Introduction of GKV80

GKV80 series sectional valves are open circuit valves. Mainly used in mobile machines such as agricultural machinery, construction machines, mining equipment, material handling equipment as well as maintenance machines. All valve series adapt modular design. The system designer can choose different modules to design a complex system. Main valve spool is designed to satisfy with the customer requirements, which provides excellent flow characteristics and very low flow force. With different inlet modules, it gives user the freedom for choosing different relief valve and different port locations. There are numbers of different work section modules to choose to satisfy the customer needs. Different end sections also provide the customer needs for return ports or power beyond functions.

Functions

- Inlet section without pilot supply
- A/B Port with overload relief valve on work section
- A port with overload relief valve on work section
- B port with overload relief valve on work section
- A/B ports with P.O. checks
- A port with P.O. check
- B port with P.O. check
- A port with mechanical P. O. check
- B port with mechanical P. O. check
- End section with oil return port
- End section without oil return port
- End section with power beyond
- Provide other cartridge valve option

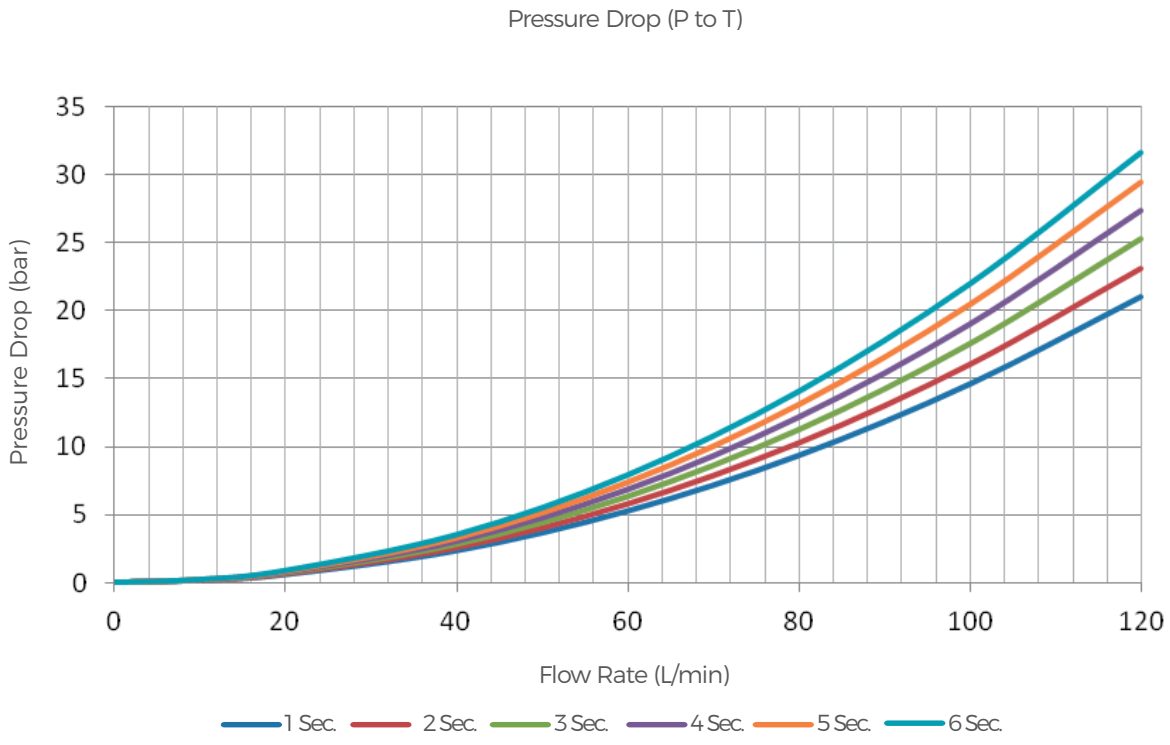
Features

- Cast iron body (inlet section, main section and end section).
- Spring cap, mechanical detent cap, as well as electrical or hydraulic pilot controlled module body are made by cast aluminum or die cast aluminum.
- Parallel circuit. Each section has its own load check valve, each section has load relief option and relief style options.
- Can be changed to series circuit.
- Provides check valve options for each work port.
- Provides different drive modules (electrical, hydraulic remote, manually control, wire driving).
- Provides power beyond port.
- Can be modified to be a closed circuit valve.
- Provides mechanical detent and adjustable detent force.
- Provides options for different relieves and different relief valve locations in the inlet.
- Provides options for P. O. check valve for each work port.
- Provides options for mechanically actuated pilot operated check valves to satisfied with the needs for tractors and mobile cranes.
- Provides different spool functions to be used for controlling double acting cylinder , single acting cylinders, hydraulic motors.
- Provides floating functions for spools.
- Provides excellent flow characteristics and small operating force.
- Can be proportionally controlled without pressure compensation.
- Can be assembled with 1-8 work sections.

