General Description

Stackable, Load Sense Directional Control Valve

The Pulsar VPL Series valve can be equipped for manual operation, hydraulic or electro-hydraulic remote control, or all three together. This flexibility of configuration provides freedom in terms of component location and plumbing arrangements.

The non-compensated valve is fully interchangeable with today's compensated products. Combination stacks are available combining VPL with VP/VPO Series Products.

(Please consult factory for further details.)

Features/Benefits

- **Interchangeable spools** — Allows for reduced inventory.
- **Relief with anti-cavitation check** — Allows for shock and over pressure protection.
- **Adjustable flow stops** — Provides greater control of flow.
- **Three position detent and infinite friction lock** — Provides manual flow control.
- **Integral load sense logic** — Better circuit efficiency.
- **Intrinsically safe rating on solenoids** — May be applied in certain hazardous environments.
- **Internal pilot supply** — Reduces external plumbing.

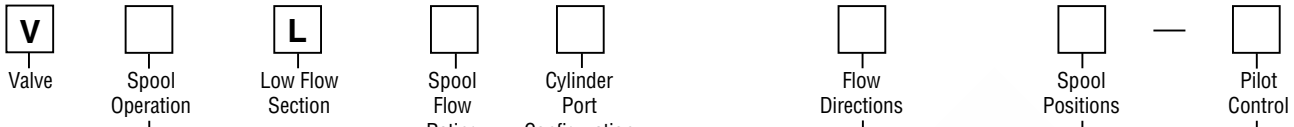
Electrical Specifications

Standard & Marine Solenoids	
Coil resistance	12 VDC - 28.0 ohms at 21°C (70°F) 24 VDC - 65.0 ohms at 21°C (70°F)
Operating voltage	12±3 VDC; 24±3 VDC
Current draw	430 mA at 12 VDC and 21°C (70°F) 370 mA at 24 VDC and 21° C (70°F)
PWM frequency	33 Hz
Connectors	WeatherPack (std.); Hirschmann, Flying Leads
Intrinsic Safety Approvals	
MSHA	IA-627-0, IA-14238-0, XP Cert. No. 4111-0
CENELEC	NEMKO 90.114 - Eex ib IIA, T4, I_{max} = 300 mA, 12 VDC, L_{eq} = 2.25 mH, C_{eq} = 0 NEMKO 90.114 - Eex ib IIA, T4, I_{max} = 250 mA, 9 VDC, L_{eq} = 2.25 mH, C_{eq} = 0
NEMKO	90.227 - Eex m II T4
CSA	Class I, Groups C and D

Specifications

Operating Pressure Pressure supply port Cylinder ports Tank ports	 350 Bar (5000 PSI) 400 Bar (5800 PSI) 14 Bar (200 PSI)
Maximum Inlet Flow	190 LPM (50 GPM)
Spool Flow Ratings 15 Bar (220 PSI) Drop	6, 10, 17, 34, 53, 98 LPM (1.5, 2.5, 4.5, 9, 14, 26 GPM)
Spool/Cylinder Port Configuration	Closed, Vented-open, Open (motor)
Spool Deadband	25% of stroke
Recommended Filtration	SAE Class 5 (17/14-ISO 4406)
Fluid Temp. Range	-40°C to 90°C (-40°F to 195°F)
Max. Fluid Temp.	121°C (250°F)
Ambient Temp. Range	-40°C to 88°C (-40°F to 190°F)
Fluid Viscosity Range	323 to 1.1 cSt (1500 to 30 SUS)
Seal Material	Nitrile
Mounting Attitude	Unrestricted
Weight (approx.)	4.5 kg (10.0 lbs.) work segment
Step Response: 0%-100% **100%-0%**	300 milliseconds 150 milliseconds
Hydraulic Control (VWL) **Deadband** **Fullstroke**	24.1 Bar (350 PSI) Pilot 5.5 Bar (80 PSI) 15.2Bar (220 PSI)
Hydraulic Control (VKL) **Deadband** **Fullstroke**	14.5 Bar (210 PSI) Pilot 3.5 Bar (50 PSI) 10.3 Bar (150 PSI)
Handle Torque	0.6 - 2.5 Nm (5 - 22 lb/in)

