Introduction of GBV100

GBV100 Proportional valve is a load sensitive and post-pressure compensated proportional valve. For post-pressure compensation valve, it can distribute flow proportionally for each working function. Because of the pressure compensation, working flow is independent of load. All the proportional valves in this series have been load sensing and spring return. We can choose different cartridge unit for the main valve body to accomplish different function. This series valve is building with modular design concept, system designer can choose different module to accomplish various complicated system design. Valve spool can provide excellent flow characteristics and low flow force.

Functions

- Inlet section matches with fixed displacement pump
- Inlet section matches with variable displacement pump
- Multiple control operations
- Overload protections
- Manual proportional valve can provide mechanical and friction detent
- Main valve with float function

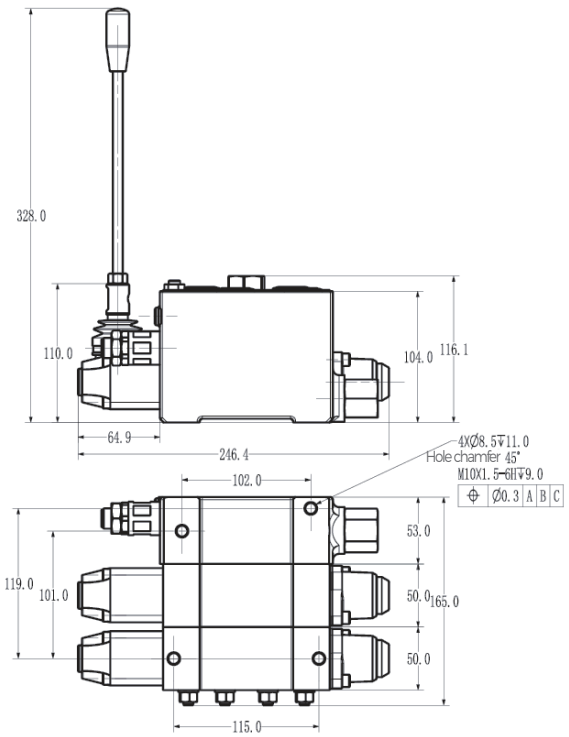
Valve Options

- Manually controlled proportional valve or mechanically controlled flow sharing proportional valve
- Hydraulic pilot controlled proportional valve or hydraulic pilot controlled flow sharing proportional valve
- Electrically controlled on/off valve or electrically controlled flow sharing proportional valve
- Electro-hydraulic proportional valve or electro-hydraulic flow sharing proportional valve

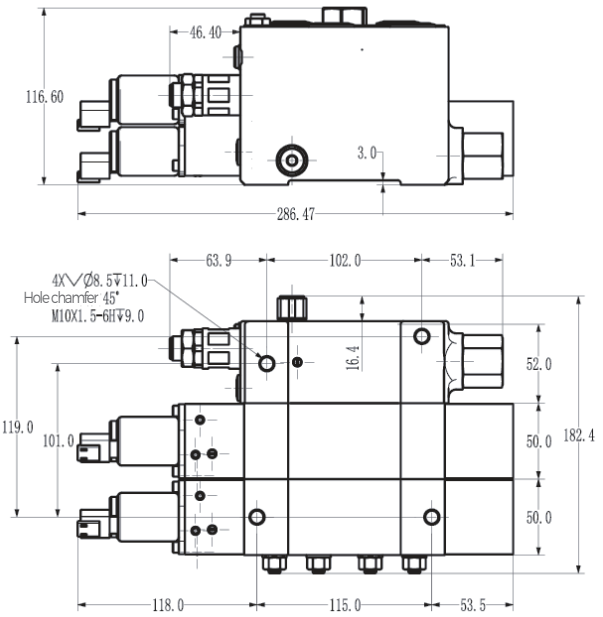
Max flow of this series is 100L/min. Rated pressure is 31MPa. Inermittent pressure is 35 MPa.
Electro-Hydraulic proportional valve can use two direct current coils: 12VDC and 24VDC, relevant current is 0 ~ 1.5 Amp and 0 ~ 0.75 Amp.

