by Marcia Gruver

RENTING trash pumps

Maybe you can handle that 3-inch unit just fine, but your next job may prompt you to call in the experts.

The 3-inch trash pump is an all-around tool for a garden variety of rental dewatering applications. But the world of construction pumps extends well beyond the 2- to 6-inch units found in most rental situations.

And because there's such a wide variety of pumps available (see "A Pump for Every Job" box on page 42), rental periods run the gamut from days to months, and sometimes even more than a year.

"People used to say, 'give me a 6-inch pump' and not be specific," says Dale Bristow, ITT Flygt dewatering division manager. "They now need to know they have a lot of options that fit different applications."

Applications can be as simple as moving water from one location to another to complex urban sewer projects calling for multiple 10,000 gallon-per-minute units chugging 24/7. "The most common pump applications center around sewer rehabilitations, especially considering the aging infrastructure of urban areas," says Jason Barao, district sales manager for United Rental's trench, pump and power region.

ANSWER THE QUESTIONS

"Some contractors get quite perturbed when we start quizzing them, but all of our questions are designed to help," Bristow says.

What are you pumping? Even if it's just water, let your rental dealer know its temperature and solids content plus the size of the largest possible solid you'll pump, comments Steven Spence, pump product manager, Multiquip. You'll also need to know the pH value and specific gravity of the liquid pumped. "If sewage is being pumped it will need to be drained on the jobsite back to the original source, and then the pump flushed and sterilized before it's returned," says Majid Tavakoli, vice president, applied products, Thompson Pumps.

What are the general jobsite conditions – altitude, ambient temperature, elevation changes? Don't underestimate the distances you're pumping, especially vertically. The lower atmospheric pressures of higher altitudes cannot support as high a column of water, so the maximum practical suction lift decreases; the engine's horsepower output also drops. In addition, engine power will decrease 2 percent for each 9 degrees Fahrenheit above 68 degrees.

How many gallons do you need pumped and how fast? Some pumps excel at speed and others at high

viscosity liquids. Ask your rental dealer what will meet your capacity and speed requirements.

Will someone be available to monitor the pumps? "It is not always needed," says Mike Delzingaro, sales manager, Godwin Pumps. "For instance, pumps can be used with automatic controls, turning on when the water rises and shutting off when the flow lowers to a certain point. The need for monitoring is a function of the jobsite requirements. There are a variety of options available to provide the level of monitoring required. For example, auto or cellular dialers automatically notify the user if conditions change."

What is the suction lift (or the vertical height from the water to the pump's impeller)? "Position the pump as close to the source as possible, using as short of a suction hose as possible," says Mark Conrardy, sales engineering manager, Wacker. "The shorter a distance a pump has to move liquid the higher the volume the pump will deliver."

Where will the liquid be discharged? Will you be pumping into any pipes, manholes or force mains? If so, what is the pressure on any pressurized lines?

What kind of piping system will you use for suction and discharge? There are a variety of materials available, including rubber/polyvinylchlorine water hoses, steel pipe or PVC pipe. Also make sure the piping system you put in is good for the duration of the project, which also means it needs to be vandal resistant. Pumps are usually rented with 20 feet of suction hose, says Robert di Mauro, outside sales representative, NationsRent, but you'll also need 50-foot sections of discharge hose, which is a separate rental item.

Are there any noise concerns on this job? Manufacturers do offer sound-attenuated units, which enclose the pump in a canopy. "At least 50 percent of United Rentals' fleet is now sound attenuated," Barao says.

Sound-attenuated units can help you answer noise concerns.

For some applications, such as this job with four 12-inch pumps, you'll need expert help.

What is the duration of the job? Will the pump need to run 24/7?

Why is the work being done? "Understand the scope of the work being performed so the pump specialist can apply the correct solution including any alternatives to consider," Delzingaro says. "If you don't ask why they need a pump, the success of the pump they use will be compromised."

HANDS-OFF PUMP MANAGEMENT

"There's been a recent shift in the rental market where contractors are now relying on us to provide a turnkey service," Barao says.

Pumps require a great deal of expertise, especially when you get into jobs that call for larger or multiple units. When the pump requirements on your job are complex, call in the experts. Pump and rental companies will contract with you to manage project pumps from project planning to tear down.

For example, ITT Flygt introduced its Flygt Dewatering division last year. "We're starting to see a definite difference in pump rentals in that it's becoming more of a specialty market," Bristow says. "We'll review the project, look at the application, determine the size of pumps needed including backups, install and monitor the pumps and then dismantle them after the project is done."

If your service requirements don't need this cradle-to-grave treatment, many rental centers will offer pump consultation. "We have knowledgeable pump specialists

who will visit jobsites, determine the most cost effective pump and accessories and make recommendations," says Dennis Mitchell, general manager for Hertz Construction Equipment's service pump and compressor division.

