

# Nelson 2" Quick Coupling Valve



The Nelson 2" QC Valve is the first and only quick coupler that incorporates all of these features into one:

- Quick and easy to attach and detach
- Unique hydraulic assist to effortlessly "power" the valve on and off
- Provides a rigid connection for the gun



The Nelson Quick Coupler makes portable BIG GUN® irrigation faster and easier than ever before. A quick twist attaches the gun and key to the valve. Simply connect the hydraulic assist and the gun goes into action. The shutoff and disconnect cycle is just as fast and easy.

Moving to the next valve location is no problem since the total weight of the gun and key is less than 30 pounds. To speed up the move, the gun can be carried on an ATV. It all adds up to a fast and easy way to irrigate.

#### Additional Features:

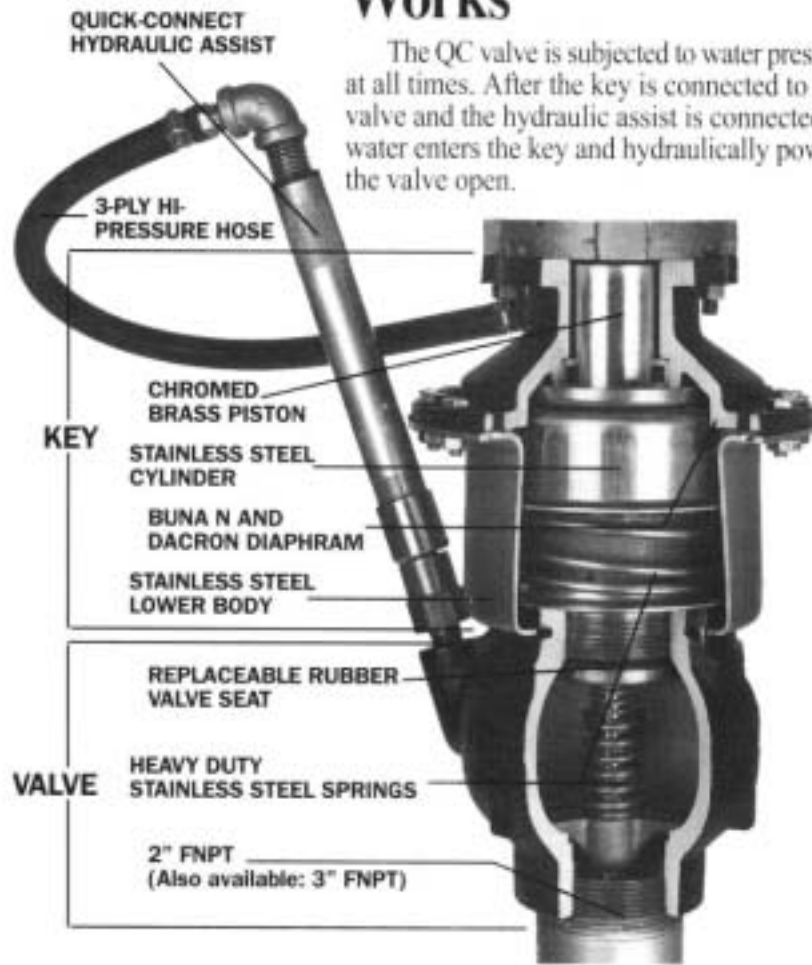
- Super smooth opening and closing to prevent water hammer and surge
- No stream trailoff on startup or shutdown to cause soil erosion and seeding washout
- Extremely low friction loss (less than 3 psi at 160 gpm)
- Valve is normally closed, fail-safe
- Equipped with a special guard making it impossible to turn valve on until the key is in the correct position
- Prevents ponding or runoff due to pipe draining through the low valves when system is shut down



# for use with Nelson Big Guns®

## How the Nelson 2" Quick Coupler Works

The QC valve is subjected to water pressure at all times. After the key is connected to the valve and the hydraulic assist is connected, water enters the key and hydraulically powers the valve open.



## Use with the Nelson 100 Series Big Gun®

The 2" Quick Coupler has been designed to be compatible with the 100 Series BIG GUN® for ideal performance. For full circle operation only, specify the Model F100. For full or part circle operation, specify the slow reverse Model SR100 BIG GUN®. The fast reverse Model P100 is not recommended.



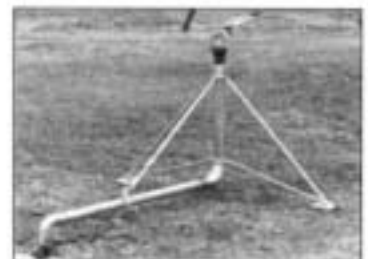
Valve on riser supported by buried post for low cost, effective installation.



Valve on riser supported by underground concrete block.



Valve mounted in valve box flush with ground and supported by concrete block, out of way of machinery when not in operation.



Valve mounted in valve box flush with ground without concrete support. Tripod mounted gun for support — for tall growing crops.

