Pulse Width Modulated Valve with Rotary Design is More Efficient

Technology #204199

More Efficient Pulse Width Modulated (PWM) Fluidic Valve

PWM Valve has Lower Pressure Loss

Fluidic valves are used to control the flow of fluid between two locations. These valves typically have partial openings which can lead to pressure loss. A pulse width modulated fluidic valve has been developed that uses a rotary design in either a fully on or fully off configuration. Since the valve is either on or off, the time the valve is in transition is small. The result is a PWM valve that has a higher frequency response than existing linear actuators.

MN-IP Try and Buy

<table>
<thead>
<tr>
<th>Try</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trial fee is $5,000 for a six month license</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Buy</th>
</tr>
</thead>
<tbody>
<tr>
<td>$30,000 conversion fee (TRY to BUY)</td>
</tr>
<tr>
<td>No patent costs</td>
</tr>
<tr>
<td>Royalty rate of 3% (2% for MN company)</td>
</tr>
<tr>
<td>Royalty free for first $1M in sales</td>
</tr>
</tbody>
</table>

Learn about more groundbreaking discoveries at www.research.umn.edu/techcomm
The PWM Valve Design Reduces Input Power and Lowers Costs

The rotary valve design has higher efficiency than other non-pulse width modulated valves which reduces input power and lowers operating costs. This PWM valve design can be used with a fixed displacement pump that is smaller in size and lower weight than comparable variable displacement pump systems. The valve can control pressurized hydraulic fluid and has applications in hydraulic powered vehicles.

FEATURES AND BENEFITS OF ROTARY PULSE WIDTH MODULATED VALVE:

• Extremely high frequency response
• Higher efficiency than other valves which reduces input power and lowers operating costs
• When combined with a fixed displacement pump, it is a lower weight and smaller size alternative to a variable displacement pump
• Applications in hydraulic powered vehicles

Phase of Development  Prototype has been developed

Inventors

Perry Li, PhD

Professor, Department of Mechanical Engineering, Deputy Director of Center for Compact and Efficient Fluid Power

Thomas Chase, PhD

Professor, Department of Mechanical Engineering
IP: UM Docket z04199

For additional information, contact

Larry Micek
Technology Licensing Officer
exprlic@umn.edu
612-624-9568

Learn about more groundbreaking discoveries at www.research.umn.edu/techcomm