WHAT TO AVOID

"Pumps are unique. They run 24/7 and have all kinds of debris coming through," Tavakoli says. And so there's heightened opportunity for mishandling or misapplying them:

- Suction hoses can be incorrectly sized to the pump
- The pump is either too small or too large for the job
- The wrong type of pump is put on the job, such as using a standard dewatering pump to move an acidic liquid

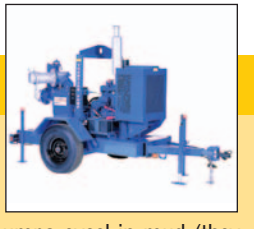
"Other errors include failing to understand pump terminology and pumping basics, and using the pump without a strainer on the suction hose," says Spence.

And just because it's a 6-inch pump, it doesn't mean it's equal in performance to all 6-inch pumps, Mitchell says. "For example, some will pump 1,500 gpm and others will pump 3,200 gpm," he says.

Make sure your pump is correctly sized and is the right type for your job.

Check the suction hose for leaks and secure all fittings. "Most pump failures are due to a faulty suction hose or connection," Conrardy explains. "Even a tiny pinhole on the suction side may cause the pump not to prime."

A PUMP FOR EVERY JOB



Rental pumps range from standard centrifugal dewatering units to specialized, high-volume machines aimed at a specific application. Here are some of the most common:

Dewatering pumps handle relatively clean water with high flow capabilities in a lightweight, compact design and usually come in 2-, 3- and 4-inch sizes. "These are best suited for pumping unwanted water from flooded basements, utility vaults, swimming pools, lakes and barge holds," Conrardy says.

Centrifugal trash pumps, typically sized from 4 inches on up, handle everything from clean to muddy to sandy water with solids. Applications include pumping unwanted water from excavations, manholes, quarries, lakes and coffer dams. "In Florida, where we don't have much of a problem with mud, trash pumps are more popular because of their speed," di Mauro says.

There are two types of centrifugal trash pumps: self prime units, also called wet prime pumps, which require you to pour water into the casing for initial priming and dry prime pumps, which automatically prime through the use of a compressor or vacuum.

Diaphragm pumps excel in pumping heavier viscosity liquids, such as the mud slurry used on directional drilling jobs. They can run indefinitely without damage. Diaphragm pumps excel in mud (they can pump water with greater than 25 percent solids by weight) and are often used where the content of solids is high and/or a condition of seepage exists. The downside is they are not a high volume pump, especially when compared to centrifugal models.

Submersible pumps can run unattended, are lightweight and quiet, and excel in pumping water from a variety of places. They are directly connected to an electric motor and lowered into the liquid to be pumped. "They don't require a suction hose, and they have a high discharge head," Conrardy says. Hydraulic-driven submersible pumps can be the answer when high heads or lifts are needed.

In addition, pumps can be driven by three different types of power: gas, diesel or electricity. Gas units are lightweight and portable, and are usually small. Diesel-driven pumps offer longer run times and less fuel consumption than gas units and are available in most size classes. Electric-powered pumps offer a lower noise option and use a power source that's usually readily available.

OTHER CONSIDERATIONS:

- If you have pump hoses on hand, the temptation is to make them fit any pump you rent. If it's not a true fit, however, this can decrease the capacity of your pump. Rental dealers typically rent 20-foot or 50-foot sections of hose that are an exact match to the rental pump.
- "If you allow some pumps to run dry, you could damage the seal," says Pam Meyer with Subaru Robin.
- Make sure the discharge hose is not kinked. If it's pinched or clogged, air cannot escape and the pump won't prime.

FEATURES TO CONSIDER

In these fuel-price-conscious times, pump efficiency becomes a consideration. "We have pumps that are 75 percent efficient, as measured by how much fuel they burn," Tavakoli says. Another fuel conscious option is a pump with an electric motor, according to Delzingaro. "Rather than running the diesel engine you can run the electric motor. It reduces the operating expense and, as an added benefit, the noise levels," he says.

Look at dual discharge ports. "These are designed to allow contractors to mount a trash pump on a water trailer, in a truck or any number of spots," Spence says. "These ports also mean less plumbing is involved in the daily operation of the pump."

Auto start and stop, which used to be seen only in electric pumps, is now a feature on diesel pumps. This turns the pump on and off unattended based on the flow and level of the material being pumped. Pumps can also have a dialer option, according to Tavakoli, which calls someone in case of a problem and tells them if it is, for instance, running out of fuel. **EW**

Web-based pump selection

Honda Power Equipment's PumpSelect has made selecting the right pump from among its products a matter of a few clicks on www.hondapowerequipment.com. Simply type information such as the suction head, suction hose/pipe length and discharge head, and the resulting worksheet will give you the system data and calculated performance of the selected pump.