

PROJECT: 5000 ha of IRRIGATION - ARGENTINA

Premises

During 2009, in northern Argentina, short distance from the Paraguay border, 80 Central Pivot irrigation units were installed to irrigate 5,000 ha devoted to grain and oilseed crops.



The Challenge

The water had to be taken from Bermejo, a swift-flowing, flat subtropical river, and directed through an open-air canal more than 7 km long to the pumping station. From there, the 20 pumps in the lifting station pressurize the more than 10,000m³/h of water. The water flow is then piped through a 25 km of HDPE piping, which start-off at 1500 mm in diameter.



The Solution

As known to all, in order to avoid risky water-hammer situations, the entire aqueduct must be filled in a controlled manner, so that the water is fed at a relatively low speed, slowly displacing the air in the pipe. To accomplish this, some of the pumps were equipped with pump-control and pressure-sustaining valves.

PUMP CONTROL – BC/PS PRESSURE SUSTAINING

Operation Principle:

- When the pump is turned on, the valve is energized to open slowly.
- The pressure-sustaining function controls prevents the pump from operating in an unsuitable point in its curve (very high flow/very low pressure).
- When the aqueduct is full and pressure increases, the valve opens completely, creating an insignificant pressure loss.
- Shut-down procedure is such, that first the valve is de-energized and closed slowly, and only when completely closed, the pump is signaled (via a limit switch in the valve controls) to shut off.

The 80 Valley pivots are equipped with **DOROT ELECTRIC-OPENING PRESSURE-REDUCING VALVES, sized 8" \ 200mm Function code PR/EL.**

Operation Principle:

- The valve remains closed and only opens when the solenoid valve in its control system is energized (when the pivot begins to function).
- The pressure-reducing pilot ensures that the correct fixed and stable pressure always enters the pivot, regardless of the supply pressure in the network, upstream of its location or the rate of demand-flow.

Proper precipitation levels are guaranteed for 5,000 ha

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