

Solenoid Operated Directional Valve

DG4V-3M-65 Design

General Description

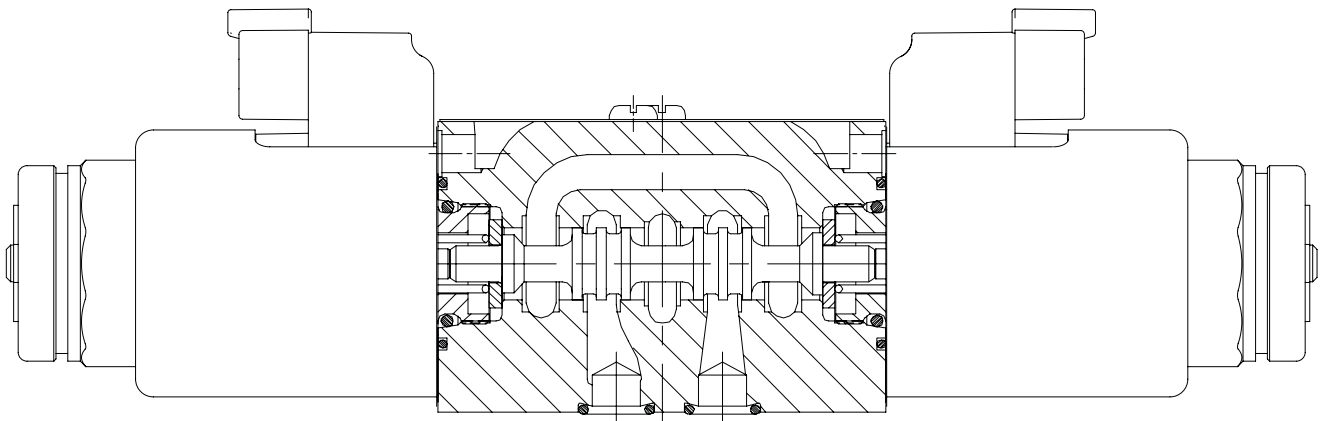
Solenoid operated directional control valves are for directing and stopping flow at any point in a hydraulic system.

- Efficient control of greater hydraulic powers without increasing solenoid power consumption.
- Installed cost and space savings from higher power/weight-and-size ratios.
- Installation flexibility resulting from choice of numerous combinations of solenoid connectors and locations.

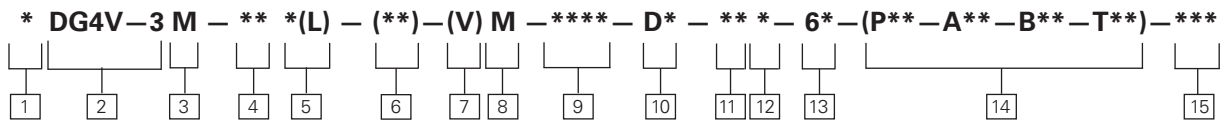
- Viton seals as standard for multi-fluid capability. Nitrile seals available as a model code option.
- Higher sustained Machine productivity and higher uptime because of proven fatigue life and endurance, tested over 20 million cycles.
- Solenoid coils can be changed quickly and easily without leakage from hydraulic system.
- Compact, cost effective system design when used with Eaton® SystemStak™ valves and subplates.

DG4V-3M High Performance Valves

- Minimum pressure drop 2.5 bar at 30 l/min.
 - Range of coil connectors including DIN and Deutsch.
 - Range of coil voltages and power options.
 - Up to 80 l/min (21 USgpm) and up to 40 l/min (10.5 USgpm) respectively at 350 bar (5000 psi).
 - Offers designers the opportunity to select the optimum value package for each application.
- International standard interface. The valve mounting face conforms to ISO 4401, size 03 and is compatible with related international standards.
 - Rigorous coil tests for added protection against physical and environmental damage. Details on page R-3.
 - Rated to IP69 best in the class



Model Code



1 Seal Type

Blank – Viton
F6 – Buna Nitrile/High CAN

2 Model series

4 – Solenoid operated
V – Pressure rating 350 bar (5000 psi) on P, A & B ports
3 – ISO4401 Size 03

3 Performance

M – Mobile high performance

4 Spool Type

Please refer functional symbols on Page 5 for spool types.

5 Spool Spring Arrangement

A – Spring offset, end-to-end
AL – Same as “A” but left hand build
B – Spring offset, end to center
BL – Same as “B” but left hand build
C – Spring centered
N – No-spring detented

6 Manual Override Option

Blank – Plain override(s) in solenoid end(s) only ▲
H – Water-resistant override(s) on solenoid end(s) ▲
Z – No overrides at either end

▲ No override in non-solenoid end of single solenoid valves

7 Solenoid Energization Identity

Blank – None
V – Solenoid “A” is at port “A” end and/ or solenoid “B” is at port “B” end, independent of spool type

NOTE: Used to select the identification of the solenoid. Refer to table on page 4.

8 Flag Symbol

M – Electrical options and features

9 Coil Type

U – ISO4400, DIN43650 connector
U1 – ISO4400 fitted with PG11 plug
KUP5 – Integral Deutsch connector

10 Surge Suppressor/Damper

D – Zener Diode

See Page12 for circuit details

11 Coil Rating

G – 12V DC
GL – 12V DC
H – 24V DC
HL – 24V DC

12 Tank Pressure Rating

Refer to “Operating Data” for port T pressure ratings.
7 – 207 bar (3000 psi)

13 Design Number

65 – Basic design

14 Orifice Plug

00 – No orifice required
03 – 0.3 mm dia.
06 – 0.6 mm dia.
08 – 0.8 mm dia.
09 – 0.9 mm dia.
10 – 1.0 mm dia.
13 – 1.3 mm dia.
15 – 1.5 mm dia.
20 – 2.0 mm dia.
23 – 2.3 mm dia.

15 Reverse Coil Option

RC – Both Coils reversed
RCA – A Coil Reversed
RCB – B coil reversed

NOTE: See page 10.

Operating Data

Feature	DG4V-3M
Pressure Limits P, A and B ports	350 bar (5075 psi)
T port:	210 bar (3045 psi)
Flow rating	See performance data
Relative duty factor	Continuous; ED = 100%
Type of protection: ISO 4400 coils with plug fitted correctly	IP69K for Deutsch type IP65 for DIN type
Coil winding	Class H
Coil encapsulation	Class F
Permissible voltage fluctuation:	
Maximum	Refer to temperature limits.
Minimum	90% rated
Typical response times at 100% rated volts measured from application/removal of voltage to full spool displacement of "2C" spool at:	
Flow rate P-A, B-T	20 l/min (5.3 USgpm)
Pressure	175 bar (2537 psi)
AC (~) energizing	18 ms
AC (~) de-energizing	32 ms
DC (=) energizing	60 ms
DC (=) de-energizing	40 ms

Power consumption, DC solenoids at rated voltage and 20 C (68 F).

Full power coils:

12V, model type "G"	30W
24V, model type "H"	30W

Low power coils:

12V, model type "GL"	18W
24V, model type "HL"	18W

▲ 1st half cycle; armature fully retracted.