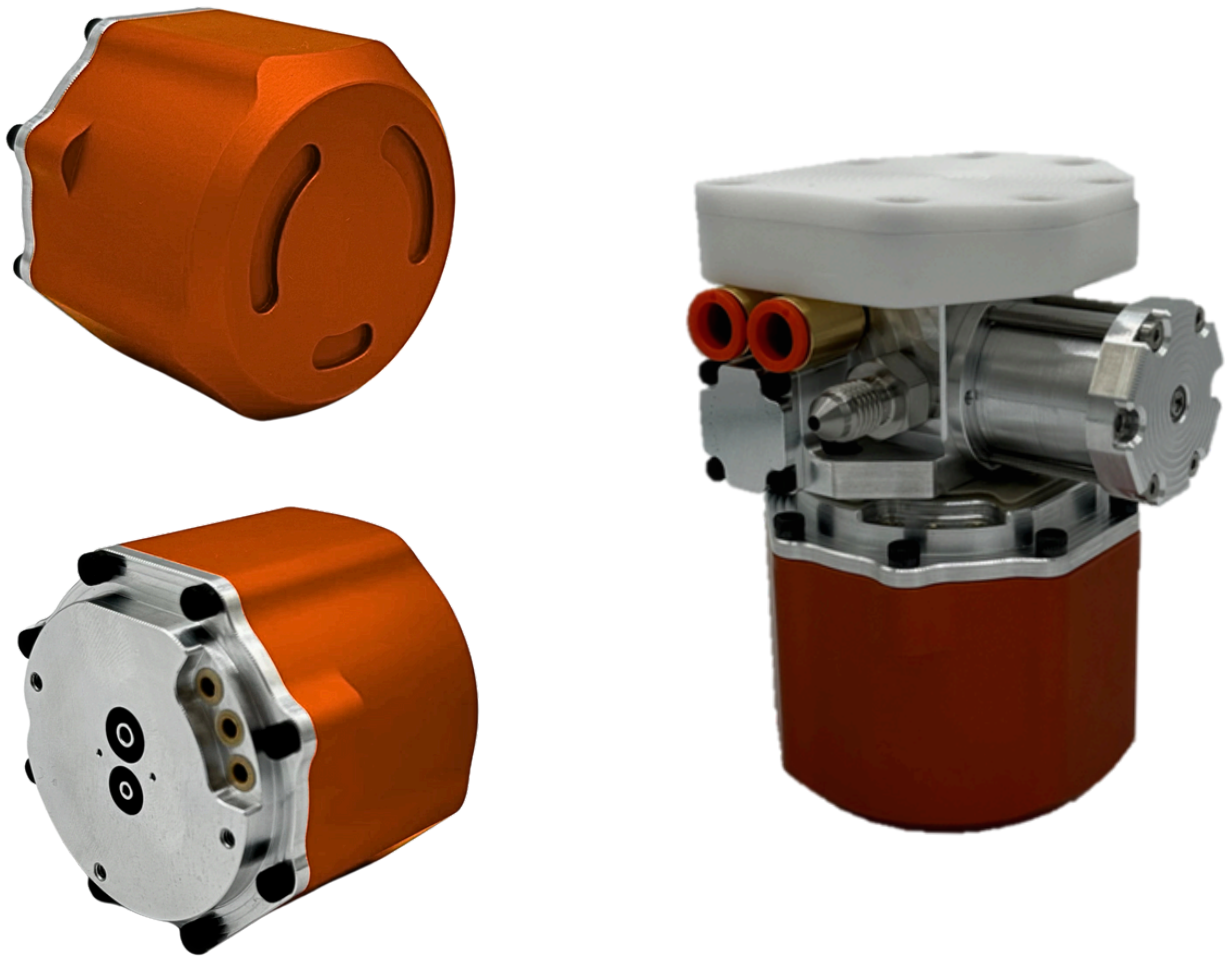




Compact Hydraulic Power Units

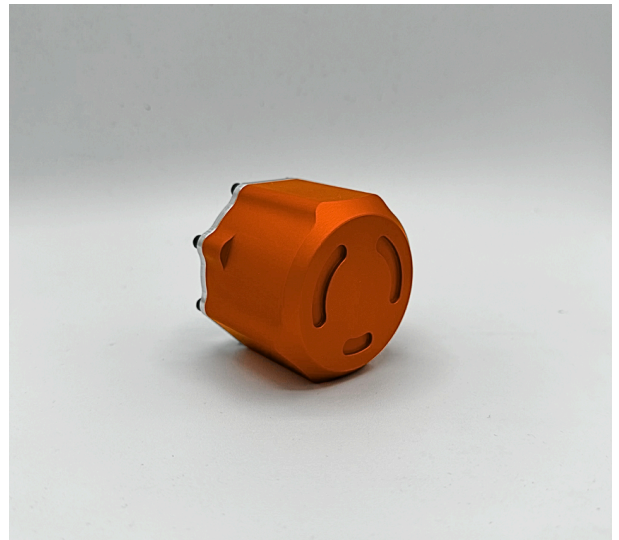
Standard 200 Watt Unit Specs:

- Output pressure to 3,200 PSI
- Weight of 1.1 lbs.
- Smaller than a baseball
- <40 dB operation at low speeds

Innovation in Fluid Power

Adaract has developed a compact 200-watt hydraulic power unit (HPU) that integrates a high-pressure pump directly into the rotor of a brushless DC motor. This design makes the system smaller and lighter than traditional pump-motor setups and supports continuous operation through efficient thermal management.