Dimensions

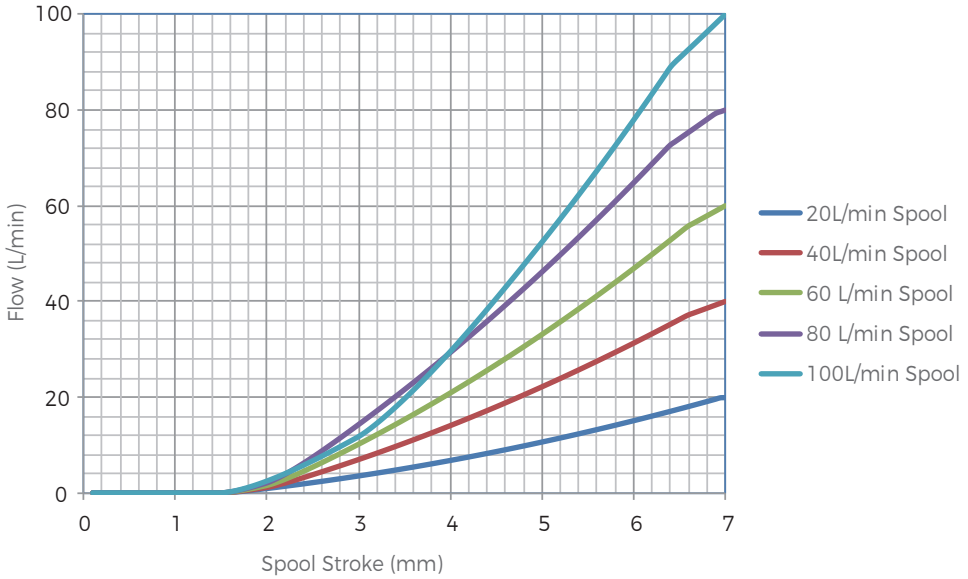
Two Sections Manually Operated Proportional Valve



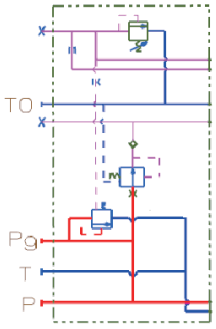
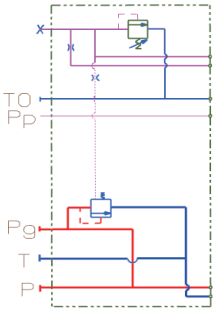
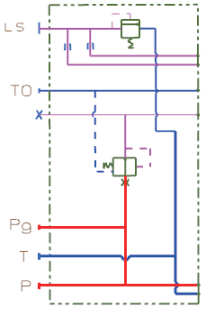
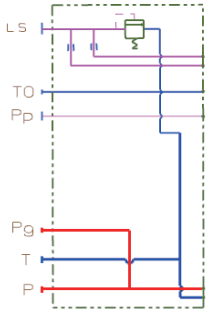
Two Sections Electro-hydraulic Proportional Valve



