



40 Cedar Street -- Tillsonburg Ontario -- 1(800)265-2656

MMV / IPP Valve Assembly

Customer Unmet Need:

A manufacturer of airport ground support equipment needed a consolidated hydraulic valve package for their family of aircraft cargo loaders. In addition, there was a special requirement to provide very precise control on the loading platform both in the "power-up" and "float-down" modes. Since the platform function is operated with a single-acting cylinder, some special valve features were needed.



Solution:

The MMV/IPP manifold technology provided the single, compact valve package that incorporates a large number of individual valve components.

A special MMV load-sense proportional, 4-way valve section, in conjunction with two individual pressure compensation elements provide the precise proportional speed control on the platform in both the "power-up" and "float-down" directions.

Success Factors:

- This design consolidates all valve functions into one package.
- Provides the capability of incorporating mobile load-sense proportional valves with industrial subplate valves into one circuit.
- High strength aluminium permits a system operating pressure of 3500 psi.
- Full proportional control for the platform in both the "power-up" and "float-down" modes.

Customer Value:



- Reduced plumbing/leak points by 40%.
- Reduced their hydraulic valve supplier base - three down to one.
- Reduced the valve system cost by 10%.
- Provides the flexibility to add machine system options based on customer needs.
- Increased serviceability reducing machine downtime by an estimated 5%.



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VA35 Directional Control Valves

A refuse truck manufacturer was using an open-center model VA35 operated directional control valve that was operated pneumatically, and wanted to convert to electrohydraulic operation.



Three main goals for the customer were:

- Have the valve generate and regulate the pilot pressure to select the spools.
- Maintain pilot pressure to the solenoids, during a pump over-demand condition.
- Ensure that the operator must actuate a switch to allow operation of the main control valve.

A section was developed that could be integrated into a model VA35 DCV that accomplished these three goals.

Upon selecting a spool, pilot pressure is generated so the valve has sufficient pressure to move the spool. Once the load pressure is inside the valve, the integrated pressure-reducing valve regulates the pilot pressure to the solenoids to a level within their pressure rating.

During pump over-demand conditions, the pressure to the solenoids is kept stable. This improves productivity vs. designs that have the pressure-reducing valve in the outlet.

- Minimal impact on open-centered pressure drops when the spools are in neutral
- No impact on loop pressure drops (P-A/B & A/B-T).
- Pilot pressure "triggered" to on only when a spool is selected.
- Dedicated drain of pilot signal ensures stability of the main spool.