The patent-pending pump combines the strengths of conventional pump types while avoiding their drawbacks, delivering high volumetric and mechanical efficiencies, low flow ripple, and reduced noise.

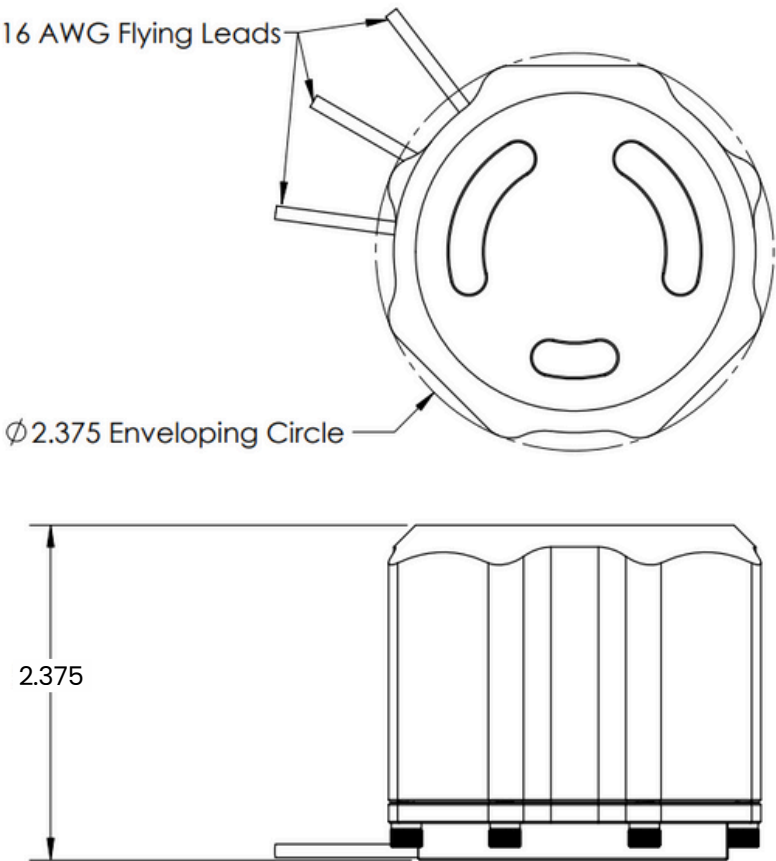


Tailored Solutions

Adaract works closely with clients to deliver tailored HPUs that can include microhydraulic components such as pressure sensors, relief and control valves, reservoirs, and manifolds. We also design units with power outputs from about 50 watts to 5 kW, using the same advanced design approach.

