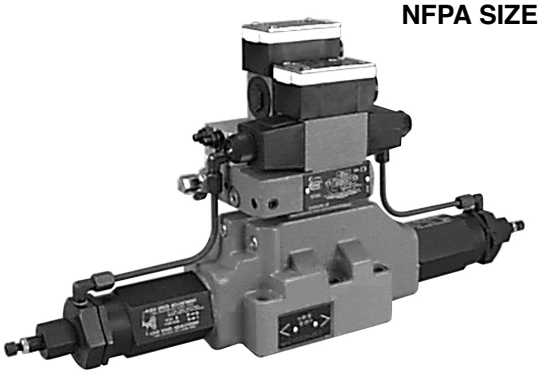
# DVS50M
# *DeACCELATROL® VALVE

SOLENOID ACTUATED, PILOT OPERATED

*** U.S. Patent No. 3,213,886**

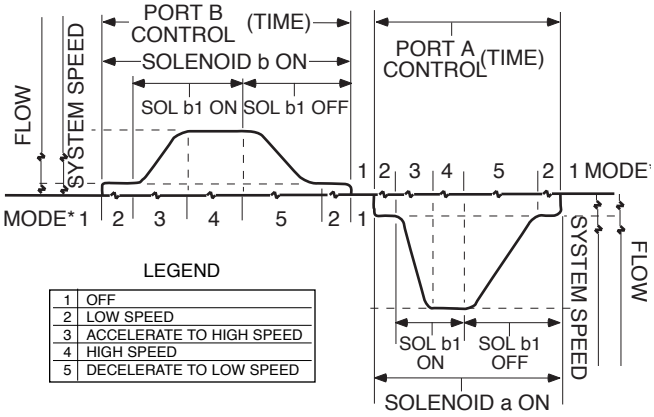
## ACCEL./DECEL. HIGH/LOW SPEED MOTION CONTROL VALVE

**NFPA SIZED08**



**CSA CERTIFIED**

## TIME/FLOW CONTROL CYCLE

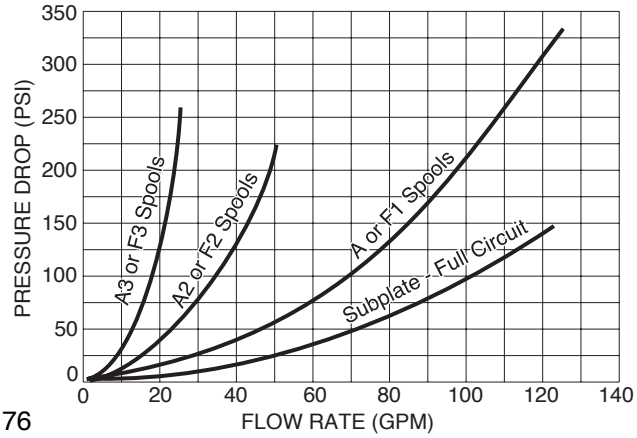



LEGEND

| | |
|---|---|
| 1 | OFF |
| 2 | LOW SPEED |
| 3 | ACCELERATE TO HIGH SPEED |
| 4 | HIGH SPEED |
| 5 | DECELERATE TO LOW SPEED |

## PRESSURE DROP CURVE

Typical Valve Pressure Drop:
P to (A or B) to (B or A) to T (Full circuit).
Fluid Viscosity: 100 SUS @ 120° F, .87 specific gravity.




## TYPICAL PERFORMANCE SPECIFICATIONS

| | | | |
|---|---|---|---|
| FLOW RANGES | Nominal | 12-50 gpm | 45-190 lpm |
| | Maximum | 25-125 gpm | 95-474 lpm |
| MAXIMUM OPERATING PRESSURES | P, A, B & X Ports | 3500 psi | 250 bar |
| | T PORT** | 3000 psi | 210 bar |
| | Y Port (drain) | 100 psi | 7 bar |
| MINIMUM PILOT SUPPLY PRESSURE | | 250 psi | 17 bar |
| MAXIMUM CYCLE RATE | | 110 cpm | |
| MOUNTING SURFACE | | ANSI/B93.7M-1986 - D08<br>ISO 4401 - SIZE 08 | |
| WEIGHT | Code 3 | 50 lbs. | 22.7 kg |
| | Code 5 or 8 | 45 lbs. | 20.6 kg |

** With external drain configuration; include surges.

All pressure drops shown on this data page are based on 100 SUS fluid viscosity and 0.87 specific gravity.

| Fluid | CS | 14.5 | 20.5 | 32 | 43 | 54 | 65 | 76 | 86 |
|---|---|---|---|---|---|---|---|---|---|
| Viscosities | SUS | 75 | 100 | 150 | 200 | 250 | 300 | 350 | 400 |
| Multiplier | | 0.93 | 1.00 | 1.11 | 1.19 | 1.26 | 1.32 | 1.37 | 1.41 |

For any other specific gravity ($G_1$) the pressure drop ($\Delta P$) will be approximately $\Delta P_1 = \Delta P\ (G_1/G)$.

