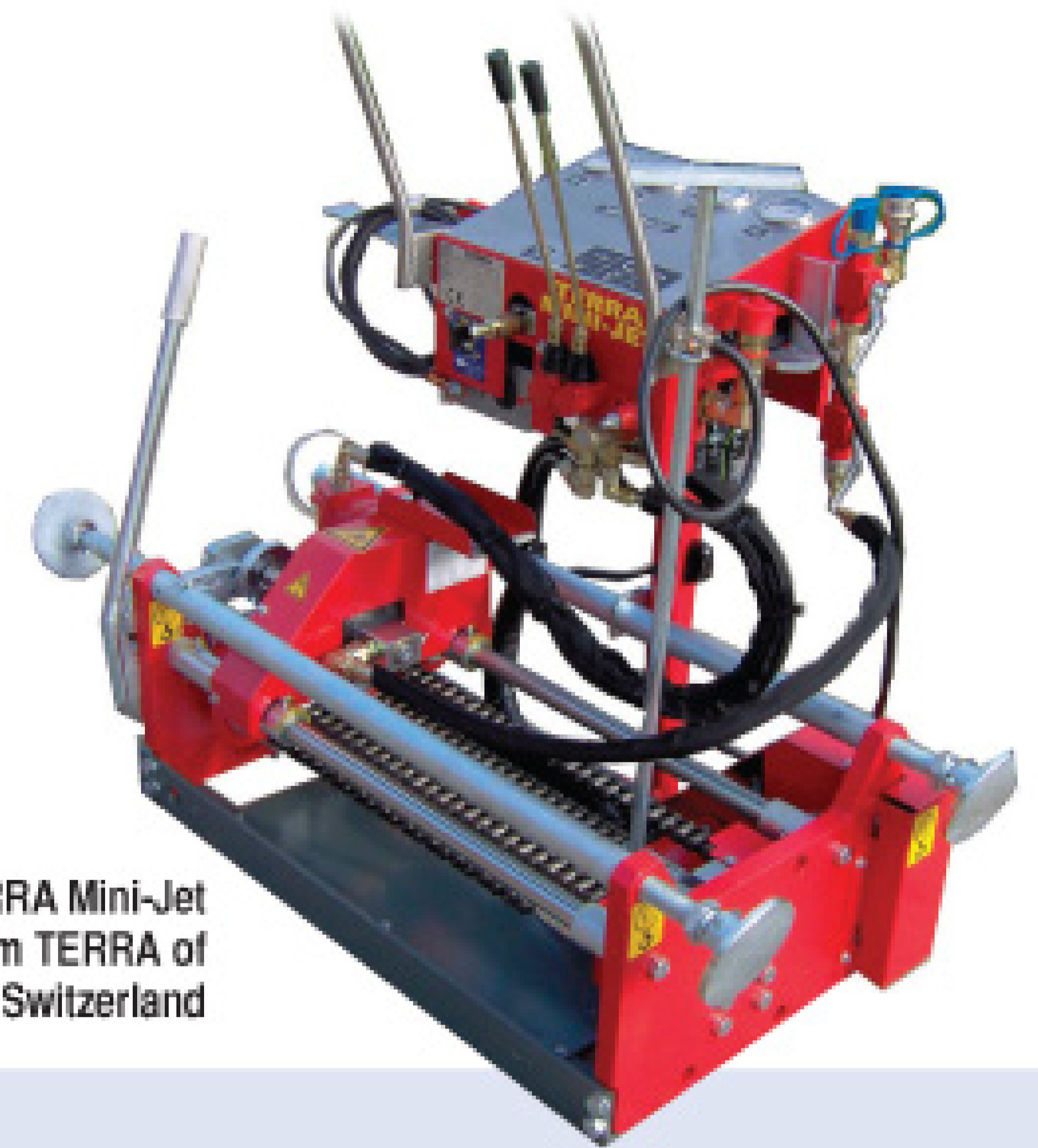
Horizontal directional drilling (HDD) is a valuable trenchless technology, perhaps most at home in utility construction but also with growing potential in pipe repair and replacement scenarios. It is an efficient and highly accurate method of tunneling from Point A to Point B without disturbing the surface and while avoiding buried utilities. Here are a few recent innovations in HDD drills and tools, as described by leading industry manufacturers.



Astec EarthPro Series DD-2024 horizontal directional drill from Astec Underground



JT3020 Mach 1 horizontal directional drill from Ditch Witch



TERRA Mini-Jet from TERRA of Switzerland

Mighty mini-jet

The **TERRA Mini-Jet** from **TERRA of Switzerland**, an ISO 9001-certified manufacturer, comes in compact or long versions. Able to turn 90 degrees in 50 feet, the units can be surface-launched or launched through a 45- to 50-inch-long pit. They have 10,126 foot-pound torque, 8.8 tons thrust/pullback force, and a maximum drilling length of 164 feet. Additional rods increase drilling distances to 265 feet, especially in 2- to 3-inch diameter holes.

Depending on soil conditions, the drills can bore channels up to 10 inches in diameter. The ADBS (automatic drilling and backreaming system) instantly and automatically matches speed and torque to ground conditions. A new chain drive delivers increased power with no power losses at low speeds.

Two 6-hp Honda engines power the mixing and pumping system. Drawing water from rivers or lakes, the injector with suction hose can mix drilling mud in less than five minutes. Maximum drilling fluid is 9 gpm/797 psi. The hydraulic system, powered by a 2-cylinder, 20-hp Honda engine, delivers 10 gpm/2,537 psi. A control switches off the engine in low-oil conditions. **Call 800/458-5238 or visit www.terra-trenchless.com.**

Compact drill addition

The **Astec EarthPro Series DD-2024** horizontal directional drill from **Astec Underground** offers 20,000 pounds of thrust/pullback force with capability of up to 2,400 foot-pounds of rotary torque.

Powered by an 85-hp B3.3C Cummins turbo-charged diesel engine, the drill has field-proven, quad rack-and-pinion drive with adjustable force limiter, independent rear stabilizers, front-drive track system for traction and balance, and a dual stake down system. The machine is equipped with a tethered travel control unit to help operator visibility during tramming and transport. The Es!Lok system is integrated into the controls for added safety. **Call 800/527-6020 or visit www.astecunderground.com.**

More power, less noise

The extended-range, self-contained **JT3020 Mach 1** horizontal directional drill from **Ditch Witch** has 30,000 pounds of pullback and can bore pilot holes up to 4.5 inches and backream diameters up to 12 inches — all at less than 82 dBA at the operator's ear. The 148-hp engine's cooling design automatically increases horsepower when drilling conditions become more challenging.

The fluid mud pump delivers 42-viscosity drilling fluid at 50 gpm, increasing drill efficiency. A redesigned workstation puts all the information operators need during a bore in their line of sight as they look at the tool joint. A streamlined, easy-to-read, menu-driven LCD screen provides real-time status of the



Big Shot line of underground piercing tools from Footage Tools Inc.

pipe makeup and breakout cycle.

The drill's rack-and-pinion thrust drive has a welded double rack that prevents the pinion from misalignment and distributes the load equally for less wear. The redesigned anchor system sets up easily and holds firm in any soil condition. The anchor motors do not require disconnecting and provide 10,000 foot-pounds of torque. **Call 800/654-6481 or visit www.ditchwitch.com.**

Underground piercing tools

The **Big Shot** line of underground piercing tools from **Footage Tools Inc.** has barrels machined from solid billets of high-grade chromoly steel. A phosphate coating on the piston minimizes corrosion.

The tools have a relieved midsection barrel for increased travel through soils, a flexible air tube assembly that prevents a shift in the air hose from compromising the trajectory, a replaceable nose pin, and accessories that include cutting heads, expanders, and pipe-pulling extensions. Models are available in 2-, 2 1/2-, 3-, and 4-inch sizes with expanders accommodating two models up to 5 1/2 inches. **Call 888/737-3668 or visit www.footagetools.com.**

Steerable thrust boring machine

The **PD-6** steerable, locatable hydraulic thrust boring machine from **Pow-R Mole** plugs into any 3,000-psi hydraulic source. Available with more than 84,000 pounds of thrust, the 4- and 4 1/2-foot pit-launched units set up in confined areas where directional drilling is impossible.

The machines can install up to 8-inch water or sewer lines using any type of pipe as long as 150 feet. They also can pipe burst. The dry bore system requires no water tanks or mud pumps. An OSHA-approved push/trench box certified for 12-foot depths in A-, B-, or C-type soils is available. **Call 800/344-6653 or visit www.powrmole.com.**

Steerable boring system

The compact **Grundodrill 4X** from **TT Technologies Inc.** offers 9,800 pounds of thrust/pullback force. The four-auger stake down system enhances stability to maximize thrust and pullback. A dual hydrostatic pump system allows optimum control during drilling operations. The drill's computerized Smart Vice system automatically performs vice cycling operations, providing operators with single push-button control, improved efficiency, and faster drill times. The self-centering vice also reduces wear and tear.

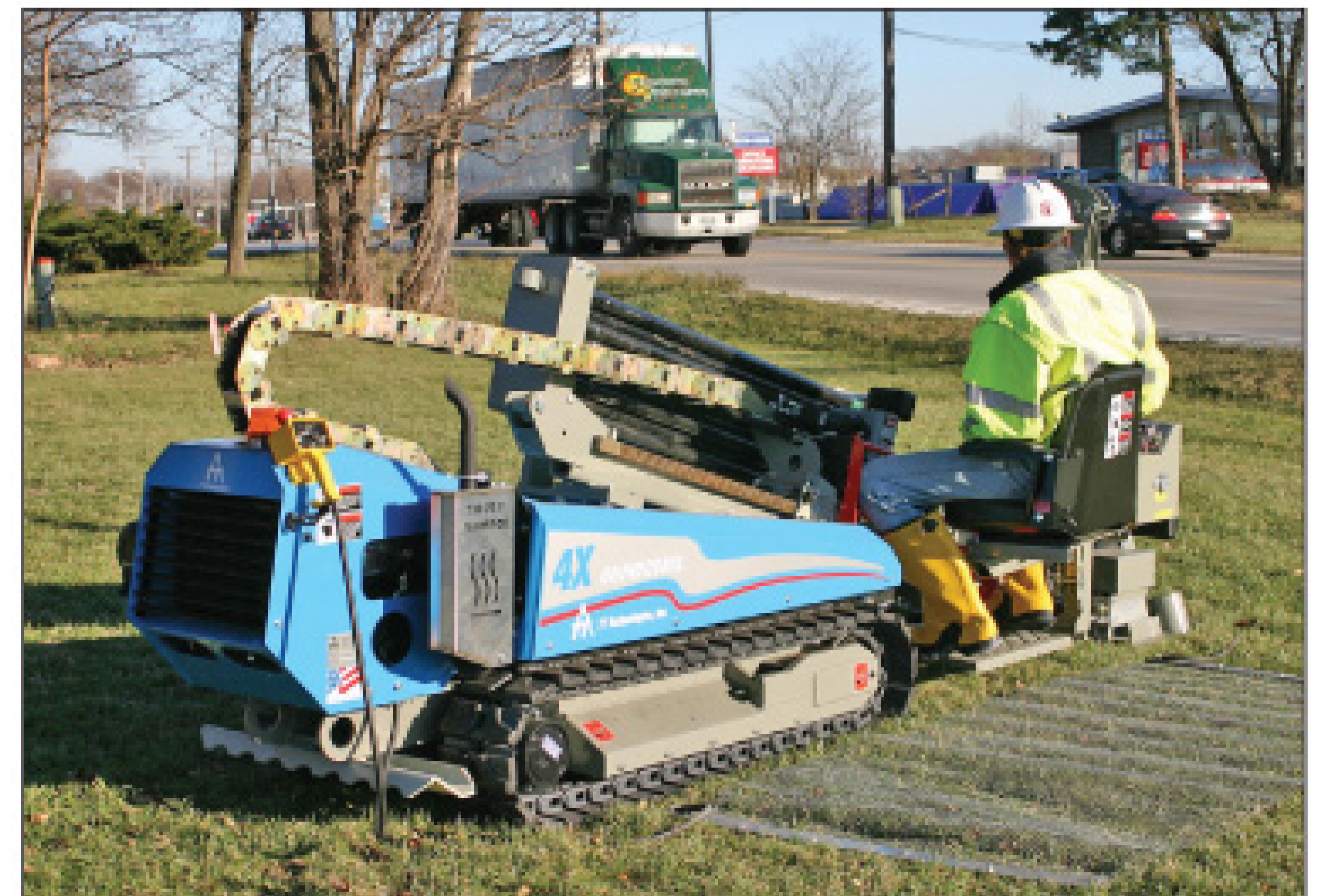
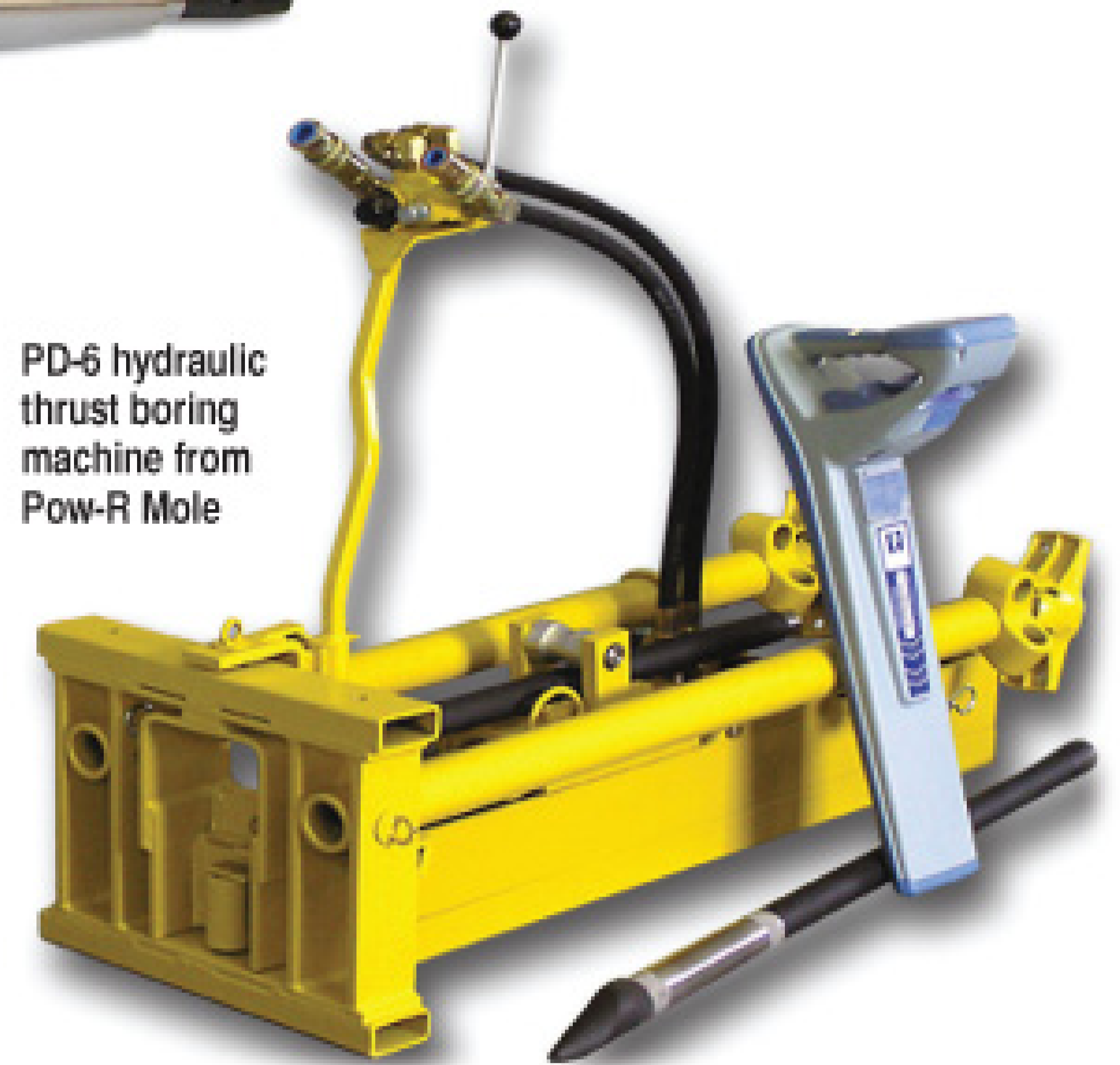
Designed for residential or commercial use, the lightweight unit can be transported on a trailer pulled by a one-ton truck, and requires minimal crews to operate. The drill's steel track with bonded rubber pads improves traction and minimizes potential damage to concrete and turf. **Call 800/533-2078 or visit www.tttechnologies.com.**

Pneumatic piercing tools

More than 17 models of **HammerHead Mole piercing tools** from **Earth Tool Company LLC** have the clamped rear anvil and tailbolt system for fast, easy field maintenance. Contractors can assemble the 2- to 8-inch tools with hand tools, and without breaker bars or special fixtures.

