

Glossary

Irrigation Terminology

ANGLE VALVE

A valve configured so its outlet is oriented 90° from its inlet. In irrigation, these valves are generally installed with the inlet at the bottom of the valve.

ANTI-SIPHON DEVICE

A type of backflow preventer that seals off the atmospheric vent area when the system is pressurized. It should be installed downstream of a control valve in a location at least 12 inches higher than the highest point in the lateral that it serves. When system pressure drops to zero, the float and seal assembly drops, opening the vent to the atmosphere and breaking any siphon effect. Consult local building codes for laws applicable in your area. Synonymous with atmospheric vacuum breaker.

ANTI-SIPHON VALVE

The combination of an angle valve and anti-siphon device in one unit. The anti-siphon device is located downstream of the angle valve.

APPLICATION RATE

A measurement of the volume of water applied to an area of landscape in a given time. (In the United States, this rate is usually expressed in inches per hour. Its metric equivalent is centimeters per hour.)

ARC

The area a part-circle sprinkler irrigates, expressed in degrees of a circle. For example, a 90° arc provides quarter-circle coverage, while an 180° arc provides half-circle coverage.

AUTOMATIC CONTROL VALVE

A valve that is actuated by an automatic controller by electric or hydraulic means. Synonymous with remote control valve.

AUTOMATIC SYSTEM

An irrigation system that irrigates in accordance with a pre-set program.

BACKFLOW

The unwanted reverse flow of liquids in a piping system.

BACKFLOW PREVENTER

A mechanical device that prevents backflow. In irrigation, it is used to protect the potable water supply from irrigation water. There are several types of backflow preventers (see AVB., ASV, DCVA, HCVB, PVB). The choice of backflow preventer used depends on the degree of hazard and the particular piping arrangement involved. Virtually all regulatory agencies in the United States require backflow prevention devices to protect the domestic water supply from contamination by the backflow of irrigation water. In areas where it is not required, it is highly recommended. Consult local building codes for laws applicable to selection and installation in your area.

CHECK VALVE

A valve that allows water to flow in only one direction. Check valves are used to prevent low head drainage.

COEFFICIENT OF UNIFORMITY (CU)

A numerical expression which serves as an index for the uniformity of water applied to a given area within a specific geometric arrangement of sprinklers (e.g., square or triangular).

CONTROLLER

A device that activates control valves according to a user-defined program.

COVERAGE

The area of landscape watered by a sprinkler or grouping of sprinklers.

CYCLE

Completion of a controller station's watering time.

DIAPHRAGM

A rubberized material seal that keeps water from flowing through the valve.

DIAPHRAGM VALVE

A globe or angle pattern valve that uses a diaphragm to control the flow of water through the valve.

DISTRIBUTION

The manner in which a sprinkler applies water to the landscape. Synonymous with uniformity.

DISTRIBUTION PATTERN

The pattern of water application by a sprinkler over the area the sprinkler covers.

DISTRIBUTION RATE CURVE (sprinkler)

A curve showing the rate of a sprinkler's water application by a sprinkler at various points along the sprinkler's radius.

DISTRIBUTION UNIFORMITY (DU)

A numerical expression that serves as an index of the uniformity of water application to a given area within a specific geometric arrangement of sprinklers (e.g., square or triangular). This metric was derived from Coefficient of Uniformity (CU) and is more sensitive to the needs of landscape irrigation managers.

DOMESTIC WATER

Potable or drinking water. It can be used as a source of irrigation water, but once water enters an irrigation system it is no longer considered domestic or potable.

DRAIN VALVE

A valve used to empty water from a lateral or main line, usually for winterization purposes.

DYNAMIC PRESSURE

The pressure of the irrigation system during operation.

EMITTER

A distribution device that delivers water at a very low rate (measured in gallons per hour) and pressure at the outlet port.

EVAPOTRANSPIRATION (ET)

The amount of water lost by the plant through both evaporation and transpiration.

