

## BOTH GUNS OPERATING TOGETHER SECONDARY ALONE AS REQUIRED

### End of Pivot Solutions - New Tools for Improved Production

Primary End Gun:	Nelson SR100
Secondary End Gun:	Nelson R55 VT, R55i VT, R75LP, R75
Booster Pumps:	Hydro Connect EGBP5015, 5022, 5037

Multiple end guns operating together offer the grower potential additional coverage and improved production in the corners of a centre pivot field.

The choice of booster pump and end guns to maximise range, stream breakup and uniformity are integral in achieving success with multiple end gun systems.


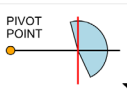

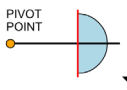
Nelson R55 and R75 Rotators operating as un-boosted or boosted secondary end guns provide short/medium range end of pivot irrigation and enable the primary end gun to be focused on medium/long range.

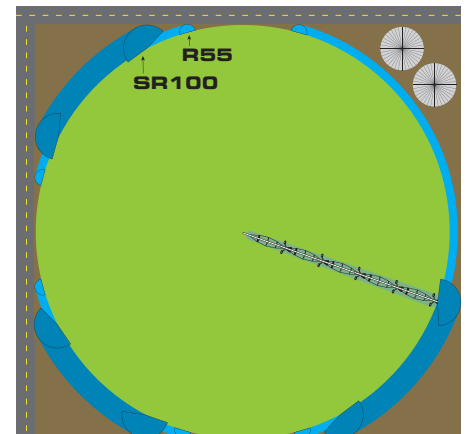
The Nelson SR100 outperforms all other boosted primary end guns in multiple end gun systems. The additional range and pattern of the SR100 end gun is key to success in this application.

For 50Hz applications, the Hydro Connect 50Hz end gun booster pumps provide optimal boost pressure to ensure the Nelson SR100 operates at peak performance. A minimum 3.5bar (50psi) boosted pressure for the primary end gun is essential in a multiple end gun system. Higher pressure is preferable as it will provide additional range. Booster pumps that are designed to operate on a 60Hz or 60/50Hz supply do not provide adequate boost pressure when running at 50Hz.

Sprinklerchart.com provides the selection of the primary and secondary nozzle sizes but does not provide optimised arc and offset details aimed at maximising the end of system coverage for 'both guns operating together' applications.

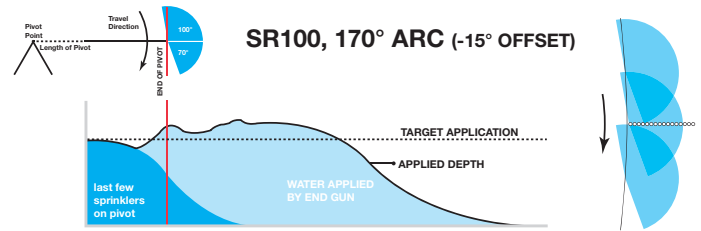
When BOTH guns are operated together, the installer or grower can set alternate arcs and offsets to achieve additional coverage. The end gun will not throw further, but by focusing it on range and using the secondary end gun to provide in-close coverage, you should substantially increase the area being effectively irrigated.

PRIMARY	LOCATION m	DESCRIPTION	PRESSURE bar	FLOW (m3/h) Req / Del	Arc °, Offset : 170 , -15
	255.16	SR75 18" x 2" FNPT	3.76	6 / 7	
	255.16	TR75 .40" TAPER RING	3.76		
	BOOSTER VALVE	254.86	HC-EGBP5015 Booster Pump	1.40	
	255.16	1000P 2" WAFER	3.79		
SECONDARY	LOCATION m	DESCRIPTION	PRESSURE bar	FLOW (m3/h) Req / Del	Arc °, Offset : 180 , 0
	254.69	BODY ASSY, GREEN PLATE - R55i VT	1.51	1 / 5	
	254.69	NOZZLE ASSY, SNAP FIT, NPT, #52 PURPLE - R55	1.51		
	VALVE	254.69	1000P 2" WAFER		

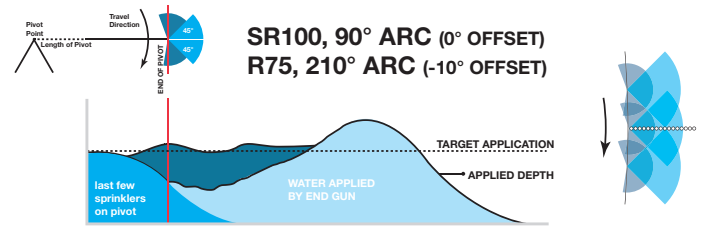


*Typical sprinklerchart.com arc and offset details will be similar to this example*

The travelled profile is the water application once the centre pivot has completely traversed the area being irrigated. Travelled profiles of end gun systems with various arc and offset settings will be similar to these examples →



Maximising multiple end gun combinations, considering boosted and un-boosted pressure, end gun selections, nozzle sizes plus arc and offset settings to provide uniform end of pivot coverage is an ongoing project that will develop over the coming years.

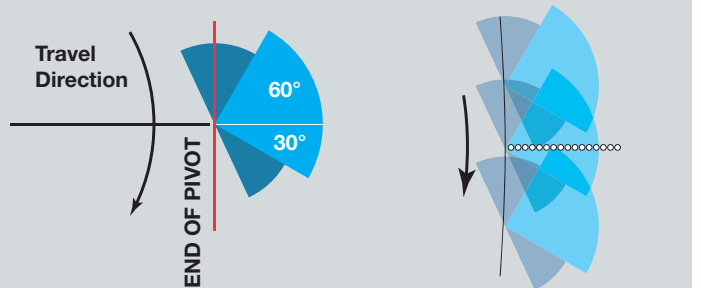


Achieving the ultimate solution and integrating it with a design application will take some time, however the basics are simple enough, setting the primary end gun to a narrower arc and focusing on distance should improve coverage and production.

*Based on preliminary modelling and infield testing, a good place to start with improving effective coverage is to set the primary end gun arc to 90° with a -15° offset and the secondary gun arc to 180° with a -25° offset:*

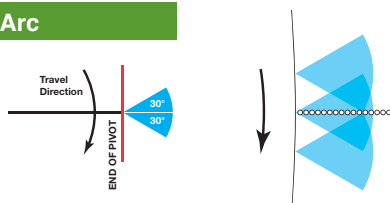
**PRIMARY END GUN:**  
Nelson SR100, 90° Arc (-15° Offset)

**SECONDARY END GUN:**  
Nelson R55 or R75, 180° Arc (-25° Offset)



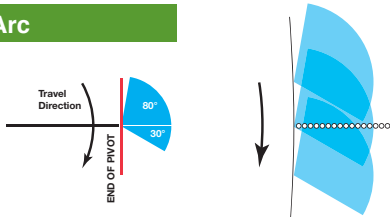
These arcs and offsets should result in an improvement on travelled profile for most multiple end gun systems where both guns operate together. Narrowing the primary end gun arc further to 60° with a -15° offset could result in additional coverage.

## Decreasing Arc



The area where the two guns transition may need additional attention, *over-watering* in this area can be reduced by *decreasing* the primary end gun arc setting on the trailing side.

## Increasing Arc



Similarly, *under-watering* in this area can be reduced by *increasing* the primary end gun arc setting on the trailing side.