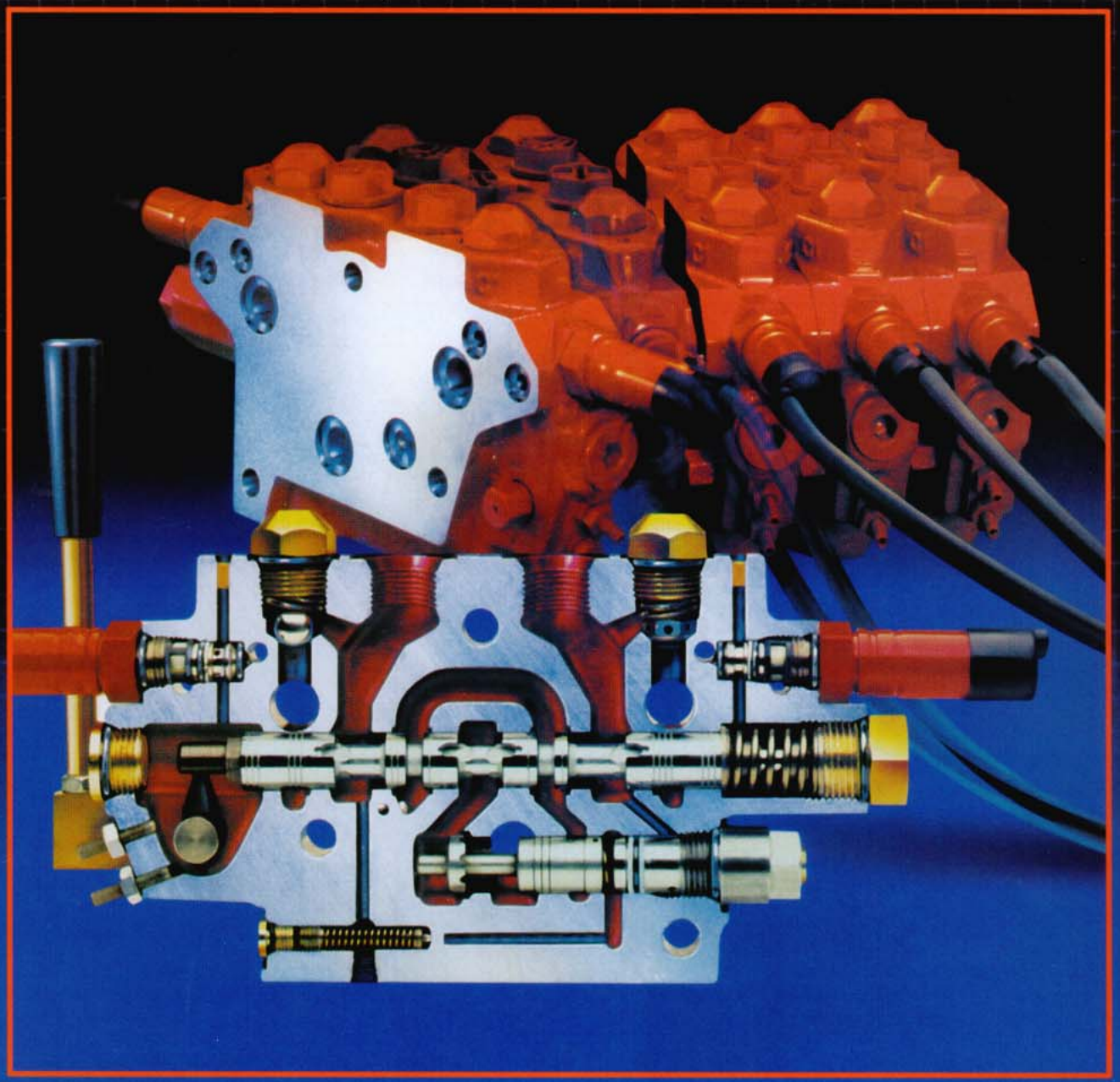
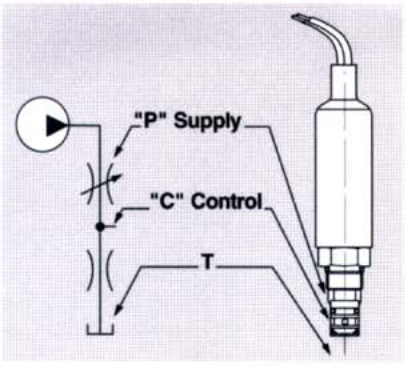
PULSAR™ VPL SERIES VALVE FROM PARKER HANNIFIN



NO ONE ELSE PACKS SO MANY BENEFITS INTO A STACKABLE FLOW VALVE

Parker Hydraulics

ALL THE BENEFITS OF A VP VALVE IN A SMALLER, MORE ECONOMICAL PACKAGE



Digital pilot stage dramatically lowers both hysteresis and cost.