## Valve Installations

Successful operation of the Quick Coupler system depends upon good installation. The valve must be adequately sup-

ported to counteract the thrust of the gun and must be mounted in a vertical position. A 2" swing joint riser is recommended. Refer to installation brochure for technical details.

## Operation Modes

Hooking up the hydraulic assist is all it takes to operate the Quick Coupler gun system manually when one or more guns are involved. To make it even easier, and to build tremendous flexibility into the system, the valve key can be equipped with a solenoid to turn the hydraulic assist on and off automatically in sequence, controlled by a timer. The solenoids are controlled with a 9-volt battery so no wires are required. Typically six to eight guns are set out on the valves. After automatically sequencing through the guns during a 24-hour period, the guns are moved to a new set of locations and the sequence is repeated. Referred to as "semi-automation", this mode reduces the irrigation function to a once-a-day operation that can be done without shutting the system down.



Manual Operation



Semi-Automatic Operation

## General Applications

Portable BIG GUN® irrigation has been a popular method of irrigation for many years. The new Nelson Quick Coupler makes the job faster, more convenient and easier than ever before. Wherever the available water supply is at least 100 gpm and at least 70 psi can be produced at the gun nozzle, the BIG GUN®/Quick Coupler system can be a time and labor saving option.

**Problem Fields.** The size and shape of some fields makes conventional sprinkler irrigation by pivots, wheel lines or travelers impractical, if not impossible. This irrigation problem is even more severe when power lines, roadways, ditches and other obstructions are present. Portable BIG GUNS® are the perfect solution to such problems.

**Forage Crops.** BIG GUNS® have always been popular in livestock operations, particularly where high value animals are pastured. Because the gun irrigates such a large area there are fewer outlets to contend with. The Quick Coupler now makes it possible to mount guns along fence lines out of reach of animals or in below ground valve boxes, protecting the animals and the irrigation equipment.

**Problem Crops.** Tall growing crops such as corn are commonly irrigated with a pivot or a traveler, but where obstructions or size and shape of field are a problem, the BIG GUN® and Quick Coupler are a natural. Other crops like sugar cane, certain berry crops and tree crops are also logical uses for BIG GUNS®. Crops in which it is difficult to move conventional irrigation equipment such as sugar beet seed and nursery crops are other examples.

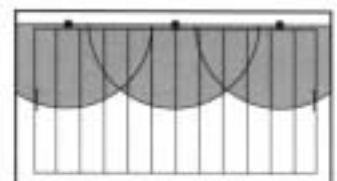
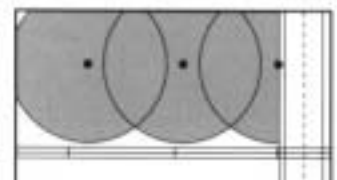
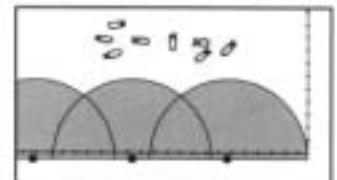
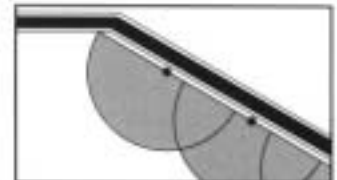
**Sports Turf Fields.** Gun irrigation has long been recognized as an excellent method of irrigation where injury to athletes is a concern. Because of the ability of the BIG GUN® to throw so far, it is possible to cover most playing fields from the sides, eliminating the need for having "pop-up" type sprinklers installed in the playing surface. Valves are mounted and concealed in valve boxes off of the playing field.

**Sod Farms.** Because of constant mowing and other equipment traffic, it is essential to minimize irrigation equipment in the field.

**Feedlot Dust Suppression.** Eliminates the need for water tracks or having sprinklers out in the cattle pens.

**Waste Disposal.** Whether municipal or industrial, BIG GUNS® are widely used as the best method of land application of waste water. The Quick Coupler adds a dimension of flexibility and economics that is very significant.

**Other Applications.** Race tracks, arenas, fire protection.



# for use with Nelson Big Guns®

## Cost of Big Gun® /Quick Coupler System

Like any other irrigation system, the cost varies with many factors, including:

**Number of Acres.** To a point, certain economics of scale can be realized on larger acreage.

**Field Size.** The more nearly square or rectangular the field, the lower the cost to irrigate. Odd-shaped fields are easily irrigated with guns, but are more expensive because they generally require more outlets.

**Boundary Overthrow.** If water cannot be thrown over the field boundary, part circle sets are required along the boundary. This requires more outlets and is more costly.

**Valve Outlet Spacing.** The closer the outlet spacing, the more costly the system. Caution should be used not to sacrifice the uniformity of coverage by stretching spacings for the sake of cost reduction.

## Design Considerations

Proper design is the key to successful BIG GUN® irrigation and detailed design information is available through Nelson Irrigation Corporation. In brief, the main design considerations are:

**Sprinkler Spacings.** For best coverage, spacing should be from 50% to 65% of the sprinkler diameter. With the 100 Series BIG GUN® spacings from 160 feet to 180 feet are ideal.

