

Limitamp® Vacuum Contactor Conversion

A sprawling potato farm in New Mexico had installed more than forty GE Limitamp motor control centers to house the motor starters that activate its irrigation pumps. These older units had AC air magnetic contactors that had become misaligned. The resulting chattering began to produce wear on the sensor bars and activator pins, causing nuisance trips and improper closing. After consulting with GE Energy, the farm upgraded to DC vacuum contactors. Not only did the conversion eliminate chattering and simplify maintenance, but the faster contactors also enabled the farm to remove asbestos-lined exhaust chutes required by the old contactors.

The Challenge: Maintaining Its Motor Control Centers Properly

Regular expert maintenance is the key to keeping the air magnetic contactors in older Limitamp motor control centers in alignment. A large potato farm in New Mexico had more than 40 units controlling the irrigation pumps that kept its fields watered. Over time, the AC closing coils and closing armature in the contactors fell out of adjustment and began to vibrate. As the misalignment became worse, they started to chatter, indicating that their sensor bars and the activator pins on their armatures were beginning to wear.

Other than causing nuisance trips, the farm lived with the problem until it realized that it must be addressed if they were to avoid more serious equipment issues. The farm management called in GE Energy to assess the situation.

The Solution: The Limitamp Vacuum Contactor Conversion

When GE Energy engineers arrived on the scene, the first thing they did was perform preventative maintenance on all units. In the process, they gained a full appreciation of the magnitude of the problem: virtually all the AC closing coils on the Limitamps were out of alignment and in some cases the coils and activator pins were cracked or burnt out. The farm had two options: it could repair and replace its air magnetic contactors—or it could upgrade to vacuum contactors. GE Energy engineers recommended the second choice—and the farm management agreed.

Limitamp Vacuum Contactor Conversion

Limitamp Vacuum Contactors are designed to provide long, trouble-free service with only a minimal amount of maintenance. They offer a number of related advantages:

- Extremely quick interruption reduces the arc energy and results in low contact wear.
- Thanks to its DC closing coil, chattering is never an issue, lowering maintenance and replacement costs.
- Because they do not require exhaust chutes, vacuum contactors eliminate worker asbestos exposure.



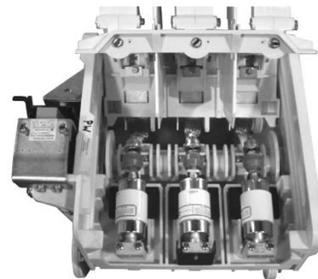
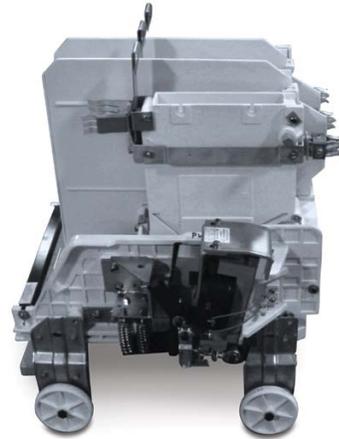
case study

The advantages of changing were overwhelming. By converting to vacuum contactors, the farm switched from an AC closing coil to a DC closing coil, which even if misaligned will never vibrate or chatter and, consequently, never cause system wear. This switch alone greatly simplified maintenance and reduced operating costs. In addition, the cast steel armature for the DC closing coil is much sturdier than the laminated steel armature used in the AC system. This more robust system is less likely to fail, a significant plus when maintaining substations spread across thousands of acres.

As an unexpected benefit, the retrofit enabled the farm to eliminate its workers' exposure to asbestos. The air-magnetic system requires an asbestos-lined arc chute to exhaust the flash. The extremely quick interruption characteristic of a vacuum system reduces arc energy dramatically, which allowed the farm to remove the exhaust chutes on its enclosures.

The Takeaway: GE Innovates to Reduce Maintenance and Improve Performance

Regularly aligned, the air magnetic contactors in the potato farm's Limitamps could have lasted many more years. GE introduced vacuum contactors because, when this doesn't happen, the damage caused by poor adjustment is reduced significantly. In effect, GE took the onus for maintenance from the customer, making it simpler to keep equipment in running order. At the same time, this new generation of contactors makes the system dramatically safer for workers, reducing arc flash energy and eliminating exposure to asbestos.



GE Energy
41 Woodford Avenue
Plainville, CT 06062
www.geindustrial.com

© 2012 General Electric Company



For more information, please visit: www.geindustrial.com

Limitamp® is a trademark of General Electric Company.
© 2012 General Electric Company

DEE-570 8/12