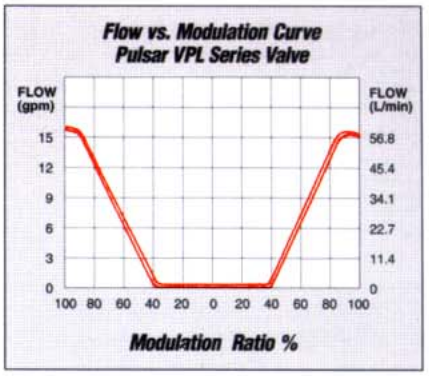
ACCURACY APPROACHING A SERVO'S...

The Pulsar VPL Series delivers exceptionally good control ... which makes it the only proportional valve to offer you accuracy approaching that of a servo valve.

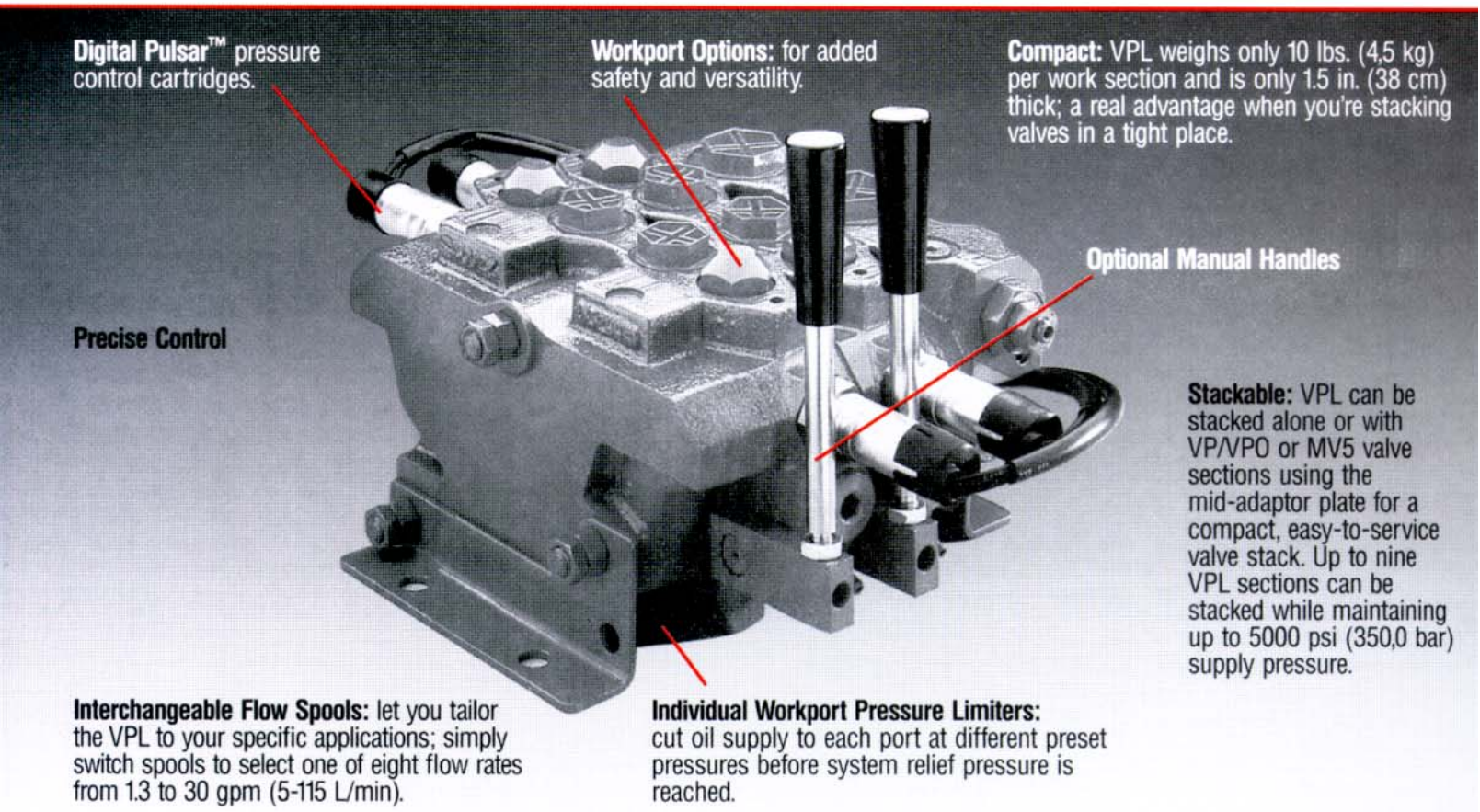
We back that accuracy up with a wide control bandwidth, to make its operation even more precise.

