



ADVANCED ACTUATION

## Warehouse Material Handling with Automatic Guided Vehicles

### Application Success Note

#### Application:

Battery Powered Automated Guided Vehicles – Material Handling

#### Products:

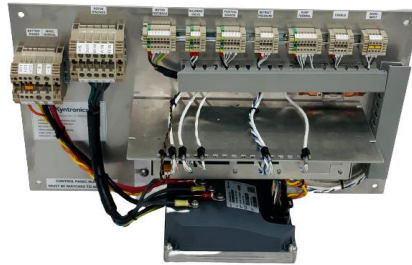
S-Series SMART Hydraulic Actuators – DC Powered

#### Industries:

Material Handling – Warehouse, Manufacturing Plant



Battery-powered Automated Guided Vehicles (AGVs) continue to be used in more applications. For AGV applications that require lifting and material positioning, Kyntronics has worked with several OEMs to address the unique challenges these applications entail.



**Kyntronics VeKtor DC drive/controller. Subpanel mount**

#### Challenge:

An AGV OEM specializing in material handling and warehouse systems applications wanted to move away from using HPU and hydraulic cylinders in their battery powered AGVs due to their large size and high energy consumption.

The OEM had several key design objectives required for the new actuation system including:

- Must be highly energy efficient to maximize operational time before charging.
- Must reduce space needed for the actuation system and reduce weight.
- The actuator must provide a minimum of 1,850 LBs of force at a speed of 7 in/sec using 48 VDC and stroke length of 24”.
- A complete solution was required including the actuator, cables and drive/controller.

The OEM considered roller screw actuators but found that at the force and speed required and the available space, the roller screw would wear out in 8 months or less under anticipated duty cycles based on the roller screw life calculator.

#### Solution:

The AGV OEM decided on Kyntronics SMART Electro-Hydraulic Actuators (SHA) as the

replacement for the previously used HPU / hydraulic cylinder system. Kyntronics provided a turnkey actuation system including the SHA actuator, cables and subplate mounted VeKtor drive/controller for packaging inside the AGV control enclosure.

The SHA operated on 48 VDC AGV power and met the force, speed and package size required by the OEM.



**Kyntronics Material Handling AGV Actuation System: 48VDC SHA actuator with 24” stroke and VeKtor Control**

#### Results:

By eliminating the HPU and related components, the Kyntronics actuation system provided several benefits to the AGV OEM including the following highlights:

- Substantial energy savings prolonging battery life before charging is necessary.
- A smaller and lighter machine footprint which contributed to the energy efficiency.
- A quieter, and cleaner working environment.
- Significantly less maintenance and safer (no oil spills).



**Kyntronics 48VDC SHA actuators with 24” stroke length**

6565 Davis

Industrial Parkway

Solon, OH 44139

PH: 440.220.5990

FX: 866.854.4578

Toll Free (US only):

855.596.8765