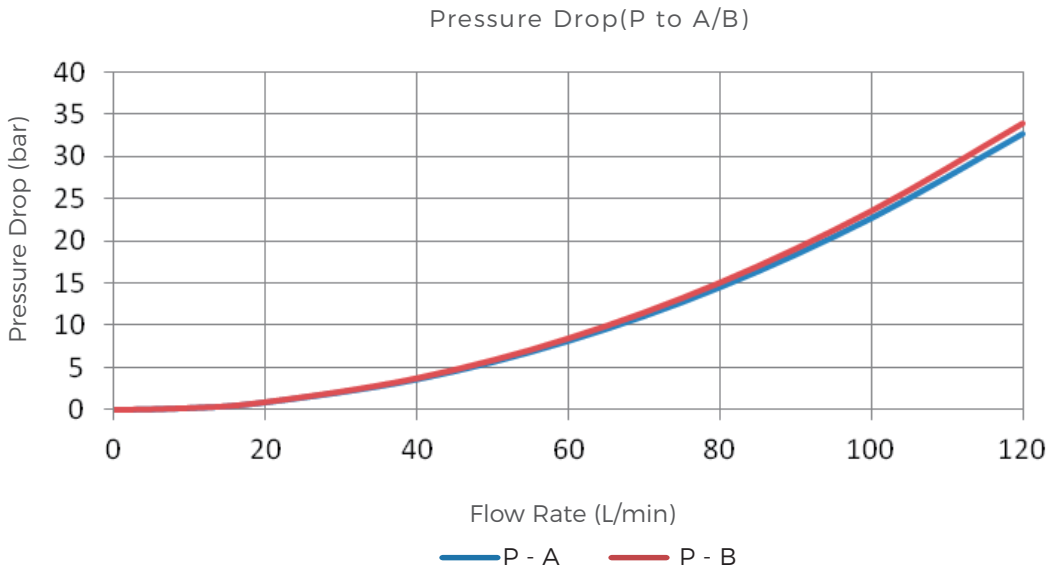
Technical Data

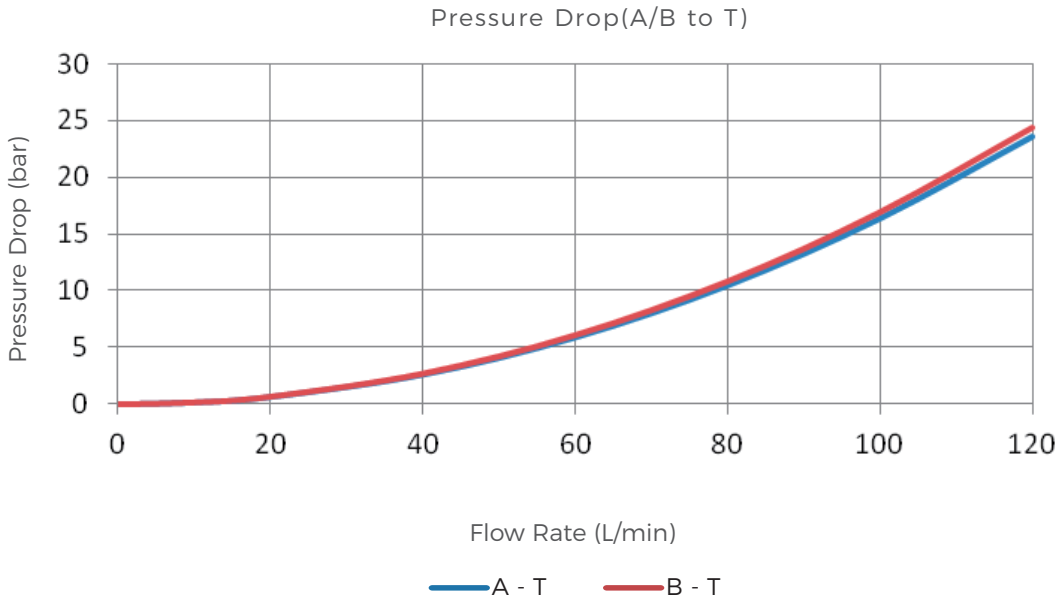
Rated flow rate	80L/min	Max. pressure at T port	25bar
Max. flow rate	100L/min	Internal leakage (@70 bar)A, B to T	＜8cc/min
Min. flow rate	20L/min	With pilot operating check	＜3cc/min
Max. pressure at P port	350bar	Spool stroke (1, 2 position)	+7/-7mm
Max. pressure at A, B port	350bar	With floating function (1, 2 and F position)	+7/-7-10mm
Solenoid can be either 12 or 24VDC, corresponding current is 0-1.5 or 0-0.75 Amp.			