Internal wear rings eliminate metal-to-metal contact. Available on many 2-, 2 1/2-, and 3-inch models, the Power Port quarter-turn reverse locks the tool into forward or reverse. Replaceable head tools and Active Head piercing tools for tough soil conditions are available. **Call 800/331-6653 or visit www.hammerheadmole.com.** ■

PD-6 hydraulic thrust boring machine from Pow-R Mole



Grundodrill 4X boring system from TT Technologies Inc.



HammerHead Mole piercing tools from Earth Tool Company LLC



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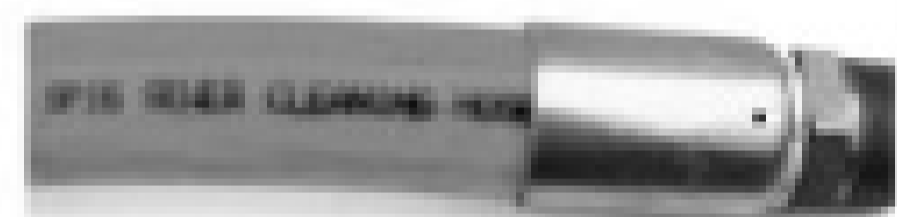


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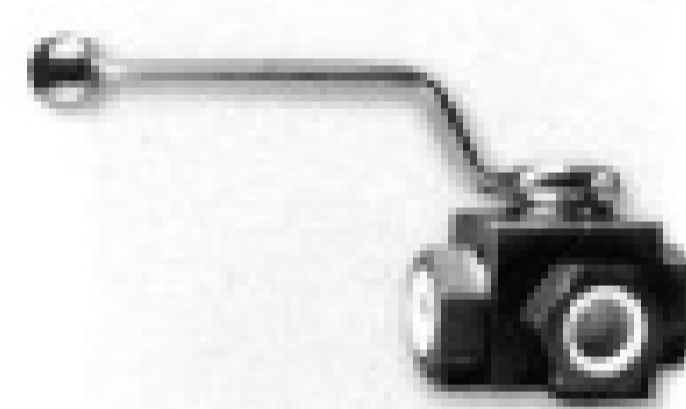
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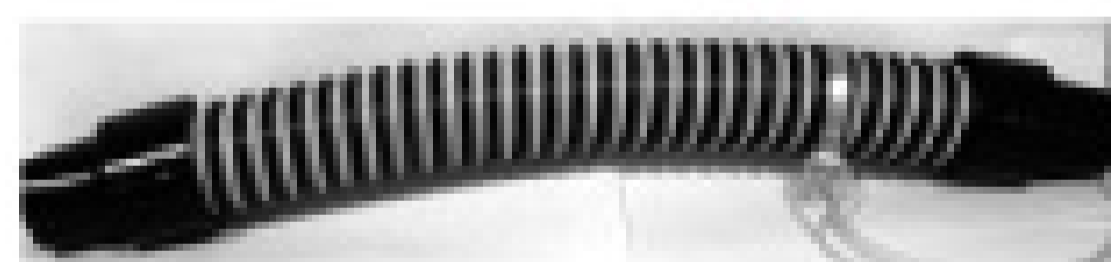
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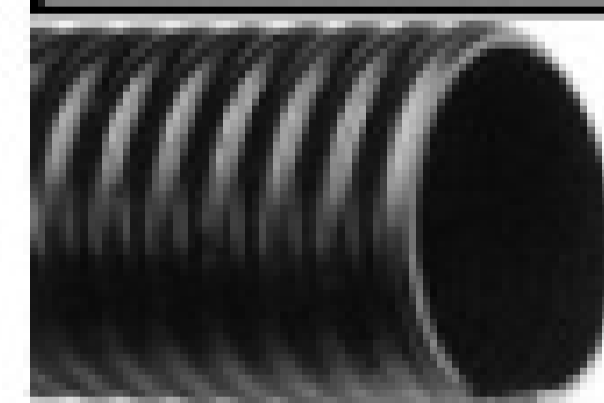


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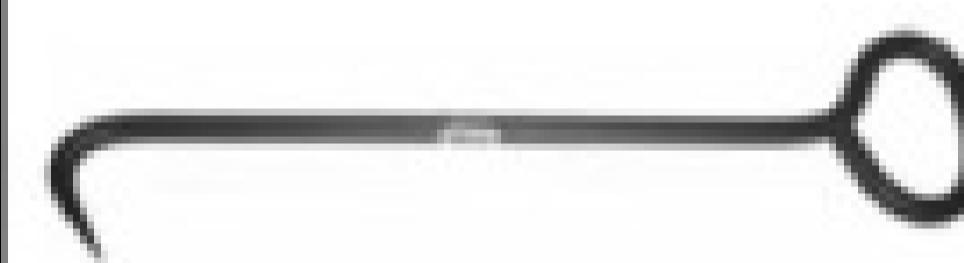
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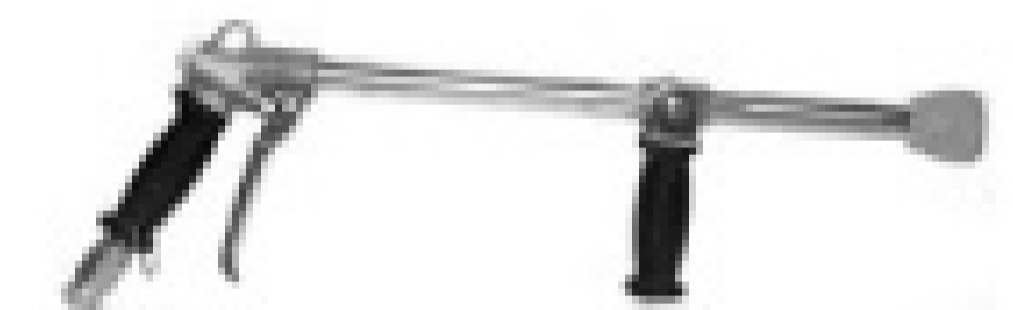
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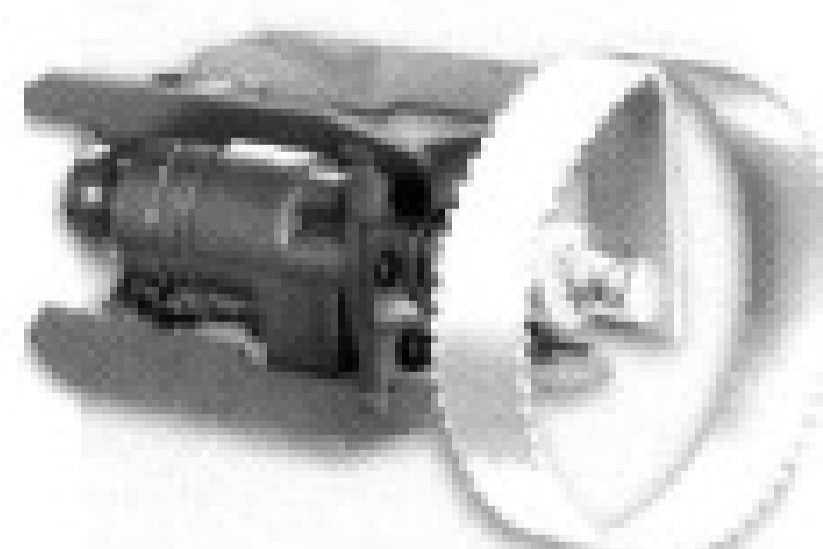
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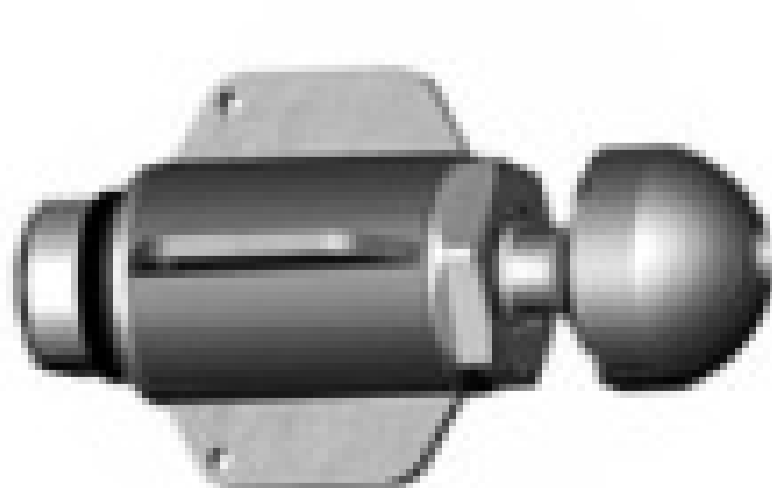
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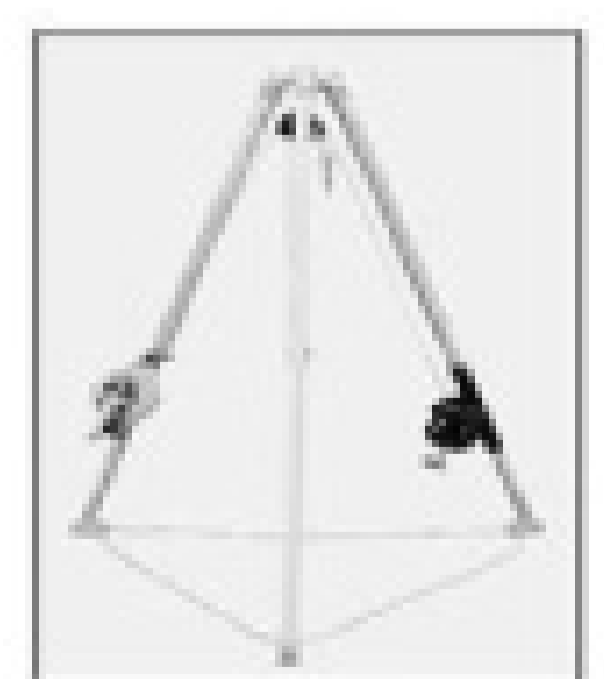
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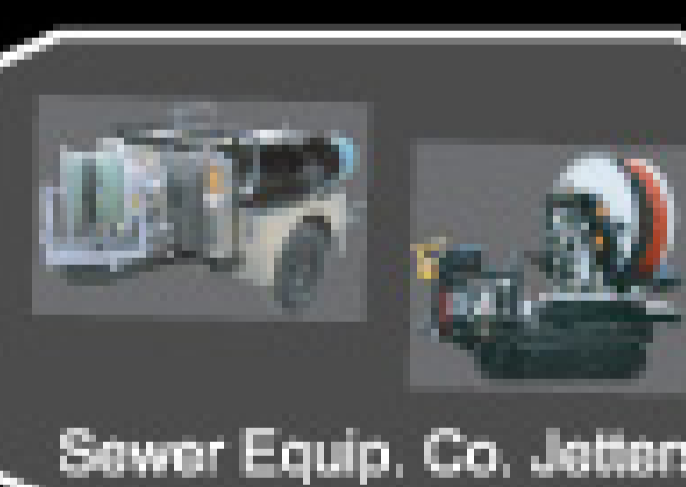
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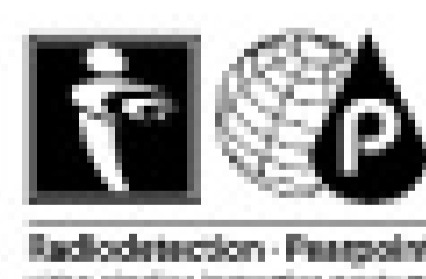


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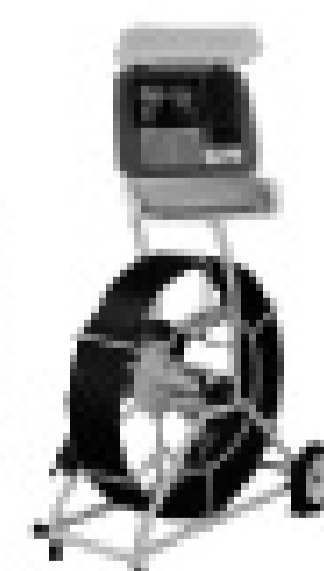
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Just Ducky!

Trucks bearing a bright-yellow trademark character help a Northern Wisconsin contractor stand out from competitors

By Ken Wysocky

When you brand your business with a bright yellow rubber duck in Wisconsin's Northwoods, it sticks out like a drain cleaner working in a three-piece suit. And that's exactly why you'll see the cute little ducks on sleek service vans owned by Frasier's Plumbing, Heating, Cooling & Electrical in Rhinelander, Wis.

Locals call those vehicles "the duck trucks."

"There are more than 100 plumbing and heating contractors in our area, so it's easy to get lost in the crowd," notes Phil Frasier, whose

also hand out small rubber ducks to children on service calls. A duck mascot represents Frasier's at parades, home shows and special events.

Moreover, any customer who spends more than \$2,000 on a job (about 55 percent of the company work is plumbing and drain cleaning) receives one pound of fresh fudge, adorned with – what else – a yellow rubber duck. And the company's regional toll-free telephone number is 866-YELLOW DUCK.

Functional, too

The company's 11 leased vans, built on Ford E-350 chassis (2003, 2005 and 2006 models), are more than rolling billboards. The vans, seven with gasoline engines and four with diesels, also are highly durable with low operating and maintenance costs.

"Around here, the washboard roads and winter weather are really tough on trucks that carry heavy loads," Frasier says. "Because the

MONEY MACHINES

OWNER:	Frasier's Plumbing, Heating, Cooling & Electrical, Rhinelander, Wis.
FUNCTION:	Multi-purpose drain cleaning and plumbing service vehicles
VEHICLE TYPE:	Unicell SRW bodies on Ford E-350 chassis
PRIMARY EQUIPMENT:	RIDGID sectional drain machines from Ridge Tool Co.; \$10,000 in plumbing parts inventory
COST:	\$35,000
WEB SITE:	www.frasiers.com

van bodies are made of one-piece molded fiberglass with a gel coat, they're easier to keep clean, and there aren't any cracks or crevices where mud and salt can collect. Plus we have no rust issues at all. If we have to replace an engine or a transmission, that's much better than replacing an entire truck every three or four years because the body is worn out."

The vans also drastically cut fuel costs: They get 13 to 17 miles per gallon, compared to 4 to 6 for the

GMC box vans they replaced. "Between reduced maintenance and fuel costs, we save about \$75,000 a year," Frasier says. "With that savings, we've already paid off half of the truck leases."

Lots of space

Frasier technicians enjoy the van's spacious headroom, translucent ceilings and the adjustable shelving and storage system from Hackney USA. Each truck can hold two RIDGID sectional drain

MONEY Machines

fourth-generation, family-owned company serves customers within a 60-mile radius of Rhinelander. "Plus, we have a very transient population up here, so new residents don't always know who to call."

So when a designer asked Frasier to select graphics for the sides of his company's aerodynamic Aerocell SRW van bodies, made by Unicell Body Co., he zeroed in on the yellow duck.

People business

"There's a big push in our industry to market to women and families, so everyone's putting people on trucks," Frasier says. "We were ready to use people, just like everyone else, but then decided to try and really brand the company. When that little duck came up, we all said, 'That's it. No one's doing anything like this.' Putting that duck on the trucks really transformed our business. People around here know the duck trucks more than they know the name of the company."

To leverage the brand identity, technicians give every residential customer a rubber duck refrigerator magnet and notepad. Technicians

Snappy service vans with the yellow duck emblem are a trademark of Frasier's Plumbing, Heating, Cooling & Electrical in Rhinelander, Wis.





The company's drain service van is well equipped and stocked for a variety of jobs.

"There's a big push in our industry to market to women and families, so everyone's putting people on trucks. We were ready to use people, just like everyone else, but then decided to try and really brand the company. When that little duck came up, we all said, 'That's it. No one's doing anything like this.'"

Phil Frasier

machines (K-1550s and K-50s) from Ridge Tool Co. and carries \$10,000 worth of plumbing parts inventory, as well as a water heater. Each van also has space to haul one of two waterjetters (Spartan Tool and Water Cannon).

"Our guys need everything from toilets to water heaters to sewer machines," Frasier says. "These vans

can hold any or all of them, and there's still plenty of room." Some 55 percent of the business revolves around plumbing and drain cleaning.