Parker Hannifin Corporation
Hydraulic Valve Division
Elyria, Ohio, USA



Code	Description
A	5.6 LPM (1.5 GPM)
1	9.5 LPM (2.5 GPM)
2	17.0 LPM (4.5 GPM)
3	34.0 LPM (9.0 GPM)
4	53.0 LPM (14.0 GPM)
5	98.5 LPM (26.0 GPM)

Note: For different flows Consult Factory.

Code	Description
2	2 way, C1 port
3	3 way, C1 port
4	4 way, C1 and C2 port

Code	Description
2	Closed cylinder ports (CC)
3	C1 port (CC), C2 port (VOC)
4	Open cylinder ports (OC-Motor)
7	Vented open cylinder ports (VOC)

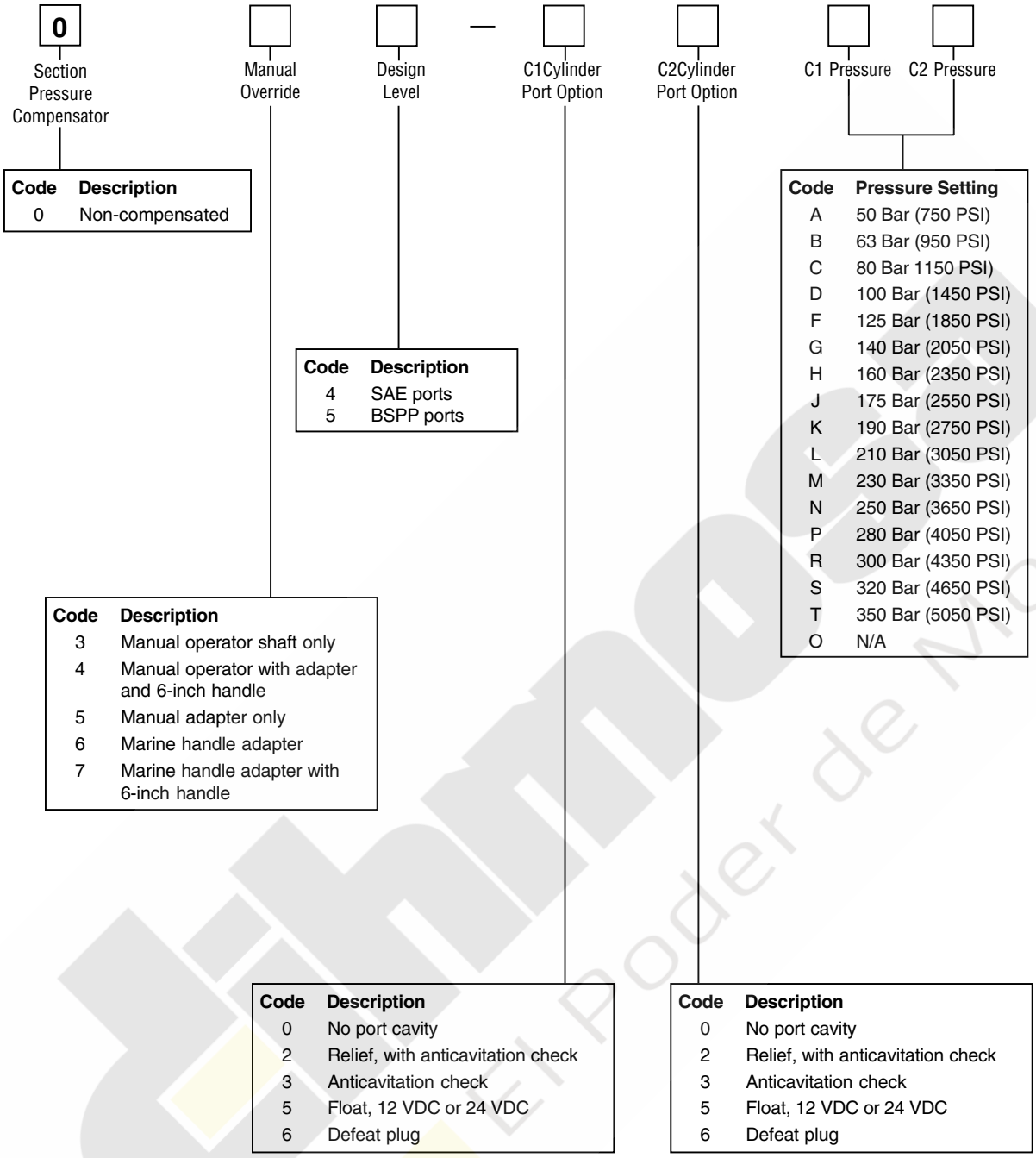
Code	Description
1	2 pos. flow adjustment on C1
2	2 pos. no flow adjustments
3	3 pos. no flow adjustments
4	3 pos. flow adjustments on C1 and C2
5	3 pos. flow adjustment on C1 only
6	3 pos. flow adjustment on C2 only
A	3 pos. Detent C1, C2 and Center
B	Infinite position friction lock w/ center detent