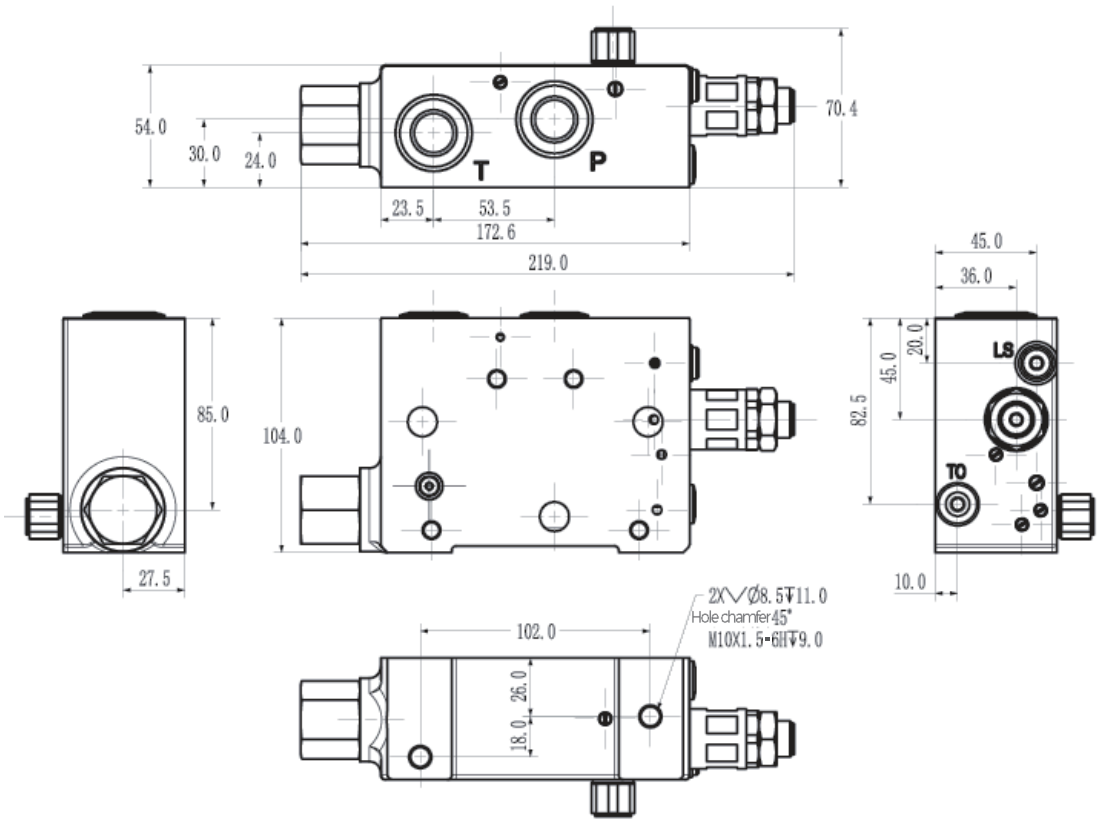
Characteristic for Standard Spool



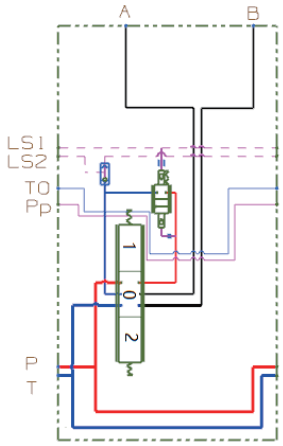
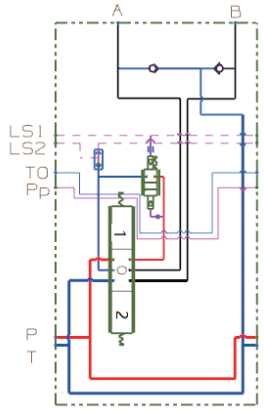
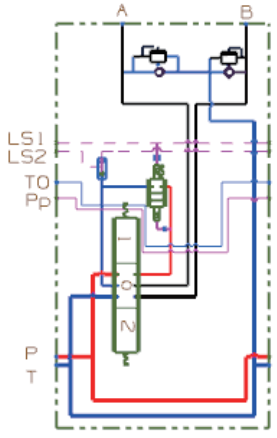
Inlet Section Valve Functions and Schematics

Code	Schematics	Functions	Standard Port Sizes
J01		Used in fixed displacement pump system with pilot oil source	Pg: M14X1.5, G1/4 T0: M14X1.5, G1/4 T: M27X2, G3/4 P: M27X2, G3/4
J02		Used in closed circuits with fixed displacement pumps. Requires external pilot oil source	Pp: M14X1.5, G1/4 Pg: M14X1.5, G1/4 T0: M14X1.5, G1/4 T: M27X2, G3/4 P: M27X2, G3/4
J03		Used in closed circuits for variable displacement pumps with pilot oil source	LS: M14X1.5, G1/4 Pg: M14X1.5, G1/4 T0: M14X1.5, G1/4 T: M27X2, G3/4 P: M27X2, G3/4
J04		Used in closed circuits with variable displacement pumps. Requires external pilot oil source	LS: M14X1.5, G1/4 Pp: M14X1.5, G1/4 Pg: M14X1.5, G1/4 T0: M14X1.5, G1/4 T: M27X2, G3/4 P: M27X2, G3/4

