Model Code – K*G4V-3S Standard Performance Valves

K * G 4 V - 3 S - * * * (L) * * * - (* *) - (V) M * * * * * * * (1) - * * 5 - 60 - (EN * *)

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23

1 Valve type

K – Proportional

2 Valve function

D – Directional valve (Double solenoid, C models. See item 9.)
T – Throttle valve (Single solenoid, B and F models. See item 9.)

3 Mounting

G – Subplate/manifold mounted

4 Operation

4 – Solenoid operated

5 Pressure rating

V – 350 bar (5075 psi) on P, A, and B ports

6 Interface

3 – ISO 4401-03, CETOP 3 (NFPA D03)

7 Performance

S – Standard performance

8 Spool type (center condition)

2 – Closed center (all ports)
33 – P port closed, bleed A and B to T

9 Spool/spring arrangement

B – Spring centered, solenoid A removed
C – Spring centered, dual solenoid
F – Spring offset to A port, shift to center

10 Build

L – Left-hand build (single solenoid only)
Blank – Standard right-hand build

11 Spool flow rating

For looped flow path P→A→B→T or P→B→A→T: Δp=10 bar (145 psid).
For single flow path P→A or B→T: Δp= 5 bar (72 psi).

08 – 8 L/min (2 USgpm)
15 – 15 L/min (4 USgpm)
19 – 19 L/min (5 USgpm)
22 – 22 L/min (5.8 USgpm) – available with KDG4V-3S-33C22A only

12 Metering condition

S – Meter out only
A – Meter in only
N – Meter in and meter out

Note: See table on page 8 for available combinations of spools, spool/spring arrangements, and metering conditions.

13 Manual override

P2 – Plain override in both ends of single solenoid models
H – Waterproof override in solenoid ends only
Blank – Plain override in solenoid ends only

14 Solenoid energization identity

V – Solenoid identification determined by position of solenoid (solenoid A on A port end, solenoid B on B port end)
Blank – Standard per ANSI B93.9 (energize solenoid A, flow is (P→A)

15 Flag symbol

M – Electrical options and features

16 Coil type

F – Flying lead and wiring box
U – DIN 43650 connector
SP1 – Single 6,3 mm spade IEC-760 (direct DC only)
SP2 – Dual 6,3 mm spade IEC-760

17 Electrical connections

T – Wiring terminal block
PA3 – 3-pin conduit connector
PA5 – 5-pin conduit connector

18 Wiring housing thread

W – $^1/_2$" NPT
J – 20 mm

19 Electrical options

1 – ISO 4400 with DIN 43650 plug supplied (U coil type models only)

20 Coil voltage rating

G – 12V DC*
H – 24V DC*
GP – Direct 12V DC or EM-VP/VT amplifier
HA – Direct 24V DC or EM-VP/VT amplifier

** Amplified models, current controlled*

21 Tank pressure rating

5 – 100 bar (1450 psi) for

22 Design number

Subject to change.

23 Special modifications

EN-427 – Applies to KTG4V only. One spool designation only and preset adjuster; see page 16.
Note: This valve is recommended for use with Vickers Valvistor® control valve.

KDG4V-3S and KTG4V-3S Application Data

Specifications

Maximum operating pressure (A, B and P ports)
350 bar (5000 psi)
(See “Flow Gain Curves”)

Maximum tank line pressure (T port)
K*G4V-3S:100 bar (1450 psi)

Maximum recommended pressure drop (four–way models at max. flow)
210 bar (3000psi)*

*At pressure drops above 10 bar (145 psid) dither amplitudes in the electronic controller may need to be set at or near minimum to eliminate potential high frequency circuit noise.

Mounting pattern
ISO–4401–AB–03–4–A, NFPA D03, CETOP 3

Operating temp . . . 20° to 82°C (–4° to 180°F)

Fluid viscosity . . . 16 – 54 cSt (75–250 SUS)

Weights (approximate)
KDG4V–3S–*–60 . . 2,3 kg (5.06 lbs.)
KTG4V–3S–*–60 . . 1,75 kg (3.85 lbs.)

Performance

Frequency Response
18Hz @ –3db
(10Hz @ 45 degree phase lag)
For an amplitude of 25% max stroke (center to offset) about the 50% position and ΔP (P–A–B–T) = 10 bar (145 psid). See graph on page 14.

Hysteresis
With pulse width modulation: 4%
With direct DC voltage (GP & HA): 8%

Repeatability: 1%

Deadband : 15–35% of full solenoid input. Vickers electronic controllers have a deadband eliminator to reduce this value to near zero.

Solenoid Specifications

Maximum current @ 50°C (122° F) ambient

G	3.2A
H	1.6A

Power Consumption @ 20°C (68°F)

G	18 Watts
H	18 Watts
GP	30 Watts
HA	30 Watts

Coil Resistance @ 20°C (68° F)

G	1.8 Ohms
H	7.3 Ohms
GP	4.9 Ohms
HA	19.6 Ohms

Coil Inductance @ 1000 Hz

G	7.5 mH
H	29 mH
GP	16 mH
HA	67 mH

Step Response Time

The following response times were measured from the point of energization/de-energization to the point of first indication of inlet pressure change.

