Hoyt Application Note

Water Irrigation Center Pivot Systems – Hoyt is at the Center Point

Image Source: http://www.lindsay.com/irrigation-solutions

You are at the grocery store sorting through all the fruits and vegetables to determine what is good or bad. The carrots, lettuce, watermelon, peppers, and grapes all look good and have colors that really standout. Who grows all this stuff and how do they produce such a consistent product? Well one key elements to make all this happen is water. In this White Paper we are going to focus on how irrigation water plays a major part in food production and what part Hoyt plays in the big picture.

Irrigation water is essential for keeping these fruits and vegetables growing to feed the world's population. This has been a fact for thousands of years. Estimates vary, but about 70 percent of all the world's freshwater withdrawals go towards irrigation uses (http://www.globalagriculture.org/report-topics/water.html). What would happen to price of several fruits and vegetables in the United States if California could no longer product due to lack of water? Prices would sky-rocket, diets would change, and several families would be impacted. Large-scale farming could not provide food for the population without the irrigation of crop fields by water pulled from underground wells.

"One of the more popular mechanized methods is the center-pivot irrigation system, which uses moving spray guns or dripping faucet heads on wheeled tubes that pivot around a central source of water". The fields produced by these systems can be easily seen in the air. Just look out the window next time you fly East to West over the US.

Image Source: http://www.gwlocphoto.com/circle-crop-irrigation/

If we zoom in at the ground level we can see that the motorized equipment used to produce the circles travel on two or four wheels. They are typically gas powered and have complete onboard control systems to monitor voltage, current, water flow, run time, and several other parameters depending on how large of area is being covered. As with any application there are several different models available to fit the end users budget and overall needs. Keep in mind center pivot irrigation systems can cover thousands of feet so there is can be a great deal of stress applied to the equipment depending on the environmental conditions. If you would like more information on system details, feel free to visit any of these three manufacturing experts.

Reinke

Valley Irrigation

Lyndsay Corporation

Image(s) Source: http://www.valleyirrigation.com/valley-irrigation/us/irrigation-management/faq

So, what role does Hoyt play in making sure you have those delicious fruits and vegetables at the dinner table? If you look at the above control panel example you can see a pair of analog meters. The control panel is typically located in the center field and runs on 480V (Three Phase) or 240V (Single Phase). There typically is a step-down transformer as well to bring things down to 120V. The Hoyt 5000 Series or HST-90U is tracking the AC Volts (0-600V) for the 480V (Three Phase) AC drive motors. They are UL approved and built to the last. The other meter is the picture is an hour meter or elapsed time meter. These meters are used as service reminders for bearings, drives, bolts, tire level, alignment, water carrying conduit, electrical systems, and

several other parts that keep the center irrigation pivot systems running smoothly. They are exposed to the weather 365 days a year. The H722 Series feature a solid state electronic drive with no motor and less moving parts. Electronic actuation assures accuracy by eliminating delicate springs and mechanical clock mechanisms that can be effected by vibration and temperature. Hoyt meters are made in the USA.

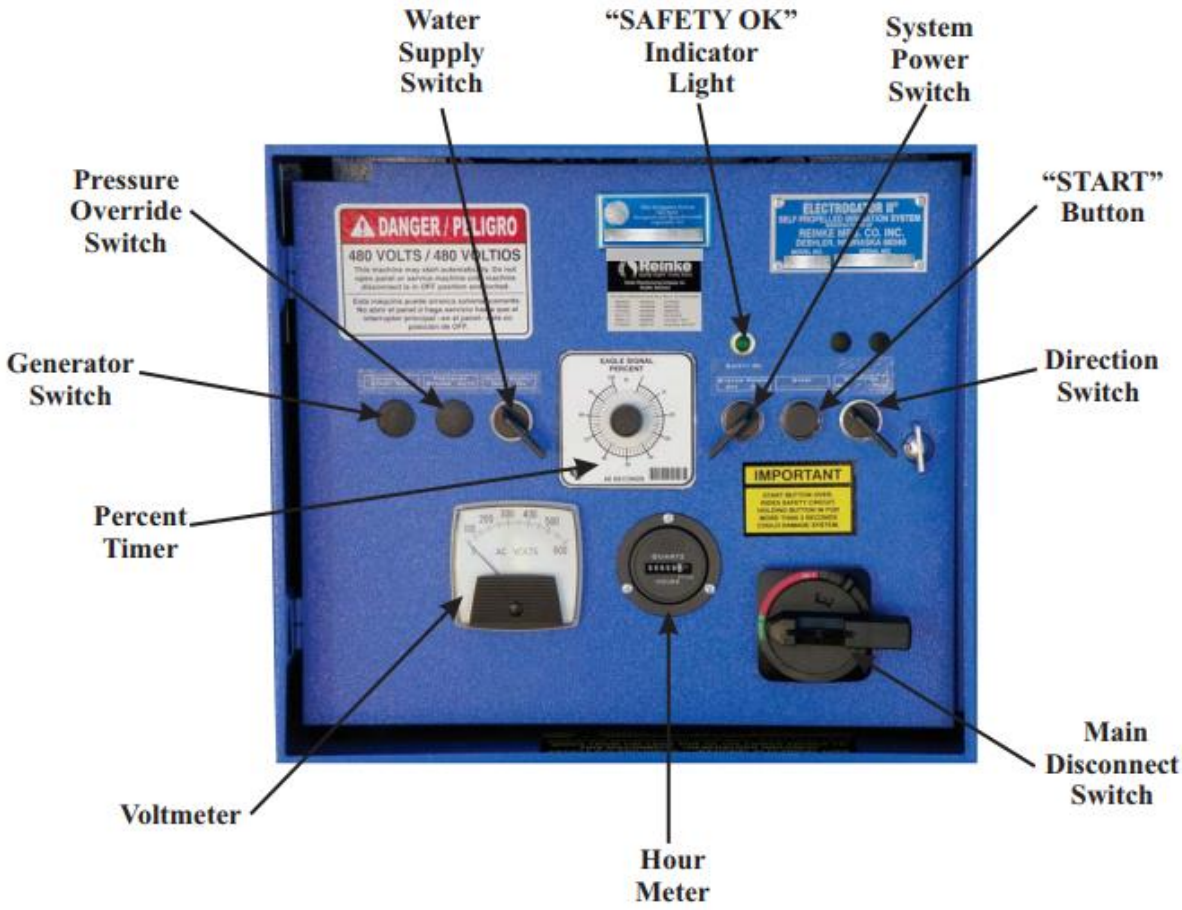

Image Source: Reinke RPM Operation Manual

In addition to the analog panel meters we have standard and custom digital solutions as well at hoytmeter.com.

References: https://water.usgs.gov/edu/wuir.html