Great customer service has kept the company in business for almost 90 years, but Frasier knows that's not always enough to make the firm stand out in a crowded field. The bright little rubber duck and those sleek service vans do the rest. ■

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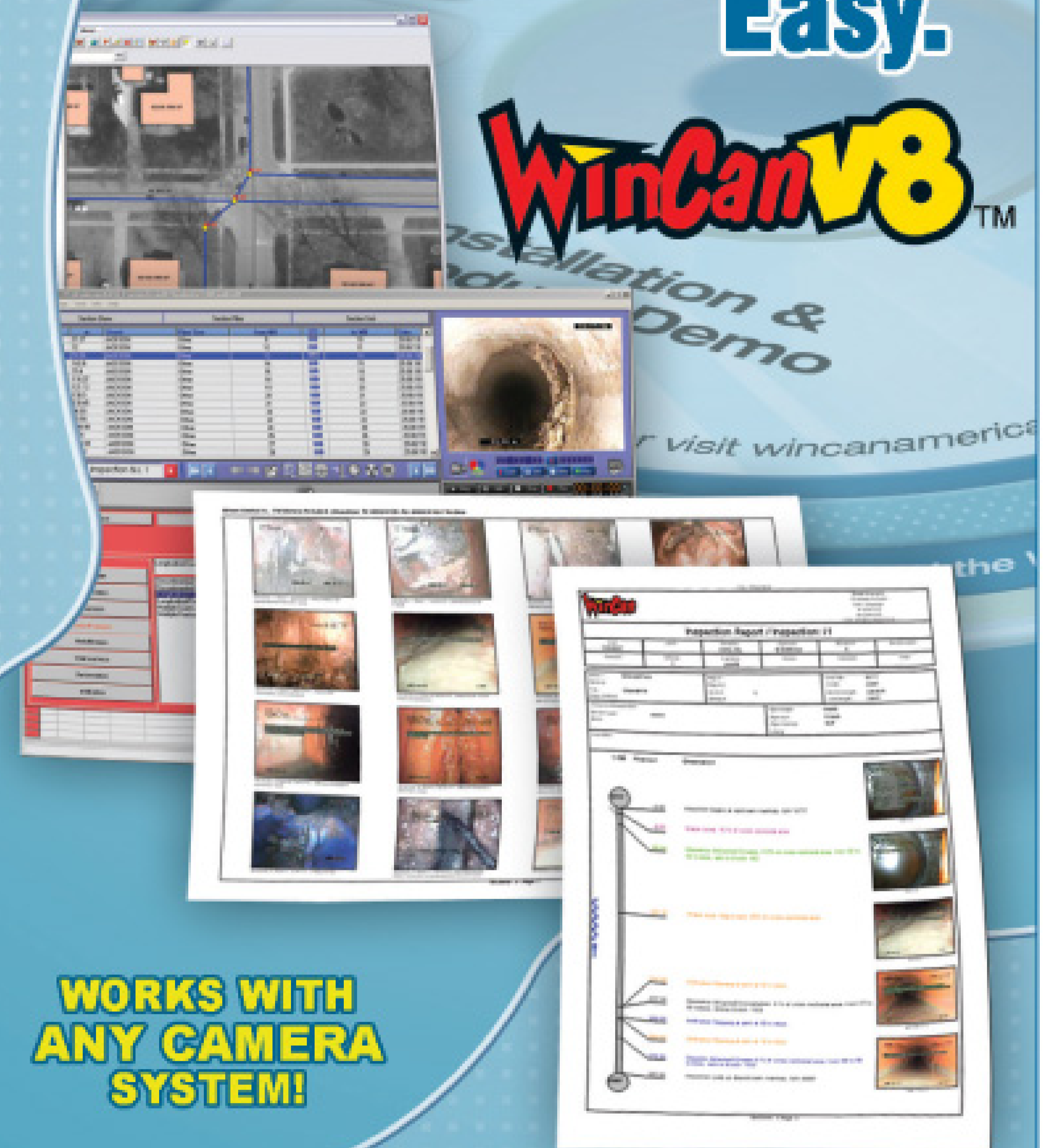
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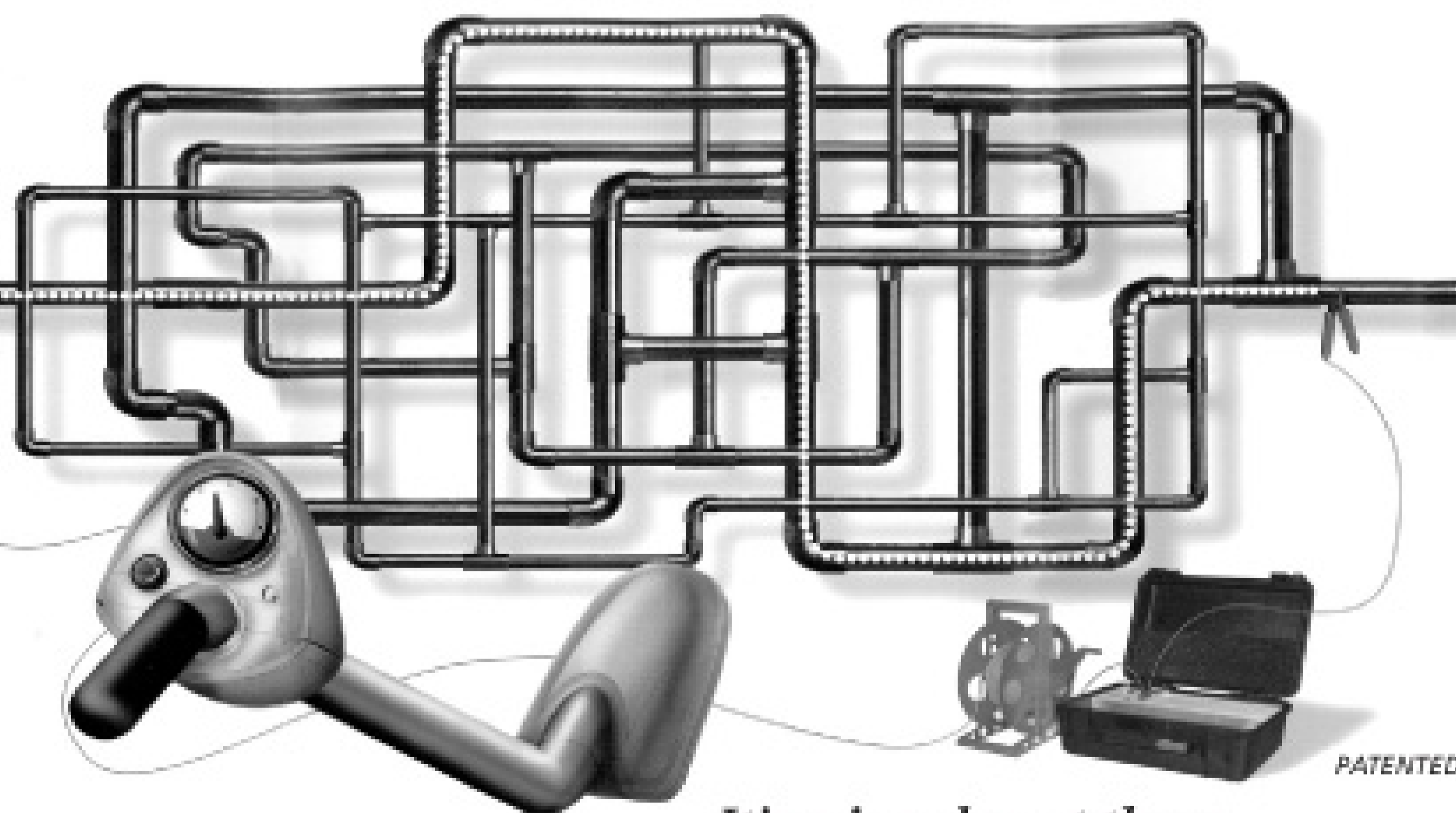
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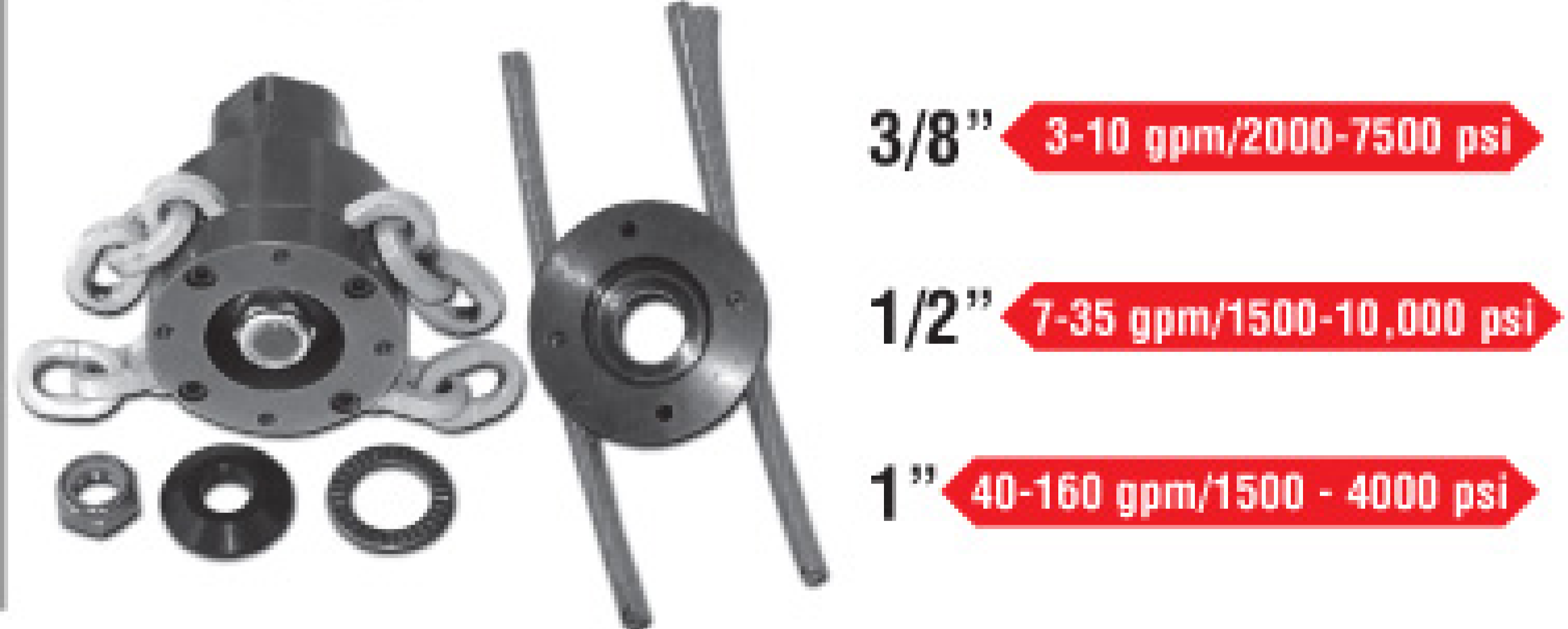
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Pull or Punch?

Static and pneumatic pipe bursting each have benefits for specific applications. Savvy pipe repair contractors take time to learn the difference.

By John Rafferty

Every major industry produces specialized segments, each with its own vocabulary of technical terms. In the construction business, some terms communicate beyond their professional audience, while others are more mysterious.

In underground pipe installation and replacement, the relatively recent word “trenchless” seems clear and unequivocal, even to the uninitiated. Yet choosing which method to use can lead to confusion, even among contractors.

For example, when pipe bursting to replace existing utility lines (and to a lesser extent to install new ones), professionals talk about using either static force or impact force. Both methods use a mole, or bursting head, attached to a cable inserted into the old line. (Steel rods and chains are also used for static bursting.)

The mole is a steel cone that is pulled through the old pipe, shattering it and expanding the earth while simultaneously pulling in new pipe. In some cases, there can be a series of two or more moles, graduating upward in size to the desired diameter. Moles can be short and simple, or they can be long and elaborate with rolling blades and sharp fins, depending on the host pipe material and the chosen bursting method.

Hitting resistance

Naturally, the amount of force required to burst is directly related to the resistance encountered by the mole and its passenger pipeline on the journey from entrance pit to exit pit. That resistance is broadly comprised of existing ground and host pipe conditions, plus the diameter and length of the introduced head and new pipe assembly. New pipe can be the same size as the host pipe

or larger in diameter.

Ground conditions include soil compaction and composition, moisture content, and natural or manufactured obstacles, such as large tree roots or rocks, concrete pours, foundations, and other utilities or structural elements. Host pipe conditions include the diameter and type of material to burst, the length of the line to replace, couplings and connections, plus any mechanical bends in the line (such as those found in sewer laterals).

Different strokes

A static burst relies on pull alone, so that resistance against the mole and new pipe assembly is overcome by brute force applied to the cable (or equivalent), stabilized on the pulling end so that the mole moves rather than the puller. An impact burst uses percussive force, typically combining heavy hammers guided by relatively light cables pulled by a constant-tension winch. (There can be variations on this theme, mixing diverse machinery with different combinations of static and impact force.)

A 12-inch impact unit, for example, might have a hammer assembly weighing hundreds of pounds inside a large terrestrial torpedo whose gross weight is well over half a ton. Such a beast might be attached to a 5/8-inch cable, while only four or five tons of pull is applied by a constant-tension winch. In this case, however, the impact leader is just a persuasive guide — like a dog’s leash — rather than the prime motivator. The relatively small load on such a pneumatic assist cable allows it to be far thinner and lighter than what is needed to burst the same size pipe statically.

By contrast, a 12-inch static burst might employ a 1 1/4-inch compact

Tech Perspective looks at technology-related issues and provides information and advice that cleaning professionals can apply to equipment selection and to their daily work in the field. Industry members are welcome to offer ideas for this column. Please direct them to editor Ted J. Rulseh, editor@cleaner.com.



A 60-ton static puller uses 1-inch cable to burst an 8-inch clay sewer main. (Photos courtesy of TRIC Tools Inc.)

swaged cable weighing three or four times as much per foot as that used to tow a 12-inch impact mole.

But if cable size and weight are lower for pneumatic bursting heads, the impact moles themselves are considerably longer and heavier, since they must contain an internal hammer with enough mass and travel to literally pound the head through the ground, like a horizontal pile driver. The largest pneumatic units can weigh many tons, requiring multiple high-volume compressors to operate. Some impact units are reversible, capable of backing out of the new pipe after the burst is complete. As with all pneumatic bursting heads, at least one air hose runs inside the length of the new pipe from the impact unit to the compressor.

On the other hand, the static mole only has to be strong and hard

enough to resist the friction and pressure of expanding the surrounding earth and breaking through pipe, joints, and couplings. Consequently, a static head can be significantly lighter and more compact than its pneumatic counterpart, even when it has special cutting blades and rollers.

Static force is more prevalent when defeating steel and plastic pipes that split rather than shatter, because a steady pull with blades is less likely to compact or “bunch up” such material.

Universal law

Regardless of method, a universal law applies: Every action has an equal and opposite reaction. A steel bursting head moves through the ground and drags pipe behind it in reaction to the specific directional force applied to it, be it percussion

from within or tugging from the outside. The objective is to get new pipe in the ground, yet the logistics can vary, depending on what force is used.

Whatever the force, if well applied, the end result is time (and materials) saved on the job. The bigger the job, the more critical are the logistics. The contractor's best bet is to understand how different methods apply to specific job scenarios.

Static machines are either rod pullers or rope pullers. Rod pullers are used for utility line and sewer rehabilitation in the municipal market, from smaller service lines to medium-large sewer mains. Rod systems are suitable for straight runs of all types of service pipe material. They are self-contained frame or box units with hydraulically or mechanically actuated grippers that both push and pull steel rods, each averaging a couple of inches thick and a few feet in length.

Rods are threaded together during the "payout" (pushing) phase

for operation in confined spaces.

If rod pullers are horizontally configured, then rope pullers are essentially vertical. Most rope pullers have some version of a reciprocating gripper system set between hydraulic rams, which are often mounted on a pulley apparatus so as to cycle upward, making the system more intrinsically compact, and therefore more adaptable to confined spaces.

This feature, combined with shorter and more agile static moles, gives rope pullers a strategic edge over impactors when bursting small to mid-sized lines in easements

pull back a nylon rope or small towing cable to attach to the pulling cable (which can weigh upwards of 10 pounds per foot for the largest static machines).

While chains won't fray or kink, and have positive link engagement to grippers, cables are more widely used and have a greater strength-to-weight ratio. Cable is the standard for the majority of rope pullers, from the earliest lateral bursting systems using modified post-tensioning rams to the custom 300-ton goliaths pulling 2 1/4-inch cable and 36-inch sewer mains.

as manholes and catch basins. The other side of the equation is accommodating the big missile when it finally arrives at its destination.

In some cases the hammer unit is reversed; in other cases it must escape to the surface via a separate pilot bore. Also, one troublesome condition exacerbated by impact bursting is wet, sandy soil that closes back in on the trailing new pipe, creating extreme drag. The same pull with a comparable static system would likely go more quickly.

Bentonite solutions are particularly recommended for impact bursting in these situations. A special manifold is inserted in a window cut out of the new pipe near the bursting head before beginning the burst. The solution is then mixed onsite and pumped as needed through a supply hose inside the new pipe during the burst.

A natural advantage to static bursting, even if used infrequently, is the ability to fuse pipe progressively while pulling, since there are no air hoses inside the new pipe to interfere with the fusion process. This advantage becomes more evident with larger municipal pipelines in difficult landscaping situations.

There are countless scenarios surrounding municipal infrastructure rehabilitation. The good news is that there is often a clear choice between digging and not digging. No project is 100 percent predictable, and underground projects are certainly among the least predictable of all. If pipe bursting is an option, then knowing the questions to ask regarding each method can mean the difference between a hard-earned lesson and well-earned cash.

John Rafferty is head technician with TRIC Tools Inc. in Alameda, Calif. ■

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A static lateral bursting system pulls a 4-inch sewer into a basement.

and fed into the host line from exit to entry pit. This "rod-train" has a certain degree of flexibility to negotiate sweeping bends. During the pullback (bursting) phase, the rods are unthreaded one at a time as they exit the machine. Larger machines have rod storage bays, are hydraulically self-adjusting and stabilizing in the exit pit, and power-spin the rods during assembly and disassembly phases. Rod pullers are not designed

(especially sewer laterals with mechanical bends).

Rope pullers use either a cable or a chain, which must be fed into the host pipe between entry and exit pits. This is a separate operation (also required for pneumatic assist cables) that might employ a fiberglass duct rod for short to medium runs in smaller pipe. For larger, longer runs, a hydrojetter is often used to navigate the host line and

Going pneumatic

Pneumatic pipe bursting is by far the most common method worldwide for trenchless replacement of municipal pipelines. It has produced the largest-diameter moles and expanders, as well as the greatest variety of mole combinations within a given diameter. With impact bursting, the heavy artillery is in the ground, and special equipment is stationed at both entry and exit areas (compressor and winch).

Entry pits are longer in general, but not always. The pneumatic recipe requires low static force at the exit pit, allowing in some cases a smaller and less intrusive winch extension inside confined areas such

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Mike Ciaramitaro

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I had been self employed in the plumbing industry for 17 years when I ran across an advertisement for a Mr. Rooter franchise. I was impressed with the education, training and support the Mr. Rooter Corporation provides its franchise owners.

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How has your business changed since you became a franchise owner?

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What is it like to have your two sons work in the business with you?

It's a lot of fun, and we get to spend more time together. My son Chris is learning how to market and run the business. My other son Michael works in field supervision in the excavating division. They both started working for me when they graduated from high school, and one day I want them to take over the business.

“Networking with other Mr. Rooter franchise owners is the biggest benefit of being a Mr. Rooter franchisee.”

What do you see in the future for your franchise?

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Photo: Mike Ciaramitaro

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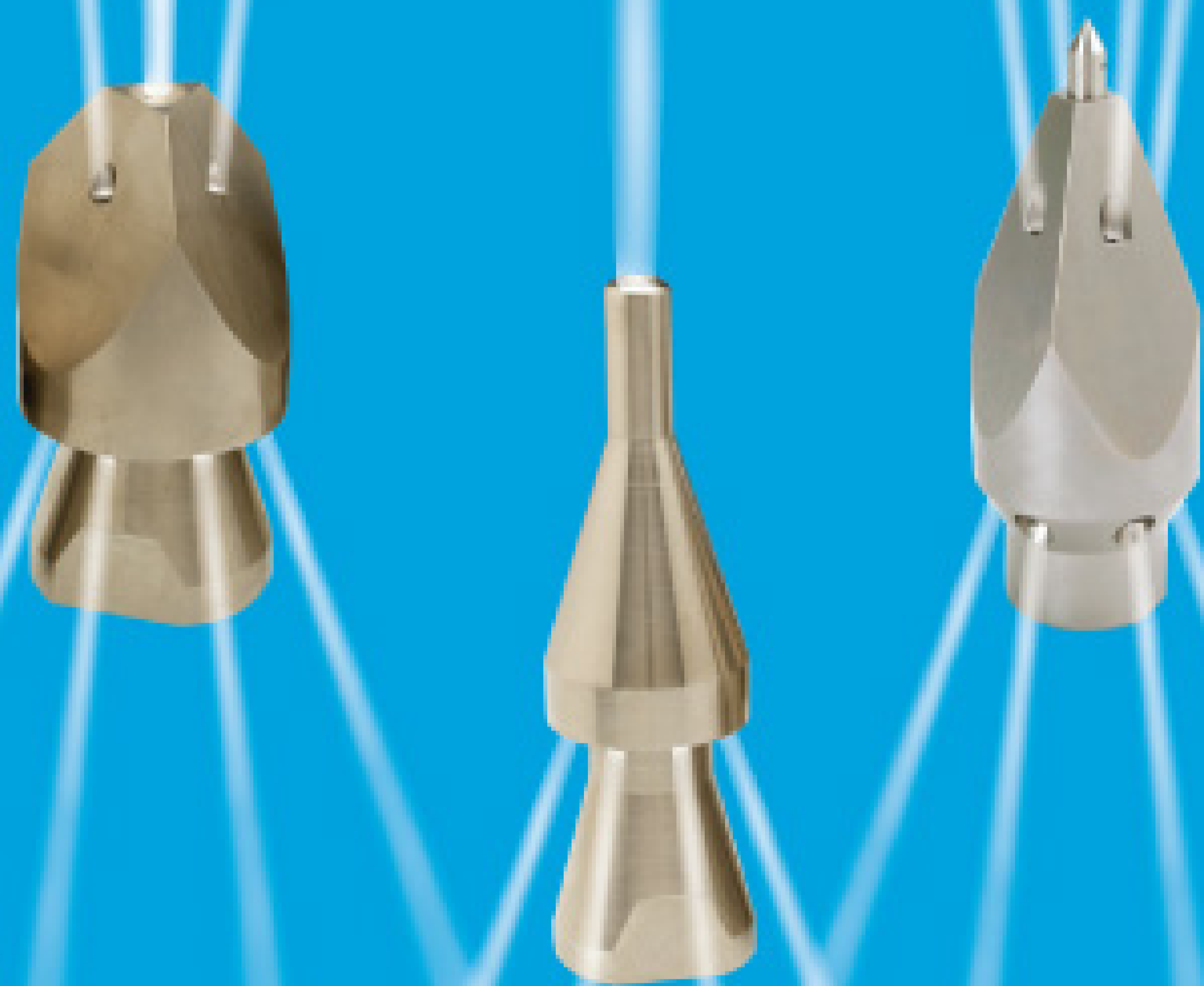


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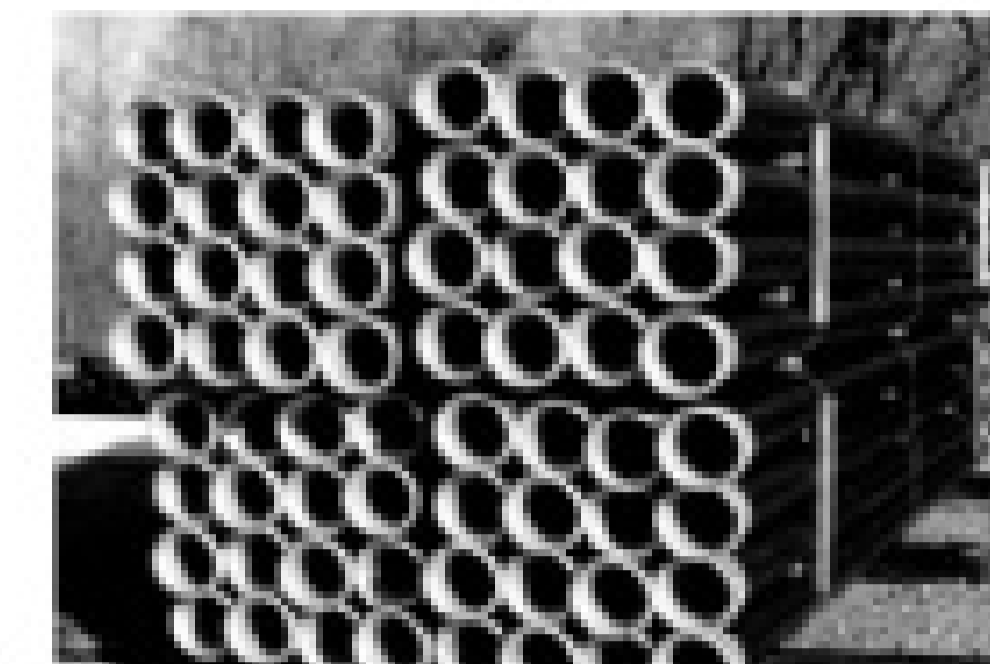
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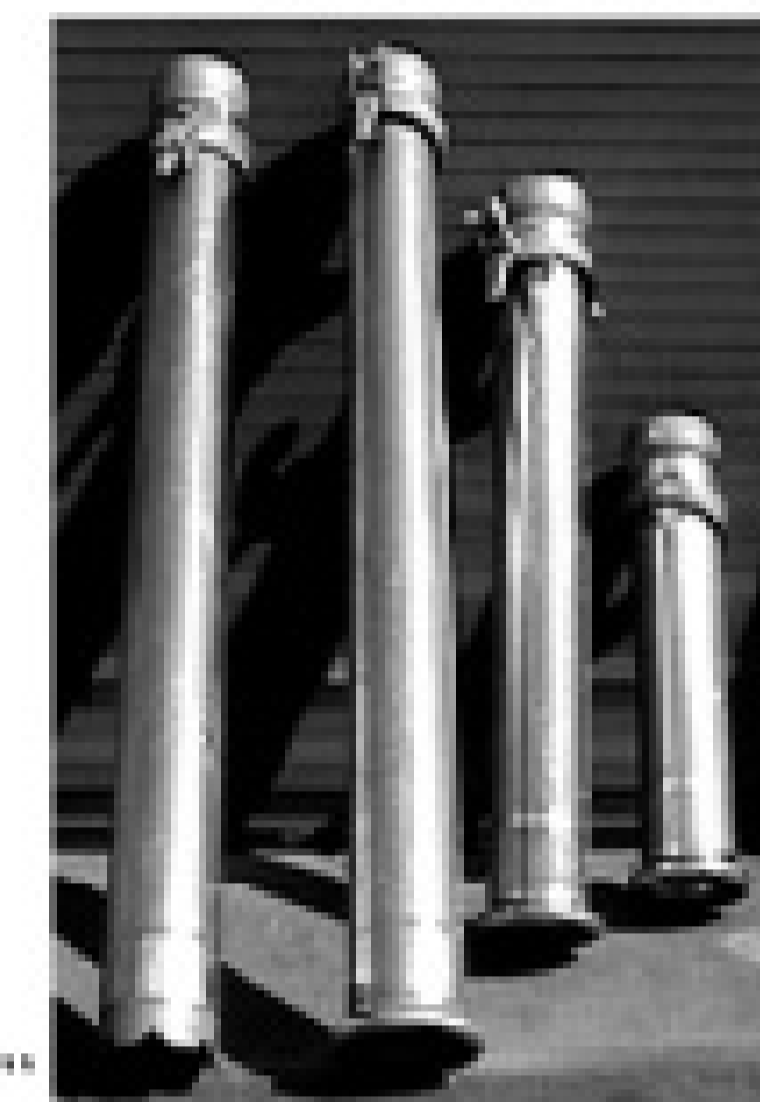
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Eye in the Sky

Contractors weigh the merits of using global positioning systems to improve fleet monitoring and enhance technician productivity

By Mary Shafer

The arrival of consumer-affordable global positioning system (GPS) technology has started revolutions in everything from how we use maps (Google Earth) and drive (MapQuest and TomTom), to perceived safety in the wilderness (Nextel and other GPS-equipped cell phone tracking devices).

Many businesses see huge advantages in GPS fleet tracking. One web site says, "A majority of leading companies are using GPS fleet management solutions to realize benefits such as a 12.2 percent increase in service profitability, 13 percent improvement in vehicle utilization, 14.8 percent reduction in average travel time per job, 9.9 percent decrease in overtime pay, and 27.9 percent increase in operator compliance. The deployment of a GPS fleet management solution often results in an average annual savings of \$1,100 per vehicle."

While this may be true, some employees regard fleet tracking systems as the not-so-subtle intrusion of Big Brother into the non-fiction side of life. However you regard it, the technology is here to stay. Here, operators weigh in on the value of GPS fleet tracking to their businesses.

The **City of Tacoma** uses GPS fleet tracking primarily as a tool to verify the location of any piece of



Steve Jackson

Senior Sewer Technician
City of Tacoma (Wash.)
Public Works
Employees: 47

equipment at any given time. According to **Steve Jackson**, senior sewer worker, the city has used the system in situations when customers call to ask why a city truck is parked at one location for a long time.

"We haven't yet used it as a dispatching tool,"

Jackson reports. "It's not refined enough yet to be useful in that respect. Initially, we used the GPS to overlap dispatching around other municipal departments."

This incomplete use of the full spectrum of GPS features has more to do with budget than anything else. Though the equipment itself — the base and transponder units — and the service subscriptions are relatively inexpensive, the part that links them together is still fairly costly.

"Our department isn't live with it yet," explains

"With one customer, we did make our scheduled calls, but the customer called to complain that we didn't. What actually happened is they were either away from their place or just weren't paying attention and didn't see us."

**Gary Hannibal, Technician
S & M Vacuum and Waste
Killeen, Texas**

Jackson. "That's because it's used primarily for the safety sectors. Police and fire vehicles have dispatch priority over our expensive satellite feed." As with any new technology, this disparity will likely diminish as the cost of the full technology components, including satellite signals, declines.

"They're multi-faceted in use at our company," says **Gary Hannibal** of **S & M Vacuum & Waste** of Killeen, Texas. The company runs its own liquid waste processing facility, services commercial wastewater treatment plants, hauls construction waste, and pumps some residential septic systems. S & M instituted GPS fleet monitoring primarily as a dispatching aid.

"We use GPS for keeping track of where our trucks are at any time of day or month," says Hannibal. "It's mostly been good for dispatching: They can know what area we're in, and whether or not they can send us to someplace close."

In this function, the units help the company make the most efficient use of vehicles, saving time and fuel — increasingly important

Comments may be directed to Mary Shafer in care of Cleaner. You may also e-mail pipelines@cleaner.com.



as prices continue to rise. "It's also used as verification for customers that we were actually at their location," explains Hannibal. "The office keeps a digital file of all truck visits. It's made it easier for the office, helping settle disputes about whether we actually made calls or not."

"With one customer, we did make our scheduled calls, but the customer called to complain that we didn't. What actually happened is they were either away from their place or just weren't pay-



Gary Hannibal

Technician
S & M Vacuum and Waste
Killeen, Texas
Employees: 6

ing attention and didn't see us." With the digital record, the dispatcher was able to prove that the drivers had made their scheduled call, and the dispute was resolved.

Jerry Fannon, general manager of his family's plumbing, inspection and pipe rehabilitation company, **Bio-Remedies Inc.**, no longer uses GPS fleet tracking.

"We tried that when we had Nextel phones, and it was worthless," he says. "We really only wanted to track a few of our trucks, but it didn't work. With the crew I've got now, I don't need to do that. We assign guys by projects all across the town, which is divided into quadrants. We put a more experienced guy close by a rookie, who can be pulled off a maintenance job if needed."

"They call in each invoice to our dispatcher or to me to report the job finished and get their next assignment. Sometimes we need them to take care of



Jerry Fannon

Bio-Remedies Inc.
El Paso, Texas
Employees: 14

an emergency before the next scheduled job, but we can easily make that a dispatch function.