Response up to full system pressure is dependent on the system’s compressed volume and can vary with each application.

0–100% (center to full spool travel)
100 msec

100–0% (full spool travel to center – fast drop out)
15 msec

10–90% (10% full flow to 90% full flow)
100 msec

90–10% (90% full flow to 10% full flow)
25 msec

100–100% (100% full flow travel in one direction to 100 % full flow travel in the reverse direction)
80 msec

Spool, Spool/Spring, Metering

Refer to the table below for the available spools, spool/spring arrangements and metering conditions.

For example, if a KD valve with a “33” spool is required, the spool/spring arrangement is “C” and the metering condition available is “A”. Refer to “Model Code” for a definition of these codes.

Model	Spool	Spool/Spring Arrangement	Metering Condition
KD	2	C	N or S
	33	C	A
KT	2	B or F	N
	33	B	A

Amplifiers

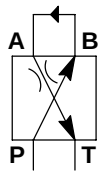
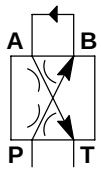
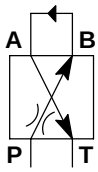
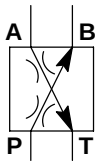
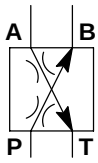
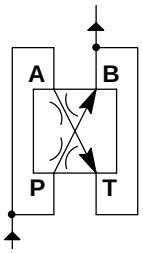
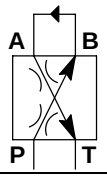
Coil Voltage Identification Letter	Amplifier
H	EEA–PAM–523–A–32 EEA–PAM–523–B–32 EEA–PAM–523–C–32 EEA–PAM–523–D–32 EEA–PAM–523–E–32 EEA–PAM–523–F–32
H	EEA–PAM–520–A–14 (for use with EN427 models)
GP	EM–VT–12–10† EM–VP–12–10†
HA	EM–VT–24–10† EM–VP–24–10†
	Plug Amplifier
G	EHH–AMP–712–D/G–20
H	EHH–AMP–702–C–20 EHH–AMP–702–D–20 EHH–AMP–702–E–20 EHH–AMP–702–F–20

† *Refer to drawing I-521575 for information.*

Drain

On 2-way valves, “T” is the drain and must be connected to the tank through a surge-free line, so there will be no back pressure at this port.

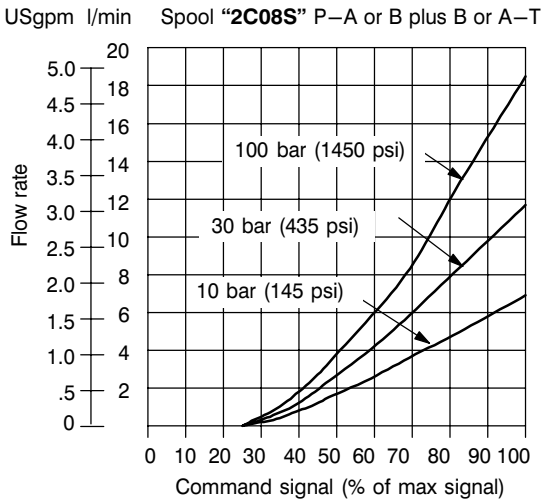
KDG4V-3S and KTG4V-3S Flow Paths

Valve/Flow Path	Spool	Symbol
KDG4V-3S with Looped Flow Path. P→A or B, plus B or A→T	2C08S 2C15S 2C19S	
	2C08N 2C15N 2C19N	
	33C08A 33C15A 33C22A	
KDG4V-3S with Single Flow Path. P→A or B, or A or B→T	2C08N 2C15N 2C19N	
KTG4V-3S with Single Flow Path. P→A or B, or A or B→T	2B08N 2B15N 2B19N	
KTG4V-3S with Parallel Flow Path. P→B and A→T	2B08N 2B15N 2B19N	
KTG4V-3S with Looped Flow Path. P→A or B, plus B or A→T	2B08N 2B15N 2B19N	