The reason: digital control with micro-processor compatibility.

The result: predictable, accurate performance for your application.



Precise Control



OPTIONS FOR EVEN GREATER VERSATILITY

Individual Segment Pressure Compensator: Delivers precise flow for simultaneous operation of multiple functions.

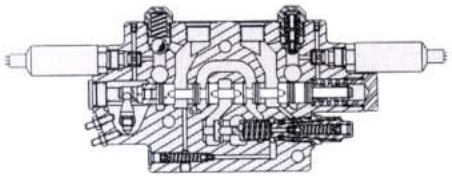
Unloading Inlet: available for systems using a fixed displacement pump. Load sense inlet available for systems using a variable displacement pump.

Workport Options: anti-cavitation check valve and relief with anti-cavitation check. Future options to include float, "negative load" control, and pilot operated check.

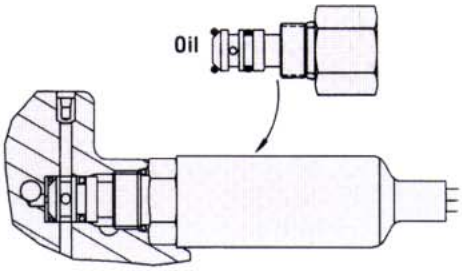
Common Pressure Limiter: protects motors by restricting supply pressure to a circuit without losing oil over a port relief. Recommended for gerotor and gear motors.

Mid-Adaptor Plate: connect VPL to VP/VPO Series or MV5 to tailor the system's valve to the vehicle's exact flow requirements.

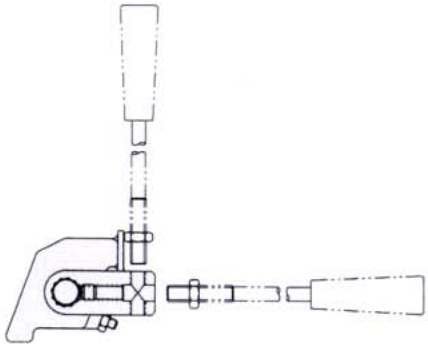
Intrinsically Safe Rating: the VPL Series of Pulsar products have been tested and approved in compliance with specified MSHA ratings for designated mining applications.



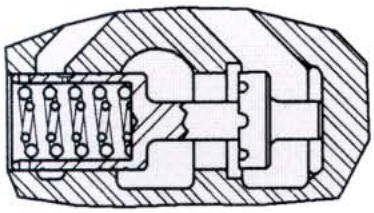
Fully interchangeable spools permit off-the-shelf changes of spools for type and flow variations.



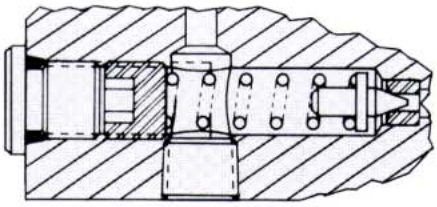
Pilot oil operation is achievable simply by installing optional fittings into standard bodies in place of the Pulsar solenoid cartridges. A specialized purge feature is also available with this option.



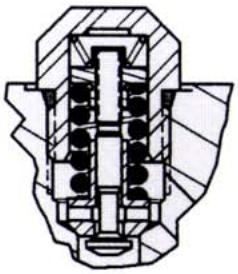
Manual operator is standard, this feature provides the user with a direct mechanical link to the main spool.



