Delta Power Company – Press-In Lube Relief Valve

Rev: A 04/13/2020

• **Description:** Press in lube relief valve

• **Market Trends:**
  • This valve provides a flat regulation curve for low pressure systems in a small package size.
  
  • This valve has been in continuous production since 2003 with over 10,000 valves installed in applications each year. This valve has been used in the ag tractor Axle Lube Manifolds. The lube relief is applied as a Cooler Bypass valve used in manifolds, castings, Lube Relief Manifold, and Return Manifold.

• Other industries - Wheel Loaders, Motor Graders, Tractors, Forestry, General Mobile Equipment

• **Customer benefits compared to current offering or competition:**
  • Performance – Low pressure drop for the package size provides excellent value for a low pressure regulating device.
  
  • Installation Cost – This valve is installed with a simple press operation rather than a threaded installation. Machining on the casting or manifold can be achieved with a single pass operation instead of a three pass; rough, form tool, thread series used in a typical cartridge valve.

  • Cost of Assembly – This assembly is composed of a seat, poppet, spring, and housing. The housing and poppet are both deep drawn parts rather than turned reducing cost compared to a standard cartridge valve. The assembly process is a crimp rather than threaded joint which reduces machined features and overall cost.

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**Customer Value Proposition: Differentiated**

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<th>Low</th>
<th>Competitive</th>
<th>Differentiated</th>
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**Technology Readiness Level (TRL): 8**

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**Market Availability Date (Year): 2020**
Pressure vs Flow Performance

Cooler Junction Manifold / Pressure Drop / 100 deg. F

Pressure Drop (psi)

Flow (gpm)
Lube Relief Applications

Diagram showing various lube relief applications, including return oil filter bypass, oil cooler bypass, system relief valve, and transmission lube lines.
Typical tractor application: Lube Relief Applications

**HIGH FLOW COOLER BYPASS**

Maximum Flow - 80 GPM (33 GPM thru valves)
Nominal Pressure Rating - 500 PSI
Upscale Version in Prototype Testing

**Description:** This valve is designed for theoretical flows out to 50 GPM. The design maintains the same pressed in installation and crimped design as the original valve. However, this valve features a more robust housing and seat design to accommodate the higher flows.