"To keep track of each technician's time, we match jobs to invoice numbers to timecards, so everything's coordinated. This method keeps it simple, but it also keeps a short leash on wasted time between jobs. It's more effective and less hassle than worrying about making sure everyone has their GPS unit, keeps it turned on and learns how to get the reports from it." ■

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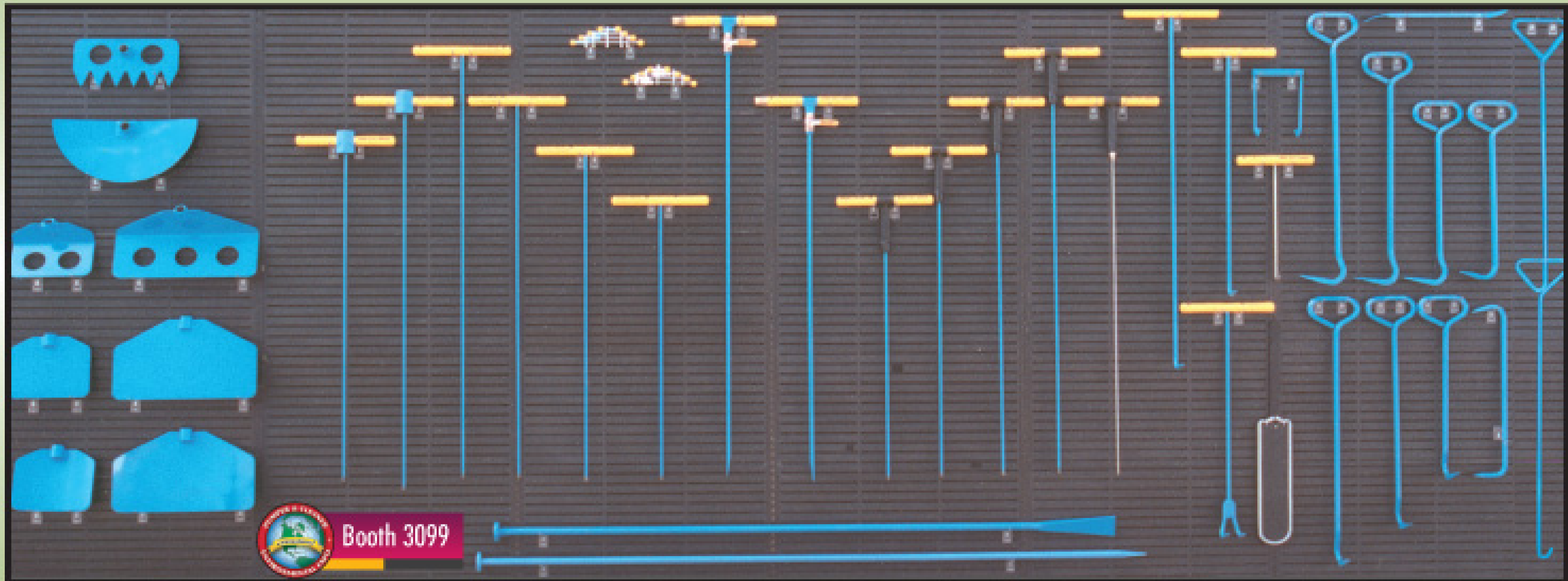
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Education Day

Wednesday, February 27th, 2008

- Full day of seminars
- Exhibit hall closed
- Schedule subject to change

ROOM C201 & C202

LRN Leaders Resource Network

- 8:00 - 9:00 Building Your Business
- 9:30 - 10:30 Customer Focus
- 11:00 - 12:00 Operations Focus
- 12:00 - 1:00 Lunch Break
- 1:00 - 1:30 Starting Up and Running a Portable Sanitation Business Successfully
- 1:30 - 2:30 How to Read, Understand and Use Financial Statements to Help You Build Your Business
- 3:00 - 4:00 Leadership and People Focus
- 4:30 - 5:00 Building Your Business Wrap Up

ROOM B101 & B102

NAWT National Association of Wastewater Transporters

- 8:00 - 9:00 Responsible Management Entities
- 9:30 - 10:30 Experts Review of ATU Operation & Maintenance
- 11:00 - 12:00 A Visionary Review of the Agricultural Utilization of Septage
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 Why a Municipality Opens a Septic Treatment Facility
- 2:30 - 3:30 When is Septage Really Septage?
- 4:00 - 5:00 How to Survive and EPA Audit

ROOM C105 - 108

NEHA National Environmental Health Association

- 8:00 - 9:00 Point of Sale Inspection
- 9:30 - 10:30 Becoming a Certified Installer
- 11:00 - 12:00 Working With Performance Based Codes
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 Using Onsite Technology to Build Cost Effective Community Sewage Systems in Subdivisions
- 2:30 - 3:30 Management Guidelines, Model Codes, National Credential and You
- 4:00 - 5:00 Inches of Mercury and Feet of Bury

ROOM C203

SSGSC Southern Section Collection Systems Committee

- 8:00 - 9:00 Line Cleaning & Nozzle Selection
- 9:30 - 10:30 CCTV Nuts & Bolts
- 11:00 - 12:00 Building A Strong CCTV Inspection Program
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 Pipeline Relining and Rehabilitation
- 2:30 - 3:30 Finding Your Way With As - Built Drawings
- 4:00 - 5:00 Confined Space "The Real World"

ROOM B103 & B104

NOWRA National Onsite Wastewater Recycling Association

- 8:00 - 9:00 Introduction Site Evaluation
- 9:30 - 10:30 Introduction to Soils
- 11:00 - 12:00 Water Movement & Treatment in Soils
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 System Design Related to Soil & Site Conditions
- 2:30 - 3:30 Systems Design Process Related to Soils and Site
- 4:00 - 5:00 Post Construction Site Evaluation

Continuing Education Credits

You may be able to earn continuing education credits by attending specified seminars at the Pumper & Cleaner Expo

Upon completion of a specific education session, you will receive a certificate of attendance. Many of these seminars count as educational credits toward your required continuing education. Check with your county or state officials for details.

For detailed information about all the educational seminars visit www.pumpershow.com

ROOM C204 C205

WJTA - PSAI - CBSA WaterJet Technology Association Portable Sanitation Association, Int. Cross Bore Safety Association

- 8:00 - 9:00 Intro to High Pressure Waterblasting (WJTA)
- 9:30 - 10:30 Safety - High Pressure Waterblasting (WJTA)
- 11:00 - 12:00 Information on Industrial Vacuum Process (WJTA)
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 Procedural Breakdown for Special Events (PSAI)
- 2:30 - 3:30 Procedural Breakdown for Special Events Cont.
- 4:00 - 5:00 Cross Bores - CBSA (Cross Bore Safety Assoc.)

ROOM B105

NASSCO National Association of Sewer Service Companies

- 8:00 - 9:00 PACP / MACP / LACP
- 9:30 - 10:30 Laser Profiling, Joint & Crack Measurement in Sewers and Stormwater Drains
- 11:00 - 12:00 Sewer Main Cleaning - Best Practices
- 12:00 - 1:00 Lunch Break
- 1:00 - 2:00 Temporary Diversion Systems - Reliability
- 2:30 - 3:30 Replacing Aging Infrastructure - Pipe Bursting
- 4:00 - 5:00 Water Main Renewal Overview - Using Trenchless Technology

Visit www.pumpershow.com for more info.



Louisville

2008

MAKE YOUR MOVE

Thursday

February 28th, 2008

ROOM C201 & C202 GENERAL BUSINESS TRACK

- 8:00 - 9:00 LENZYME - There is a Secret, Discover It
- 9:30 - 10:30 CLEAR COMPUTING - Increasing Profits
- 11:00 - 12:00 ACORP/ROOTERMAN - How To Develop an Employee Training Program

ROOM C203 INDUSTRIAL TRACK

- 8:00 - 9:00 PATS PUMP & BLOWER - Blower Trouble Shooting & Repair
- 9:30 - 10:30 STONEAGE - Waterblasting Applications and Solutions
- 11:00 - 12:00 GAPVAX - Job Based Selection of Vacuum Truck Options for Industrial Applications

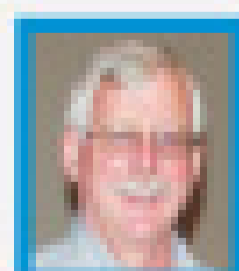
ROOM C204 & C205 INSTALLER TRACK

- 8:00 - 9:00 SAFETY CORP. OF AMERICA - Safety in Excavation
- 9:30 - 10:30 ORENCO SYSTEMS, INC. - Water Softener Effects on Onsite Wastewater Systems
- 11:00 - 12:00 SOIL SURGEON - Hydro-Excavation Safety and Procedures

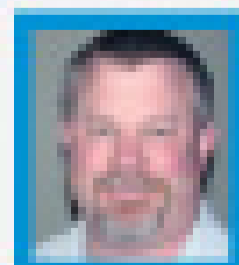
ROOM B101 & B102 Certified Onsite Installer Course



Thursday - 8 a.m. - 5 p.m.
All Day Course



Jim Anderson & Dave Gustafson
University of Minnesota



Friday

February 29th, 2008

ROOM C201 & C202 MUNICIPAL TRACK

- 8:00 - 9:00 PIPE GENIE - Pipe Bursting & Pipe Splitting
- 9:30 - 10:30 HURCO TECH - Smoke Testing Sewer Mains and Plumbing Systems
- 11:00 - 12:00 GODWIN PUMPS - Temporary Diversion Systems - Reliability is Everything

ROOM C203 PORTABLE RESTROOM TRACK

- 8:00 - 9:00 HAMPEL - Building a Portable Restroom Business
- 9:30 - 10:30 AMERI-CAM ENGINEERING - Building Profits with Restroom & Shower Trailers
- 11:00 - 12:00 SATELLITE - Maintaining the Modern Pump Truck

ROOM C204 & C205 LIQUID WASTE TRACK

- 8:00 - 9:00 AMTHOR - How to Choose Vacuum Tank, Chasis and Pump Configurations
- 9:30 - 10:30 RABCO SALES - Gas Detection in Confined Spaces
- 11:00 - 12:00 ONE BIOTECHNOLOGY - Profitable Grease Trap Service

ROOM B101 & B102 SEWER & DRAIN CLEANING TRACK

- 8:00 - 9:00 MR. ROOTER - Taking Your Business From Good to Great
- 9:30 - 10:30 SEWER EQUIPMENT CO. OF AMERICA - Equipment Needs to Grow Your Business
- 11:00 - 12:00 ALLAN J. COLEMAN - An Overview of Sewer & Drain Cleaning Equipment

ROOM C203 MISCELLANEOUS TRACK

- 8:00 - 9:00 NSF INTERNATIONAL - Septic Tank & Grease Trap Solid & Liquid Separating Devices
- 9:30 - 10:30 ENVIROSIGHT - Visual Sidewall Scanning: Streamlining Collection & Analysis of Inspection Data
- 11:00 - 12:00 PHILADELPHIA FRO-O-DIESEL - Trap Grease



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EXPLORE Louisville

2008

MAKE YOUR MOVE

Restaurant Row — A Diner's Delight On Bardstown Road

Just minutes from downtown Louisville, Bardstown Road has been known as "restaurant row." Since the 1980s, the street has been home to an unusual number of eclectic eateries, from four-star fine dining with locally grown ingredients to casual cafes offering world cuisine.

Bardstown Road includes several of the unique, locally owned restaurants called the Louisville Originals. Among the popular stops on "restaurant row" are Tumbleweed Southwest Grille for great steaks, ribs and award-winning Mexican

fare; and Cumberland Brews, the city's only true brew pub.

Empress of China features Mandarin, Szechuan, and Hunan dishes. Diners can enjoy live jazz with dinner at Jack Fry's, an upscale American bistro. For sushi, visitors favor Sapporo Japanese Grill & Sushi.

For more world cuisine, there is Seviche, a Latin restaurant; and Asiatique, with delicacies from the Pacific Rim. Many bistros serve fresh American cuisine, and bar-and-grill stops offer regional food. Dining isn't the only attraction on Bardstown: There are galleries, antique stores and boutiques, as well as night life, with a comedy club, foreign films and nightclubs with live music and dancing.

DELICACY: Mint Julep

The mint julep is as familiar to Louisville as the Kentucky Derby. This popular bourbon drink is a local tradition, especially at the Derby. It is made

with smooth, velvety bourbon, fresh mint leaves, sugar, a dash of water, and crushed ice. In true Southern style, mint juleps are often served ready to sip in frosted silver goblets.

DINING: Lilly's

A culinary star on Bardstown Road is Lilly's Restaurant, which a reviewer called "the most influential and celebrated Louisville restaurant of the past decade." Lilly's celebrates regional produce — the menu states, "God Bless Our Local Farmers."

Entrees include French-inspired items that use traditional Kentucky ingredients. The menu

changes seasonally with offerings such as Kentucky rib pork chop and sweet potato prosciutto hash on fall greens with apple brandy sauce; seared sea scallops and hazelnut acorn squash gratin with sautéed spinach, and duck two ways — seared duck breast with homemade duck sausage on persimmon sage bread pudding. Lilly's has a large wine and bourbon collection and decadent desserts. Visit www.lillyslapeche.com.

SHOPPING: Frankfort Avenue and F.A.T. Trolley

This historic Frankfort Avenue neighborhood offers upscale consignment shops, vintage clothing, outdoor gear, imported crafts, home furnishings, boutiques, books and antiques, along with art

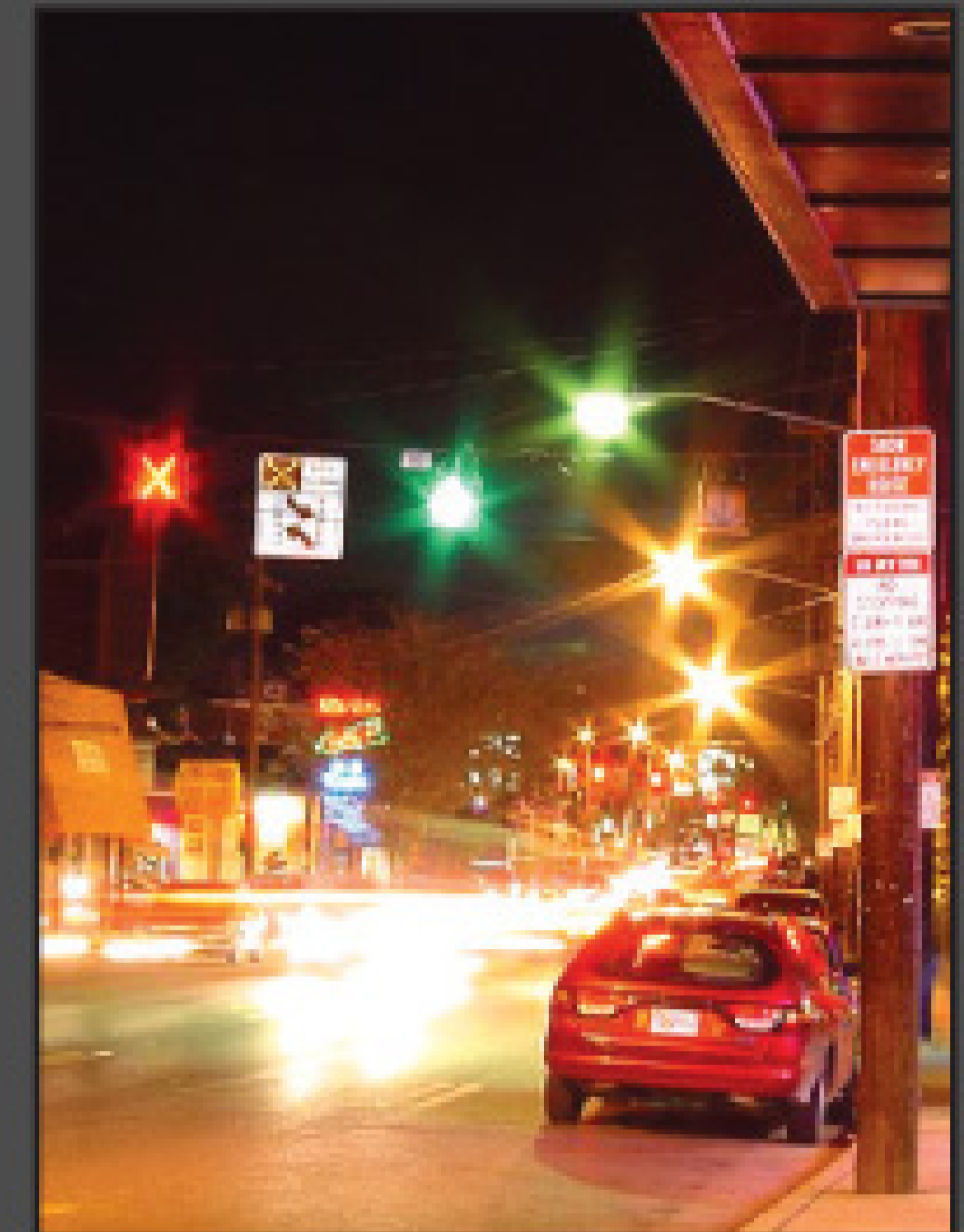
studios and galleries. Coffee shops and wine and bourbon bars provide refreshments. The street also includes more Louisville Originals restaurants.

The F.A.T. Friday Trolley takes visitors to the avenue on the last Friday of each month, running from designated stops. Expo visitors can ride the trolley on Friday, Feb. 29. Visit www.frankfortave.com and www.fatfridayhop.org

ARTS & ENTERTAINMENT: Fourth Street Live

A top Louisville attraction, the Fourth Street Live entertainment district waits a short walk from downtown hotels. It includes national and regional restaurants, stores, nightclubs and live music in an

open-air pavilion. Attractions include Lucky Strikes Lanes (an upscale bowling alley), Howl At the Moon (a sing-a-long dueling piano bar), Sully's Restaurant & Saloon (a cozy Irish-inspired pub), Saddle Ridge (rock-n-roll and country music), J. Gumbo's (Cajun food and brews) and Maker's Mark Bourbon House & Lounge (Kentucky bourbon and fine cuisine. Visit www.4thstlive.com.



