THREE-BUILDING COLLABORATION IMPROVES ELEVATOR OPERATION

MAGNETEK HPV® 900AF Permanent Magnet AC Motor Drive

PROJECTS **Elevator Control Refurbishment**

OEM **SmartRise Engineering, Inc.**

PRODUCT **HPV® 900AF Axial Flux Drives**

U.S. Patent No. 9,093,937

Challenge

- Replace elevator drives running Axial Flux disc type PM motors in three buildings across the United States
- Reduce occurrences of disruptive elevator drive faults
- Minimize necessary service company repair calls

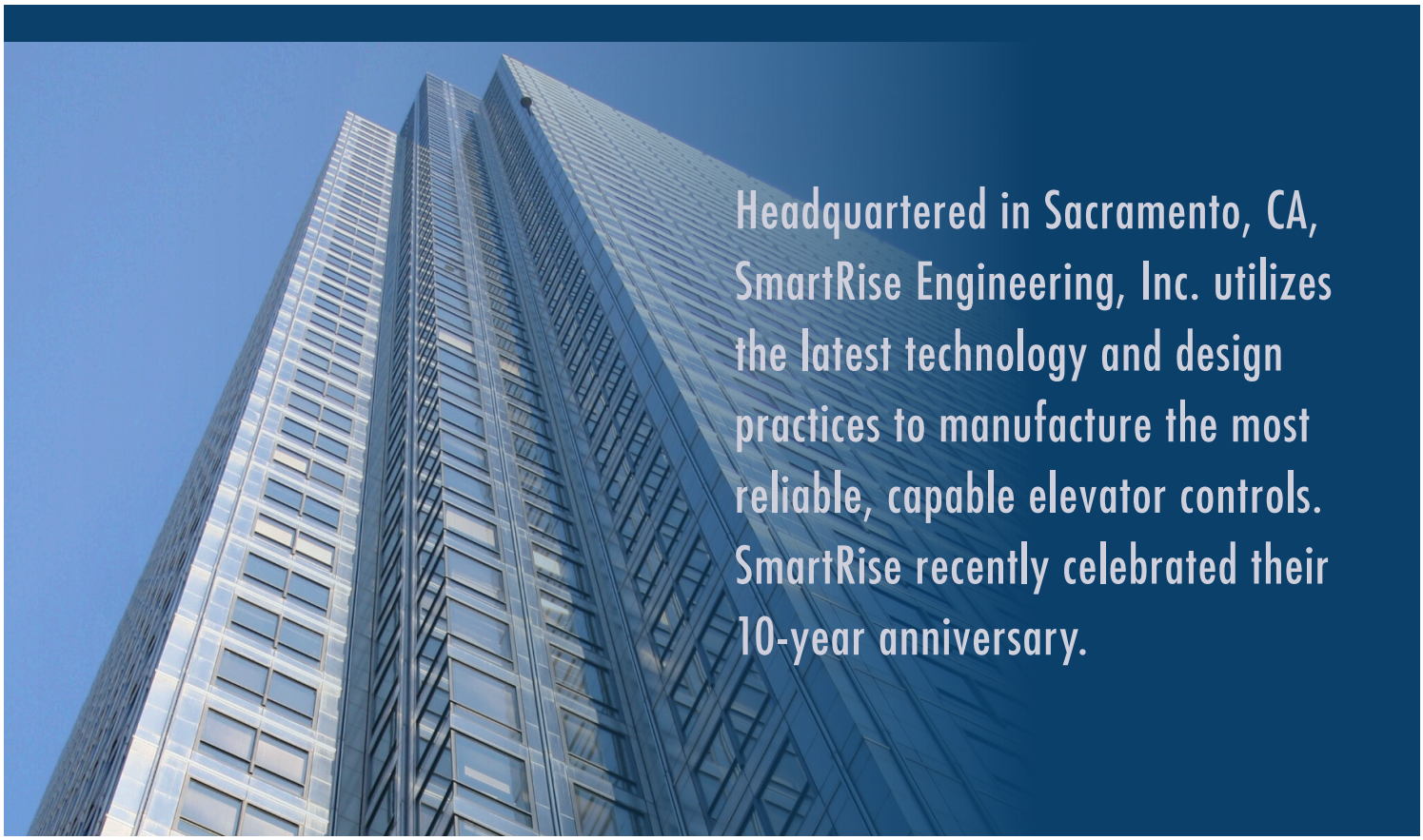
Solution

- Magnetek replaced poorly functioning drives with the HPV 900AF Axial Flux drives
- Integration of the HPV 900AF Axial Flux drives with existing SmartRise controllers improved system operations resulting in zero faults since install
- Similar performance and reliability was achieved at a total of three sites

Results

SmartRise Engineering, Inc., a state-of-the-art, non-proprietary elevator control manufacturer, was in need of a suitable drive solution to power the machine room-less (MRL) elevators being modernized in three buildings across the United States. The elevators in each of the three buildings had been modernized with new SmartRise controllers and third party replacement drives. While the SmartRise controllers were operating effectively, the replacement drives and their associated software created elevator performance problems, inconveniencing residents and necessitating repetitive maintenance. SmartRise chose to update the drives with Magnetek's HPV 900 Axial Flux Permanent Magnet AC Motor Drives at each of the sites, which provided considerable performance, serviceability, and cost improvements.

The HPV 900AF drive, with patented technology, is designed with modernization in mind, engineered to meet the needs of today's machine room-less (MRL) axial flux disk type motors. Its permanent magnet synchronous axial flux control capability provides ease of installation while delivering optimal performance. HPV 900AF is a practical, affordable, and convenient solution when retaining an axial flux type PM motor.



The Problem Sites

Due to extensive flooding as a result of Hurricane Sandy, a six-story apartment complex in New Jersey required a system upgrade. Original drive equipment was expensive to maintain and routinely experienced problematic faults. Each time a drive fault occurred, the elevators would stop and restart abruptly, causing significant ride discomfort. Additionally, the elevators would remain nonfunctioning, sometimes for several hours, until a service company reset the drive. Magnetek's HPV 900AF drive, with its integrated digital operator, along with the SmartRise controller, were simple to install and integrate, immediately improving ride quality. Since integration of the HPV 900AF drive, there have been no reported faults.

A second building, which housed residential condos in Florida, experienced similar issues. Existing elevator drives were not designed to properly function with the available type of elevator motor, causing faults similar to the New Jersey building and even passenger entrapments. Installation of the HPV 900AF drive and SmartRise controller reduced costs and maintenance time, eliminating the need for an expensive service contract. It also minimized the elevators' downtime. Magnetek's HPV 900AF drive eliminated the numerous resets and service company visits associated with the previous drive installation.

Since installation, performance, and cost improvements had been achieved so easily in the previous two buildings, SmartRise was able to follow an established process to install the HPV 900AF drive in a third building, resulting in similar success. Located in Texas, the building had experienced drive faults that required multiple maintenance visits from a service company. Having gained experience from the prior two modernization sites, SmartRise was able to remove the existing drive and replace it with the Magnetek HPV 900AF drive. The result was a dramatic improvement in performance and reliability. Because of its simple installation, optimal performance, and efficient operation, SmartRise went on to install Magnetek's HPV 900AF in buildings located in New York and New Mexico, and intends to use the drive in future projects.

MAGNETEK
ELEVATOR

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