

Ultra High Pressure Firefighting at HMA Fire

Kraft Fluid Systems helps power HMA Fire to the lead in firefighting technology.

HMA Fire develops technologies and apparatus that make fighting fires safer and more efficient. By using UHP – ultra high pressure



HMA Fire UHP Firefighter Truck

technologies, HMA makes equipment and vehicles that maximize water surface area while minimizing water usage. This allows for a fifth of the water usage as compared to the volume used by a conventional pumper truck. HMA's new firefighting vehicle is a viable, effective

alternative to traditional firefighter pumper trucks.

Challenge

The sales team at Kraft was asked to help HMA design a hydraulic system that would power two 20 GPM water hand lines while not overloading the PTO (Pilot Take Off) at any time in a very limited space available on the Ford F550 platform. In addition to the UHP drive system, Kraft also had to design an additional system to supply low pressure water to the inlet of the UHP pump.

Solution

A very compact Danfoss H1P 53cc pump was selected. The pump utilizes electric displacement control along with a built-in speed sensor. A fixed displacement Danfoss series 90, 75cc fixed displacement axial piston motor was selected to drive the UHP's triplex water pump. Using a transducer to read the water pressure on the UHP system, along with the speed sensor on the Danfoss pump, HMA feeds this information into a mobile electronic controller and controls the Danfoss H1P pump's displacement.

Results

As a result, this closed loop system maintains the maximum torque on the H1P drive pump. Whether one hose line is used, or both, the closed-loop control will back off the pump displacement or increase it in order to maintain the programmed maximum system torque.

HIGHLIGHTS

CLIENT NAME

HMA Fire

LOCATION

Fall River, WI

PROFESSIONAL SERVICES

- Field Sales Management
- Design Engineering
- Technical & Customer Service

EQUIPMENT SPECIFIED

- Danfoss H1P Pump
- Danfoss Series 90 Motor
- Danfoss Controller

RESULTS

Kraft designed a compact and efficient hydraulic system allowing HMA Fire to continue to be a leader in developing UHP firefighting technologies and equipment.

CLIENT QUOTE

"We know Ultra High Pressure. Kraft Fluid Systems knows fluid power hydraulics and control. The experts at Kraft were instrumental in helping us design from the concept stage all the way through run-off of this very important vehicle for our company."

*-Greg Filut
Production Manager*