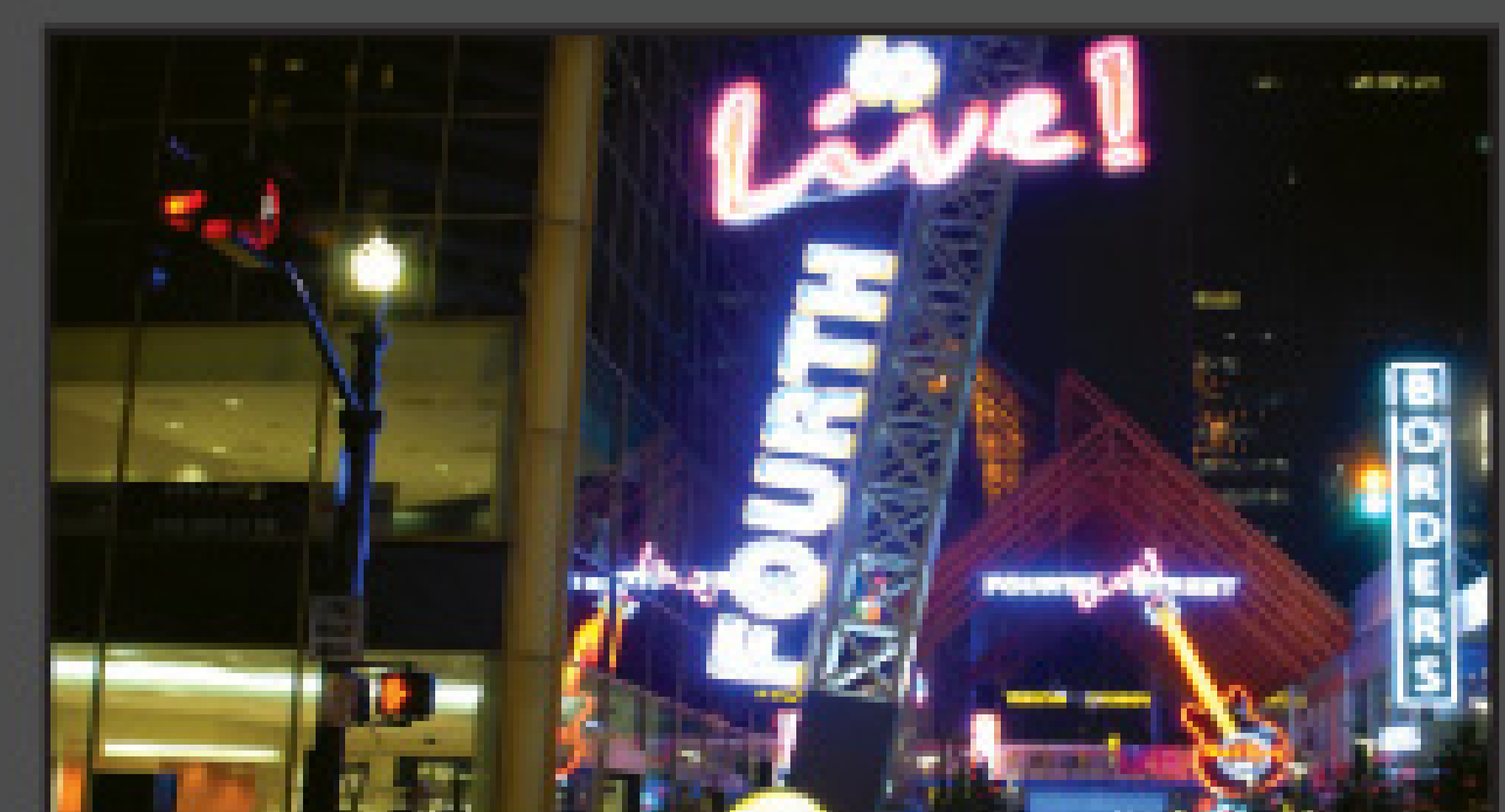
Bardstown Road



Mint Julep



Lilly's Restaurant



4th Street Live

Against Long Odds

A force main replacement project for a Wisconsin casino includes 20,000 feet of static pipe bursting and 4,000 feet of HDD

By **Scottie Dayton**

An aging sanitary pump station and 4-inch force main convey wastewater five miles from the Rainbow Casino in the town of Port Edwards, Wis., to the Nekoosa wastewater treatment plant. Concerns about the station's reliability and capacity, and pending casino expansion, prompted Ho-Chunk Nation leaders to contact engineer Scott Chilson of MSA Professional Services in Baraboo, Wis.

Chilson recommended replacing the pump station and doubling the diameter of the force main. A site for the new facility was available, but the privately owned force main was in a public easement controlled by Wood County, the Town of Port Edwards, and the City of Nekoosa. Those entities granted permission to

To burst and replace more than 20,000 feet of 4-inch sewer force main, the Allen Steele Co. chose the Grundoburst 800G static pipe bursting system from TT Technologies.

install a larger force main so long as construction methods minimized surface disturbance.

Chilson worked with Bill Brennan of TT Technologies Inc. in Aurora, Ill., to develop the best approach. Their solution, involving 20,000 feet of static pipe bursting and 4,000 feet of horizontal directional drilling (HDD), became one of the largest projects of its kind in the Upper Midwest.

By invitation only

Allen Steele Co., Lake Delton, Wis., won the invitation-only bid. The firm had done HDD for several years, but this was its first bursting job. Therefore, Brennan helped Richard Steele and pipe bursting foremen Paul Glavan operate the self-contained hydraulic Grundoburst 800G static pipe bursting system from TT Technologies.

Brennan selected a specially designed quad cutter to split the relatively new 4-inch force main. He



TOUGH JOB

To speed the bursting process, crews placed the Grundoburst hydraulic unit in the middle of a 1,000-foot section of pipe. As the first 500 feet of pipe was burst, the men fed the locking bursting rods into the next run. When the first half was completed, they rotated the hydraulic unit 180 degrees and burst from the other direction. (Photos courtesy of TT Technologies)

PROJECT:

Pipe burst and directional drill nearly five miles of force main, upsizing a 4-inch line to 8-inch HDPE

CUSTOMER:

Rainbow Casino,
Port Edwards, Wis.

CONTRACTOR:

Allen Steele Co., Lake Delton, Wis.

EQUIPMENT:

Grundoburst 800G static pipe bursting system from TT Technologies, Aurora, Ill.; D36x50 Series II Navigator HDD unit from Vermeer Manufacturing Co., Pella, Iowa.

RESULTS:

Line successfully installed from casino to wastewater treatment plant

also recommended using bentonite slurry during the bursting runs to restrain the sand from caving in and blocking the pullback. The slurry also lubricated the path for the 8-inch replacement HDPE pipe. A Grundomudd DS 500 mixing system from TT Technologies delivered the slurry through a manifold and hose to the pipe.

The route of the 6- to 7-foot-deep force main crossed a trout stream, two high-pressure crude oil pipelines, two county highways, and a heavily-traveled county road. In one instance, a fiber optic communication line lay above the pipe. "The project had a little bit of everything," says Steele.

Because the job involved the worst sands the men had ever seen, they divided the 1,000-foot static pulls in half. The exit hole was dug





Bentonite lubrication was used because of the significant upslope and the sandy soil. A special manifold on the head of the pipe delivered the lubricant.



Crews used a specially designed quad cutter to split the existing 4-inch HDPE force main and replace it with 8-inch HDPE.

at 500 feet, with launch pits at either end of the run. Exit pits were shored with four 5-foot spreader bars in a 25-foot steel box. Launch pits required only 8- by 20-foot steel enclosures. "Constructing the trench boxes and maintaining safety were the project's most time-consuming aspects," says Steele.

Efficient work plan

Once the bursting unit was in the exit pit, the crew linked Quicklock bursting rods together until they reached the first launch pit. Then they removed the guide rod and attached the pipe bursting

"During our best week, the crew pulled 1,000 to 1,100 feet in a nine-hour day and installed more than 6,000 feet of pipe."

Richard Steele

components which, under 100 tons of pullback force, split the host pipe, displaced the fragments into the soil, and pulled in the fused replacement pipe.

As the rods appeared at the exit pit, workers fed them into the next length of pipe. When one section was completed, the crew lifted and turned the machine 180 degrees and prepared for the next run.

"Not having to unlink and reconnect the rods sped up the process and improved efficiency," says Steele. "The setup enabled us to pull 500 feet in two to three hours. During our best week, the crew pulled 1,000 to 1,100 feet in a nine-hour day and installed more than 6,000 feet of pipe."

The crew, however, initially resisted the trenchless technology, being accustomed to open-cut techniques.

"By the end of the 10-month job, they had the system down pat and enjoyed the bursting process," Steele says. "They can see the benefits of it now."

Time for HDD

The two high-pressure crude oil pipelines presented a hazard. "Our initial plan was to burst the force main, but we found that it was too close to the pipelines," says Steele. "Switching to directional boring required permits, and getting the paperwork took longer than the 400-foot job."

The biggest challenge was boring 600 feet up a 50-foot grade change. Water, hauled from a casino hydrant in a 6,000-gallon tanker, was mixed with bentonite at the bottom of the hill, then fed into a Vermeer D36x50 Series II Navigator HDD unit with 50 gpm mud pump. Its 140-hp engine delivers 4,928 foot-pounds of rotary torque and 33,000 pounds of thrust with 36,000 pounds of pullback.

"The sand kept trying to cave in and block the pipe during the pull-back," says Ron Demlow, directional boring foreman. "We went through

17,000 gallons of mud and never could have completed the pull without it."

Seven men worked a 14-hour day to finish the job. Except for the sand, none of the directional bores presented any unusual problems.

The new pump station and enlarged force main enabled Ho-Chunk Nation leaders to proceed with casino expansion plans, and the construction methods met the needs of the land owners. Trenchless technology turned out to be a good bet for all concerned. ■

MORE INFO:

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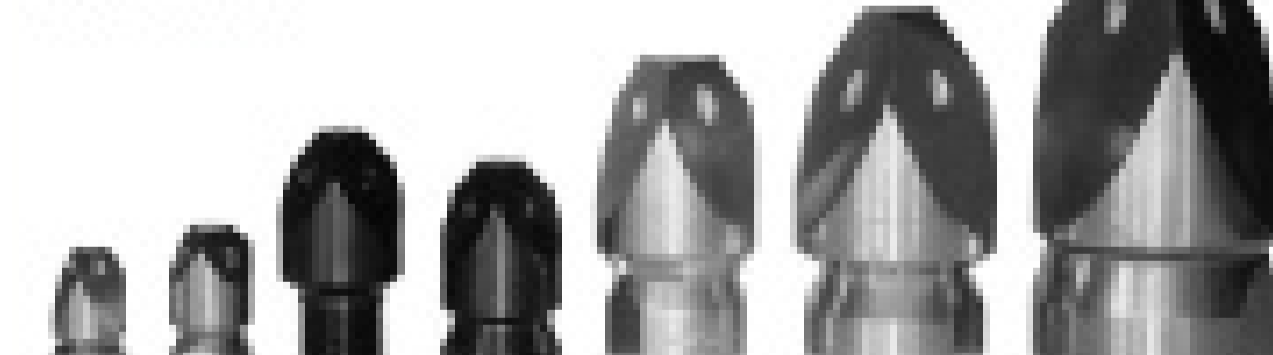
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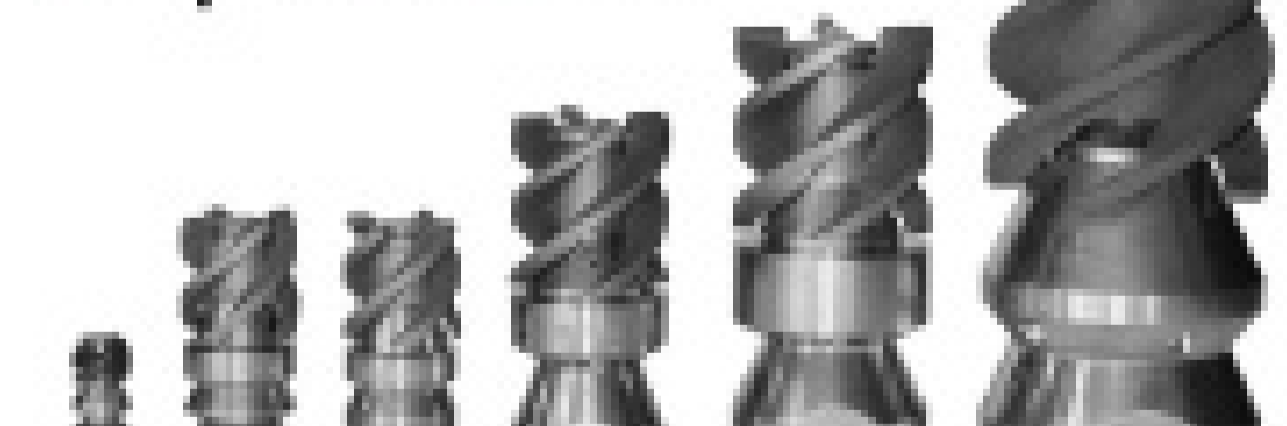
Vortex



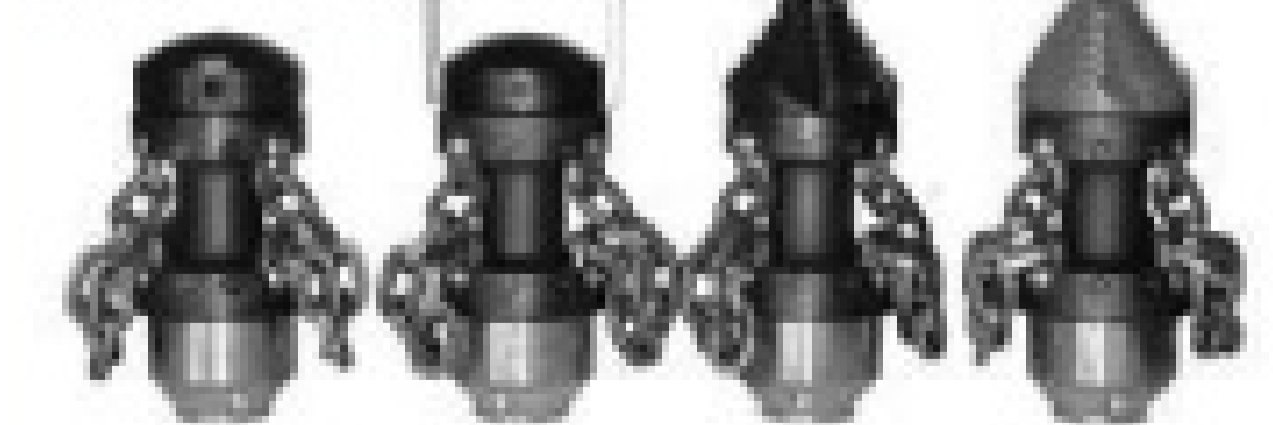
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Contact Mitch 219-306-2761 or Email: hydrx03@aol.com CI

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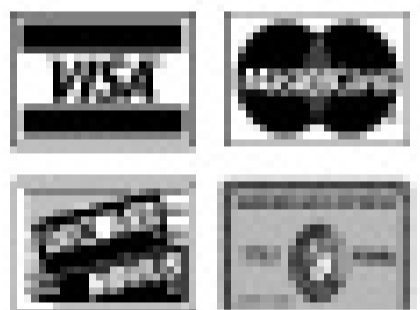
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2006 Chevy C5500 with a Pipe Hunter with a Jet Eye camera and vacuum system. (Stock #13234) **www.VacuumSalesInc.com, (888) VAC-UNIT (822-8648).** (C1)

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(P2C3)

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(C1)

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(C1)

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(C1)

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1985 Camel, single axle Ford 8000, Meyers pump, 80 GPM, 2,000 PSI. Price \$17,000. Call 503-969-9557 or 503-682-2723.

(C1)

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(CPBM)

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(CP1)

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(C2)

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1993 Cues Panther M/C track camera, part #CP036, serial #023, Data view III, Model 1208, Pro view P&T/RVC camera controller. Municipal owned. FOR MORE INFO PLEASE CALL JOE. 312-208-6373. (C1)

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TV INSPECTION

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TV INSPECTION

1983 GMC 1-ton with Aries/Cues TV system, pan/tilt/zoom, transporter, ready to work. \$16,000 OBO. Call 262-617-7061. (C1)

Ratech Camera: Pan & tilt crawler camera, good condition. \$13,000. 270-256-2817 or 270-298-9496. (C1)

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| <input type="checkbox"/> Drain/Sewer Cleaning Equip. | <input type="checkbox"/> Lease Financing | <input type="checkbox"/> Positions Available | <input type="checkbox"/> Roll-Off Containers | <input type="checkbox"/> Tools | |

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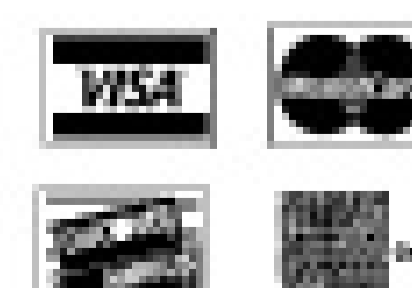
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MyTana Celebrates 50th Anniversary

MyTana Manufacturing Company Inc., founded by Sol Gottstein in 1957, celebrated 50 years of service to the cleaning industry in October. Headquartered in St. Paul, Minn., Gottstein moved to the Twin Cities from Des Moines, Iowa, in the 1930s, becoming the original St. Paul Roto-Rooter franchisee. It was while in Des Moines that Gottstein met cable machine developer and Roto-Rooter founder Joe Blank. Deciding to concentrate on the manufacturing side of the cable cleaning business, Gottstein sold the service portion of the company to his brother Nathan, who later sold it to the Roto-Rooter Corp.

