

KRAFT FLUID SYSTEMS

Electric Drives Division



SUCCESS

KRAFT UPGRADES DC POWERED TRUCK TO AC TECHNOLOGY

Old 1970's design is upgraded with the latest AC electric drive technology and controls to optimize performance.



L15 AC Platform Truck

In the 1970's, Elwell-Parker (now owned by H&K Equipment) produced custom platform trucks that moved up to 20,000 lb loads inside an aluminum mill. For many years, these L15s have been the backbone of the plant. The mill recently asked H&K to design a replacement truck with the latest AC motor technology. H&K has a strong fabrication and mechanical design capability, but lacked

the AC motor control knowledge. Needing this expertise, H&K sought out Kraft Fluid Systems because of their experience with AC drives for material handling applications.

Challenge

Kraft was tasked with designing a new electrical system for the L15 by taking advantage of modern AC technology. To ensure operators liked the new L15, the traction and steering had to operate as similar as possible to the old L15 design. Lastly, the AC motors for lift and steer must be sized properly to have better performance than the L15 with DC motors.

Solution

Kraft engineers developed a control system architecture using Dana Schwarzmueller steer, lift, and traction AC motor controllers which convert DC battery voltage to 3-phase AC and provide extremely smooth speed control of the Schabmueller AC Pump Motors. To help operators and maintenance personnel, Kraft added a Danfoss Color Display to show travel speed, forward/reverse direction, hour meter, fault codes with description, and low oil indicator.

Results

Both H&K Equipment and the end customer were very pleased with the performance of the new and improved L15 platform truck. The new traction, steer, and lift AC motors improve efficiency for increased battery runtime and require zero maintenance. Operators benefit from a smoother and quieter ride while driving both forward and reverse. Accel/Decel rates and maximum speed are easily adjusted using a laptop service tool. Altogether, the new system allows operator to have better vehicle control and increased performance with less maintenance.

HIGHLIGHTS

CLIENT NAME

H&K Equipment

LOCATION

Coraopolis, PA

PROFESSIONAL SERVICES

- Product specification, testing, and integration
- Start-up support

EQUIPMENT SPECIFIED

- Schabmueller Pump Motors for Lift and Steering
- Dana Schwarzmueller Traction, Steer, and Lift Motor Controllers
- Danfoss Plus+1 DM430 Display
- Complete Software Integration of Traction, Steer, and Lift

RESULTS

Kraft's engineers have successfully designed a new AC electrical system for L15 platform trucks that have smoother control than the old DC system with no maintenance required.

CLIENT QUOTE

"The performance is much better than the old trucks with DC drives. There are so many new features that have been included to provide more control over every aspect of the vehicle. Our operators also love how smooth the vehicles run with the upgraded system"

– Ken Wilson

Lead Forman at H & K Equipment