

Success Story: Miller Electric

Market Served:
Heavy-duty equipment service trucks



"When we say it's an Eaton pump we get a lot of head nodding, and at that point you aren't talking about pumps anymore. It's a non-issue."

—Chris Wierschke, Miller Electric

Eaton's Advanced Hydraulics Save Fuel and Money in Self-Contained Power System for Heavy-Duty Service Trucks

Location:

Appleton, Wisconsin

Segment:

Commercial vehicles: heavy-duty service trucks

Challenge:

Package a diesel engine, a hydraulic pump, a belt-driven air compressor, and a 6,000 watt generator in a 2'x 3'x 4' box

Solution:

Eaton 420 pumps, Vickers valves, and custom hose assemblies supplied by Eaton distributor Price Engineering

Results:

Miller's EnPak™ Mechanic Series integrated power system for service trucks based on Eaton hydraulic components

Contact Information:

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Background

Heavy equipment service is usually supplied on-site by a technician driving a specialized service truck equipped with a power take off (PTO) driven air compressor, generator, and hydraulic crane. Once the truck reaches the job site, its engine will be idling to power the compressor and hydraulic pump, while a secondary engine is used to provide auxiliary and welding power.

In practical terms, that means a diesel engine with enough horsepower to move a multi-ton truck will be used to run components that easily could be powered by the engine on a mid-size garden tractor. In today's world, the maintenance and operating costs involved, not to mention the fuel used and emissions being generated, are simply unacceptable.

Challenge

Eaton was approached with designing a completely self-contained unit that fits into the truck's bed or on the side of the body containing a 27 horsepower diesel engine to power a generator, a highly-efficient screw compressor,

and a variable-displacement hydraulic pump. Meanwhile, include a digital power management system to match engine output to load requirements and utilize a variable displacement hydraulic pump to help match engine power to the total load placed



Miller's EnPak Mechanic Series packages a diesel engine, hydraulic system, belt-driven air compressor in a compact 2'x 3'x 4' box.

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Powering Business Worldwide

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on the system. The hydraulic system also had to be flexible enough to handle either open-center or closed-center architectures with either 10 or 20 gallons per minute capacities.

Solution

Eaton distributor Price Engineering recommended an Eaton® 420 variable-displacement piston-type pump with load-sensing capability and a Vickers® EFV-1-12 Series proportional throttle valve in the pump outlet to control flow based on input commands from the power management system.

Results

The very compact envelope of the 420 pump made it possible for Miller EnPak™ to package what was traditionally a PTO, a hydraulic pump, a hydraulically driven air compressor, a stand alone welder/generator, and a 400+ horsepower truck engine inside a box that measured 2'x 3'x 4'. The 420 pump's heavy-duty input bearing accommodates relatively high side loading making it possible to save space without sacrificing reliability by powering the pump with a

simple belt and pulley system. In addition to supplying Eaton 420 pumps and Vickers valves, Price also fabricates the hose kits for the Miller EnPak power system and keeps them in inventory for quick delivery. The kits are customized for differing hose routing and connection options required with open-center or closed-center systems.

Price subsidiary, Price-On-Site, is an Eaton 420 pump warranty repair center which gives Miller a single point of contact for any required warranty service.

“A variable-displacement piston-type pump was the best solution to Miller’s requirements. It could handle the dual displacement requirement with a simple mechanical displacement stop, and the infinitely variable displacement greatly simplified the flow metering required by the engine management system.”

*Scott Taylor
Price Engineering*



Compact Eaton hydraulics helped Miller keep the EnPak small enough to fit in a truck bed or be mounted on a body side.



An Eaton 420 pump and Vickers valves supply power and control for the onboard crane that is a standard feature of heavy-duty service trucks.

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