Longtime employee John Sentman was assigned the task of making sewer cable machines, and is credited with developing the company's original product line. Taking on new ownership after Gottstein's death in 1992, the company introduced portable jetters in 1998 and followed with video inspection and locating equipment in 1999.

Recognized as one of Minnesota's 50 fastest growing private companies in 2000 and 2001, it also acquired MicroEngineering, developer of the self-leveling camera head. As it has from the start, MyTana continues to manufacture and service its own cable machines, jetters, locators and video inspection equipment.

Envirosight, Vivax Form Alliance

Envirosight LLC, a provider of video inspection solutions, and Vivax, a manufacturer of push cameras and pipe location equipment, have formed an alliance to further the development of push camera technology and to grow the sales channel for such technology in the North American market. As part of the alliance, Envirosight will private label Vivax equipment, while Vivax will grant Envirosight municipal sales exclusivity. Envirosight will officially launch its new push camera line at the 2008 Pumper & Cleaner Environmental Expo. ■

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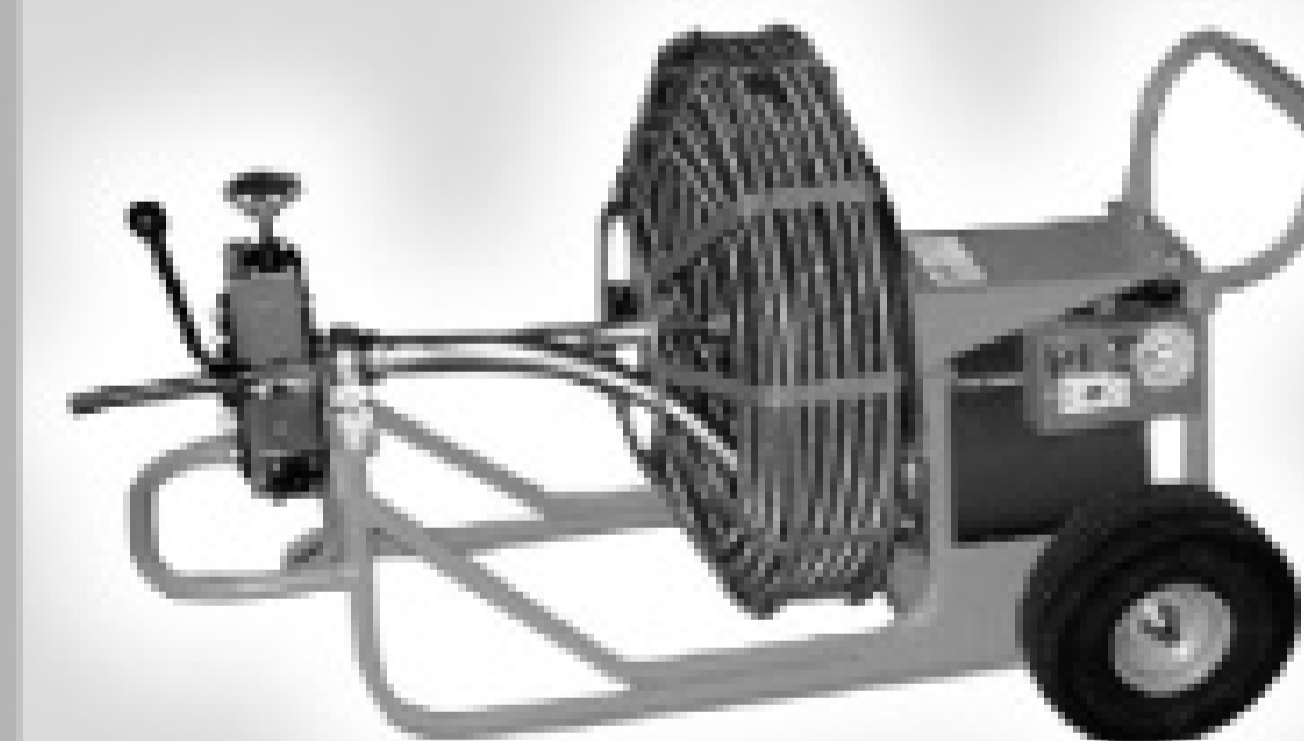
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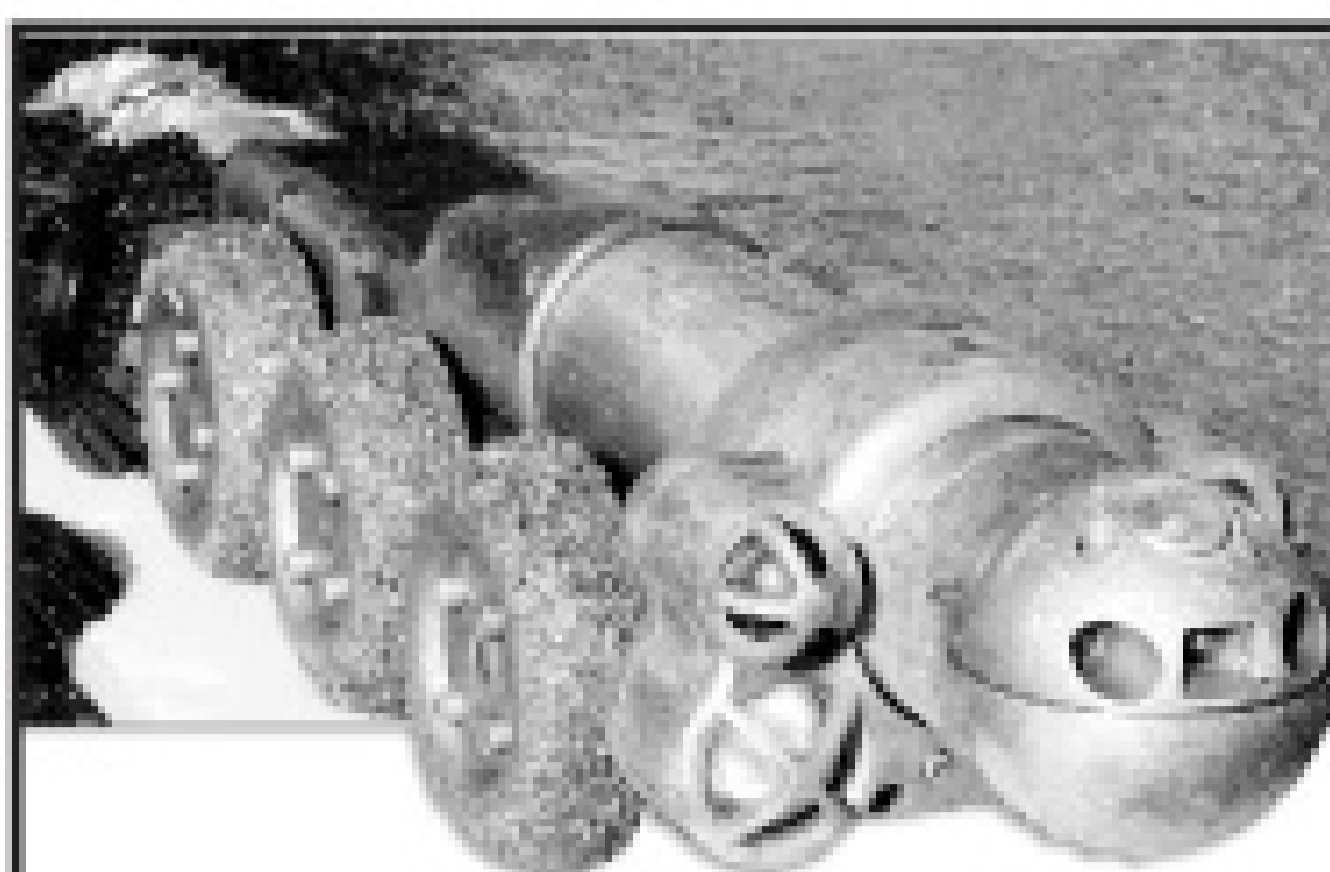
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A Lightweight, Portable Lateral Pipe Bursting System

By Ken Wysocky

It's no picnic trying to manhandle a bulky pipe bursting machine into an excavation pit to replace a lateral. The HammerHead PortaBurst Lightning lateral pipe bursting system from Earth Tool Company LLC separates into four modular sections, each weighing less than 70 pounds.

"We wanted a lightweight machine that one crew member could handle easily," says Herb Quigley, vice president of customer service. "So the positive grip assembly, hydraulic lift cylinders, sheave and resistance plate come as four separate components. Linchpins make them very easy to assemble or disassemble."

Made of aluminum, the system is designed for warmer climates, where hand-excavating is more common because lateral lines lie considerably shallower — usually four feet or less below ground — than in colder regions. The unit can be assembled in an excavation pit as small as 24 by 30 inches.

A sister product, the PortaBurst PB30 Gen II,

is made mostly of steel to better withstand the rigors of backhoe handling in areas where mechanical excavation is more common. But if used in a basement rather than a pit, it fits inside a 30-inch doorway. It also breaks down into four components, although one is heavier than in the Lightning, Quigley notes.

Both systems deliver 30 tons of pulling capacity and use the same cable and burst heads. A 12-inch hydraulic cylinder increases cycle length, and the systems pull up to 12 feet of pipe per minute. The units can burst 4- or 6-inch laterals and can negotiate 45-degree pipe bends. An operator screws the Quick Grip burst head onto an HDPE pipe by hand, eliminating the time required to fuse or bolt the pipe to the head.

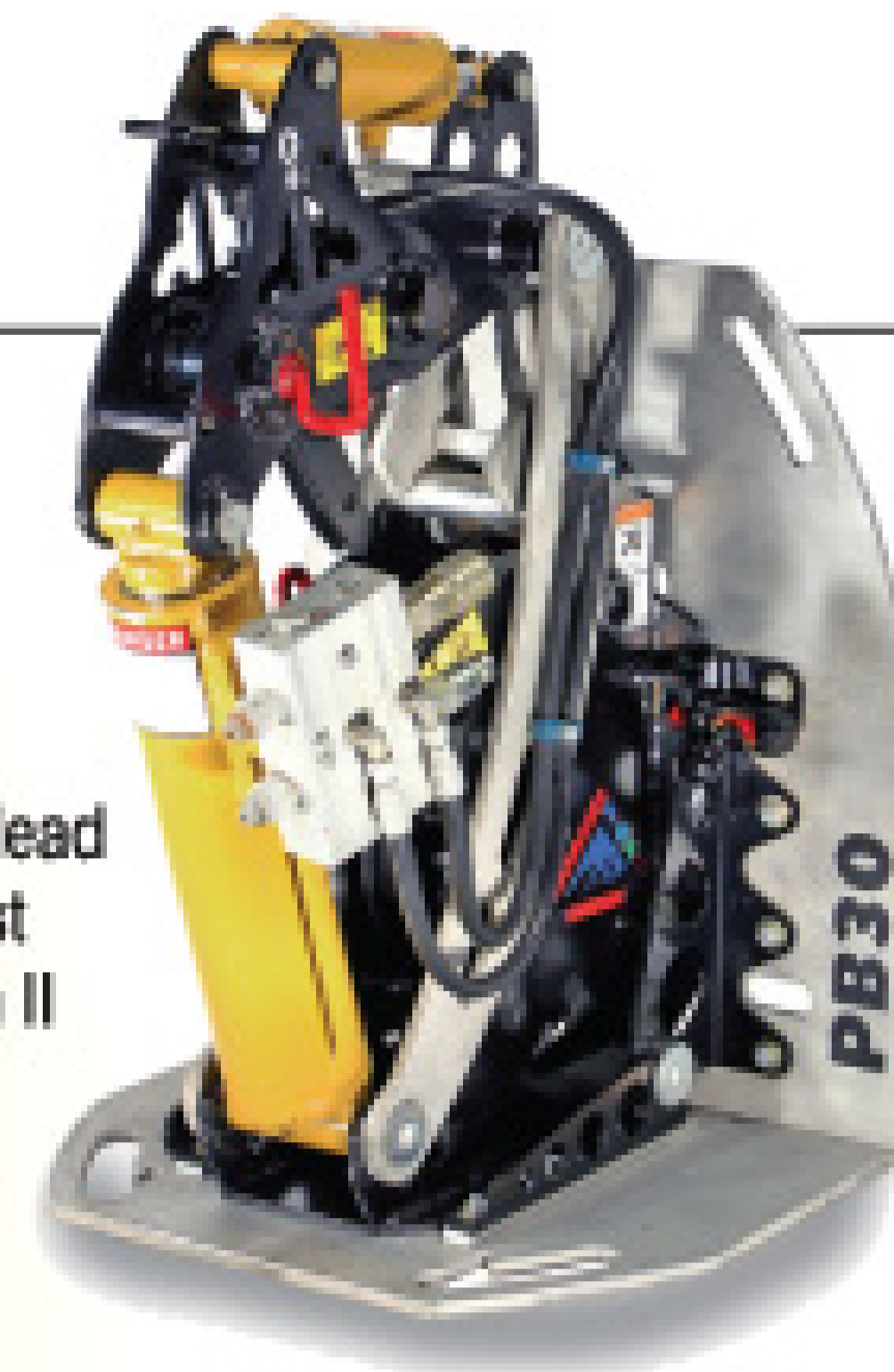
"You can attach the head in two minutes," Quigley says. "That takes 20 to 25 minutes out of the job setup time." A secondary set of cable-grip

jaws bar the cable from retracting while the pulling jaws prepare for the next pulling cycle.

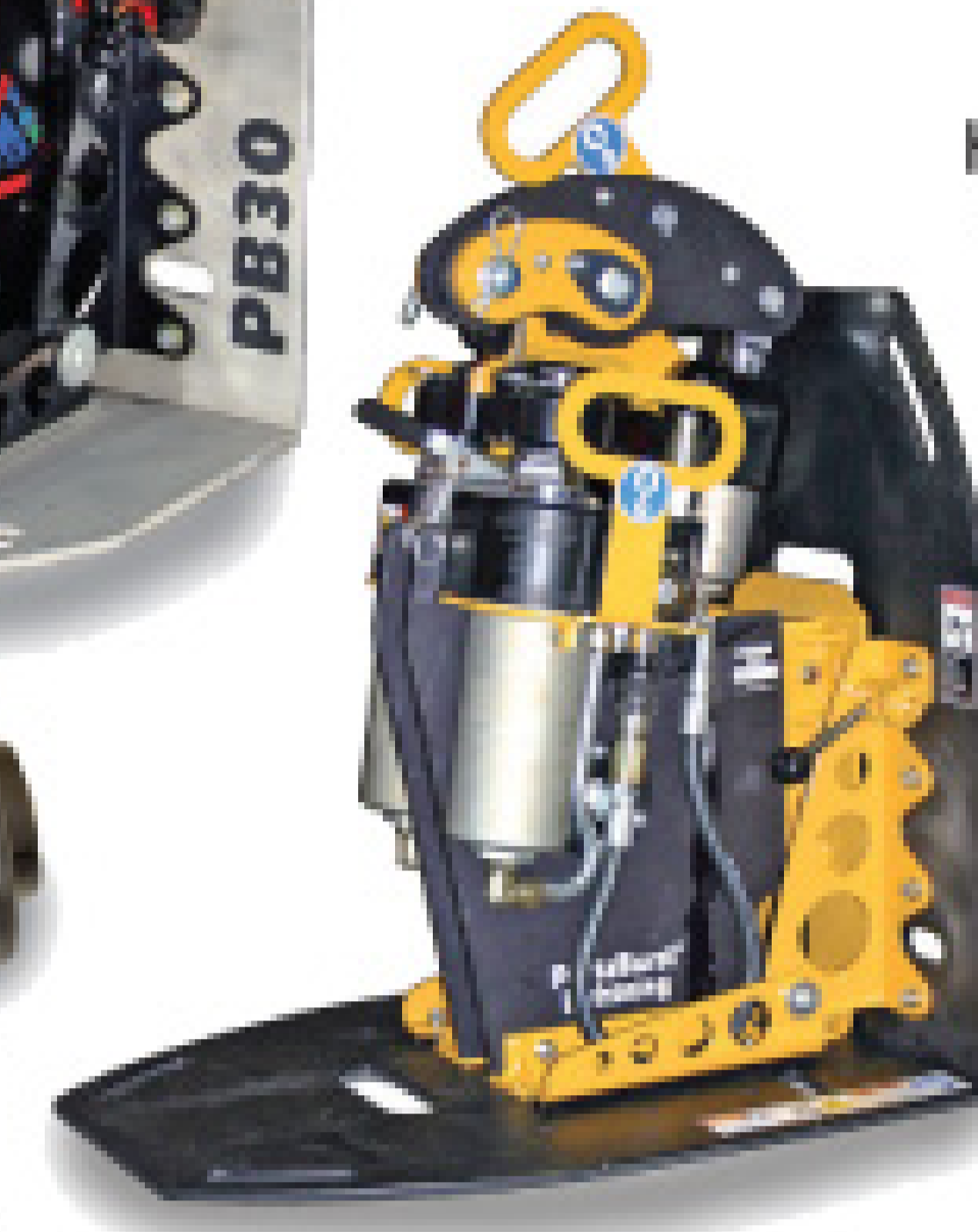
"Without the secondary grip jaws, you could lose up to one-third of what you initially gain in each pulling cycle," he says. "With the jaws, if you gain nine inches on the pulling stroke, you keep nine inches."