Performance Data

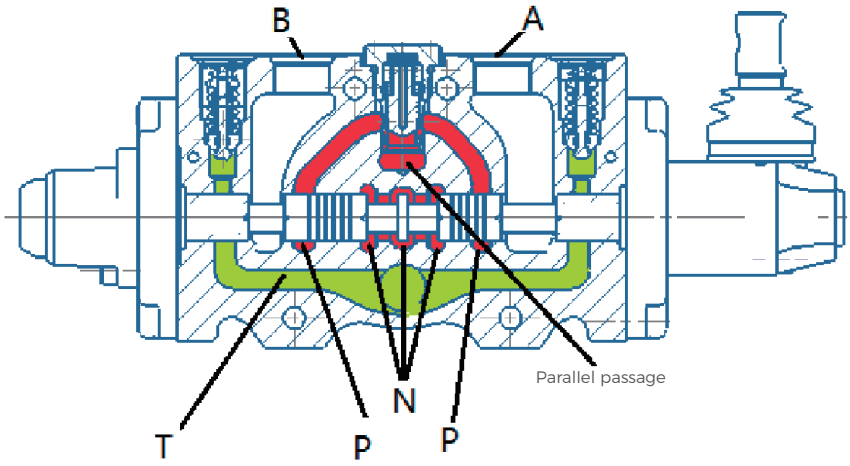


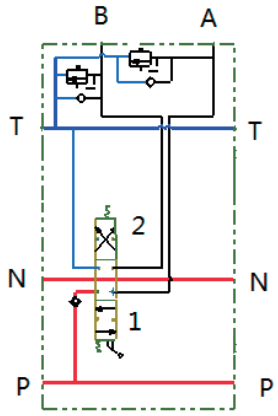
Performance Data



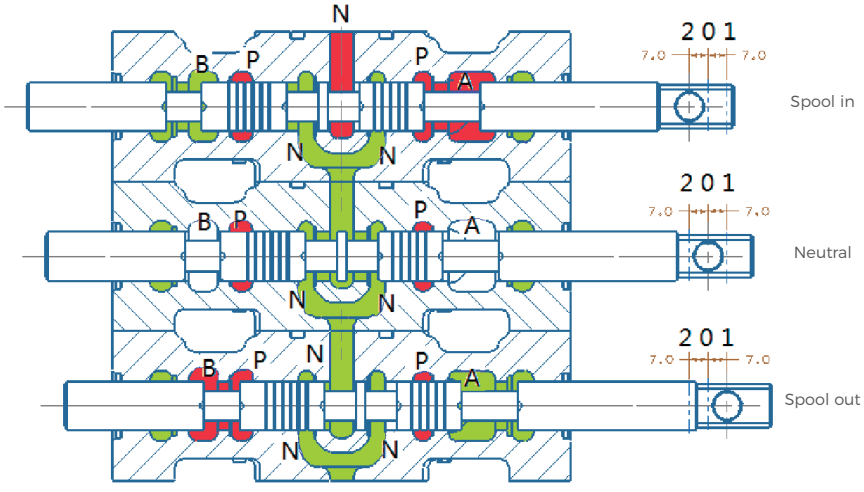


Operation Principle





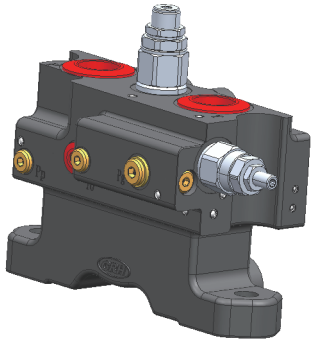
GKV80 series sectional valve is an open circuit 3-position 4-way valve. When spool is in its neutral position, the flow from pump passes through the neutral passage to tank, with very low pressure drop. When one of the spool is moved to 1 or 2 position, the neutral passage is blocked. The flow from pump can only pass though parallel passage to load check valve, go through the bridge and spool opening to work port A or B.