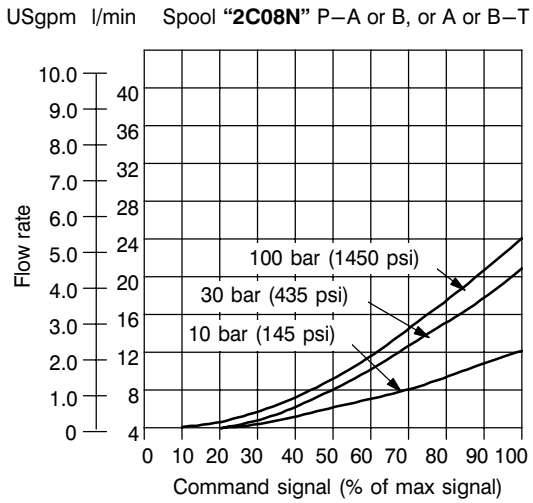
KDG4V-3S Flow Gain Curves

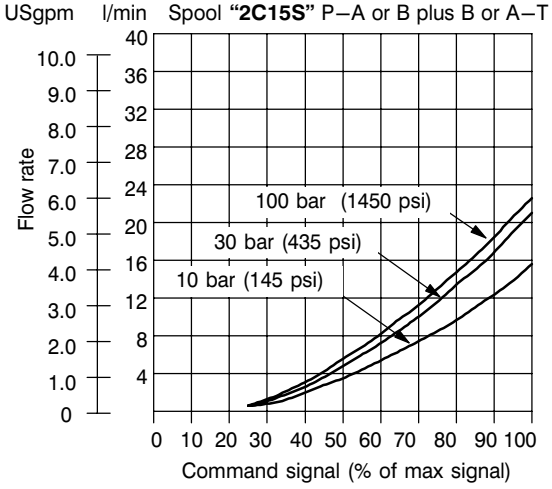
At the stated valve pressure drops, the percentage command signals are applicable to whichever solenoid is energized.