A small hydraulic power pack runs both units, but they also operate on virtually any third-party power pack on a backhoe or mini-excavator. "You don't need a dedicated power supply," Quigley says. "Anything that provides 3,000 psi will work." **For information: 800/331-6653; www.hammerheadmole.com; Expo booth 8049.**

HammerHead PortaBurst PB30 Gen II



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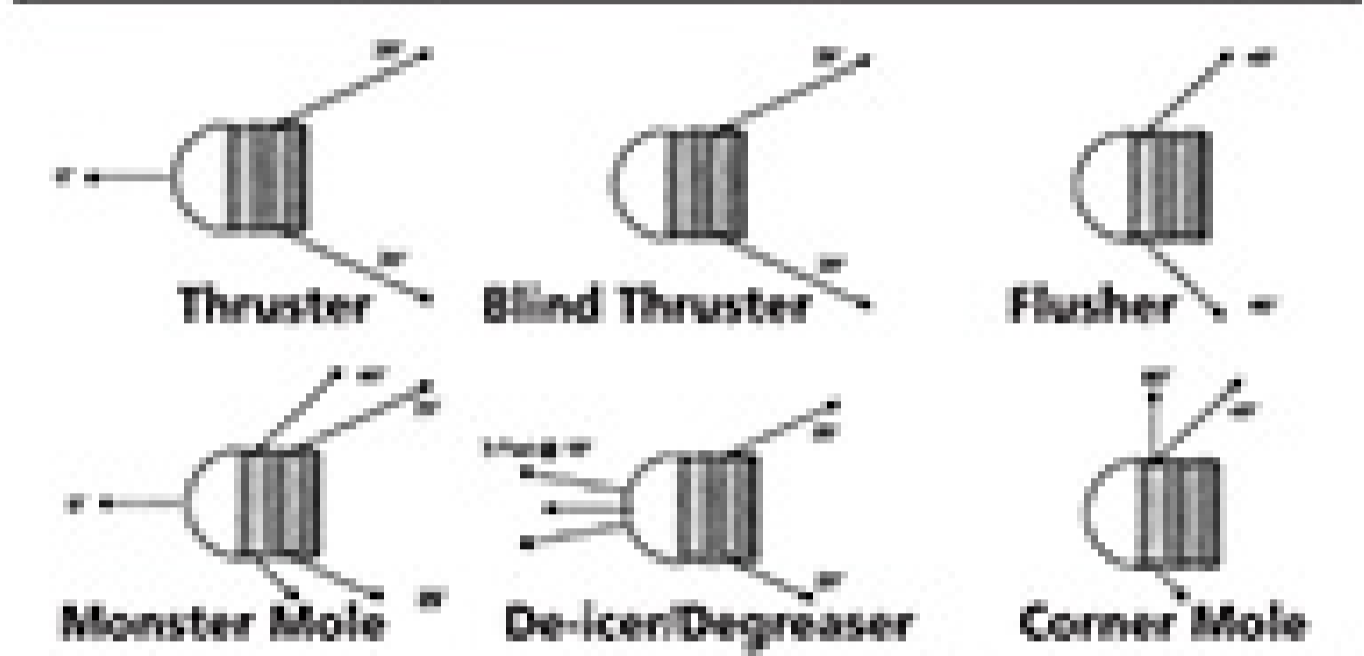
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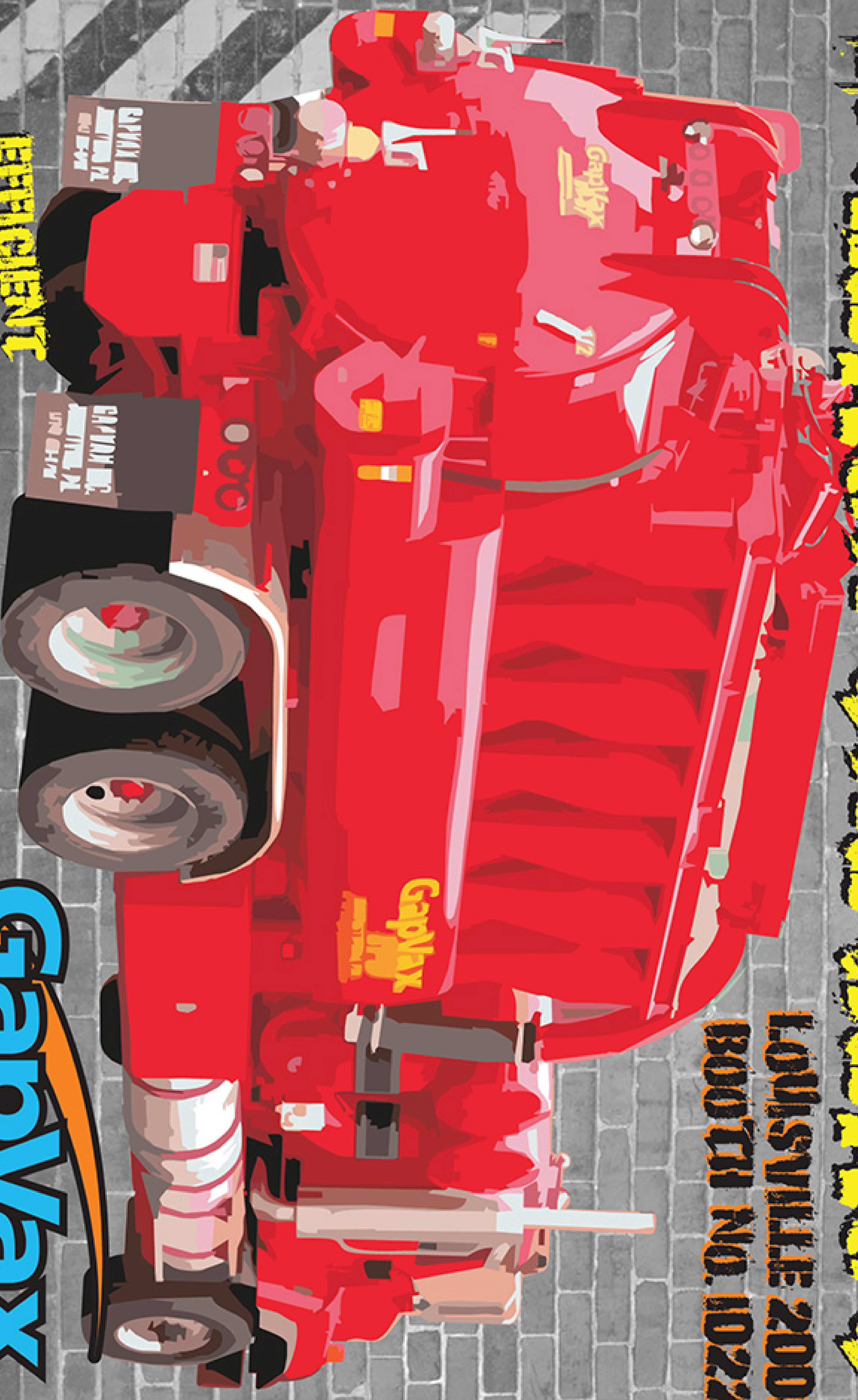
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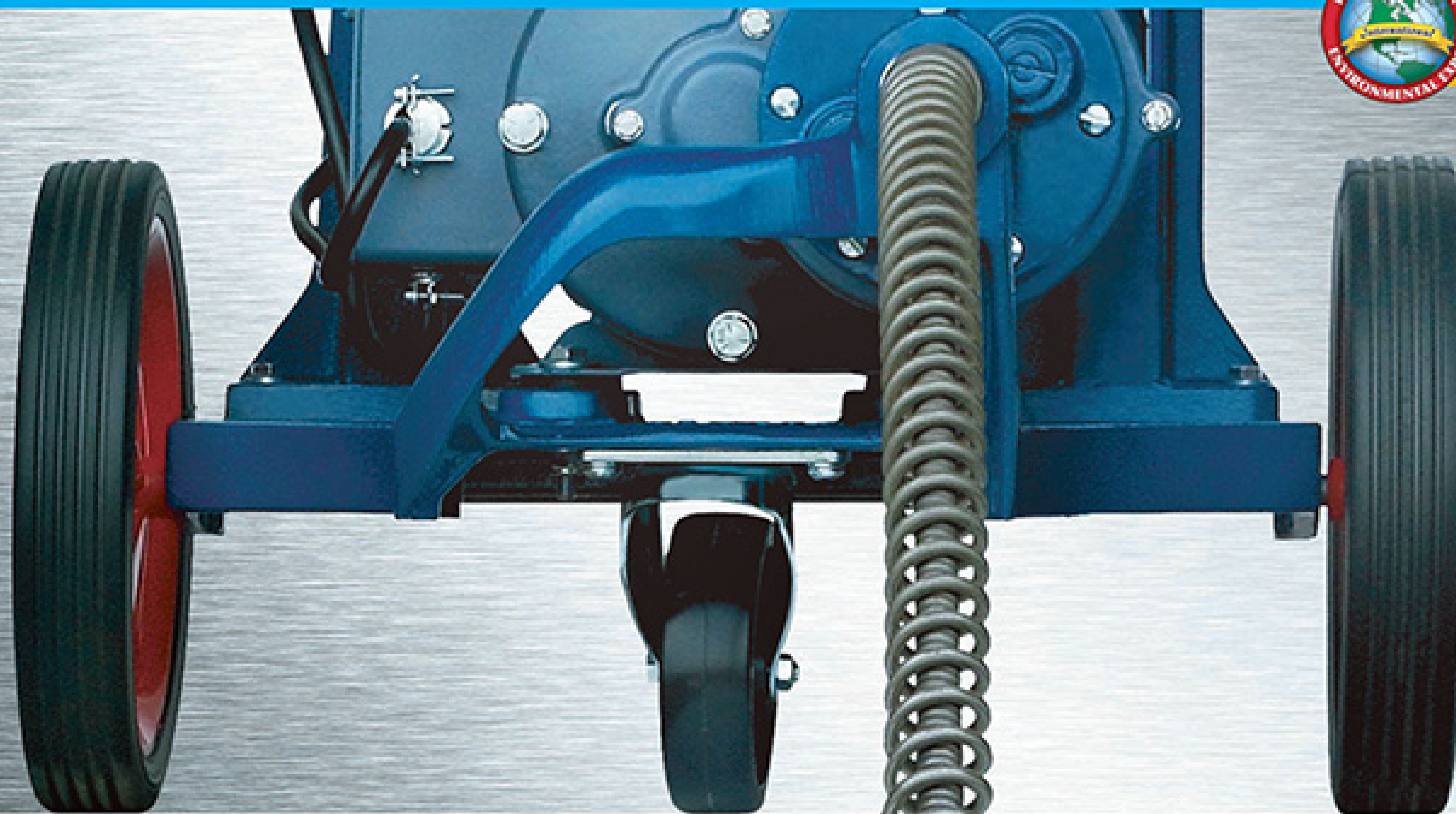
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Cleans 3"-10" diameter lines up to 200 ft.

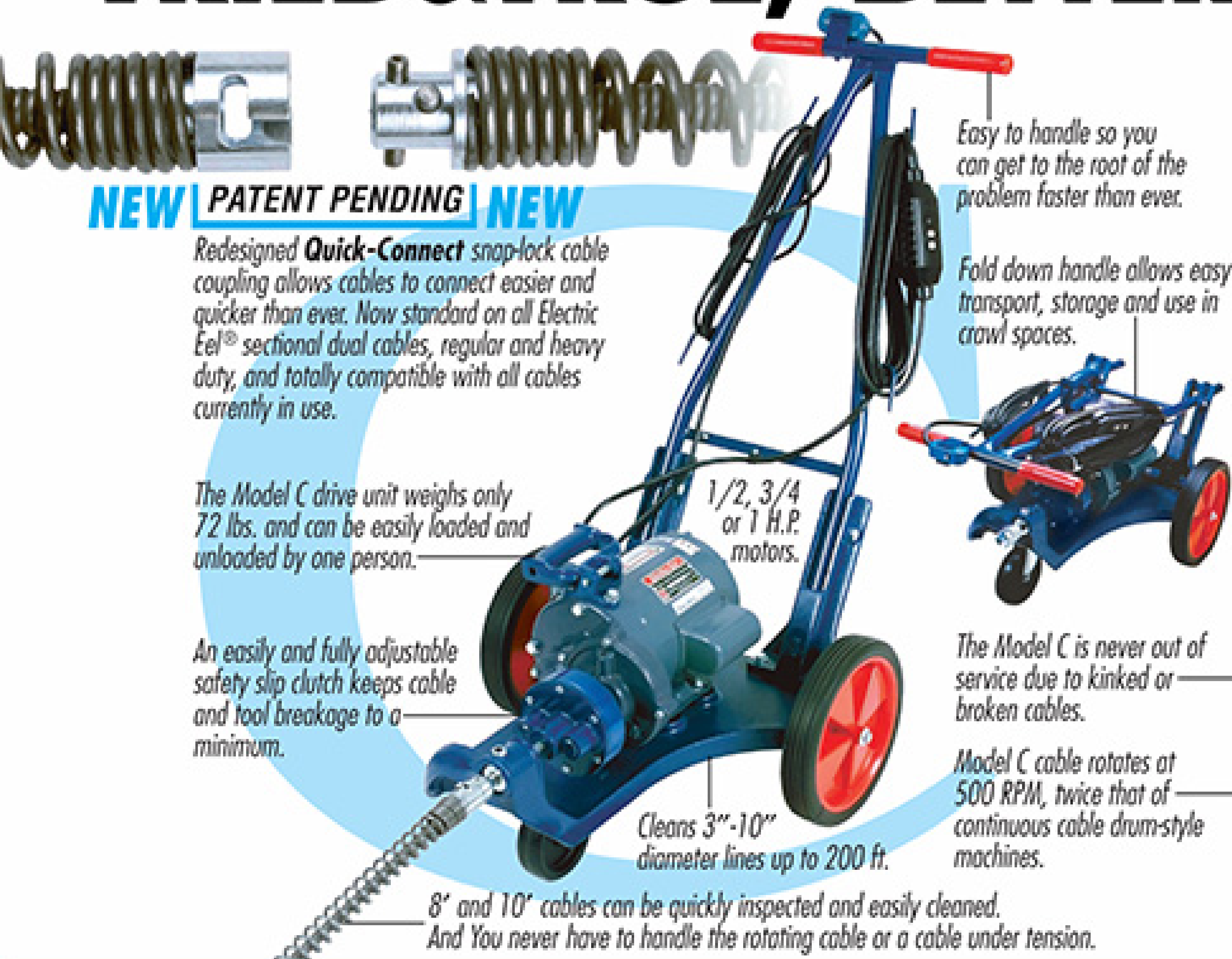
8" and 10" cables can be quickly inspected and easily cleaned. And You never have to handle the rotating cable or a cable under tension.

Easy to handle so you can get to the root of the problem faster than ever.

Fold down handle allows easy transport, storage and use in crawl spaces.

The Model C is never out of service due to kinked or broken cables.

Model C cable rotates at 500 RPM, twice that of continuous cable drum-style machines.



SPARTAN TALKS TOUGH.

Bob Griffith, New Jersey
SPARTAN REP SINCE 2001

**“I WAS ABLE TO GET
THERE AND GET HIM
WHAT HE NEEDED.”**



SPARTAN
FOR TOUGH CUSTOMERS.
SINCE 1943

I remember a call I got a little while back. This customer had an UnderTaker and had it on a pipe replacement job, and his client happened to be holding an outdoor event the day he was there to do the job. On top of that, it wound up he needed help with a part unexpectedly or else he was going to have to go ahead and dig up the lawn. But I was close enough that I was able to get there and get him what he needed without ever disrupting his client's event.

Tough Customer Preferred Product: The UnderTaker.™

Lets you replace 4" – 6" pipes with minimal disturbance to trees, landscaping, streets and sidewalks. A compatible water-line splitter for replacing galvanized or copper water lines is also available.