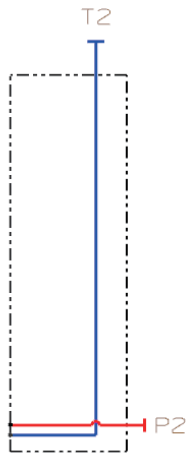
Inlet Section Dimensions



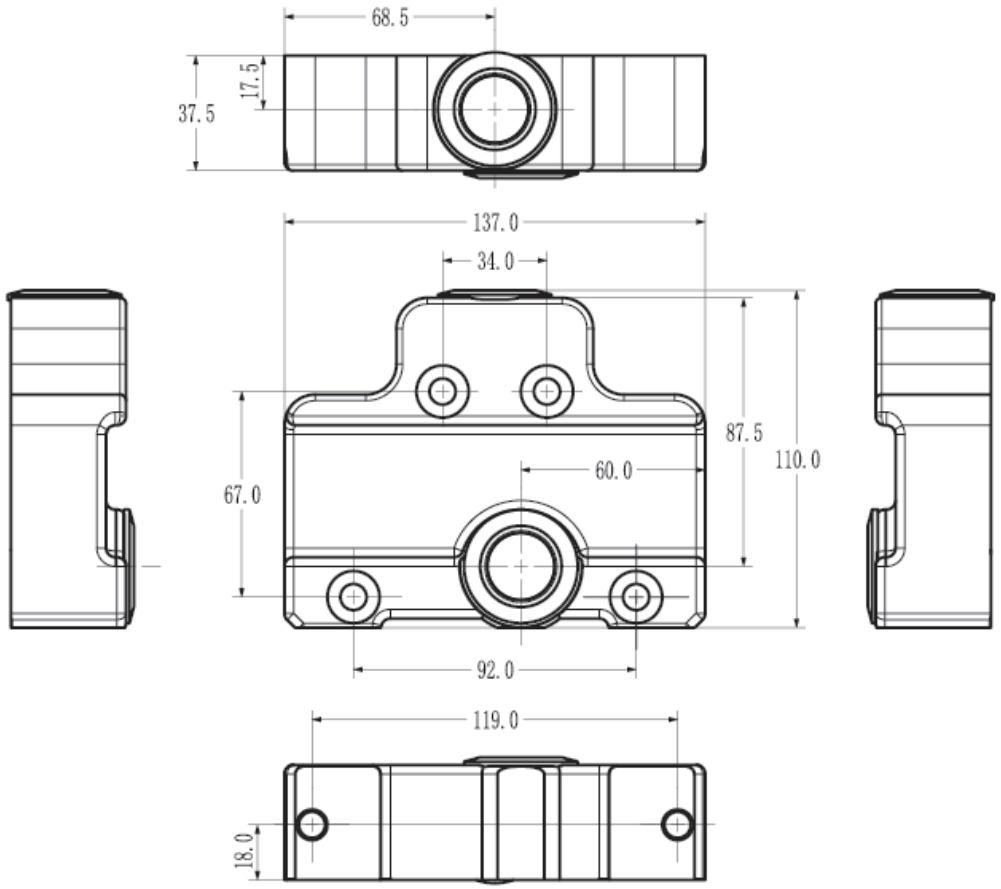
Main Valve Functions and Schematics

Code	Schematics	Functions	Notes
Z01		Post-pressure compensation (proportional flow sharing) Basic valve body	Standard port sizes Working oil ports A and B: M27×2, G3/4
Z02		Post-pressure compensation (proportional flow sharing) Check valve in working port to prevent cavitation of system	Usually used in hydraulic motor
Z03		Post-pressure compensation (proportional flow sharing) Relief valve in working port to prevent overload and check valve to prevent cavitation of system	

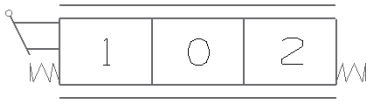
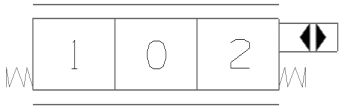
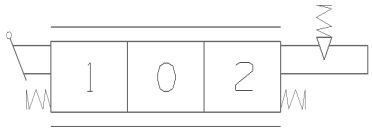
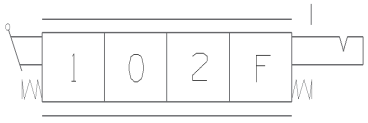
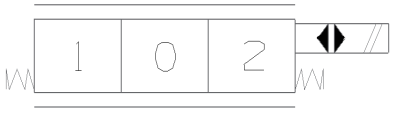
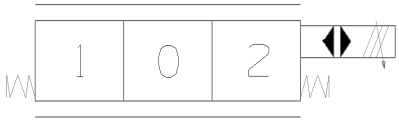
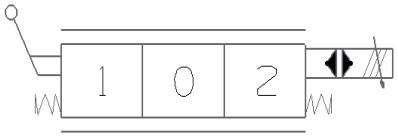
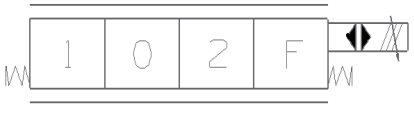
End Cap Functions and Schematics