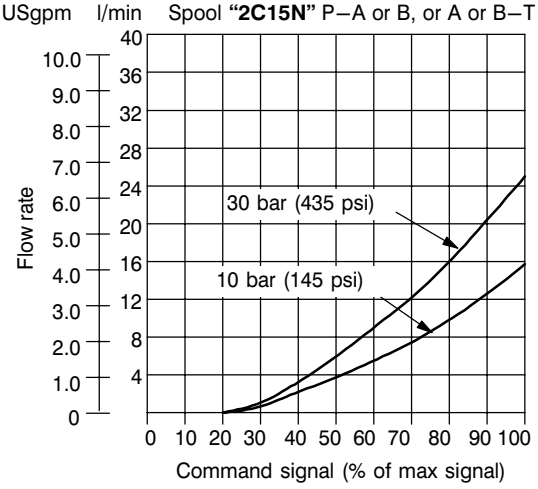
Looped Flow Path

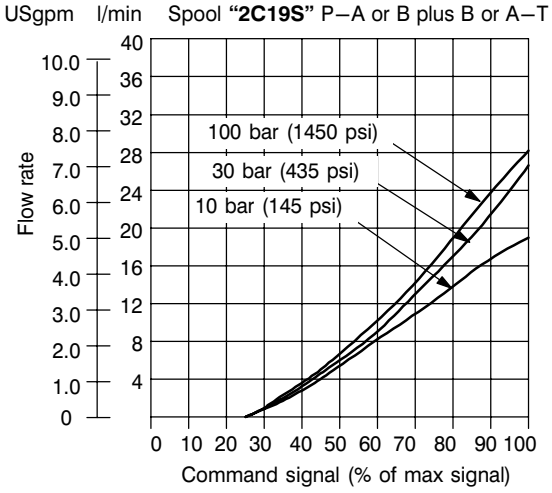


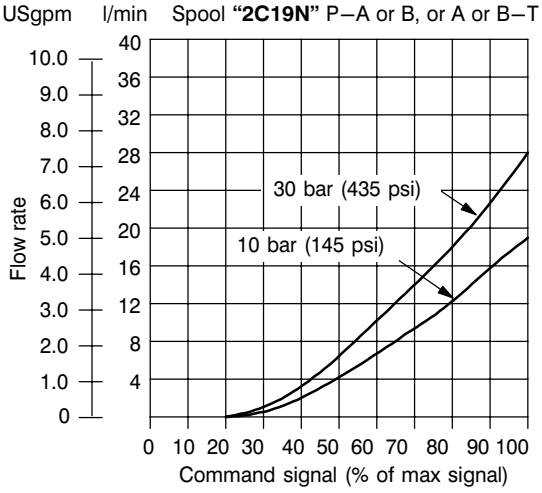
Looped Flow Path





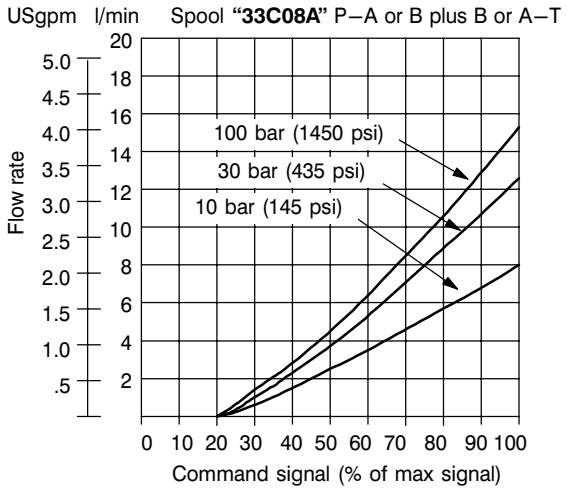


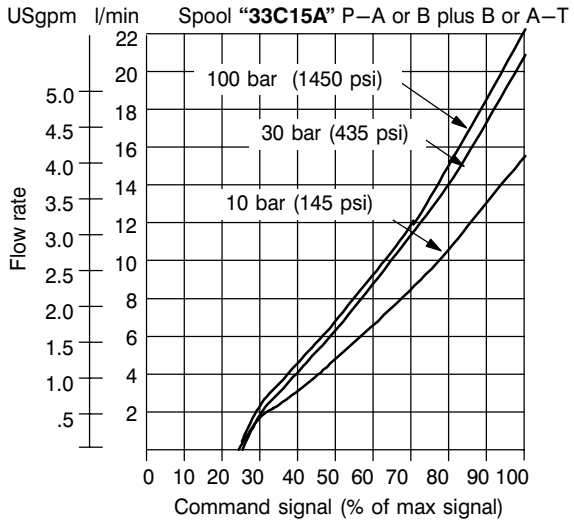


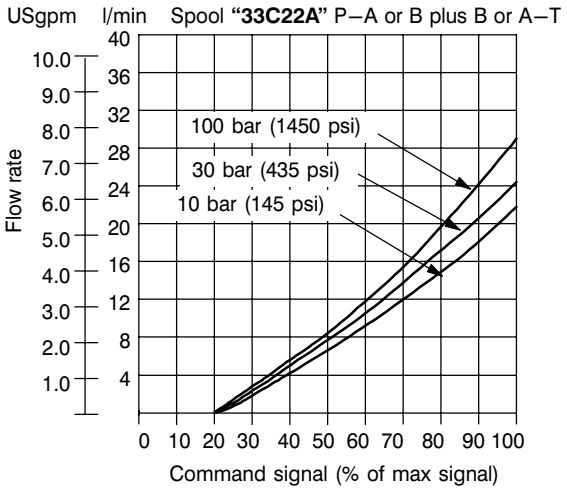


At the stated valve pressure drops, the percentage command signals are applicable to whichever solenoid is energized.

