

VALVES IN THE IRRIGATION SYSTEM

If controllers are thought of as the brains, then valves should be considered as the heart of any irrigation system. The purpose of any valve is to control movement through the system - if a valve is open, things can pass through; if it's closed, they can't!

Technology has expanded on this basic principle to provide us with a variety of valves for many specialized purposes and applications. Valves today can be operated manually, or with a signal from an electrically or hydraulically operated source. You can use valves to control volume or direction of flow, working pressures, water hammer, air release, and many other important actions required for efficient irrigation system operation and management. This month we'll look at some of the more common valves installed in irrigation systems and how they can be operated at their maximum utility.

The most common use of valves in irrigation systems is for regulating the flow of water through the piping network. A typical golf course will have a complex layout of piping that takes the pressurized water from the source to the sprinklers. Since the water in the system is usually under constant (static) pressure, whenever a valve is opened the water will move through it until it is forced to stop again. Valve-in-head sprinkler systems use this principle to irrigate the turf areas of the course. Each sprinkler has an integral valve that remains closed until the controller signals it to open up and begin irrigating. Conversely, "Block" or "Battery" systems link several sprinkler heads together with a "lateral" pipeline that is non-pressurized until a control valve is signaled by the controller to open up and allow pressurized water into the lateral and, in turn, out of the sprinklers. One of the hazards of having an irrigation pipe network under constant pressure is that if the pipe cracks or a fitting breaks, water will happily run out of the break until it is fixed or until you run out of water, whichever comes first. This situation explains the importance of installing "isolation" valves at regular intervals along your pressure main line routing. Isolation valves are typically manually-operated gate valves or angle valves that allow you to shut-down (or isolate) sections of the mainline or sub-mains for maintenance without shutting down the entire

golf course system. Isolation valves should be installed at logical locations along the principle mainline routing to isolate a hole or group of holes as well as larger areas of the course that have similar conditions. Isolation valves should also be installed at any sub-main connection locations off of the principle mainline. It is important that you install gate valves or angle valves that have resilient seats since they are somewhat resistant to damage from debris that is often found in golf course irrigation water sources.

One concern that you might have if you need to shut down a section of your irrigation system is how to irrigate that area until the maintenance work is completed. A possible solution to this problem is to install quick-coupling valves at regular intervals along the pressure pipe routing. Quick-coupling valves allow you to manually tap into the pressure line and hook-up a hose for temporary irrigation. If you have the availability of a quick coupling valve at 250' intervals along your mainline you should be able to drag a 100' section of hose between any two valves and irrigate any area that is temporarily shut down. It is also a good idea to install quick-coupling valves on two sides of every green and at least one QCV at each tee box to allow for special or supplemental irrigation to these delicate areas of the course. The types of valves presented here are installed in practically every golf course irrigation system in operation today. As you know, every course is different in layout, structure, and temperament. Each golf course has little intricacies that may require special consideration and, often, specialized valves are the best way to exercise control over these areas.

Next Month: Specialized Valves for Special Situations

A LOOK AHEAD

November 29, 30

GCSAA & GCSANC Annual Seminar,
Pleasanton

December 7

Larry Lloyd Memorial Tournament
and Christmas Party, Rancho Canada,
Carmel

January 7, 1991

Hidden Valley CC, Middletown, CA

February

GCSAA National Convention

March

Joint Meeting with USGA, NCGA

April

GCSANC Annual Meeting, Rossmore

May

Open

June 13

Orinda CC

July 15

Supt./Pro Tournament, San Francisco Golf
Club

August

Oakland A's Baseball Game, Oakland
Coliseum

September

Richmond CC



**62nd International
Golf Course
Conference & Show
February 5-12, 1991**