Code	Schematics	Functions	Notes
D01		Usually used with fixed displacement pump	Port Size T2: M22×1.5 P2: M22×1.5

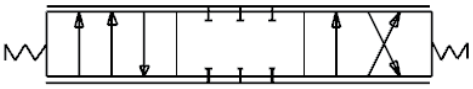
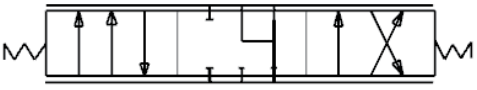
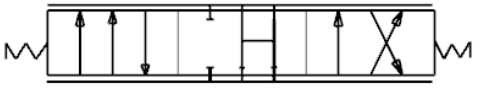
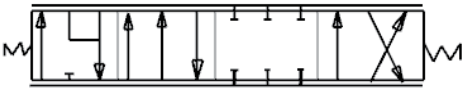
Dimensions of End Cap



Drive Types for Main Valve Section

Code	Symbol	Functions
Q1		Standard manually operated
Q2		Hydraulic control
Q3		Manually operated with detent
Q4		Manually operated with floating function
Q5		Electric control(on/off)
Q6		Standard electro-hydraulic proportional control
Q7		Standard electro-hydraulic proportional control with manual overide
Q8		Standard electro-hydraulic proportional control with floating function

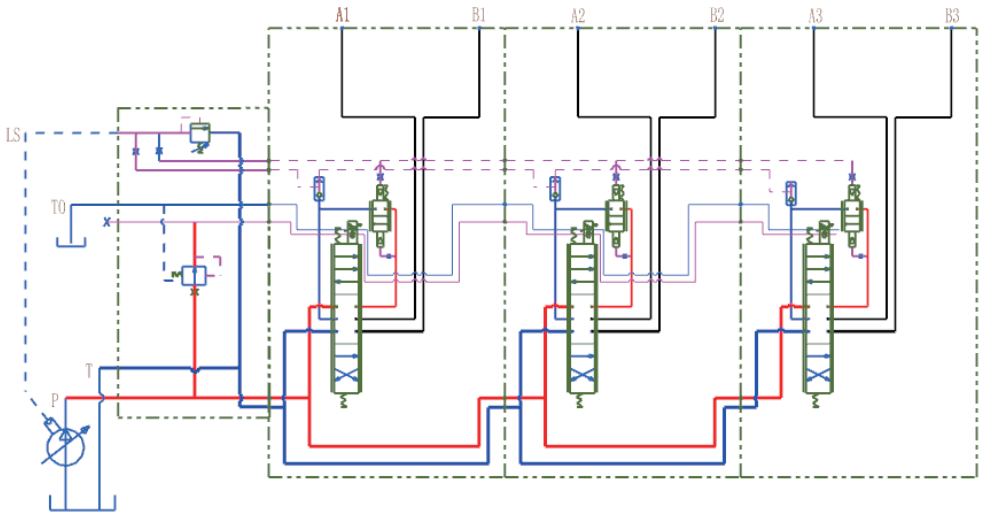
Main Spool Functions

Code	Spool Type	Functions	Notes
FG1		Standard 3 position-4 way O middle function Post-pressure compensation	Usually used in controlling cylinder
FG2		3 position-4 way Y middle function Post-pressure compensation	Usually used in controlling motor
FG3		3 position-4 way H middle function Post-pressure compensation	Usually used in controlling cylinder
FG4		Standard 4 position-4 way with floating function Post-pressure compensation	Usually used in controlling cylinder