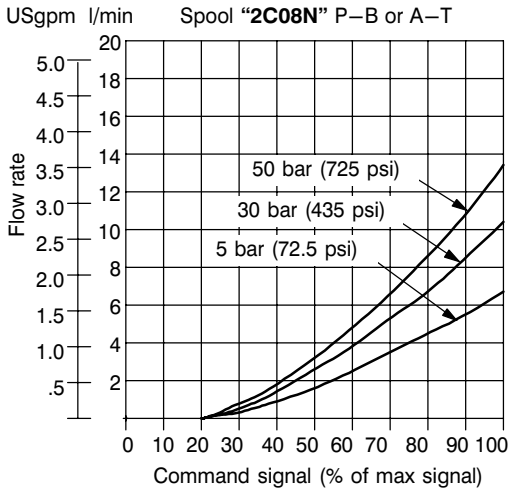
Looped Flow Path

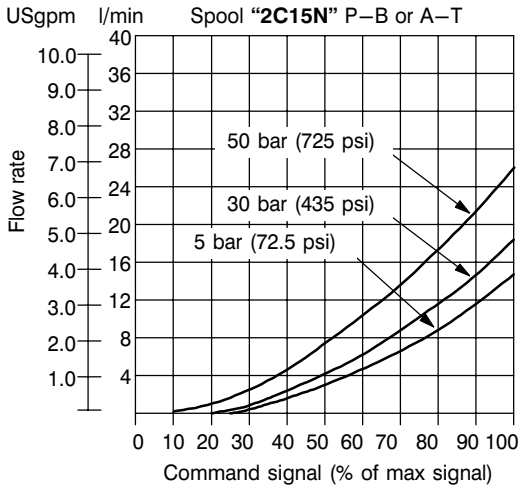


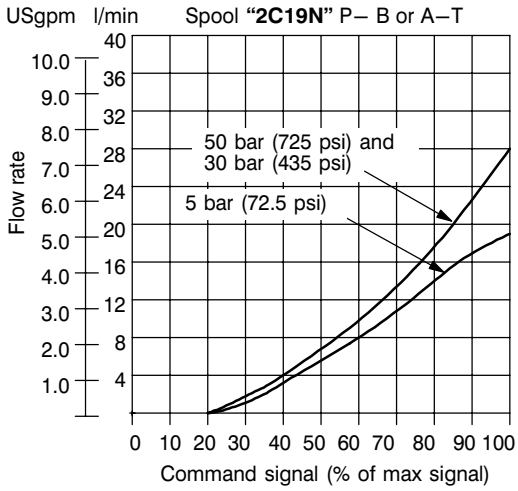




Single Flow Path



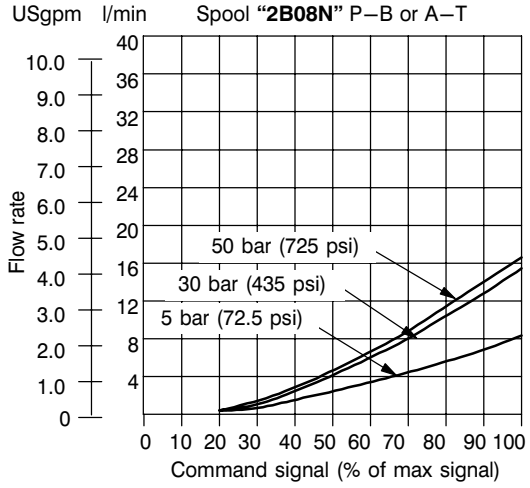


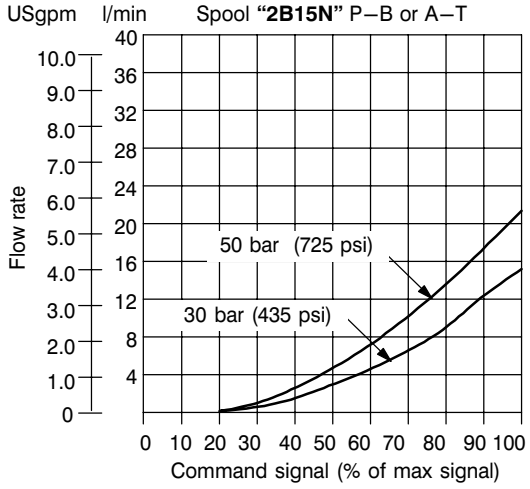


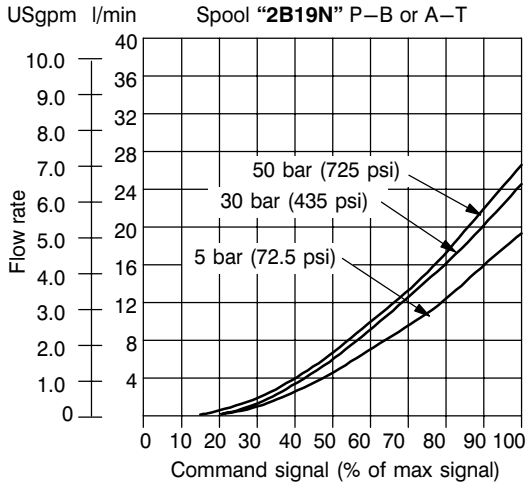
KDG4V-3S Flow Gain Curves

At the stated valve pressure drops, the percentage command signals are applicable to whichever solenoid is energized.