Adaract Compact HPU – Model IPM200

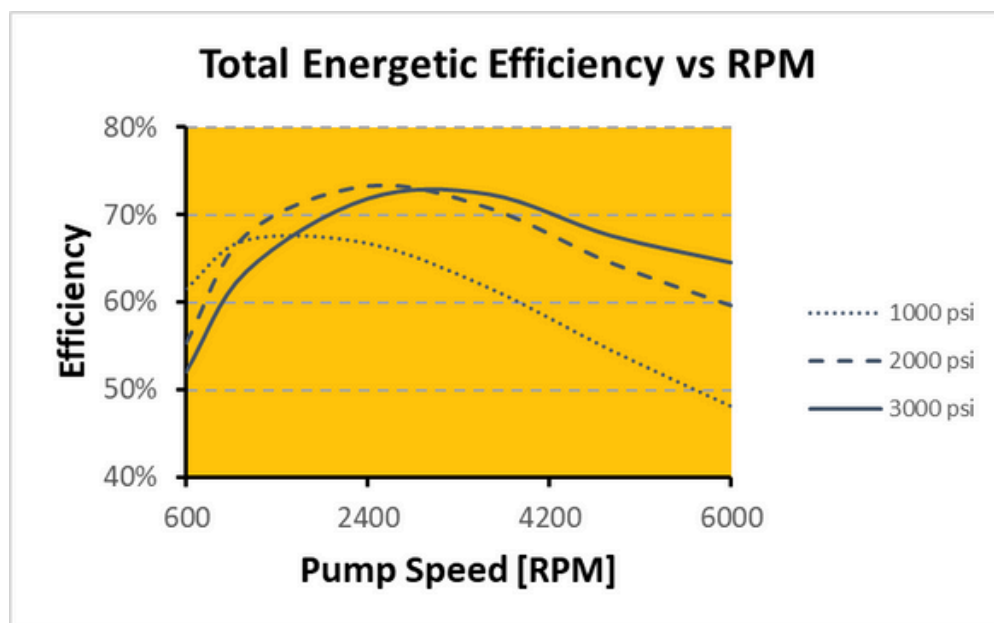
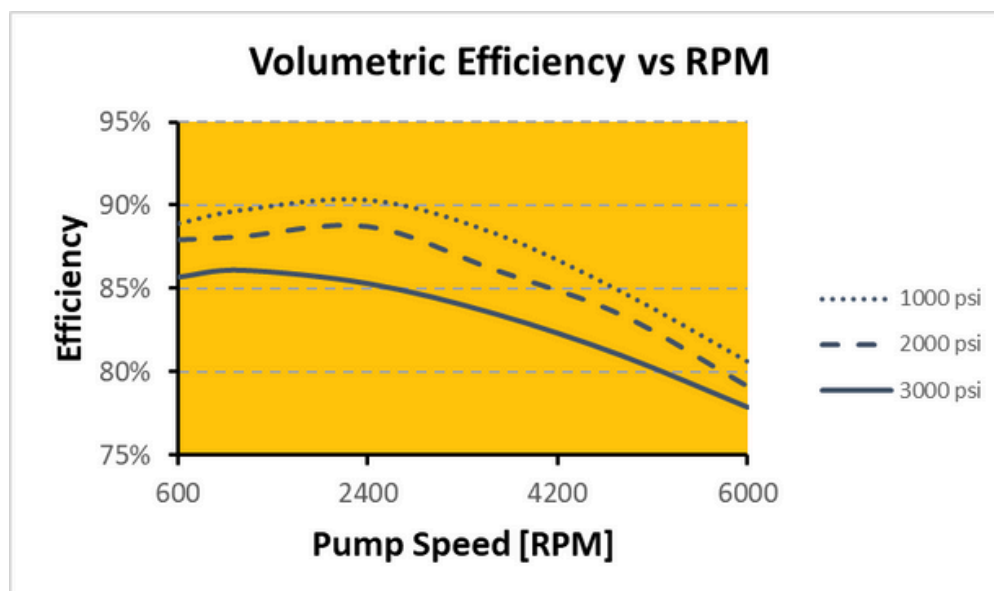
*Please contact us for customized systems to provide different power levels, flow rates, etc.



- NOTES:
- All measurements are in inches
 - Contact Adaract for Hydraulic & Mechanical Interface Drawings
 - Alternate colors available on request

GENERAL SPECIFICATIONS	
Weight (pounds [grams])	1.1 [499]
Operating Pressure (psi [bar])	3,200 [220]
Displacement (in^3 per rev [cc per rev])	0.0062 [0.101]
Max Speed (rpm)	6,000
Max Temperature (°F [°C])	220 [104]
Design Voltage (V)	48
Current Draw @ 3,200 PSI (amps)	< 10
Hydraulic Power Output (watts, continuous)	207