EXTERNAL MANUAL BLEED

A feature that allows an automatic valve to be opened manually (without a controller) by releasing water from above the diaphragm to the outside of the valve. It is useful during installation, system start-up, and maintenance operations.

FLOW

The movement of water.

FLOW CONTROL

A valve that modulates in order to maintain a predetermined liquid flow rate without drastically altering the pressure.

FLOW SENSOR

A device that actively measures water flow through a piping system and reports its data to the computerized central control system.

FLOW WATCH™

A feature of Rain Bird computerized central control systems that uses data from flow sensors to monitor and compare actual flow to expected flow, report anomalies, and act according to a user-defined program. A common response to a high flow condition being sensed is to turn off a master valve and alert the operator.

FPT

Female nominal pipe thread.

FRICITION LOSS

The amount of pressure lost as a result of water flowing through a system. Synonymous with pressure loss.

GLOBE VALVE

A valve configured with its outlet oriented 180° from its inlet. In irrigation, these valves are generally installed so that the inlet and outlet are parallel to the ground.

GPM

Acronym for gallons per minute.

IMPACT DRIVE

A sprinkler that rotates using a weighted or spring-loaded arm, which is propelled by the water stream and hits the sprinkler body, causing movement.

INFILTRATION

The act of water entering the soil profile.

INFILTRATION RATE

The rate at which water enters the soil profile, usually expressed in depth of water per hour. (In the United States, it is usually expressed in inches per hour. Its metric equivalent is centimeters per hour.)

INTERNAL MANUAL BLEED

A feature that allows an automatic valve to be opened manually (without a controller) by releasing water from above the diaphragm to the downstream side of the valve. It is useful during installation, system start-up, and maintenance operations when it is undesirable for water to escape into the valve box.

IRRIGATION EFFICIENCY

The percentage of irrigation water that is actually stored in the soil and available for use by landscape, as compared to the total amount of water provided to the landscape.

IRRIGATION REQUIREMENT

The quantity of water applied to the landscape to satisfy the evaporation, transpiration, and other uses of water in the soil. The irrigation requirement is usually expressed in depth of water and equals the net irrigation requirement divided by the irrigation efficiency. (In the United States, it is usually expressed in inches per week. Its metric equivalent is centimeters per week.)

IRRIGATION SYSTEM

A set of components that includes the water source (e.g., domestic service or pump), water distribution network (e.g., pipe), control components (e.g., valves and controllers), emission devices (e.g., sprinklers and emitters), and possibly other general irrigation equipment (e.g., quick coupler and backflow preventer).

LATERAL

The pipe installed downstream from the control valve on which the emission devices are located.

LOW HEAD DRAINAGE

Residual flow through low-elevation sprinkler heads in a system after the control valve has been closed.

MAIN (MAINLINE)

A pipe under constant pressure that supplies water from the point of connection to the control valves.

MASTER VALVE

A valve used to protect the landscape from flooding in case of a ruptured main or malfunctioning downstream valve. The master valve is installed on the mainline after the backflow preventer.

MOISTURE SENSOR

An instrument that monitors soil water content and takes the appropriate predetermined action.

MPT

Male nominal pipe thread.

Non-Potable Water

Water that does not meet minimum drinking water standards. Non-Potable water sources are becoming common for use in irrigation systems.

NOZZLE

The final orifice through which water passes from the sprinkler or emitter to the atmosphere.

OPERATING PRESSURE

The pressure at which a system of sprinklers operates. Static pressure less pressure losses. It is usually measured at the base or nozzle of a sprinkler.

ORIFICE

An opening in a system component such as a pipe, tubing, or nozzle.

OVERLAP

The area that is watered by two or more sprinklers.

POINT OF CONNECTION (POC)

The point where the irrigation submain is joined to the service line.

POLYVINYL CHLORIDE PIPE (PVC)

A semi-rigid plastic material used in irrigation system components.

POLYETHYLENE PIPE (PE)

A flexible black pipe used in irrigation system components.

POTABLE WATER

Domestic or drinking water. It can be used as a source of irrigation water, but once water enters an irrigation system it is no longer considered domestic or potable.