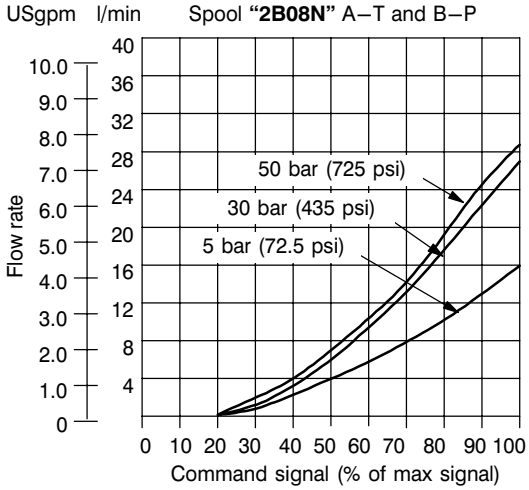
Single Flow Path

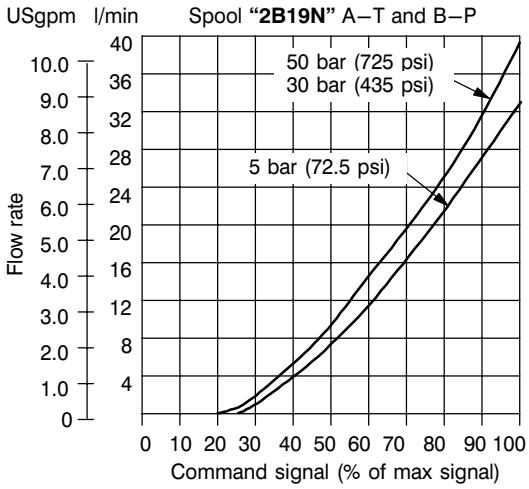


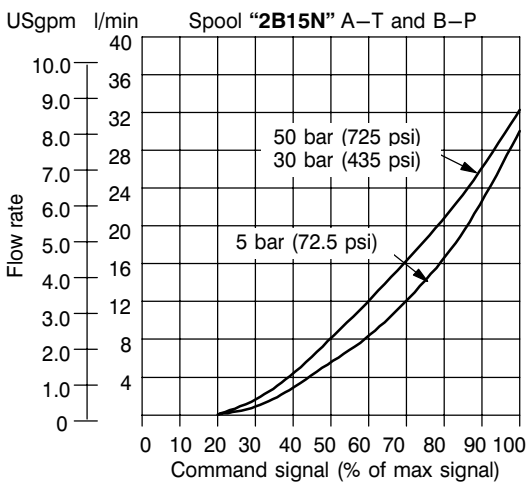




Parallel Flow Path

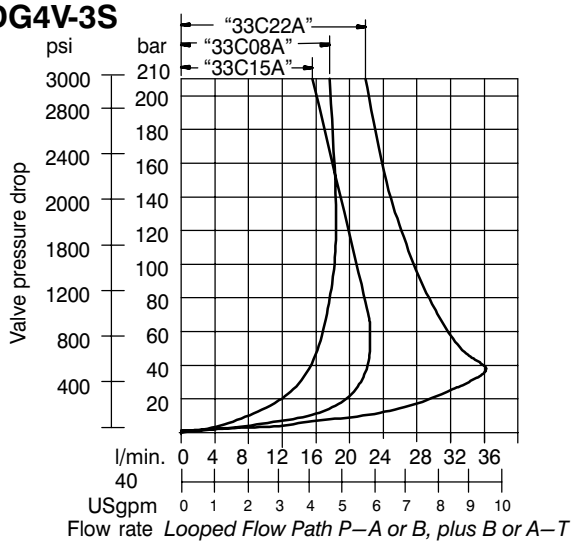


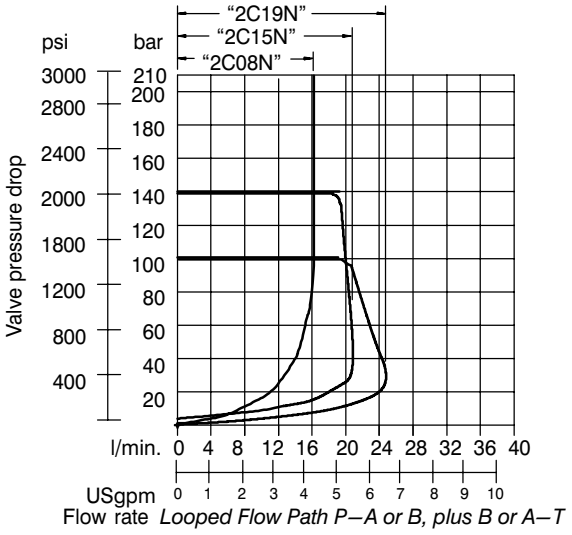


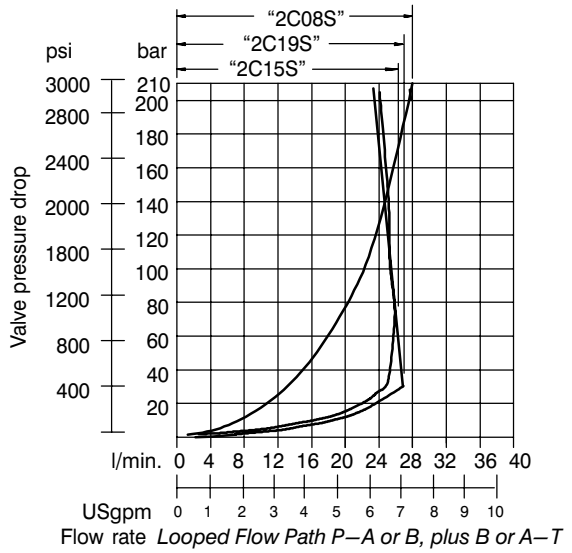


KDG4V-3S and KTG4V-3S Power Capacity Envelopes

