GOLF COURSE NEWS

Exclusive survey

Pump system makers

As energy and labor costs continue to rise, golf course greens committees, owners and superintendents are demanding more efficient, flexible and reliable pump stations.

Pump station manufacturers have responded with innovative use of computer circuitry and solid-state measuring devices.

This technology provides precise control of pump selection corresponding to flow, pressure, and safety controls while increasing efficiency and reducing maintenance.

Current technology in solid-state circuitry has allowed pump station manufacturers to add alternatives to hydraulic regulating valves and limit switches, which have been the mainstay for pressure regulation and pump sequencing over the last quarter of a century.

Pressure regulation has become more accurate and trouble-free with the increased use of electronic flow and pressure sensors, variable frequency drives (VFDs) or electrically actuated butterfly valves.

VFDs regulate pressure by varying the rotational speed of the pump in response to changes in the irrigation cycle. Some manufacturers have been hesitant

Company Name	VFD	Hydraulic Pressure Regulating Valve	Electrically Actuated Butterfly Valve?	Enclosed Booster Station	Retrofit Existing Stations?	Pressure Tank Type	Station Isolation Valve?	Digital Flowmeter With Totalizer?	Each Tank Pressure Regulated?	Factory Authorized Start-up Cost
Aquature 1363 San Jose Blvd. Jacksonville, FL 32217 904-268-6707 Circle No 270	yes	yes	no	yes	yes	bladder hydropowermatic	yes	yes	yes	included
Best Equipment P.O. Box 702 Addison, TX 75001 800-537-8778 Circle No 271	yes	yes	no	no	yes	optional	yes	yes	no	included
Carroll Childers 4922 Almeda Genoa Houston, TX 77048 800-233-1587 Circle No 272	yes	yes	no	option	yes	all types	optional	optional	no	included
Commercial Pump Service 401 Broadway Swanton,OH 43558 419-825-3714 Circle No 273	yes	yes	no	Yes	yes	Bladder hydropneumatic	yes	optional	no	included
Gator Pumping Modules 2318 Paseo Street Orlando, FL 32805 800-330-5788 Circle No 274	no	yes	no	yes	yes	all types	optional	yes	yes	included
Hydro Tech Pump Systems P.O Box 1685 Pinellas Park, FL 34564 813-572-8403 Circle No 275	option	yes	option	yes	yes	ASME rated	yes	yes	yes	included
Kesler In't Division, Sancroflo 6700 Best Friend Rd Norcross, GA 30071 404-447-4443 Circle No 276	yes	yes	yes	yes	yes	yes	yes	optional	yes	yes
Pumping Systems, Inc. 10717 Harry Hines Blvd. Dallas, TX 75220 800-527-0539 Circle No 277	yes	yes	option	yes	yes	bladder or steel	yes	optional	optional	option
Watertronics 13400 A Watertown Plank Rd Elm Grove, WI 53122 800-356-6686 Circle No 278	yes	yes	yes	yes	yes	bladder	yes	yes	yes	included
Western Pumping Systems 17046 S. Weber Dr Chandler, AZ 85226 602-961-0150 Circle No 279										

keeping pace with golf course demands

to use electrically actuated butterfly valves, while others insist they maintain constant pressure by modulating the performance of each pump, again in response to changes in the irrigation cycle. Electrically actuated butterfly valves have been used for some 20 years in other fields, including in compressors and filtration.

Butterfly valves reduce the high friction loss inherent to hydraulic regulating valves. As flows reduce, butterfly valves also experience friction loss — though less than hydraulic valves — as they modulate to maintain a constant downstream pressure.

Since butterfly valves do not use pilots, they are dirty-water tolerant and typically don't require as much maintenance as hydraulic valves. VFDs are "not a bed of roses... They're a dynamic system and not at all simple," said the president of one major company which makes only hydraulic systems. But they're obviously important to advances in the industry.

An advantage of VFDs and electrically actuated butterfly valves is that surge pressure created from pump starts is completely eliminated from the irrigation system. With a butterfly valve, this is accomplished by closing the valve as a pump is turned off. When the pump is reactivated, the valve remains closed.

As the pump reaches full speed the valve is slowly opened to allow the water downstream. This slow opening is what eliminates the pump-start surge.

Variable frequency drives are made to eliminate surge pressure by starting slowly and ramping the pump speed up to achieve the desired operating pressure.

Prompting the move toward VFDs is the potential for energy savings and the subsequent reduction in utility bills.

Prime candidates for VFD pump stations would include courses with any of the following:

- Variations in suction pressures supplying the pumps.
- Unpredictable and changing flow rates.
- Varying discharge pressures (possibly due to elevation changes).
- High electrical demand charges.

As pump stations age, the valves and pressure-regulating components become more maintenance-prone. Retrofitting existing pump controls becomes an economical alternative to replacing the entire station.

With today's programmable logic controllers and new methods of pressure regulation, the performance of an existing pump station can be greatly enhanced through retrofit.

The replacement components are typically preassembled at the manufacturer's facility and often installed with only a one- or two-day interruption in the irrigation cycle.

Some irrigation applications call for a small amount of water or simply a pressure boost from a main supply line. In these cases a single-pump booster station is a suitable choice. These packages feature automatic actuation through pressure sensor, flow sensor, or irrigation controller pump-start circuitry. All the components are preassembled by the manufacturer and might even be contained in a lockable steel enclosure, making the pump station tamper-resistant while eliminating the need for a pump house.

When considering a pump station change, a golf course should be evaluated with respect to its unique requirements. Evaluation parameters should include current irrigation system demands for pressure and flow, plans for future expansion, horsepower requirements, pump preference (verticle turbine or horizontal centrifugal), type of pressure regulation desired, geographic location, utility rates and budget.

Today, prefabricated pump stations are available in a greater variety and with more features than just a few years ago. There is little doubt that innovative pump station manufacturers will continue to use improving technology to provide golf courses with more efficient and reliable pump stations.

U.L. Listed Control Panels?	Brands of Pumps and Motors	Self-Cleaning Filters Included?	Years in Business	Number Service Centers	Contact Person
yes	varies by demand	optional	16	2	Kent Curley
yes	American Turbine, Goulds, I.R., US Motors	optional	10	14	Dave Brockway
yes	U.S. Motors, Newman, Marathon	optional	36	9	Terry Wallace
optional	Crane-Deming, Cornell, Berkeley	yes	25	4	Carol Dunbar
yes	Cornell, Jacuzzi, Sta-Rite, Flint	yes	8	1	Fred Tannler
yes	as specified	optional	25	10	John Swanson
yes	Sycnchroflo, Newman, G.E, U.S. Motors	optional	35	20	David Kesler
yes	Newman, U.S. Motors, Worthington, Gould	optional	15	13	Emil Gram
yes	American, Peerless, U.S. Motors, A. Bradley	yes	17	20	Lee Krmpotich
	Cornell, Brunfos,G.E. U.S. Motors, Newman,				

A list of manufacturers of irrigation and related equipment is printed on page 18.