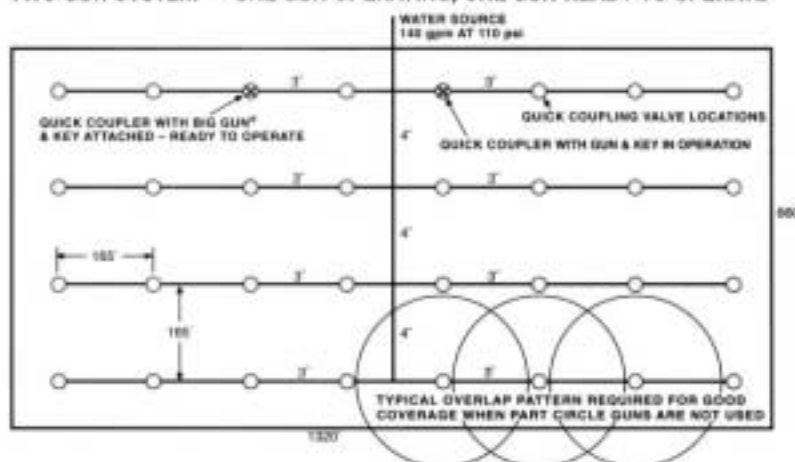
**Wind.** Wind is always a serious problem with sprinklers. In high wind areas, use tighter spacings and stagger the sprinklers (triangular spacings) for best results.

**Pressure.** Successful use of gun type systems depends upon adequate pressure at the gun nozzle. Minimum nozzle pressures are 65 to 80 psi for the 100 Series BIG GUNS®.

**Application Rates.** Be sure your soil will accept the application rate of the gun. The application rate of one 100 Series gun running by itself without overlap of adjacent guns is approximately .25"/hr. Considering the overlap of adjacent guns, the total amount applied will be approximately .4"/hr. to .5"/hr. effectively.

These and other design details must be considered for a successful BIG GUN®/Quick Coupler system. There is no substitute for the experience and professional planning of your local irrigation dealer.

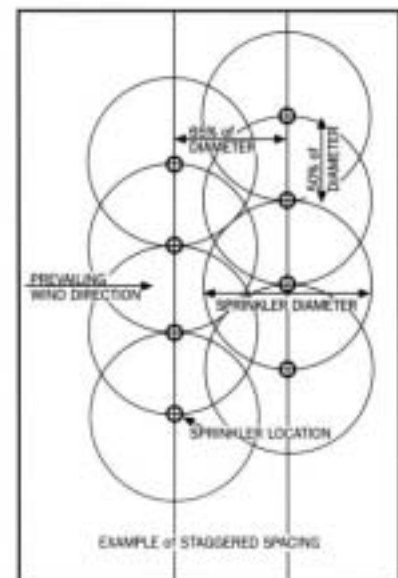
TYPICAL MANUAL SYSTEM OPERATION (20 acres)  
TWO GUN SYSTEM — ONE GUN OPERATING, ONE GUN READY TO OPERATE



**Operation Sequence.** In this typical system example, one gun is running and one gun is in position ready to be turned on. With this gallonage and spacing, water is being applied at the rate of .5"/hr. If for example a 3" total application is desired, the guns are run for 6 hours each, requiring 192 hours (6 hours x 32 outlets) or 8 days to cover the entire field. While only one gun is required in the operation of this particular design, two guns are utilized

so that one location can be "drying" out while the other gun is operating.

**Basic Bill of Materials:**  
580' - 4" PVC pipe.  
4640' - 3" PVC pipe.  
2 Nelson F100T .7" BIG GUNS® with Quick Coupler Valve Keys.  
32 Quick Coupling Valves and mounting assemblies with fittings as required.





## Safety First!



Always exercise good safety procedures. Persons operating the system, or persons who will be in areas where the BIG GUN® /Quick Coupler system operates, should be warned that personal injury may result from the high pressure water stream emitted from the gun nozzle. A special danger exists when the Quick Coupler is automatically controlled because the high pressure water stream may be emitted without warning when the valve automatically opens. Post warning signs or take other steps to prevent passersby from being injured.

### WARRANTY AND DISCLAIMER

Nelson BIG GUN® sprinklers and Quick Coupling Valves are warranted for one year from date of original sale to be free of defective materials and workmanship when used within the working specifications for which the product was designed and under normal use and service. The manufacturer assumes no responsibility for installation, is limited solely to replacement or repair of defective parts, and the manufacturer will not be liable for any crops or other consequential damages resulting from any defects or breach of warranty.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSES AND OF ALL OTHER OBLIGATIONS OR LIABILITIES OF MANUFACTURER.

No agent, employee or representative of the manufacturer has authority to waive, alter or add to the provisions of this warranty, nor to make any representations or warranty not contained herein.

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