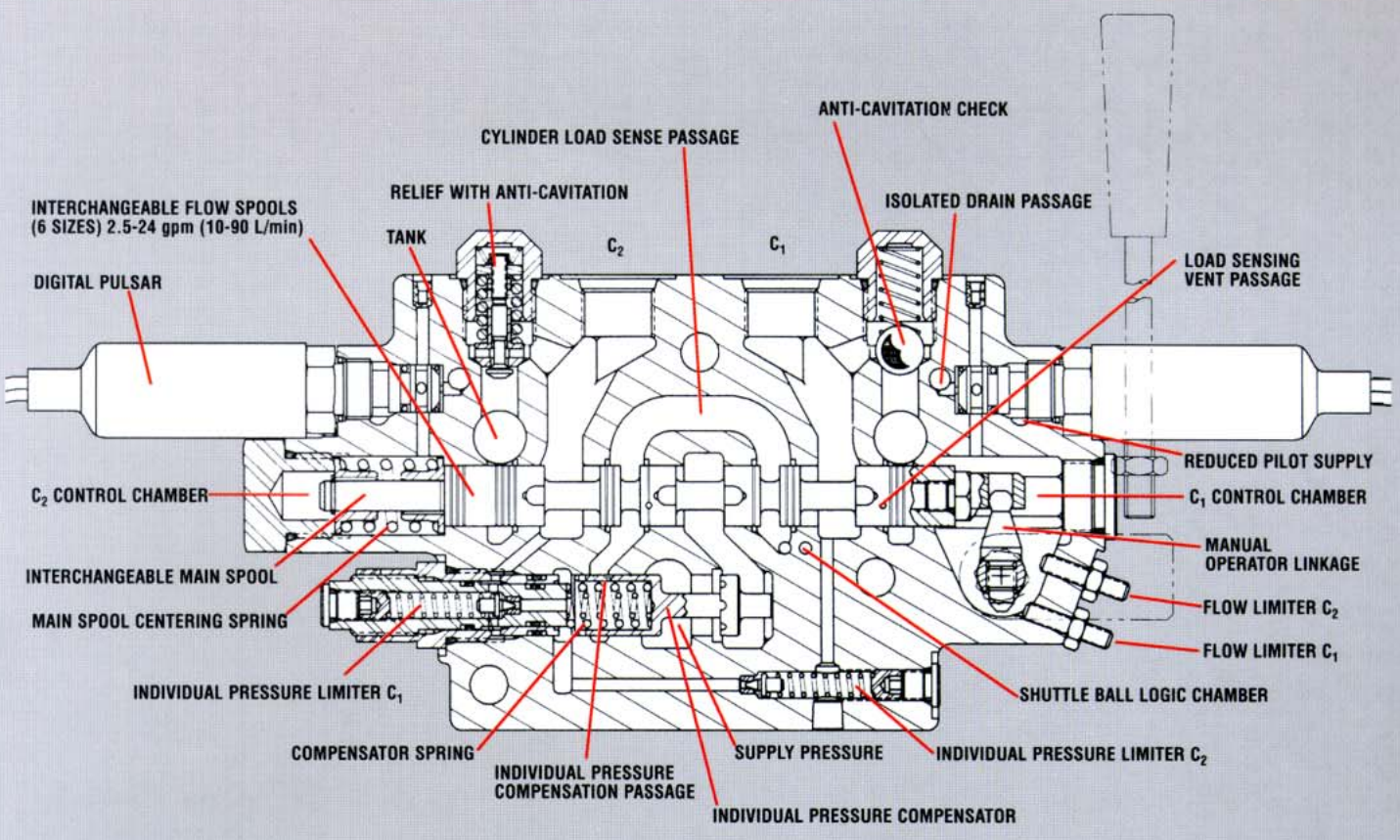
Patented individual segment pressure compensation is standard on all Pulsar VPL Series sections. It's particularly useful when multiple functions will operate simultaneously or when used with a pressure compensating pump.

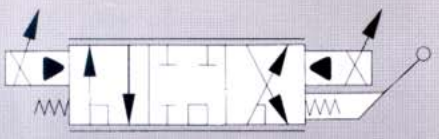


Individual pressure limiters cut off the supply of oil to each cylinder port at a preset pressure, less than system relief pressure.

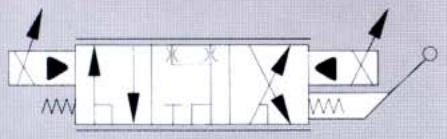


Relief with anti-cavitation check protects lines from pressure intensification and provides make up oil to the actuator when the other workport relief vents oil.

