

Enertech EHO

Electro-Hydraulic Operator

**CURTISS -
WRIGHT**

Nuclear Power Products and Services



About our Electro-Hydraulic Operators

The Enertech Hydraulic Operator (EHO) was developed in 1978 to meet the increasing requirements of safety-related valve systems both inside and outside containment. Designed with a high size to thrust ratio and opening/closing speeds as fast as ten inches per second, the EHO is used in critical applications such as Main Steam and Feedwater Isolation. In the event of a power loss, stored energy accumulators provide multiple safety strokes without the need for a backup power source.

Enertech EHO's have been IEEE qualified to 323, 344, and 382 for inside and outside containment.

Completely self-contained, the Enertech EHO can mount to any manufacturer's linear or rotary valve or damper. For applications where extremely high thrust or torque is required or where multiple valves need to be controlled, skid-mounted, remote hydraulic power units can also be provided.

Enertech EHO's have over 500 nuclear installations worldwide, in the nuclear power industry's most demanding applications.

Enertech EHO

Electro-Hydraulic Operator

For over 30 years, Enertech, formerly Paul Munroe Hydraulics, has supplied IEEE qualified electro-hydraulic valve and damper operators to the nuclear power industry. Designed for applications both inside and outside containment, the Enertech electro-hydraulic operator (EHO) combines high output thrusts/torque with fast stroking speeds to provide an ideal operator for nuclear power's most critical applications.

Fast operating speeds ensure safe plant shut down while gas accumulators store energy for post accident cycling. Nuclear power applications include:

- Main Steam Isolation Valves
- Feedwater Isolation Valves
- Safety Injection System Valves
- Atmospheric Relief Valves
- Recirculation Flow Control Valves
- Control Room Ventilation Dampers
- Feedwater Flow Control Valves

Second Generation EHO's

Since Enertech's original EHO design in 1978, several improvements have been made to the product offering. Enertech's second generation EHO is a fully self-contained operator for linear and rotary applications in a high performing compact design.

Enertech's advanced EHO technology is ideally suited for large, linear valves where high thrust, fast closing time and sustained isolation force is mandatory. In addition, small low torque damper operators for control room ventilation and other HVAC applications can be provided.

Enertech also provides EHO's that are form, fit, and function replacements for many of the obsolete electro-hydraulic operators found in many Generation II nuclear power plants.

Qualification

Enertech EHO's have been tested and qualified to IEEE 323,344 and 382.

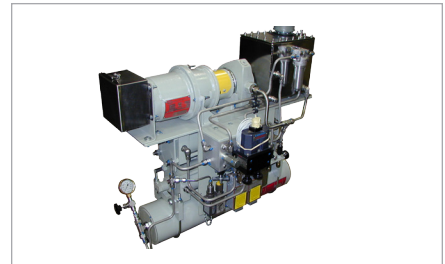
Enertech manufactures EHO's in accordance with 10CFR50 Appendix B and NQA-1 quality program.

EHO Features and Benefits

- IEEE Qualified for inside and outside containment
- Thrusts to 500,000 lbs
- Torques to 250,000 ft-lbs
- Compact design - highest thrust/torque to weight ratio
- Fast response - up to 10"/sec.
- <1% modulation error
- Stored energy for post accident cycling
- Mounts to any valve manufacturer's valve or damper design



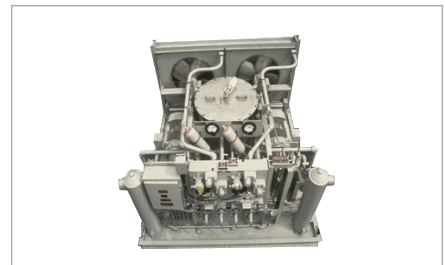
Linear Modulating



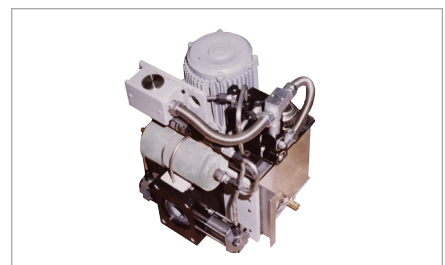
Rotary On/Off



Linear On/Off



Distributed Power Units



Self Contained Rotary HVAC Damper

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