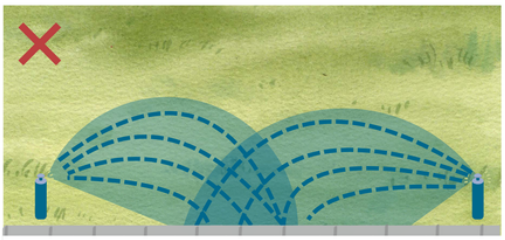
CITY OF BOZEMAN WATER CONSERVATION

How to Correct Overthrow and Underthrow

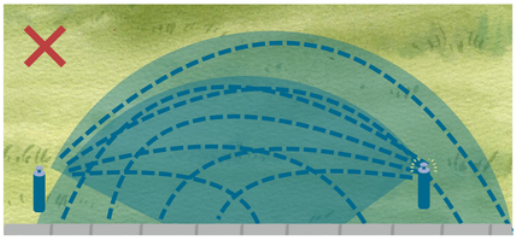
What is overthrow and underthrow?

A sprinkler's throw refers to the distance at which it sprays water on the landscape. Adjusting a sprinkler's throw distance to align with contours on your landscape is important; overthrowing sprinklers can cause runoff and water waste, and underthrowing sprinklers can cause dry spots to appear on your lawn. To determine if your sprinklers are overthrowing or underthrowing, turn on each zone and observe if the spray from one sprinkler is reaching the opposing sprinkler head- this is called head to head coverage.

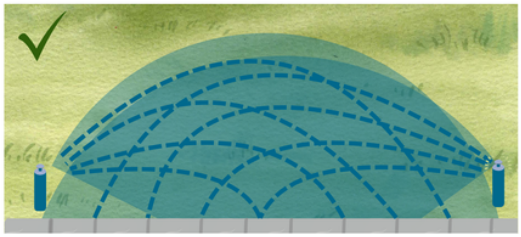
How do I know if my nozzle needs to be adjusted?



Both sprinklers are underthrowing because each of their sprays do not reach the opposing head. To achieve head to head coverage, the throw distance of both sprinkler heads should be increased.



The left sprinkler head is overthrowing, while the right sprinkler is adjusted correctly. The left sprinkler's throw distance should be reduced to prevent overthrow, which could lead to runoff.



Head to head coverage is achieved by both sprinkler heads. No adjustments are required.

How do I adjust a sprinkler's throw distance?

Different sprinkler nozzles are adjusted differently and may require different tools. Take a look at our guide below to learn how to adjust different sprinkler types that may be found on your landscape. To begin, turn on each zone and scan each sprinkler head for overthrow or underthrow. Then, follow our guide below to make adjustments to each of your affected nozzles.

Locate your sprinkler manufacturer and nozzle type using the guide below. Then, learn how to adjust it.

Variable Arc Nozzles (VAN) and Fixed Spray

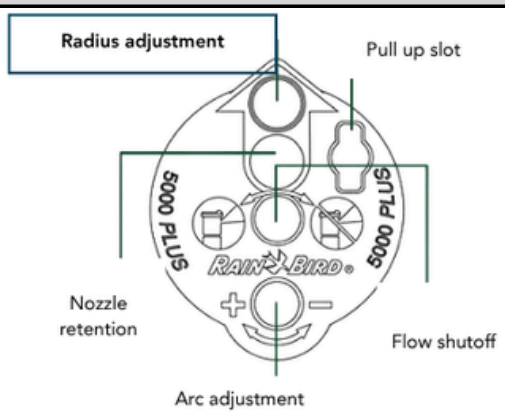
Rain Bird VAN

Hunter VAN

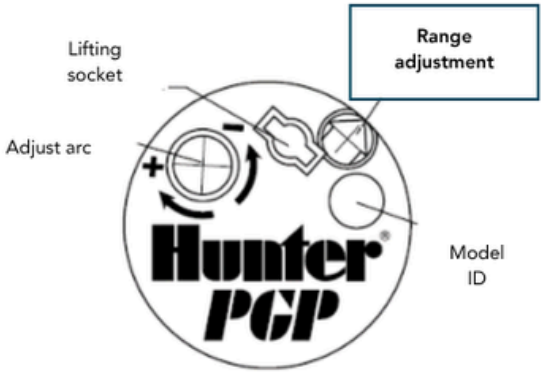
Fixed Spray

VAN and fixed spray nozzles do not have adjustable throw distances. To achieve a proper throw distance on a VAN or fixed spray nozzle, the nozzle will need to be replaced with one that throws at a suitable distance. *Note: The throw distance is usually inscribed on the top of the nozzle and its color is associated with a certain throw distance.*

Rotors



Rain Bird Rotor Adjustment Diagram courtesy of www.RainBird.com



Hunter Rotor Adjustment Diagram courtesy of www.hunterirrigation.com

Manufacturer	Overthrowing	Underthrowing	Adjustment Tool
Rain Bird	Insert tool into the radius adjustment slot and turn clockwise to decrease the throw.	Insert tool into the radius adjustment slot and turn counter-clockwise to increase the throw.	Rain Bird Rotor Tool or flathead screwdriver
Hunter	Insert tool into the nozzle/range adjustment screw and turn clockwise to decrease the throw.	Insert tool into the nozzle/range adjustment screw and turn counter-clockwise to increase the throw.	Hunter adjustment wrench or Allen Key

Multi Stream Multi Trajectory (MSMT)

Manufacturer	Overthrowing	Underthrowing	Adjustment Tool
 Hunter MSMT	Insert tip of tool into the radius adjustment screw on top of the nozzle and rotate clockwise to decrease the throw distance.	Insert tip of tool into the radius adjustment screw on top of the nozzle and rotate counter-clockwise to increase the throw distance.	Hunter MP rotator adjustment tool or small flathead screwdriver
 Rainbird MSMT	Using your fingers, rotate the nozzle's collared radius adjustment dial counter-clockwise to decrease the throw distance. The range limit is reached when a clicking sound is heard.	Using your fingers, rotate the nozzle's collared radius adjustment dial clockwise to increase the throw distance. The range limit is reached when a clicking sound is heard.	None required

Note: *There are several manufacturers and series of sprinkler heads and this guidance may not apply to your irrigation system. Always take note of your particular sprinkler head and consult the manufacturer when necessary.*