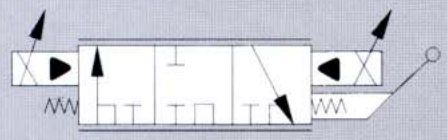




Closed 4-way, 3-position
provides proportional control in each direction, typically for double-acting cylinders.



Vented-open 4-way, 3-position
provides proportional, bi-directional flow control. Permits free actuator movement in neutral, but restricts flow to .5 gpm (1,9 L/min) at a 100 psi (7,0 bar) drop.



Closed 3-way, 3-position
provides proportional, bi-directional control of single-acting cylinders. Spool is sized for flow force pressure compensation at the meter-out land.

Open (motor) 4-way, 3-position
provides proportional, bi-directional flow control. Permits free actuator movement in neutral.

VPL Valve General Specifications

Operating pressure:

Pressure supply port	5000 psi (350,0 bar)
Cylinder ports	5800 psi (400,0 bar)
Tank ports	200 psi (14,0 bar)
Inlet relief valve settings	500-5000 psi (35,0-350,0 bar)
Maximum inlet flow	50 gpm (190 L/min)
Spool flow ratings*	1.3, 2.5, 4, 7, 11, 17, 24, 30 gpm (5, 10, 15, 25, 40, 65, 90, 115 L/min)
Spool/cylinder port configuration	Closed, vented-open, open (motor)
Spool deadband	25% of stroke
C_1 C_2 leakage (per section)	0.006 gpm (20 ml/min) at 1000 psi (69,0 bar) 150 SUS (30 cSt)
Recommended filtration	SAE Class 5 (17/14-ISO 4406)
Fluid temperature range	–40°F to 195°F (–40°C to 90°C)
Maximum fluid temperature	250°F (121°C)
Ambient temperature range	–40°F to 190°F (–40°C to 88°C)
Fluid viscosity range	1500 to 30 SUS (323 to 1.1 cSt)
Seal material	Buna-N
Mounting attitude	Unrestricted
Weight (approximate)	7.0 lbs. (3,2 kg) stacking plate 10.0 lbs. (4,5 kg) work segment 10.0 lbs. (4,5 kg) inlet valve

***Additional flow ratings available, consult factory.**

VPL Manual Control

Handle torque	5-31 Lb-in (0,6-3,5 Nm)
Angle for full spool shift	±20°

Nine handle adapter positions from horizontal +30° to –90° in 15° increments. Horizontal adapter position standard.

VPL Hydraulic Control

Pressure required for standard spools:

Deadband	80 psi (5,5 bar)
Fullstroke	220 psi (15,2 bar)

Reduced 350 psi (24 bar) pilot supply available from inlet.

VPL Electrohydraulic Control

Step response — 0%-100%	300 milliseconds
100%-0%	150 milliseconds

Standard and Marine Solenoids

Coil resistance	12V DC — 28.0 ohms at 70°F (21°C); 24V DC — 65.0 ohms at 70°F (21°C)
Operating voltage range	12±3V DC; 24 ±3V DC
Current draw	430 mA at 12V DC and 70°F (21°C); 370 mA at 24V DC and 70°F (21°C)
PWM frequency	33 Hz
Connectors	WeatherPac, Hirschmann, Flying Leads (standard solenoid); Flying Leads (marine solenoid)