Note: Detent not available w/ flow adjustment option (Code A & B are VML only)

Code	Description
Q	Electrohydraulic on-off
P	Electrohydraulic proportional
K	Hydraulic remote (210 PSI pilot)
W	Hydraulic remote (350 PSI pilot)
M	Manual Control

Code	Description
0	None (VWL, VKL, VML only)
1	12 V Pulsar, 12” flying leads
3	12 V Pulsar with Weather Pack connector, 12” leads
5	24 V Pulsar, 12” flying leads
7	24 V Pulsar with Weather Pack connector, 12” leads
A	12 V Marine (Nemko), 100” flying leads
B	24 V Marine (Nemko), 100” flying leads
J	12 V Hirschmann, Large (DIN 43 - GDM Series)
K	24 V Hirschmann, Large (DIN 43 - GDM Series)
L	12 V Hirschmann, Small (G Series)
M	24 V Hirschmann, Small (G Series)
N	12 V Pulsar with 36” flying leads
P	12 V Pulsar with 36” leads, Weather Pack connector
Q	24 V Pulsar with 36” flying leads
R	24 V Pulsar with 36” leads, Weather Pack connector
S	11.2 V, Intrinsically safe w/male Electro connector
T	11.2 V, Intrinsically safe w/Weather Pack connector
X	12 V, XP Pulsar with male Electro connector

Ordering Example:
VQL5444-3035-26JO



Code	Description
0	Non-compensated

Code	Description
4	SAE ports
5	BSPP ports

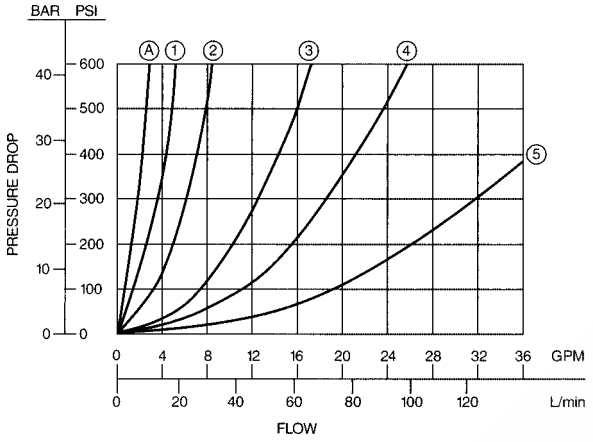
Code	Pressure Setting
A	50 Bar (750 PSI)
B	63 Bar (950 PSI)
C	80 Bar 1150 PSI)
D	100 Bar (1450 PSI)
F	125 Bar (1850 PSI)
G	140 Bar (2050 PSI)
H	160 Bar (2350 PSI)
J	175 Bar (2550 PSI)
K	190 Bar (2750 PSI)
L	210 Bar (3050 PSI)
M	230 Bar (3350 PSI)
N	250 Bar (3650 PSI)
P	280 Bar (4050 PSI)
R	300 Bar (4350 PSI)
S	320 Bar (4650 PSI)
T	350 Bar (5050 PSI)
O	N/A