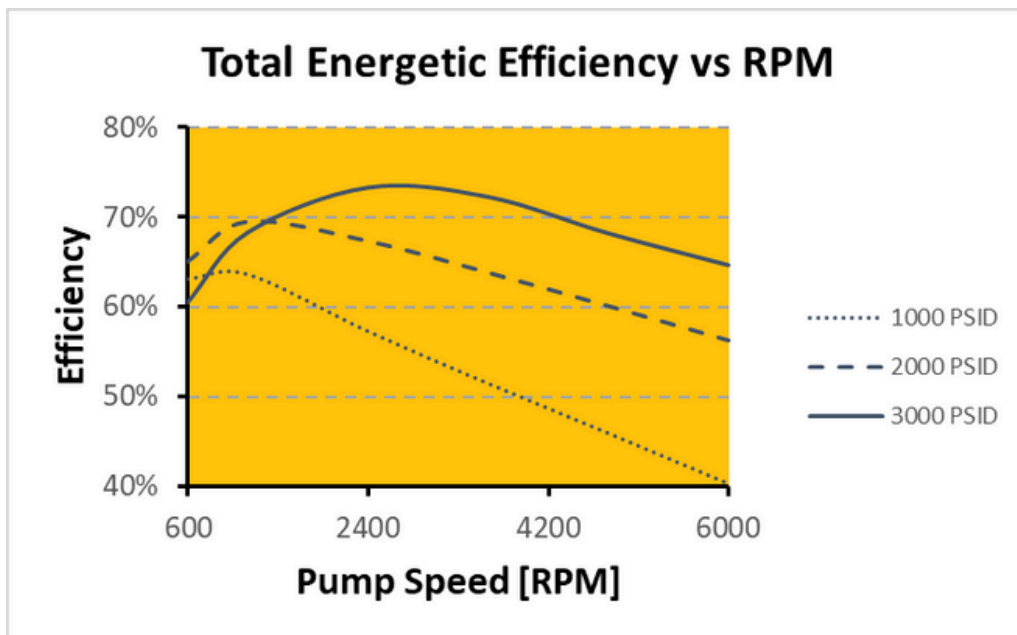
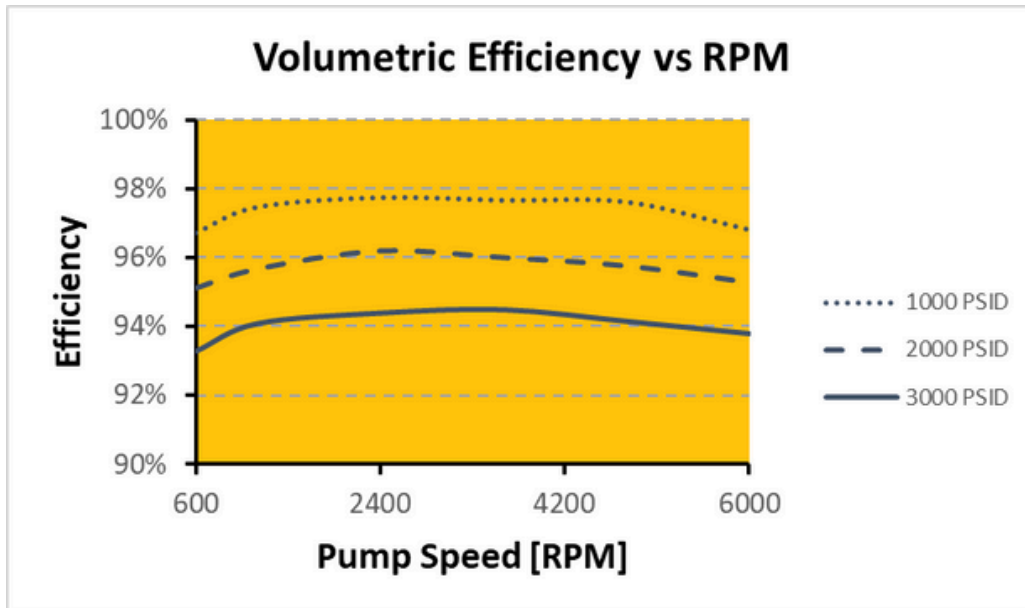
Pump Efficiency – 5 cSt Fluid



Test Notes:

- Total energetic efficiency defined as:
$$\frac{\text{Hydraulic Power Output}}{\text{Electric Power Input to Motor Windings}}$$
- Test completed with Red Line LikeWater® Suspension Fluid @ 25 °C with an approximate viscosity of 5 cSt.