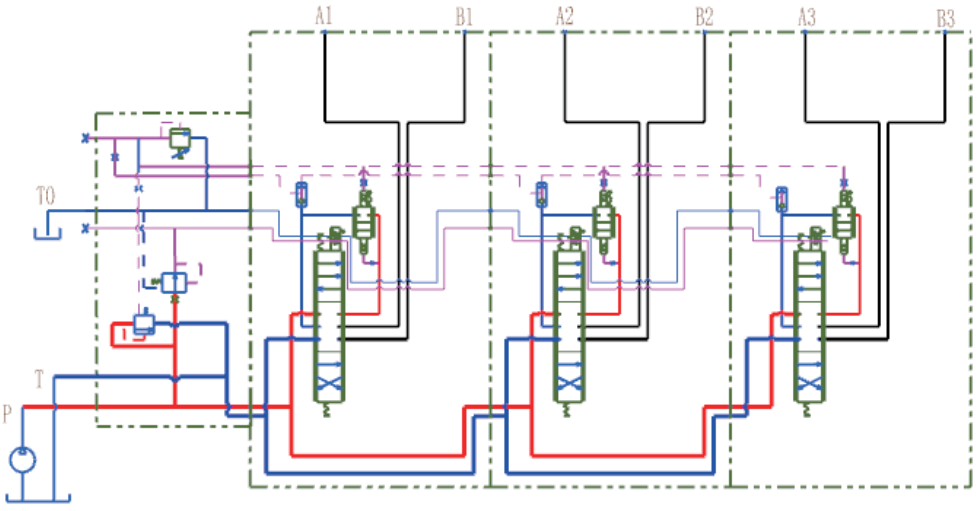
** All spools are spring centered.

Hydraulic System Examples

Electro-hydraulic Proportional Control System with Variable Displacement Pump
(Post-pressure Compensation)



Electro-hydraulic Proportional Control System with Fixed Displacement Pump
(Post-pressure Compensation)



Ordering Code

GBV100	/*	-J**	/***	-D**	-O1	-Z**	Q*	-FG*	-DC/**	-QL/***	-O2	...
a	b	c	d	e	f	g	h	i	j	k	l	m

ⓐ Model
ⓑ Number of main section
ⓒ Inlet section code
ⓓ Relief setting (bar)
ⓔ End section code (End cap)
ⓕ First main section
ⓖ Main section code
ⓗ Drive style code
ⓘ Spool function code
ⓙ Electrical option
12VDC, 24VDC, 00=None electrical
ⓚ Flow rate
ⓛ Second section
ⓜ .....

**Port Size: If user do not want our standard size, you have to not only provide ordering code, but also you have to specify all the port sizes.

Ordering Example

GBV100	/3	-J03	/210	-D00	-O1	-Z02	-Q6	-FG1	-DC/24	-QL/100
a	b	c	d	e	f	g	h	i	j	k

ⓐ Model
ⓑ Three main sections
ⓒ Inlet code
ⓓ Relief setting 210bar
ⓔ No end cap
ⓕ First section
ⓖ Main section code
ⓗ Drive style
ⓘ Spool function
ⓙ 24VDC
ⓚ Flow 100L/min

-O2	-Z01	-Q6	-FG1	-DC/24	-QL/80
l	m	n	o	p	q

-O3	-Z01	-Q6	-FG1	-DC/24	-QL/30
r	s	t	u	v	w

ⓛ Second section
ⓜ Main section code
ⓝ Drive style code
ⓞ Spool function code
ⓟ 24VDC
ⓠ Flow 80L/min

ⓡ Third section
ⓢ Main section code
ⓣ Drive style code
ⓤ Spool function code
ⓥ 24VDC
ⓦ Flow 30L/min

Ordering Example Description: The selected valve is GBV100 series, with three sections, a relief valve in the inlet section with a set pressure of 21 MPa, and no end cap (return from the inlet section). The first section is electro-hydraulic proportional drive, "A" and "B" port are no overload valve, using DC voltage 24 volts. The neutral is "O" type, which requires the first section to provide a flow rate of 100 l/min. The second section is electro-hydraulic proportional drive using 24 volts DC. The "A" and "B" ports have no overload protection valves and the neutral is an "O" type, which is required to provide a flow rate of 80 l/min. The third section is an electro-hydraulic proportional drive, with no overload protection valves on the "A" and "B" ports, with an "O" type neutral position, and requires a flow rate of 30 l/min.