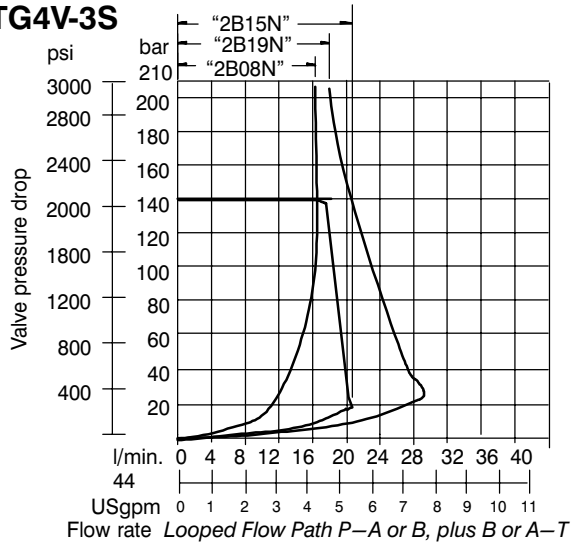
KDG4V-3S

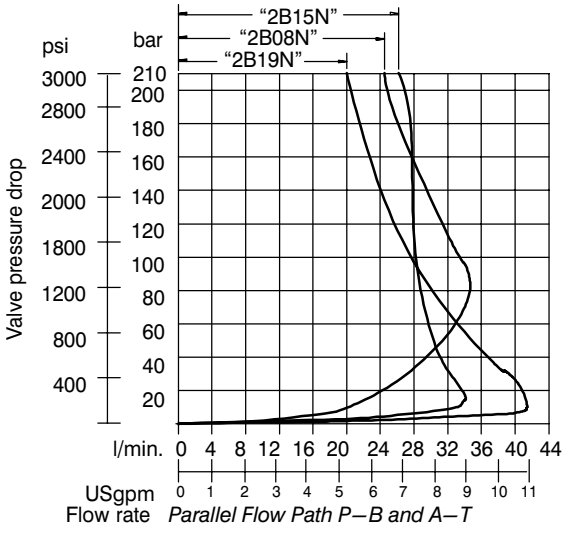


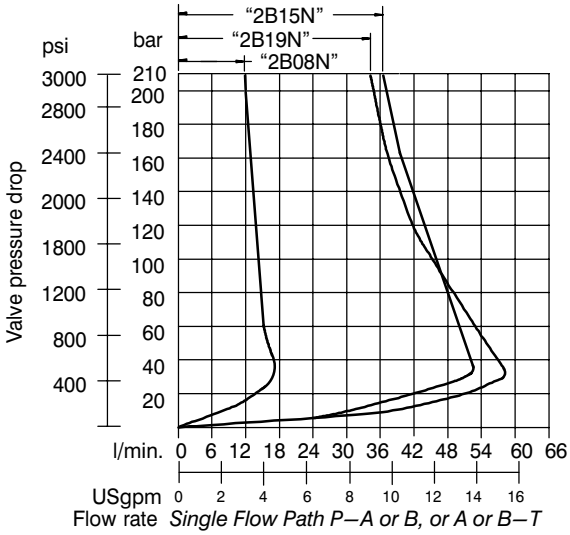




KTG4V-3S

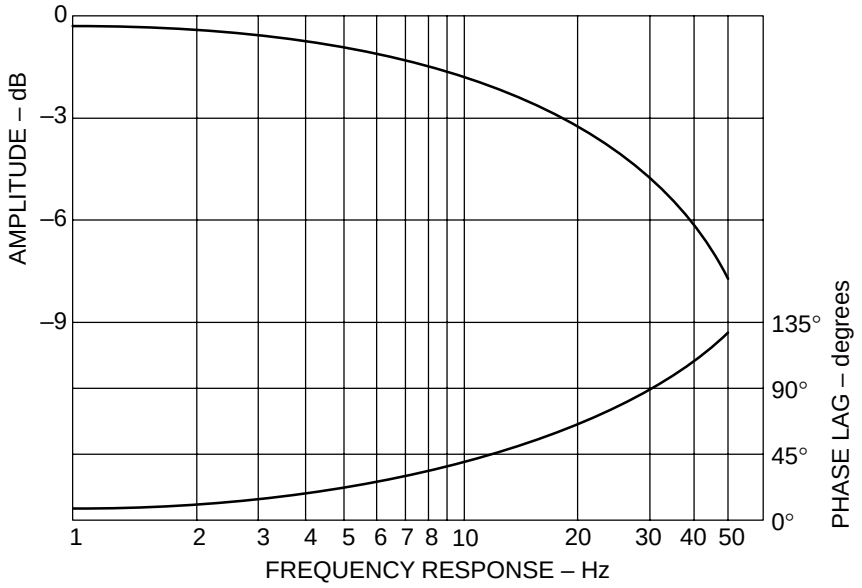






KDG4V-3S and KTG4V-3S Frequency Response

For amplitude of ±25% maximum stroke
(center to offset) about 50% position and
Δp (P→A→B→T)=10 bar (145 psi).