## GENERAL SPECIFICATIONS

**Recommended Fluid**
Petroleum base, water base and most phosphate esters (other fluids are acceptable, but special O-rings may be required).

**Fluid Temperature Range**
Fluid temperatures up to 200° F will not appreciably affect valve performance, however, from a safety standpoint, temperatures above 130° F are not recommended. The valve is not temperature immune; constant temperatures should be held during operation.

**Recommended Operating Viscosity**
80 to 350 SUS.

**Fluid Operating Viscosity Range**
Acceptable start-up viscosity to 2000 SUS.
Minimum viscosity to 30 SUS.

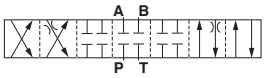
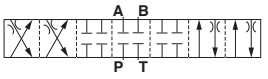
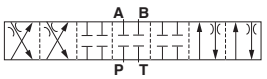
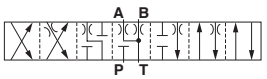
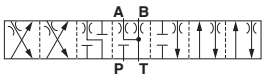
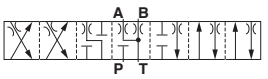
**Filtration**
ISO 18/25 (25 micron).

**Mounting Position**
Optional; horizontal preferred.

**O-Rings**
Viton standard.

**NFPA Flow Path / Actuating Pattern**
Actuating operator “a”--connects flow to cylinder port “A”.
Actuating operator “b”--connects flow to cylinder port “B”.

## SPOOL DESCRIPTION

| RATED FLOW (GPM) | | | 5 | 3 | 7 | 1 | 6 | 2 | 4 | SPOOL CENTER POSITION 1 | SPOOL CROSSOVER POSITION 6 and 7 | SPOOL LOW SPEED POSITION 2 and 3 | SPOOL HIGH SPEED POSITION 4 and 5 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CODE | NOM. | MAX. | High Speed | Low Speed | Crossover | Center Pos. | Crossover | Low Speed | High Speed | | | | |
| A | 50 | 125 |  | | | | | | | All ports blocked | | P to A or B B or A restricted to T | P to A or B B or A to T |
| A2 | 25 | 50 |  | | | | | | | | | | P to A or B B or A restricted to T |
| A3 | 12 | 25 |  | | | | | | | | | | |
| F1 | 50 | 125 |  | | | | | | | P blocked A & B restricted to T | P, A or B blocked B or A restricted to T | | P to A or B B or A to T |
| F2 | 25 | 50 |  | | | | | | | | | | P to A or B B or A restricted to T |
| F3 | 12 | 25 |  | | | | | | | | | | |

## TYPICAL MINIMAL RESPONSE TIME INFORMATION

| PILOT PRESSURE | RESPONSE TIME (Milliseconds) | |
|---|---|---|
| (psi) | Accelerate* | Decelerate |
| 200 | 350 | 180 |

* Acceleration time is influenced by pump and/or motor response times. Acceleration and deceleration is adjustable up to 60 seconds.

**NOTE:** For faster response times, pilot pressure must be increased. Consult the factory.

Minimum response time for the valve is determined with the chokes wide open to accelerate from zero to maximum flow, and decelerate from maximum flow to zero flow. Fluid viscosity 100 SUS @ 120° F. Response time for spring centering the valve is 70 milliseconds.

