

Short-throw irrigation provides precise water control, allowing superintendents to manage water more efficiently

BY DAVID WOLFF

You know that bunker that's always getting wet, or that tree branch that's constantly in the way. Well, bunker faces, berms and mounds, tree lines and low branches all create obstacles that prevent you from putting water precisely where they want it. And you know how critical water management is. Reliable flow control and precise water placement are vital to meeting the challenging demands of maintaining quality turf conditions on golf courses.

But don't fret.

Irrigation systems with flexible, short-throw capabilities allow golf course superintendents to adjust main nozzle trajectory from the top of the sprinkler and fine-tune spray height. Spray pattern distribution is related directly to nozzles. For example, watering hot spots is easier than before because of these newer irrigation systems. Forget about dragging out a hose and finding a quick coupler. Just set the arc to a narrow 40 degrees, or manually direct and hold the sprinkler to place the exact amount of water precisely where you want.

Also, consider the areas behind part-circle sprinklers that brown-out during the summer. Manufacturers offer an assortment of back nozzles that water directly behind a sprinkler. Short-radius applications such as tee boxes are no longer a problem. Simply plug in the main nozzle and provide coverage as short as 18 feet.

Most short-throw sprinkler heads can compensate for windy conditions, too.

Irrigation systems with flexible, short-throw capabilities allow superintendents to adjust main nozzle trajectory from the top of the sprinkler and fine-tune spray height. Photo: Rain Bird





On the
mark



Many golf courses have small areas or areas next to nonirrigated areas that need to be watered precisely without wasting water. Photo: Rain Bird

DEDICATED, DURABLE SYSTEMS

Before the two largest manufacturers of golf course irrigation systems, The Toro Co. in Riverside, Calif., and Rain Bird Corp. in Tucson, Ariz., introduced short-throw products, superintendents relied on commercial-grade rotors. However, they eventually cracked under the higher pressure of golf course irrigation systems. Products from Toro and Rain Bird are designed to handle pressure fluctuations and be durable. They provide more efficient, precise and uniform

water distribution. Features of these flexible irrigation systems include:

- Radius throw versatility, from 18 feet to 55 feet, to irrigate tight areas. Spray height can be adjusted from 7 to 30 degrees with Toro products.
- The ability to withstand golf course irrigation system water pressure, operating from 60 psi to 90 psi with the ability to sustain as much as 100 psi.
- Back nozzle capability that provides irrigation flexibility when a consistent full-circle pat-

tern won't do. Superintendents can experiment with this capability when they need to water native plant ornamentals near the edge of the course. They can try this when irrigation needs require a different throw range or water output. They can use a back nozzle in windy conditions to help gain better trajectory behind the head and to have better overall coverage.

- The ability to spray part-circle or full-circle patterns with the same head on the new 835S/855S Toro sprinklers. The part-circle feature is used in drought-sensitive areas to reduce watering roughs temporarily. Superintendents can experiment with full-circle coverage during grow-ins when adjacent native vegetation needs consistent moisture to establish.

Recent improvements of sprinkler throw flexibility bring together two areas of irrigation need for golf course superintendents, says Steve Snow, director of sales for Toro.

"In a single system, the superintendent can water entire fairways and greens, as well as those small, tough-to-water areas such as bunker tongues, tee boxes that are half in the shade and half in the sun, and that 20-foot area between the green and cart path. The heads can be tailored to the application."

MEETING DIFFERENT NEEDS

The ability to adjust sprinklers is important in many ways, says Mike Hurdzan, Ph.D., president of Hurdzan-Fry Golf Course Design in Columbus, Ohio. It has designed more than 250 golf courses in the United States, Canada and abroad.

"When you put five or six sprinkler heads around a green, there will be prevailing winds, high areas, low areas and trees," he says. "There is always some obstacle we need to work around to get the most even distribution of water on a green. Before, with a fixed-angle nozzle, we were really limited."

Short-throw irrigation is a one-size-fits-all product, says Erik Christiansen, president of EC Design Group, an irrigation consulting company in West Des Moines, Iowa.

"In a hard-line system where you have native vegetation that actually backs right up to mowed, manicured turf, you need sprinkler heads that go away from the native grasses," he says. "But let's say you're in a drought situation where even your native grasses are struggling. Well, don't worry about it. Now just take that part-circle head and adjust it back to include the native grasses so you

don't start losing it. Then, when you're finished, turn it back in again. You don't need to change out drives or hand water with a hose. Short-throw irrigation capability is effective."

Many states have severe water restrictions

because of drought, and during these times, golf courses are required to stop irrigating roughs first. But if superintendents have full-circle heads that throw water in the rough, there's not much they can do about it. With a part-circle head, the super-



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intendent can turn off irrigation to the rough.

Additionally, new golf construction requires different irrigation compared to existing golf courses.