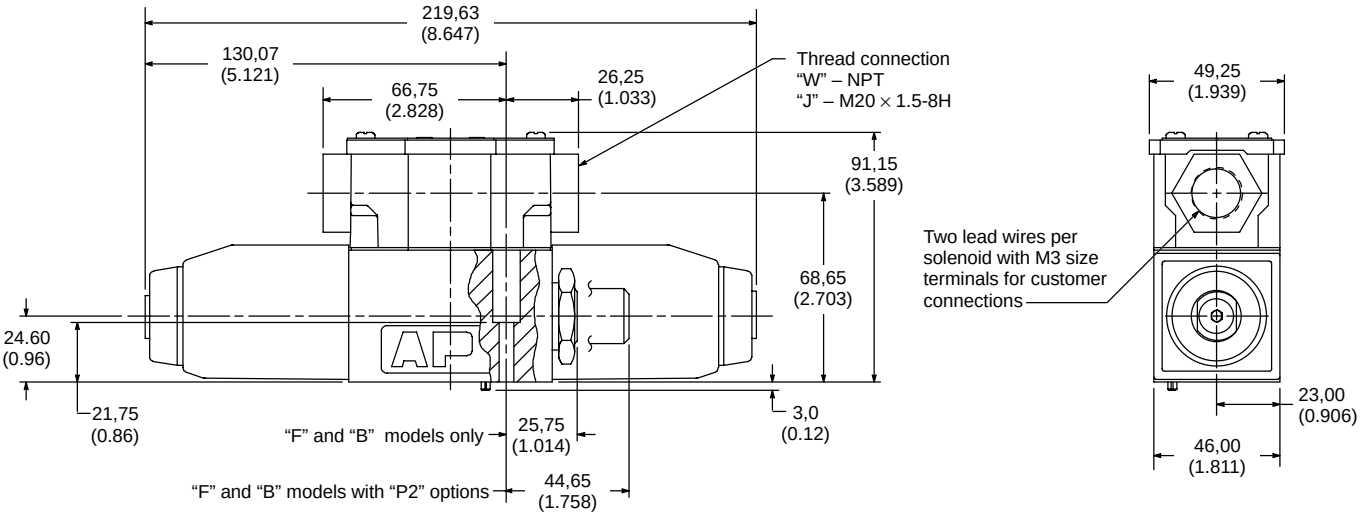


KDG4V-3S and KTG4V-3S Installation Dimensions

KDG4V-3S and KTG4V-3S with Junction Box

Dimensions in mm (inches)

3rd angle projection



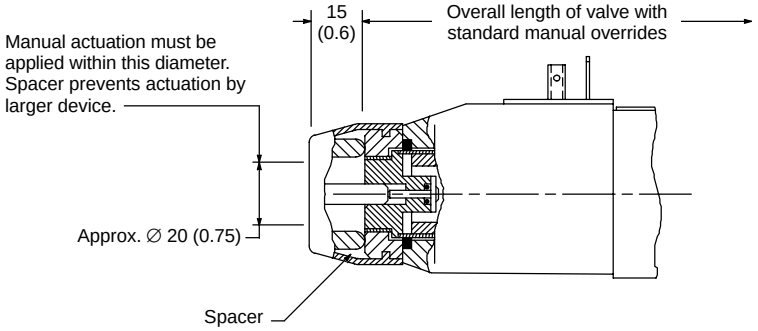
Water-resistant Manual Override on Solenoid

K*G4V-3S-(L)-H-(V)M-**-**-60**

Dimensions in mm (inches)

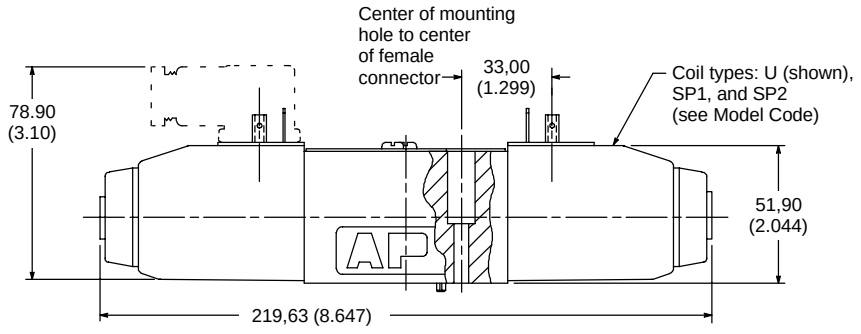
Use where finger operation is required. (Standard manual overrides cannot be operated without using small tool.)

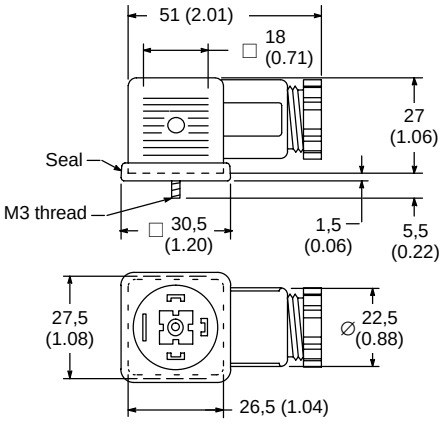
This "H" feature is not field-convertible from other models. Please specify with order.



KDG4V-3S (shown) and KTG4V-3S with DIN Connectors

Dimensions in mm (inches).





Plug connector can be positioned in 90° increments on valve by removing connector housing and re-assembling contact holder at desired orientation inside housing.

DIN 43650 plug connector can be ordered separately or included with valve by specifying 1 for Model Code item 19.

Means of connection: screw terminals

Conductor cross-sectional area:
0,5 to 1,5 mm^2 (0.0008 to 0.0023 in^2)

Cable diameter:
6 to10 mm (0.24 to 0.40 in)