Code	Description
3	Manual operator shaft only
4	Manual operator with adapter and 6-inch handle
5	Manual adapter only
6	Marine handle adapter
7	Marine handle adapter with 6-inch handle

Code	Description
0	No port cavity
2	Relief, with anticavitation check
3	Anticavitation check
5	Float, 12 VDC or 24 VDC
6	Defeat plug

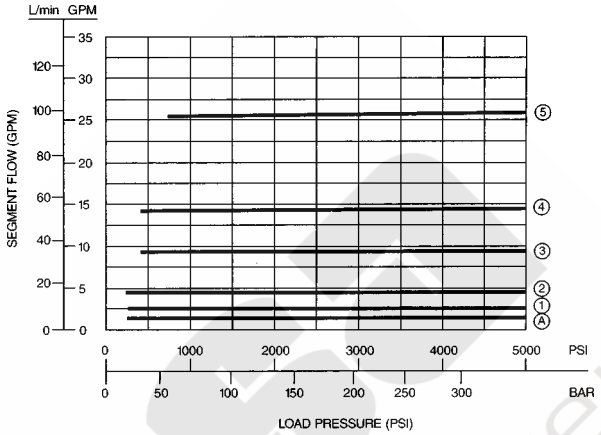
Code	Description
0	No port cavity
2	Relief, with anticavitation check
3	Anticavitation check
5	Float, 12 VDC or 24 VDC
6	Defeat plug

Pressure Drop C_1/C_2 ➔ T (Meter Out Spools)



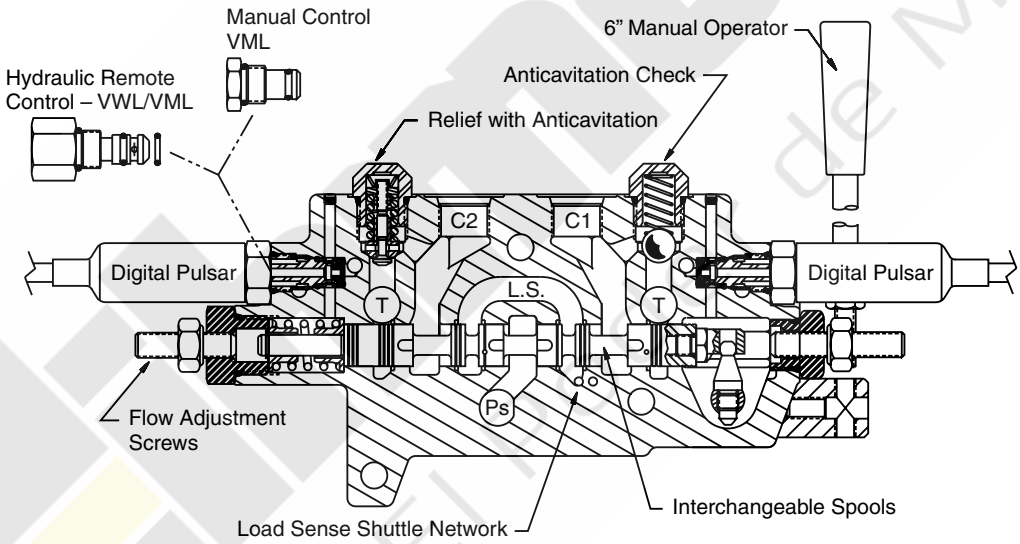
Segment Flow vs. Load Pressure

With Pressure Compensated Bypass Inlet (225 PSID)
(Excess Flow can be limited with Spool Stroke Adjustment if required)



Note: The flow rates for all spools will increase by 2 to 3% for every 10 PSI increase in differential pressure drop from the pump supply port to the load sensing port.

All Options



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Bulletin HY14-2101/US,
3M, 9/02, PHD