“For the grow-in of a golf course, we want a really wide distribution to get things up and running,” Hurdzan says. “But then, particularly with the environmental courses, there are areas we don’t want to water, so these native grasses go into a more natural drought-like condition. Now we can adjust that fullness of the circle to allow for that pattern.”

CONSERVING WATER

Many golf courses have small areas or areas next to nonirrigated areas that need to be watered

Sensitivity to land movement requires water to stay strictly confined to turfgrass areas at The Mountain Golf Course in Colorado. Photo: Toro

precisely without wasting water. Copper Canyon Golf Club in Phoenix, The Mountain Golf Course at The Broadmoor in Colorado Springs, Colo., and Olde Florida Golf Club in Naples, Fla., are examples of courses that rely on short-throw irrigation for efficient water management.

Scott McCall, golf course superintendent at 18-hole Copper Canyon, has been using short-throw irrigation for several years. But he needed a more durable system, so he switched to Rain Bird’s Eagle 351B rotor.

“The other system we were using was constantly breaking down,” McCall says. “Even though it was under warranty, my irrigation technician’s time was not. Durability was the biggest issue for us. We couldn’t have him sitting around waiting for replacement parts.”

Copper Canyon has island tees that require tight irrigation patterns. The course also features other areas where bunkers are adjacent

to native desert areas and water features where irrigation isn’t required, so a short-throw system was needed.

“We’re very conscious of water conservation,” McCall says. “We need precise water placement and the ability to change the trajectory of the throw to compensate for windy conditions. The latest short-throw systems better handle changes in water pressure, which is important for distance control and when it’s windy.”

The Mountain Golf Course is perched on the side of Cheyenne Mountain with dramatic views in all directions. Unfortunately, this stunning feature has negative impacts. Because the course was built in 1975, it has been plagued with landslides, erosion and other deteriorating conditions.

In 2003, the decision was made to renovate the golf course. The goal wasn’t to restore the original layout but to come up with a new course



that had the appearance of having been in place since the creation of the original property in 1918. Because engineers and architects were extremely sensitive to land movement, irrigation selection was a top priority.

"We needed to make sure the water stayed strictly confined to the turfgrass areas," says Fred Dickman, director of golf course maintenance. "We also have a lot of wind here, so we wanted to have flexibility with nozzle settings."

The new course has 57 acres of maintained turf and 70 acres of native grasses. Management at The Broadmoor chose Toro's 835S/855S series with the TruJectory feature.

"Along the native and golf course boundaries, we can adjust the nozzles to operate 360 degrees to water the turf and the native grasses as they grow in," Dickman says. "Then we can turn them back to part circles after the natives are established."

Olde Florida has a tee complex shaped like a

peninsula that jets into the woods. The challenge is to irrigate the tees and nothing else.

"We use a block system with six heads to place water precisely on the finger of turfgrass, with nothing going into the woods," says Darren Davis, director of golf course operations. "We can only accomplish this with short-throw irrigation capability."

ENVIRONMENTAL STEWARDSHIP

Efficient water management not only impacts conservation and a golf course superintendent's budget, it's also part of being a better environmental steward. Hurdzan holds a Ph.D. in environmental plant physiology and is known for designing golf courses that exist in harmony with their surroundings, minimizing their impact on nature.

"We have a long way to go in water conservation, and one of the biggest wastes is when you spray water up in the air and the wind blows it,"

he says. "Then you get very little effective water on the turf. Short-throw sprinkler heads help answer that."

Efficient water management and conservation are the future of irrigation, says Jeff Kiewel national sales manager for Rain Bird.

"When we design our products, being better stewards of the environment is part of the process," he says. "Our goal is to use less water with better results."

Davis agrees. "The days of overthrowing water are gone," he says. "We use the latest technology to irrigate just the turf. Golf course superintendents are stewards of the environment. We only water what has to be watered. It's smart, prudent and the right thing to do." **GCI**

David Wolff is a freelance writer based in Watertown, Wis. He can be reached at dgwolff@charter.net.

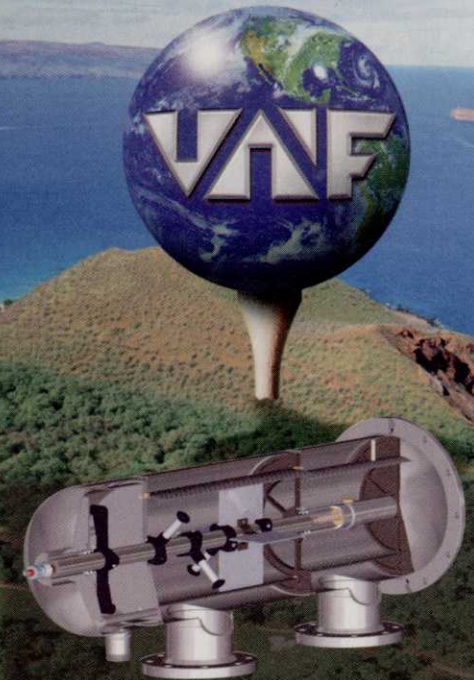
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