PRECIPITATION RATE (PR)

The rate at which a sprinkler system applies water to the landscape. PR is expressed in depth of water per hours of operation. (In the United States, it is usually expressed in inches per hour. Its metric equivalent is centimeters per hour.)

PRESSURE

The force per unit area measured. (In the United States, it is usually expressed in pounds per square inch. Its metric equivalent is bars.)

PRESSURE LOSS

The amount of pressure lost as water flows through a system. Synonymous with friction loss.

PRESSURE REGULATOR

A device that maintains constant downstream operating pressure which is lower than the upstream operating pressure.

PROGRAM

The watering plan or schedule.

PSI

Acronym for pounds per square inch.

PUDDLING

The action of water gathering in one location, such as at the base of a sprinkler or at a low spot on the site. It can be caused by low-head drainage, over-irrigation, or slow soil infiltration.

PUMP START CIRCUIT

The feature on automatic controllers which supplies 24 VAC, which can be used to activate a pump through an external pump start relay.

PUMP START RELAY

Low amperage or an electric switch designed for use with pump start circuits.

QUICK COUPLING VALVE

A permanently installed valve that allows direct access to the irrigation mainline. A quick coupling key is used to open the valve.

RAIN SHUT-OFF DEVICE

A device that prevents voltage from the controller from activating the valves when a preset amount of rain falls.

REMOTE CONTROL VALVE

A valve that is actuated by an automatic controller by electric or hydraulic means. Synonymous with automatic control valve.

RETRACTION

When the pop-up riser of a sprinkler, such as a spray head or rotor, returns to the case in the ground. Also called pop-down.

RISER

A length of pipe that has male nominal pipe threads on each end. Usually affixed to a lateral or submain to support a sprinkler or anti-siphon valve. May also be used underground to connect system components.

RUN-OFF

Water that is not absorbed by the soil and drains to another location. Run-off can occur when water is applied at a rate faster than the infiltration rate of the soil.

SCHEDULING COEFFICIENT

A numerical expression that serves as an index of the uniformity of water application to a given area within a specific geometric arrangement of sprinklers (e.g., triangular or square). It is used to measure the uniformity of landscape irrigation systems.

SLIP CONFIGURATION

A threadless connection that is solvent-welded.

SOLENOID

An electromagnet that is connected to a controller and facilitates the opening and closing of automatic control valves.

SPRINKLER

A hydraulically operated mechanical device that discharges water through a nozzle or nozzles.

STATIC PRESSURE

The pressure in a closed system, without any water movement.

STATION

A circuit on the controller that has the ability to be programmed with a run time unique and separate from other circuits and provides power to one or more remote control valves.

SWING JOINT

A threaded connection of pipe and fittings between the pipe and sprinkler that allows movement to be taken up in the threads rather than as a sheer force on the pipe. Also used to raise or lower sprinklers to a final grade without plumbing changes.

TRANSPIRATION

The process in which a plant's moisture is lost to the atmosphere through its leaves.

UNIFORMITY

How evenly water is distributed over an irrigated area.

VELOCITY

The speed at which water travels. (In the United States, it is usually expressed in feet per second. Its metric equivalent is meters per second.)

WATER HAMMER

A shock wave created when the flow of water in a piping system suddenly stops. It usually is caused by the result of a fast-closing valve.

WATER PRESSURE

The force that is exerted by water. (In the United States, it is usually expressed in pounds per square inch. Its metric equivalent is bars.)

WATER WINDOW

The time of day available for irrigation to occur.

WINTERIZATION

The process of removing water from the irrigation system before the onset of freezing temperatures.

WIRE GAUGE

Standard unit of measurement for wire size. The larger the gauge number, the smaller the wire.

WORKING PRESSURE

The pressure of the irrigation system during operation. Synonymous with dynamic pressure.

ZONE

A section of an irrigation system served by a single control valve. Zones are comprised of similar sprinkler types and plant material types with similar water requirements and soil types.