## TYPICAL ELECTRICAL & RESPONSE TIME

| | VOLTAGE & FREQUENCY | VOLTAGE LIMITS | RESISTANCE | INRUSH CURRENT (AMPS) | HOLDING CURRENT | HOLDING CURRENT MIN. VOLT. | HOLDING POWER |
|---|---|---|---|---|---|---|---|
| SOLENOID CODE | VOLTS - Hz. | MIN. - MAX. | OHMS | MAX. | (AMP) | (AMP) | (WATTS) |
| 33L, 60L | 120 - 60 | 108 - 126 | 36.5 | 2.10 | .49 | .39 | 24 |
| | 110 - 50 | 99 - 116 | | | .58 | .45 | 26 |
| 34L, 61L | 240 - 60 | 216 - 252 | 75.0 | 1.10 | .24 | .19 | 24 |
| | 220 - 50 | 198 - 231 | | | .29 | .22 | 26 |
| 39L, 68L* | 120 - 60 | 108 - 132 | 145.0 | 1.10 | .19 | .15 | 10 |
| | 110 - 50 | 99 - 121 | | | .21 | .17 | 10 |
| 42L, 70L | 24 DC | 21 - 26 | 24.0 | 1.00 | 1.00 | .88 | 24 |
| 44L, 75L | 12 DC | 10 - 13 | 6.3 | 2.00 | 2.00 | 1.67 | 24 |

* Code 68L valves (low amp force) may not shift on high viscosity (low temperature) fluids. Maximum 1000 SUS start-up recommended.

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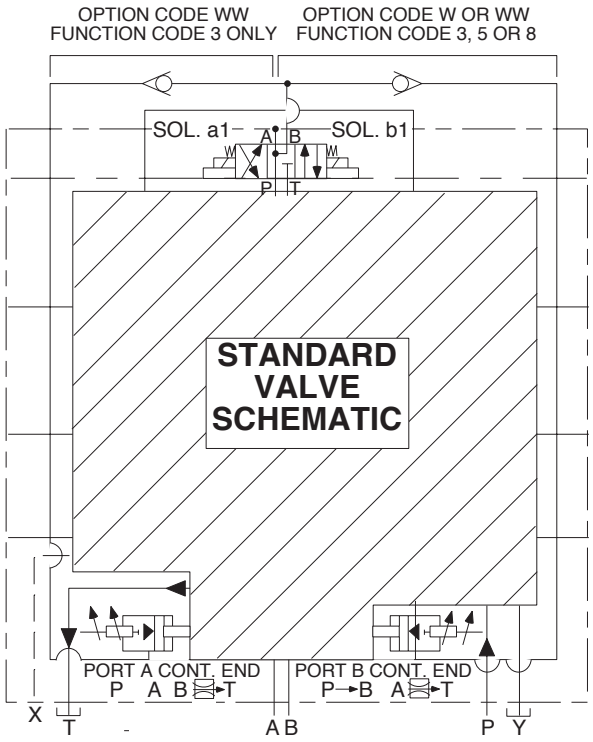
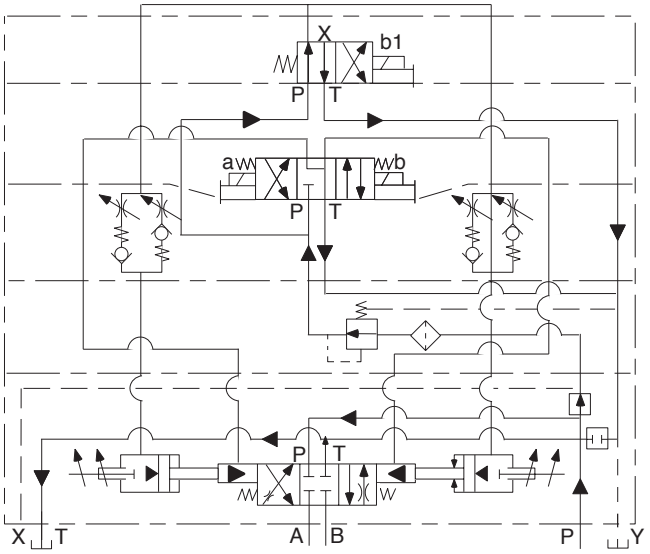
## WARM-UP CIRCUIT SCHEMATIC

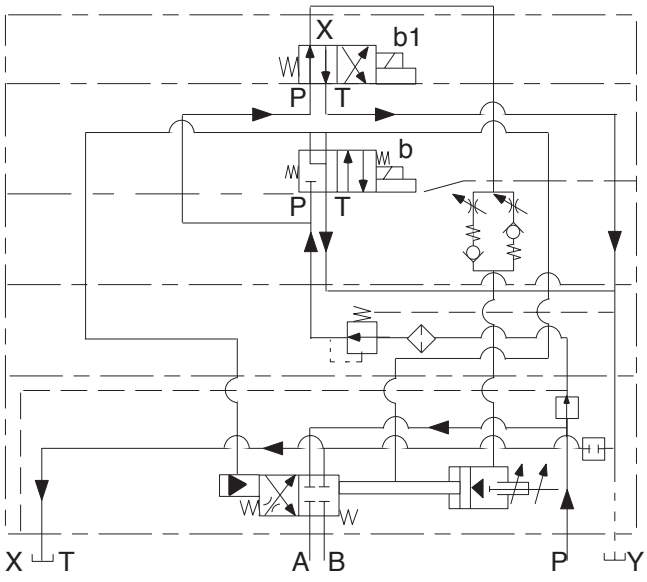



## Schematics (do not indicate construction)

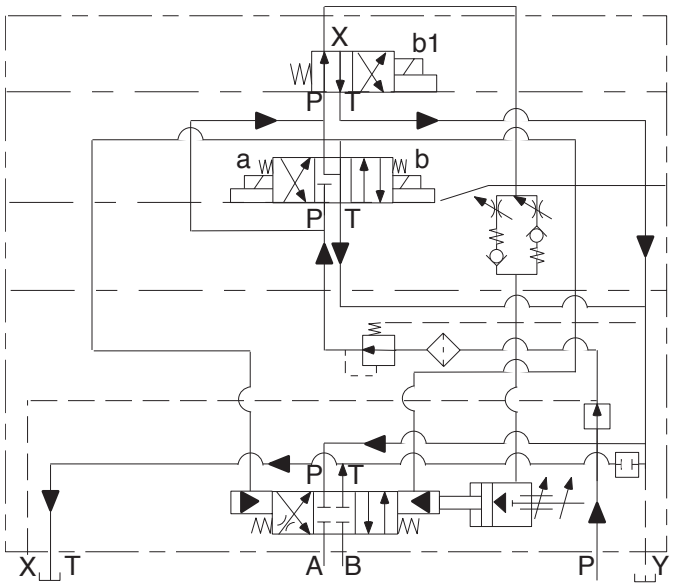
### CODE 3




### CODE 5




### CODE 8



## CONSIDERATIONS FOR WARM-UP CIRCUITS

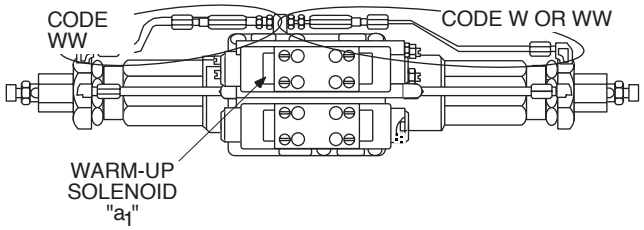
The DeAccelatrol® valve is not temperature immune. Changes in valve response time can be expected as system fluid viscosities are altered by changes in fluid temperature. The warm-up circuit is used to pre-warm the valve and the circuit solenoid should be actuated when the hydraulic system is run prior to running the machine. This brings the fluid and valve up to operating temperature.

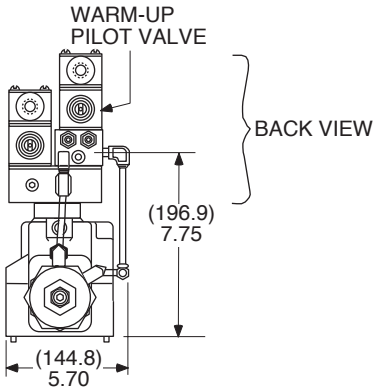
**NOTE:** Field installable warm-up circuit kits are available. See Valve Accessories section.

DIMENSIONS SHOWN IN: (MILLIMETERS)
INCHES

## CODE W & WW

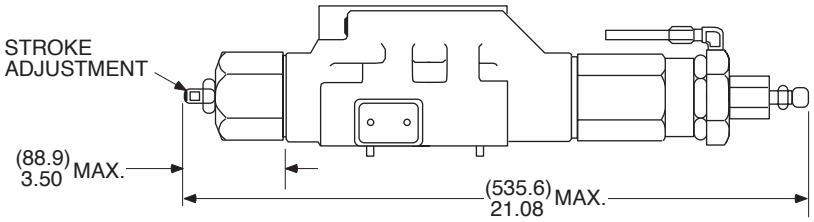
Warm-Up Circuit Options



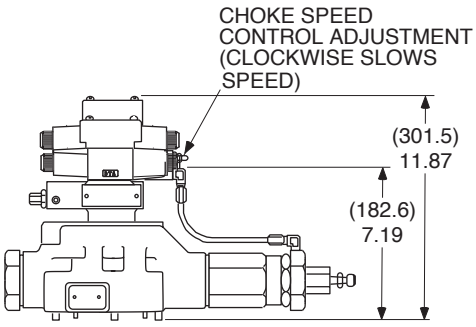

## CODE J

Adjustable Stroke Option
(w/Code 8 Valve only)




## CODE K

Adjustable Choke Option
(w/Code 8 Valve only)



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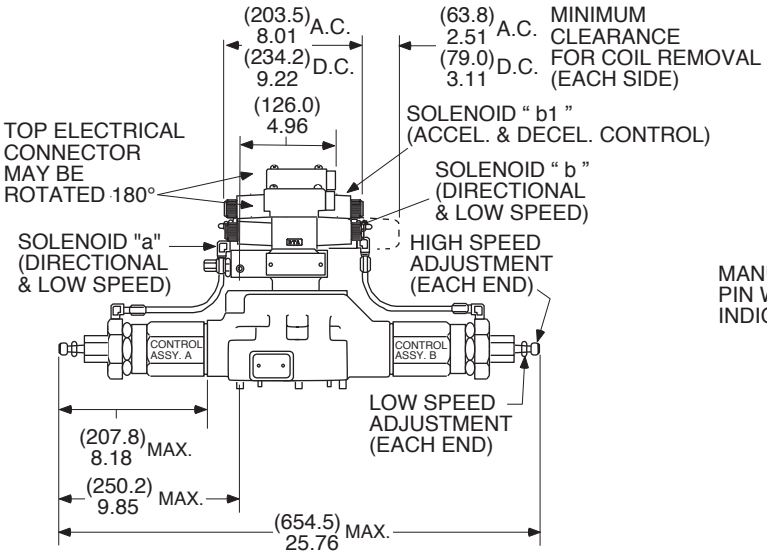
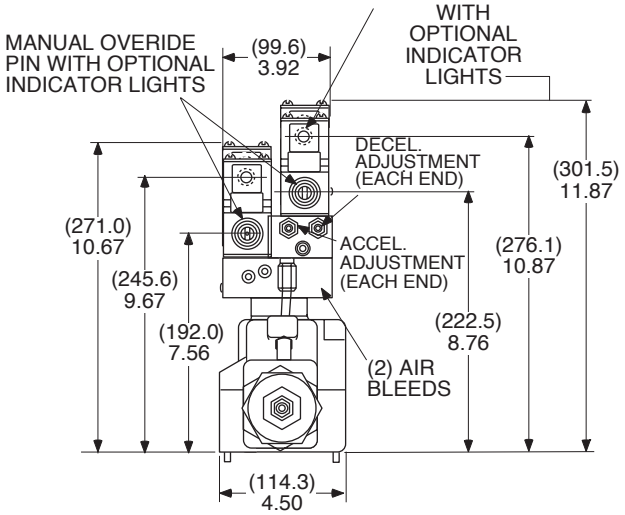
NFPA D08 SIZE
FOR INTERFACE PATTERN,
SEE MOUNTING SURFACE
SECTION

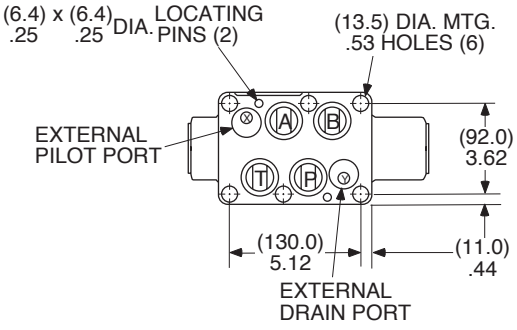
DIMENSIONS SHOWN IN: (MILLIMETERS)
INCHES

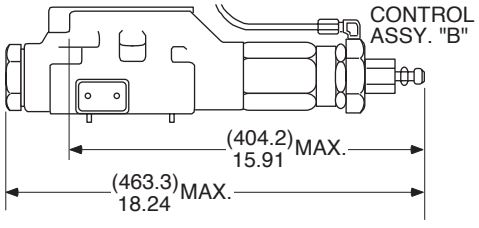



| | |
|---|---|
| **CODE B OR CODE BT** | 1/2-14NPT ELECTRICAL CONNECTION 2 OR 3 PLACES |
| **CODE B5H** | 5 PIN SEALED CONNECTOR FOE 1 OR 2 SOLENOIDS |
| 25 FT./LBS MAX. TORQUE | |




## CODES 5 & 8



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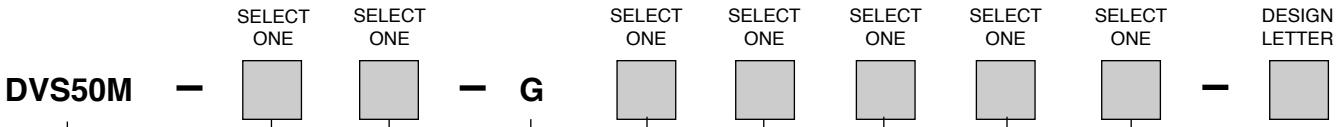
## ORDERING INFORMATION




### FUNCTION

| CODE | DESCRIPTION |
|---|---|
| 3 | ACCELERATION/ DECELERATION CONTROL ON BOTH A & B PORTS |
| 5 | ACCELERATION/ DECELERATION CENTER TO 1 SIDE ONLY, "B" SOLENOID |
| 8 | ACCELERATION/ DECELERATION "B" SOLENOID ONLY, SNAP ACTION SOLENOID "A" |

### SPOOLS

| CODE |
|---|
| REFER TO PAGE 77 FOR SPOOL AVAILABILITY |

### ELECTRICAL OPTIONS

| CODE | DESCRIPTION |
|---|---|
| LEAD WIRE CONNECTIONS | |
| B | TOP ELECTRICAL BOX W/O TERMINAL POSTS |
| BT | TOP ELECTRICAL BOX WITH TERMINALS AND GROUND |
| B5H | TOP ELECTRICAL BOX WITH 5-PIN MALE RECEPTACLE FOR 1 OR 2 SOLENOIDS |
| DIN 43650 CONNECTIONS | |
| OMIT | NOT AVAILABLE WITH DIN CONNECTIONS |

### SOLENOID INDICATOR LIGHTS

| CODE | DESCRIPTION |
|---|---|
| LEAD WIRE CONNECTIONS | |
| L3 | BASIC CODES 3 and 8 CODE 5 WITH WARM-UP 110/120 V |
| L5 | BASIC CODE 5 110/120 V 50/60 Hz |
| L6 | CODES 3 and 8 WITH WARM-UP 110/120 V 50/60 Hz |
| DIN 43650 CONNECTIONS | |
| OMIT | NOT AVAILABLE WITH DIN CONNECTORS |

### BASIC VALVE

5-POSITION MOTION CONTROL

DIRECTIONAL/ ACCELERATION

D08 SUBPLATE MOUNTING

0-125 GPM FLOW RANGE

3500 PSI MAXIMUM OPERATING PRESSURE

### SEALS

| CODE |
|---|
| VITON SEALS STANDARD |

### MECHANICAL OPTIONS

| CODE | OPTION | USED ON |
|---|---|---|
| J | ADJUST STROKE "A" PORT | CODE 8 |
| K | ADJUST CHOKE "A" PORT | CODE 8 |
| W | WARM-UP CIRCUIT | CODE 5 & 8 |
| WW | WARM-UP CIRCUIT | CODE 3 |
| Z* | MANUAL OVERRIDE | ALL |

* On single solenoid valve, spring offset plug end.

### PILOT/DRAIN*

| CODE | OPTION |
|---|---|
| 1 | INTERNAL PILOT EXTERNAL DRAIN |
| 2 | EXTERNAL PILOT EXTERNAL DRAIN |

* Internal drain not recommended. If used, back pressure in the "tank" line may cause sudden changes in "ACCEL" and/or "DECEL" rates.

### SOLENOID

| CODE | VOLTAGE |
|---|---|
| LEAD WIRE CONNECTIONS | |
| 60L | 110/120 V 50/60 Hz |
| 61L | 220/240 V 50/60 Hz |
| 68L | 110/120 V 50/60 Hz (LOW AMPS) |
| 70L | 24 VDC |
| 75L | 12 VDC |
| DIN 43650 CONNECTIONS | |
| 33L | 110/120 V 50/60 Hz |
| 34L | 220/240 V 50/60 Hz |
| 35L | 240/280 V 50/60 Hz |
| 42L | 24 VDC |
| 44L | 12 VDC |

TYPICAL ORDERING CODE: **DVS50M-3A2-G1B-68L**