



CHOOSING THE RIGHT NOZZLE

As is the case with any irrigation system of a domestic / landscape nature, pop-up sprinklers should be spaced so that they spray head to head. This is because the sprinkler does not water the area in its immediate vicinity. This area has to be watered by the next sprinkler or vice-versa.

The distance between sprinklers is equivalent to the radius of the sprinkler.

This principle applies to all sprinklers as we saw with micro sprays and now with pop-up sprinklers or their equivalent shrub head.

By referring to the Hunter PGP performance chart you will note the following:

- As the nozzle size goes up the flow rate goes up. I.e. the flow rate on a Number 1 nozzle is AT 206 KPA is 1.8 Litres per Minute (LPM), while a number 6 nozzle at the same pressure (206 KPA) has a flow rate of 7.4 LPM. Remember, if you have calculated your available water supply in Litres per Second (LPS) . To do this we divide Litres per Minute (LPM) by 60 (seconds).
- As the pressure increases for a given nozzle size the flow rate will also rise so to will the distance the water sprays, i.e. the radius will increase, i.e. by referring to the number 6 nozzle you will note that at 206 KPA it has a flow rate of 7.4 LPM and a radius of 10.9 meters. At the higher pressure of 4.13 KPA the flow rate has risen from 7.4 LPM to 10.7 LPM and the radius has increased from 10.9 meters to 12.1 meters. This means the sprinklers could be spaced at 12.1 meters instead of 10.9 meters if you have an operating pressure of 413 KPA.

Study the Hunter PGP chart to ensure that you understand them:

- www.hunterindustries.com/Products/Rotors

Then take a look at the Hunter S chart and see if you can understand that chart with respect to flow rates and radius.

- www.hunterindustries.com/Products/Sprays

*****Remember*****

At all times you must first determine the flow rate followed by the available water supply which is three quarters of the flow rate. This provides you with a safety margin to ensure that the system will work. Having determined the available water supply you can calculate how many sprinklers can be fitted to any given line and that the sprinklers should be spaced head to head.

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Which Nozzles To Choose??

Rule Number 1

If all sprinklers have the same arc and cover the same area then they should have the same nozzle size. Use a nozzle size that does not exceed the available water supply, ie. If we have 0.48 LPS which is 28.8 LPM (LPS x 60) we can safely use three sprinklers on the same line with a number 6 nozzle, each doing a half circle (covering the same area).

If our design has 4 sprinklers on the same line then we would have to use a smaller nozzle, a number 5 nozzle uses 5.9 LMP meaning 4 sprinklers will have a sum total of 23.5 LPM which is less than our available water supply. Note the radius. The radius on a number 5 nozzle is 10.3 meters at 206 KPA which means if our operating pressure is 206 KPA the optimum spacing for this sprinkler is 10.3 meters. Thus, the sprinklers will spray head to head. It is safe to reduce the distance between sprinklers but not to increase it. Increasing the spacing will cause dry spots while decreasing it will not unless you decrease the spacing below 30%.

In a system where you have a number of sprinklers of varying arc you cannot use the same nozzle, ie a quarter circle sprinkler covers half the area of a half circle, one third the area of a three quarter sprinkler and one quarter the area of a full circle sprinkler. Hence, the nozzle of a quarter circle sprinkler should put out half the water of a half circle, one third the water of a three quarter circle sprinkler and one quarter the water of a full circle sprinkler.

*****Remember*****

If your system has 4 sprinklers, one is a quarter circle, two are half circles and the 4th is a three quarter circle, and you choose a number 3 nozzle for the quarter circle which has a flow rate of 3.3 LPM at 206 KPA you require a nozzle that puts out twice this flow rate for the half circle sprinklers and three times this rate for the three quarter circle. This means that the half circles need to be fitted with a nozzle that puts out 6.6 LPM and three quarters has to be fitted with a nozzle that puts out 9.9 LPM

This means the half circle will have to be a number 5 or 6 nozzle while the three quarter sprinkler will have to be a number 7 nozzle. Note that the sum of the flow rates of all nozzles will not exceed the available water supply.