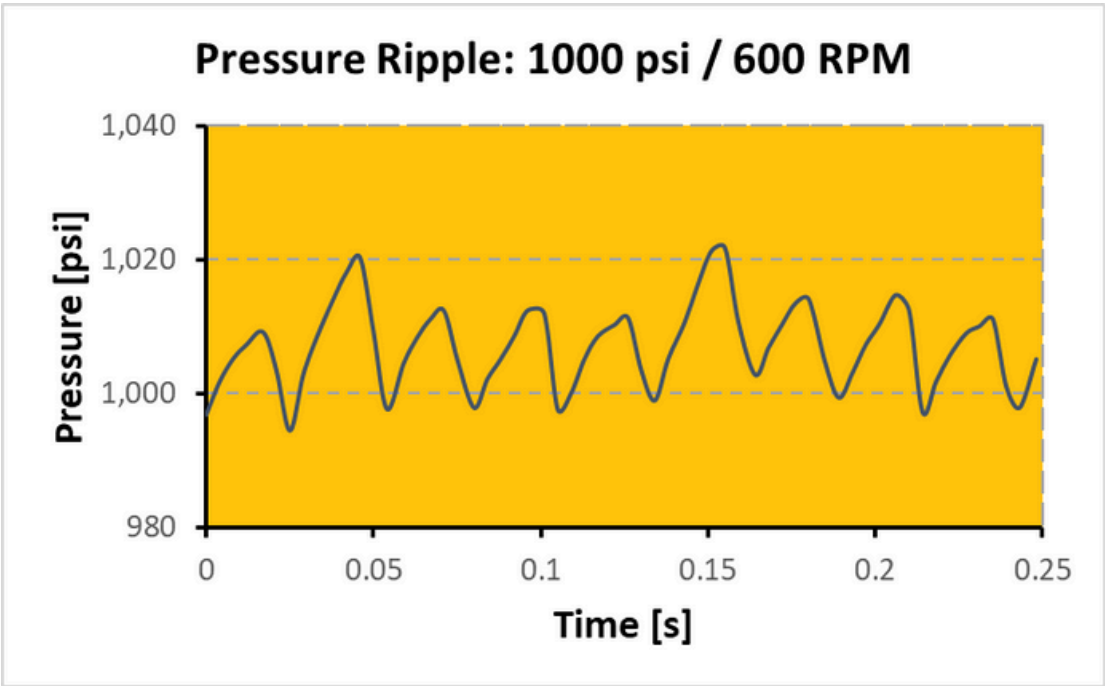
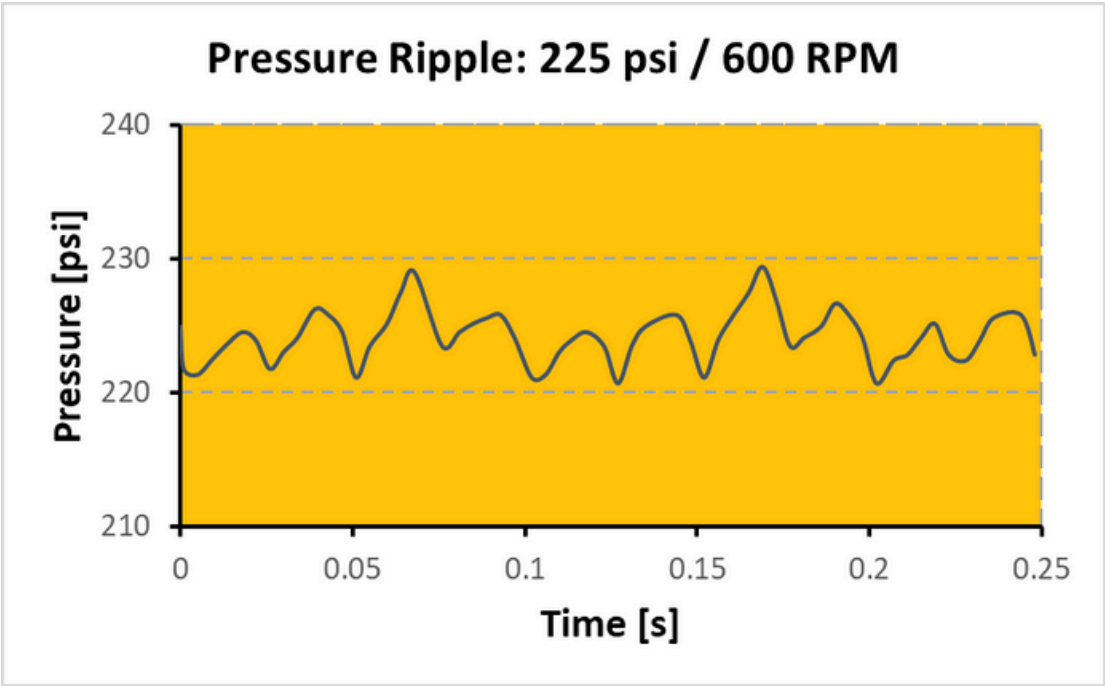
Pump Efficiency – 15 cSt fluid