Intrinsically Approved Solenoids*

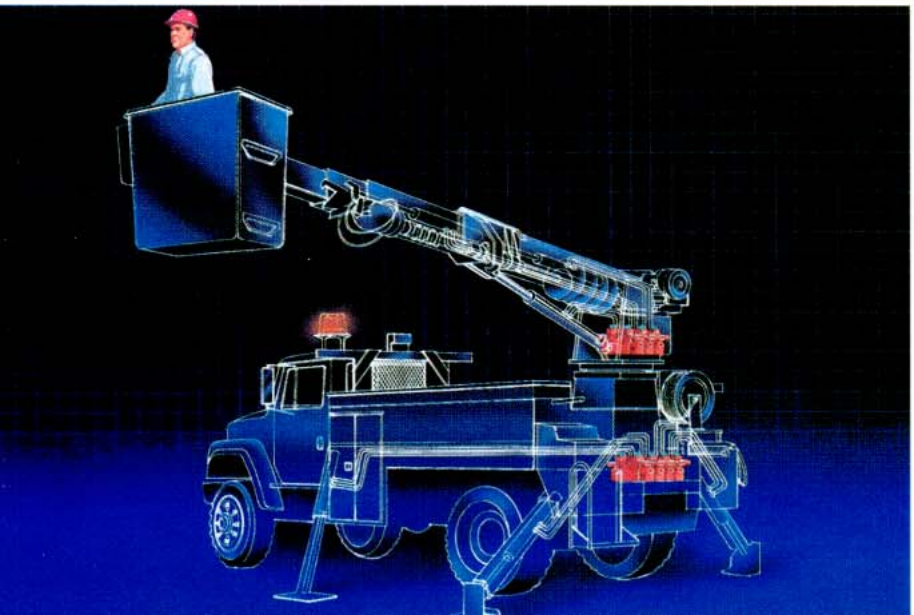
Coil resistance	28.0 ohms at 70°F (21°C)
Rated operating voltage	12.0 V DC maximum
Current draw	430 mA at 12V DC and 70°F (21°C)
PWM frequency	33 Hz
Connectors	WeatherPac, Electro Brand Immersible Waterproof Connector

*Requires Parker Hannifin intrinsically approved drive card.

Parker Hannifin has the following intrinsic safety approvals:

1. MSHA	IA-627-0, IA-14238-0, XP Cert. No. 4111-0 (30 CFR Part 18)
2. CENELEC	NEMKO 90.114 — EEx ib IIA, T4, I_{max}=300mA, 12V DC, L_{eq}=2.25 mH, C_{eq}=0
	NEMKO 90.114 — EEx ib IIA, T4, I_{max}=250mA, 9V DC, L_{eq}=2.25 mH, C_{eq}=0
3. NEMKO	90.277 — EEx m II T4

All values typical.



EXCEPTIONAL FLEXIBILITY AND COMPREHENSIVE SAFETY FEATURES MAKE VPL YOUR BEST CHOICE IN A STACKABLE VALVE

Only VPL offers so many features in a directional valve to give you unprecedented flexibility for a wide variety of applications. They're ideal for:

- Spreader Trucks: plow lift, plow angle, bed lift, conveyor and spinner.
- Loader Backhoes: bucket lift and tilt, dipper roll, boom extend, boom lift and swing.
- Digger Derrick: lift, swing, extend, poleclaw, winch and auger.
- Truck-mounted Cranes: lift, extend, swing, outriggers and winch.

In fact the VPL Series' accuracy, economy, flexibility and compact size make it ideal for just about any application. What's more, it can be stacked with VP/VPO Series valves to make a compact valve stack.

The VPL also offers these important safety features:

- Individual segment pressure compensation for precise control even when a number of functions are used simultaneously.
- Manual override capability with direct mechanical link to the main spool.
- Valve stacks can be placed outside the cab for greater operator safety.
- Intrinsically safe rated for specified and listed MSHA applications.
- Individual pressure limiters cut oil supply to each port at different preset pressures before system relief pressure is reached (recommended for use with cylinders).
- Workport relief protects hoses from over-pressurization.
- Workport anti-cavitation checks prevent drawing of air into the circuit and cavitating the oil.

WHEN IT COMES TO ADVANCED HYDRAULIC TECHNOLOGY, YOU'VE COME TO THE RIGHT PLACE

As manufacturers around the world look for innovative solutions in hydraulic power, they increasingly look to Parker Hannifin. We've become a leader in combining electronic control and hydraulic technologies for a wide variety of products.

Our family of Pulsar™ control products, either as valves or packaged with electronics and sensors as systems, are finding wide application in off-highway, industrial, municipal and automotive markets. And more innovations in Pulsar valve products are on the way.

In fact, where there's a need for more precise control, greater versatility, improved safety and more efficient operation, Parker Hannifin has the solution. As a result, Parker Hannifin is making work easier, safer and more economical for end users around the world.

If you'd like more information about Parker Hannifin's products or services, contact your local Parker Hannifin distributor or call us at **440-366-5200**.

Parker Hydraulics

Parker Hannifin Corporation
Hydraulic Valve Division
520 Ternes Avenue
Elyria, Ohio 44035 USA
Tel: (440) 366-5200
Fax: (440) 366-5253
Web Site: http://www.parker.com/hydraulicvalve

Bulletin HY14-2100/US,
2M, 2/02, DDG