



Eaton delivers a plateful of hydraulics for world's largest steel plate leveler

Location:

Yokohama, Japan

Segment:

Steel processing

Challenge:

Supplying valves and pumps that meet critical performance parameters and supporting assembly and startup services at an end user's location.

Solution:

Eaton® power units and valve stands supplied and supported by Eaton and RHM Fluid Power.

Results:

In addition to Eaton's global team effort, the speed and consistency of Eaton valves and the reliability of Eaton piston pumps were instrumental in satisfying the new customer.

Contact Information:

Pat Weaver
Eaton's Hydraulics Group
440-934-2381
patrickcweaver@eaton.com

Steel Plantech is relying on Eaton power units and valve stands for a steel plate leveler that uses hydraulic dynamic crown control to achieve best-in-class flatness of finished plates.

Background

Eaton components are at work on the world's largest steel plate leveler, the centerpiece of a refurbished plate mill operation in the midwestern United States.

The 8,200-ton SuPer Leveler™ mega-machine was built by JP Steel Plantech Company of Yokohama, Japan. Following assembly, the plate leveler was completely disassembled for transportation to its workplace in the U.S., where it was equipped with Eaton hydraulic power units and valve stands by RHM Fluid Power Inc., an Eaton distributor and systems integrator in Westland, Michigan.

The end user invested \$60 million to upgrade its 160-inch plate mill facility, with the lion's share spent on the plate leveler that — as its name implies — levels steel plates that can range to 115 feet long, 13 feet wide and four inches thick.

The end user gave Steel Plantech exacting specifications for the plate leveler, which uses hydraulic dynamic crown control to achieve best-in-class flatness of finished plates. The specs listed Eaton as an approved source of supply for hydraulic components.

Challenges

Unfamiliar with Eaton's product offering and servicing strengths, Steel Plantech was eager to see what Eaton had to offer.

"We stressed how Eaton's global footprint enables us to support customers and their end users with as much local content as possible to control costs and improve maintainability after startup," said Eaton's Pat Weaver, Hydraulics account manager for stationary markets.

"So even if Steel Plantech was designing and preassembling the plate leveler in Asia for installation in North America, Eaton's



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Eaton's Vickers KBHDG5V-7 Series two-stage, servo-proportional directional valves provide accurate high speed profiling on valve stands.



Eaton's PVX heavy-duty high pressure pump provides ample power supply for a 210-gpm/5,200-psi hydraulic power source.

global team would be able to support design engineers in Japan, while providing the required hydraulic components and systems in proximity to the end user in the U.S. We also explained how RHM would not only supply Eaton products, but be readily available to support local assembly, startup and commissioning services."

Although Steel Plantech was impressed with Eaton's strong customer support, the customer needed to be certain that Eaton products would perform in the application that demanded high speed and precise performance.

Steel Plantech personnel were particularly concerned about whether Eaton piston pumps would meet power requirements for its 5,050-psi power units and be compatible with EcoSafe® EHC fire-resistant biodegradable hydraulic fluid, which is used in the end user's highly flammable

work environment. They also needed to be assured that Eaton proportional valves would withstand dynamic crown control at pressures up to 5,050 psi.

Solution

RHM engineers along with Duane Jaros of Eaton's Application & Commercial Engineering (ACE) group designed a 210-gpm/5,200-psi hydraulic power source around Eaton's Hydrokraft™ PVX pumps and a 130-gpm/3,000-psi hydraulic power source around Eaton's Vickers® PVM pumps. Both robust, heavy-duty pumps offer reliable operation and long life, even in applications using EcoSafe EHC fluid.

The valve stands were designed with Eaton's Vickers KBHDG5V-7 Series two-stage, servo-proportional directional valves, which are ideal for high-flow applications in which accurate speed profiling is essential. The Eaton valves would provide extremely

fast response with plenty of power to the cylinder movements for precise bending control of large steel plates.

Once design work on the hydraulic circuitry was complete and approved by Steel Plantech, RHM built and tested all of the hydraulic systems and then provided commissioning support at the end user's location.

Results

In addition to Eaton's global team effort, the speed and consistency of Eaton valves and the reliability of Eaton piston pumps were instrumental in satisfying the new customer.

The plate leveler has been operational since April 2012.

Eaton
Hydraulics Group USA
14615 Lone Oak Road
Eden Prairie, MN 55344
USA
Tel: 952-937-9800
Fax: 952-294-7722
www.eaton.com/hydraulics

Eaton
Hydraulics Group Europe
Route de la Longeraie 7
1110 Morges
Switzerland
Tel: +41 (0) 21 811 4600
Fax: +41 (0) 21 811 4601

Eaton
Hydraulics Group Asia Pacific
Eaton Building
No.7 Lane 280 Linhong Road
Changning District, Shanghai
200335 China
Tel: (+86 21) 5200 0099
Fax: (+86 21) 2230 7240