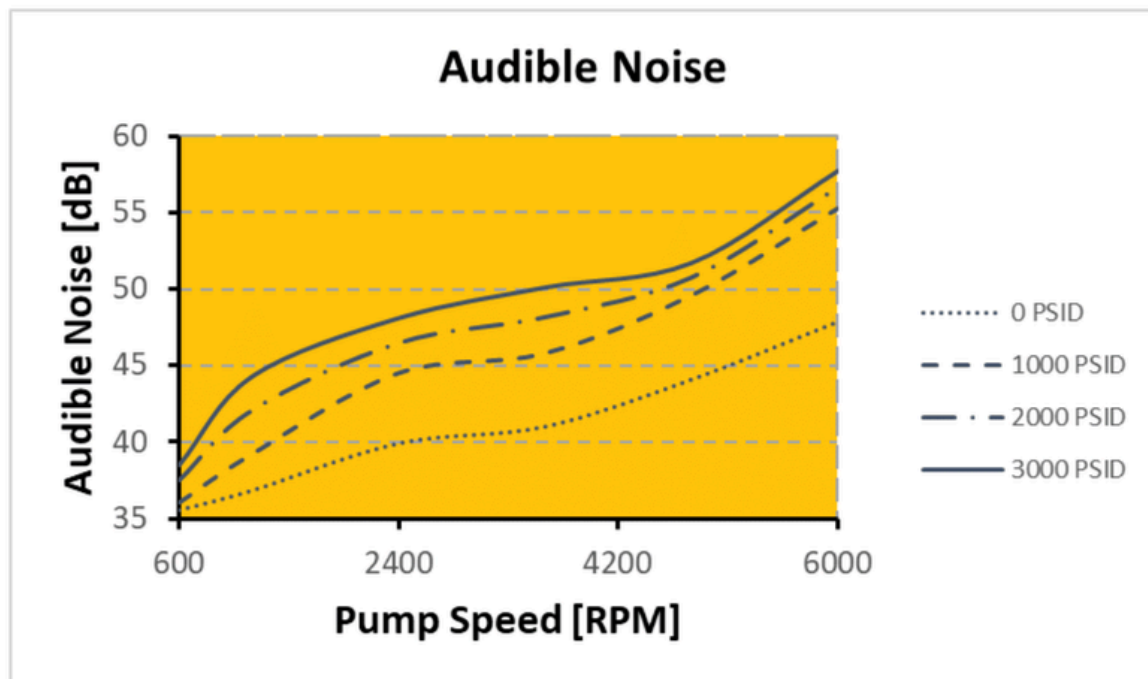


Test Notes:

- Total energetic efficiency defined as:
$$\frac{\text{Hydraulic Power Output}}{\text{Electric Power Input to Motor Windings}}$$
- Test completed with Dexron ULV ATF @ 55 °C with an approximate viscosity of 15 cSt.

Flow Ripple and Audible Noise





Flow Ripple and Audible Noise Test Notes:

- All tests completed with Dexron VI ATF @ 55 °C.
- Motor Controllers utilizing Field-Oriented-Control are recommended to minimize audible noise.
- A needle-style throttling valve was used to pressurize the system when conducting pressure ripple tests (not a PRV).
- A system without an accumulator was used for analysis of pressure ripple. A 2" long section of NPSM pipe connected an HPU's outlet port to the inlet of a needle valve. Total volume of pressurized fluid was ~2.5 milliliters.

****the information disclosed herein does not constitute any form of warranty****

Please contact us for any technical or purchasing inquiries.

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