

Energy Efficient Fluid Powered Linear Actuator with Variable Area

Disclosure Number

201102761

Technology Summary

The invention relates to power transfer devices and more specifically to variable area linear actuators. Pressurized fluid applied to a piston is routinely used to provide linear actuation force for a variety of applications such as lifting, moving, steering, forming etc... Such actuators can provide very high force with a compact piston-cylinder. Unfortunately, these fluid powered actuators can be very in-efficient because they are typically sized for the worst case loading and the fluid must be throttled for those times when the available actuation force exceeds the load demand. This throttling action wastes energy. This invention can greatly reduce the power requirements for machines using linear fluid actuators by providing a means to rapidly and dynamically change the effective piston area that is mechanically simple and low in cost. The invention also enables the recovery of energy from over-running loads with a very simple control strategy.

Inventor

LIND, RANDALL F

Measurement Science & Systems Engr Div

Licensing Contact

SPEIGHT II, MELVIN D

Room 143, 4500N

1 Bethel Valley Road 6196

Oak Ridge, TN 37831

Office Phone: (865) 241-6564

E-Mail:
