General Description

Max. pressure . . . . 315 bar (4500 psi)
Max. flow rates . . . . Up to 120 L/min
                                 (32 USgpm),
dependent on spool
Mounting surface . . . ISO 4401 size 05
                    NFPA D02
                    DIN 24340 (NG10)

A range of four-port solenoid operated
directional control valves with four-land
spool design to facilitate provision of
smooth, variable valve response
speeds.

The range includes:
  ● AC and DC wet-armature solenoid
    options with ISO 4400 (DIN 43650)
    electrical connections and manual
    overrides.
  ● Variable speed changeover potential
    in all DC models; see “Response
    Times” section
  ● Many spool types; in spring-offset,
    spring-centered and detented
    arrangements.
Functional Symbols

Double Solenoid Valves, Two-Position, Detented

- DG4V-5-*N valves
  - 2
  - 6

Double Solenoid Valves, Spring Centered

- DG4V-5-*C valves
  - 0
  - 1
  - 2
  - 3
  - 6
  - 7
  - 8
  - 11
  - 31
  - 33
  - 34
  - 52
  - 56
  - 521
  - 561

Single Solenoid Valves, Solenoid at Port A End

- DG4V-5-*A valves
  - 0
  - 1
  - 2
  - 3
  - 6
  - 7
  - 8
  - 11
  - 31
  - 33
  - 34
  - 52
  - 56
  - 521
  - 561

- DG4V-5-*B valves
  - 0
  - 1
  - 2
  - 3
  - 6
  - 7
  - 8
  - 11
  - 31
  - 33
  - 34
  - 52
  - 56

Single Solenoid Valves, Solenoid at Port B End

- DG4V-5-*AL valves
  - 0
  - 1
  - 2
  - 3
  - 6
  - 7
  - 8
  - 11
  - 31
  - 33
  - 34
  - 52

- DG4V-5-*BL valves
  - 0
  - 1
  - 2
  - 3
  - 6
  - 7
  - 8
  - 11
  - 31
  - 33
  - 34

Transient condition only.

Both ports $T_A$ and $T_B$ are available.
Prefix, fluid compatibility
Blank = AC or DC-voltage models for petroleum oils, water-in-oil (invert) emulsions or phosphate esters.
AC-voltage models for water glycols.
F13 = DC-voltage models for water glycols.

Spool type
See "Functional Symbols" section

Spool spring arrangement
A = Spring-offset, end-to-end
AL = As "A" but left-hand build
B = Spring offset, end-to-center
BL = As "B" but left-hand build
C = Spring centered
N = Two-position, detented
See also "Functional Symbols" section

Spool design
J = All DC valves except "0A" spool/spring arrangements.
AC valves with "8B(L)" and "8C" spool/spring arrangements.
Omit for "0A" DC-valves and all AC valves except "8B(L)" and "8C" spool/spring arrangements

Manual override option
P = Standard overrides in both ends of single-solenoid valves
H = Water-resistant override(s) in solenoid end(s)
H2 = Water-resistant overrides in both ends of single-solenoid valves
Z = No overrides at either end
Omit for standard plain override(s) in solenoid end(s)
▼ No override in non-solenoid end of single-solenoid valves.

Solenoid energization identity
V = Solenoid “A” is at port A end and/or solenoid “B” is at port B end, independent of spool type
Omit for US ANSI B93.9 standard requiring solenoid “A” to connect P to A when energized and/or solenoid “B” to connect P to B

Spool position indicator switch
S6 - LVDT type DC switch with Pg7 connector plug

Electrical connection(s)
U = ISO 4400 (DIN 43650) mounting(s) without plug(s)

Coil rating
A = 110V AC 50
C = 220V AC 50
ED = 240V AC 50
EK = 115V AC 60
EH = 230V AC 60
G = 12V DC
H = 24V DC
HL = 24V DC (32W)
OJ = 48V DC
P = 110V DC

Design number, 20 series
Subject to change. Installation dimensions unaltered for design numbers 20 to 29 inclusive

Spool speed control
J06 = 0.6 mm orifice
J08 = 0.8 mm orifice
J10 = 1.0 mm orifice
J12 = 1.2 mm orifice
J99 = no orifice. Must be specified where future fitting of orifice is required, see page A.11, “Spool Speed Control Orifice”
Performance Data

**Pressure Drops** Typical with petroleum oil at 36 cSt (170 SUS) and a specific gravity of 0.87

<table>
<thead>
<tr>
<th>Spool/spring code</th>
<th>Spool positions covered</th>
<th>P to A</th>
<th>P to B</th>
<th>A to T</th>
<th>B to T</th>
<th>P to T</th>
<th>A to B or B to A</th>
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<tbody>
<tr>
<td>0A(L)</td>
<td>Both</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>–</td>
<td>–</td>
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<tr>
<td>0B(L) &amp; 0C</td>
<td>De-energized</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>3▲</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Energized</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>7</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
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<td>–</td>
<td>–</td>
<td>–</td>
<td>6▼</td>
<td>–</td>
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<td></td>
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<td>2</td>
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<td>–</td>
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<td>2A(L)</td>
<td>Both</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>2B(L) &amp; 2C</td>
<td>All</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>–</td>
<td>–</td>
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<tr>
<td>2N</td>
<td>Both</td>
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<td>3</td>
<td>5</td>
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<td>–</td>
</tr>
<tr>
<td>3B(L) &amp; 3C</td>
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<td>–</td>
<td>–</td>
<td>5</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Energized</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>5</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>6B(L) &amp; 6C</td>
<td>De-energized</td>
<td>–</td>
<td>–</td>
<td>5●</td>
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<td>7</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Energized</td>
<td>3</td>
<td>3</td>
<td>6</td>
<td>7</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>6N</td>
<td>Both</td>
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<td>–</td>
</tr>
<tr>
<td>7B(L) &amp; 7C</td>
<td>De-energized</td>
<td>3●</td>
<td>3▼</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
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<td>2</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>8B(L) &amp; 8C</td>
<td>All</td>
<td>2</td>
<td>2</td>
<td>7</td>
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<td>–</td>
</tr>
<tr>
<td>11B(L) &amp; 11C</td>
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<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>6●</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Energized</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>7</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>22A(L)</td>
<td>Both</td>
<td>3</td>
<td>3</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>23A(L)</td>
<td>Both</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>31B(L) &amp; 31C</td>
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<td>–</td>
<td>–</td>
<td>–</td>
<td>6</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Energized</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>33B(L) &amp; 33C</td>
<td>De-energized</td>
<td>–</td>
<td>–</td>
<td>12●</td>
<td>12▼</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Energized</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>34B(L) &amp; 34C</td>
<td>De-energized</td>
<td>–</td>
<td>–</td>
<td>11●</td>
<td>11▼</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Energized</td>
<td>2</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>52B(L) &amp; 52C</td>
<td>All</td>
<td>7●</td>
<td>8</td>
<td>4</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>56B(L) &amp; 56C</td>
<td>De-energized</td>
<td>–</td>
<td>–</td>
<td>8●</td>
<td>10▼</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Energized</td>
<td>7●</td>
<td>8</td>
<td>6</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>521B &amp; 521C</td>
<td>All</td>
<td>8</td>
<td>7▼</td>
<td>–</td>
<td>5</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>561B &amp; 561C</td>
<td>De-energized</td>
<td>–</td>
<td>–</td>
<td>10●</td>
<td>8▼</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Energized</td>
<td>8</td>
<td>7▼</td>
<td>–</td>
<td>7</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>

▲ A and B blocked ▼ A blocked ● B blocked ■ P blocked

---

A.4
Operating Data

Spool Position Indicator Models
Spool/spring arrangement types 0A (L), 2A(L), 22A(L)
DC model type “S6”

This product has been designed and tested to meet specific standards outlined in the European Electromagnetic Compatibility Directive (EMC) 89/336/EEC, amended by 91/263/EEC, 92/31/EEC and 93/68/EEC, article 5. For instructions on installation requirements to achieve effective protection levels see this leaflet and the Installation Wiring Practices for Vickers Electronic Products leaflet 2468. Wiring practices relevant to this Directive are indicated by Electromagnetic Compatibility (EMC).

Input:
- Supply voltage: 10 to 35V DC inclusive of a maximum 4V pk-to-pk ripple
- Current, switch open: 5 mA
- Current, switch closed: 255 mA

Output:
- Voltage: 1V below input at maximum load
- Maximum continuous current: 250 mA
- Maximum load impedance: 136Ω at maximum input volts
- Maximum switching frequency: 10 Hz

Plug connections:
- Pin 1 (output 1): Normally open (ie. not connected to pin 3)
- Pin 2: Supply +ve
- Pin 3: 0V
- Pin 4 (output 2): Normally closed (ie. connected to pin 3)
- Switching point: Within the spool spring offset condition
- Connector: Pg7 plug (supplied with valve)
- Protection: Overload and short-circuit protected; self re-setting. IEC 144 class IP65 with connector correctly fitted.

Factory setting ensures this condition under all combinations of manufacturing tolerance and of temperature drift (see “Temperature Limits”).

Wiring Connections

Warning
All power must be switched off before connecting or disconnecting any plugs.

WARNING: Electromagnetic Compatibility (EMC)
It is necessary to ensure that the unit is wired up in accordance with the connection arrangements shown above. For effective protection the user’s electrical cabinet, the valve subplate or manifold and the cable screens should be connected to efficient ground points.
In all cases both valve and cable should be kept as far away as possible from any sources of electromagnetic radiation such as cables carrying heavy current, relays and certain kinds of portable radio transmitters, etc. Difficult environments could mean that extra screening may be necessary to avoid the interference.
Max. Flow Rates
Based on warm solenoid(s) operating at 10% below rated voltage.
Flow limits applicable to following usages:
1. All valves except those with types 22, 52, 56, 521 and 561 spools having simultaneous equal flow rates from P to A or B and from B or A to T.
2. Valves with type 22 spools having flow from P to A or B, the other being blocked. T is drained at all times.
3. Valves with types 52, 56, 521 and 561 spools having one service port connected to the full bore end of a 2:1 area ratio double-acting cylinder and the other service port to the annulus end.
4. Valves with type 23 spools having single flow from A or B to T, P and the other service port being blocked.

Consult Vickers with application details if any of the following are required:
a) Single flow path, i.e. P to A, P to B, A to T or B to T.
b) Substantially different simultaneous flow rates between P to A or B and B or A to T.
c) Spools as in 3 above are to be used with cylinder ratios greater than about 3:1 at low flow rates or 2:1 at high flow rates.

<table>
<thead>
<tr>
<th>Spool/spring code</th>
<th>AC valve graph curve</th>
<th>DC valve graph curve</th>
</tr>
</thead>
<tbody>
<tr>
<td>0A(L)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>0B(L) &amp; 0C</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>1B(L) &amp; 1C</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2A(L)</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>2B(L), 2C &amp; 2N</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>3B(L), 3C, 6B(L) &amp; 6C</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>6N</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>7B(L) &amp; 7C</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8B(L) &amp; 8C</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>11B(L), 11C &amp; 22A(L)</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>23A(L)</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>31B(L) &amp; 31C</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>33B(L), 33C, 34B(L) &amp; 34C</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>52B(L), 52C, 56BL, 56C, 521B, 521C, 561B &amp; 561C</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>
Response Times, Typical
Time taken from when signal is first applied at the solenoid until the spool completes its travel. Based on DG4V-5-2C at 60 L/min (16 USgpm) from P to A to B to T and at 160 bar (2320 psi) with petroleum oil at 36 cSt (168 SUS) and at 50°C (122°F):

- AC energizing ................. 30 ms
- AC de-energizing .............. 40 ms
- DC energizing .................. 120 ms
- DC de-energizing .............. 45 ms

* In pure switched conditions, devoid of the effects of any suppression diodes and full-wave rectifiers.

**DG4V-5-2CJ valves. Longer response times can be obtained by fitting an orifice plug in a special pilot port, standard in all bodies. An orifice kit 459065, containing a selection of plugs of differing orifice size, can be ordered separately. Ask your Vickers representative for details.

Hydraulic Fluids
Water glycols can be used with F13-prefix DC-voltage models or with non-prefix AC-voltage models.
Non-prefix DC-voltage models and all AC-voltage models can be used with anti-wear hydraulic oils, water-in-oil emulsions, phosphate esters (not alkyl based).

The extreme operating viscosity range is from 500 to 13 cSt (2300 to 70 SUS) but the recommended running range is 54 to 13 cSt (245 to 70 SUS).

For further information about fluids see catalog 920.

Temperature Limits
Minimum ambient .......... -20°C (-4°F)
Maximum ambient:
- AC 50 Hz valves ...... 50°C (122°F)
- AC 60 Hz valves ...... 40°C (104°F)
- DC valves ............. 70°C (158°F)

For synthetic fluids consult manufacturer or Vickers where limits are outside those for petroleum oil.

Whatever the actual temperature range, ensure that viscosities stay within the limits specified in the “Hydraulic Fluids” section.

Solenoid Surface Temperatures
Typical maximums at 20°C (68°F) ambient:
- AC 50 Hz solenoids ...... 80°C (176°F)
- AC 60 Hz solenoids ...... 92°C (197°F)
- DC solenoids ............ 78°C (172°F)

Contamination Control Requirements
Recommendations on contamination control methods and the selection of products to control fluid condition are included in Vickers publication 9132 or 561, “Vickers Guide to Systemic Contamination Control”. The book also includes information on the Vickers concept of “ProActive Maintenance”. The following recommendations are based on ISO cleanliness levels at 2 μm, 5 μm and 15 μm. For products in this catalog the recommended levels are:

- Up to 210 bar (3050 psi) .... 20/18/15
- Above 210 bar (3050 psi) ... 19/17/14

Mass, Approx. kg (lb)
Single solenoid models,
- AC coils ....................... 4.0 (8.8)
- DC coils ....................... 4.8 (10.6)
Double solenoid models,
- AC coils ....................... 4.5 (9.9)
- DC coils ....................... 6.3 (13.9)

Fluid temperatures

<table>
<thead>
<tr>
<th>Petroleum oil</th>
<th>Water-containing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min.</td>
<td>Max.*</td>
</tr>
<tr>
<td>-20°C (-4°F)</td>
<td>+70°C (+158°F)</td>
</tr>
<tr>
<td>+10°C (+50°F)</td>
<td>+54°C (+130°F)</td>
</tr>
</tbody>
</table>

* To obtain optimum service life from both fluid and hydraulic system, 65°C (150°F) normally is the maximum temperature except for water-containing fluids.
Installation Dimensions in mm (inches)

AC Solenoid Models

<table>
<thead>
<tr>
<th>Model</th>
<th>Solenoid at:</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>DG4V-5-*A(L)/B(L)(-Z)-(V)M</td>
<td>Port A end</td>
<td>123 (4.84)</td>
<td>–</td>
<td>–</td>
<td>182 (7.17)</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Port B end</td>
<td>–</td>
<td>123 (4.84)</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DG4V-5-*A(L)/B(L)-H2-(V)M</td>
<td>Port A end</td>
<td>138 (5.43)</td>
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<td>–</td>
<td>223 (8.78)</td>
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<tr>
<td></td>
<td>Port B end</td>
<td>–</td>
<td>138 (5.43)</td>
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<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DG4V-5-*A(L)/B(L)-P-(V)M</td>
<td>Port A end</td>
<td>123 (4.84)</td>
<td>–</td>
<td>–</td>
<td>195 (7.68)</td>
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</tr>
<tr>
<td></td>
<td>Port B end</td>
<td>–</td>
<td>123 (4.84)</td>
<td>–</td>
<td>–</td>
<td>–</td>
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<tr>
<td>DG4V-5-*C/N(-Z)-(V)M</td>
<td>Both ends</td>
<td>123 (4.84)</td>
<td>123 (4.84)</td>
<td>–</td>
<td>–</td>
<td>246 (9.68)</td>
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<td>DG4V-5-*C/N-H-(V)M</td>
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<td>138 (5.43)</td>
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<td>–</td>
<td>276 (10.87)</td>
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</table>

▲ May vary according to plug source.
◆ The cable entry can be repositioned at 90° intervals from the position shown.
This is done by reassembling the contact holder into the appropriate position inside the plug housing.
DC Solenoid Models

May vary according to plug source.

The cable entry can be repositioned at 90° intervals from the position shown. This is done by reassembling the contact holder into the appropriate position inside the plug housing.

<table>
<thead>
<tr>
<th>Model</th>
<th>Solenoid at:</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<tr>
<td></td>
<td>Port B end</td>
<td>–</td>
<td>–</td>
<td>215 (8.46)</td>
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<td>–</td>
</tr>
<tr>
<td>DG4V-5-*A(L)/B(L)-H2-(V)M</td>
<td>Port A end</td>
<td>185 (7.28)</td>
<td>–</td>
<td>185 (7.28)</td>
<td>270 (10.63)</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Port B end</td>
<td>–</td>
<td>–</td>
<td>270 (10.63)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DG4V-5-*A(L)/B(L)-P-(V)M</td>
<td>Port A end</td>
<td>156 (6.14)</td>
<td>–</td>
<td>156 (6.14)</td>
<td>228 (8.98)</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>Port B end</td>
<td>–</td>
<td>–</td>
<td>228 (8.98)</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>DG4V-5-*C/N-(Z)-(V)M</td>
<td>Both ends</td>
<td>156 (6.14)</td>
<td>156 (6.14)</td>
<td>–</td>
<td>–</td>
<td>312 (12.28)</td>
</tr>
<tr>
<td>DG4V-5-*C/N-H-(V)M</td>
<td>Both ends</td>
<td>185 (7.28)</td>
<td>185 (7.28)</td>
<td>–</td>
<td>–</td>
<td>370 (14.57)</td>
</tr>
</tbody>
</table>
Spool Position Indicator Switch Models

Location of solenoid for RH build models

Location of switch for RH build models

Plug (part no. 458939) supplied with valve

Cable gland PG7: 6.0 (0.24) dia.

Pin number 1, "normally open"

Pin number 2, supply +ve

Pin number 3, 0V

Pin number 4, "normally closed"

AB

DC Sol.
AC Sol.
LVDT

For manual override type H: 138,0 (5.43)
For other models: 123,0 (4.84)

For manual override type H: 289,0 (11.4)
For other models: 274,0 (10.8)

For manual override type H: 337,0 (13.270)
For other models: 308,0 (12.13)

Wiring: See warning note on page A.5

For LH models ("L" in model code location 3), solenoid and switch locations are reversed

A
### Model (see also "Model Codes")

<table>
<thead>
<tr>
<th>Model</th>
<th>Spool types</th>
<th>Solenoid identity Port A</th>
<th>Solenoid identity Port B</th>
</tr>
</thead>
<tbody>
<tr>
<td>DG4V-5-*A(J)/B(J)(-**)M</td>
<td>All except 8 B</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>DG4V-5-*A(J)/B(J)(-**)VM</td>
<td>All except 8 A</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 only – B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DG4V-5-*AL(J)/BL(J)(-**)M</td>
<td>All except 8 – A</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>DG4V-5-*AL(J)/BL(J)(-**)VM</td>
<td>All except 8 – B</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 only – A</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>DG4V-5-*C(J)/N(J)(-**)M</td>
<td>All except 8 – B</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>DG4V-5-*C(J)/N(J)(-**)VM</td>
<td>All spools – A</td>
<td>B</td>
<td></td>
</tr>
</tbody>
</table>

### Electrical plug(s) (without indicator light) to DIN 43650.

Must be ordered separately by part number(s).

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Color</th>
<th>Solenoid /LVDT identity</th>
<th>Cable gland</th>
</tr>
</thead>
<tbody>
<tr>
<td>710775</td>
<td>Black</td>
<td>B</td>
<td>Pg11 Ø6-10 mm</td>
</tr>
<tr>
<td>710776</td>
<td>Gray</td>
<td>A</td>
<td>Pg11 Ø6-10 mm</td>
</tr>
<tr>
<td>458939</td>
<td>Gray</td>
<td>LVDT</td>
<td>Pg7 Ø3,5-6 mm</td>
</tr>
</tbody>
</table>

### Spool Speed Control Orifice

For fine tuning of valve spool speed. Only applicable to valves already fitted with an orifice or blank plug, see model code, page A.3.

⚠️ **Warning - Changing procedure**

Before breaking a circuit connection make certain that power is off and system pressure has been released. Lower all vertical cylinders, discharge accumulators and block any load whose movement could generate pressure. Plug all removed units and cap all lines to prevent entry of dirt into the system.

### Orifice Kit

Orifice kits must be ordered separately, part number 02-350116. Kit comprises 1 off each of the following:

- 0.6 mm dia
- 0.8 mm dia
- 1.0 mm dia
- 1.2 mm dia
- Blank