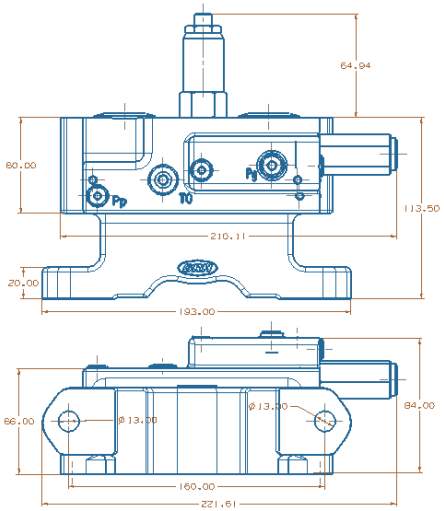


For multi-section valves, if one of the section spool is in 1 or 2 position, there is no flow in its down stream section neutral passage. The main throttle occurs on the valve opening between bridge passage and spool. The operator can control more than one spools, but the flow rate for each controlled section is dependent on the load.

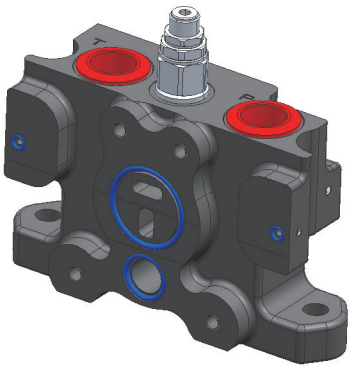
Inlet Section Dimensions

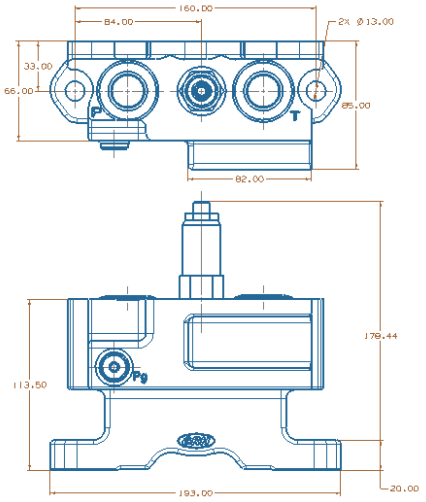
JK01 Inlet Section



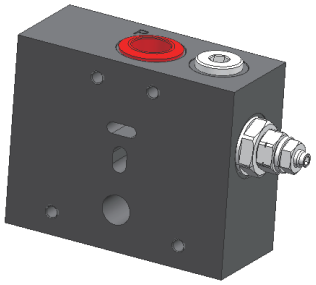


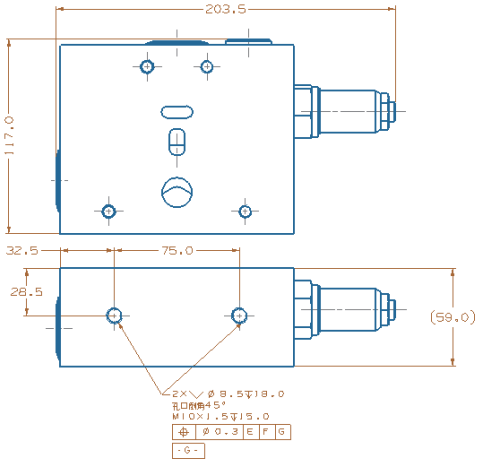
JK02 Inlet Section



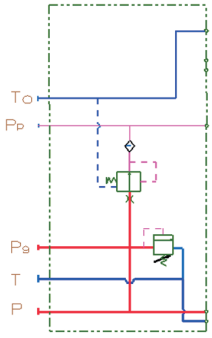
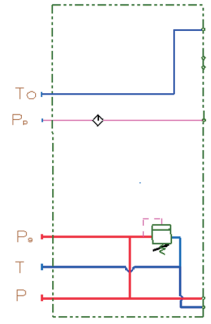
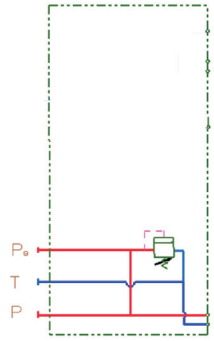


JK03 Inlet Section



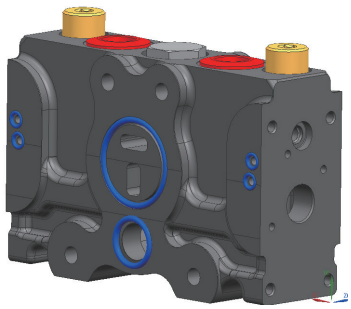


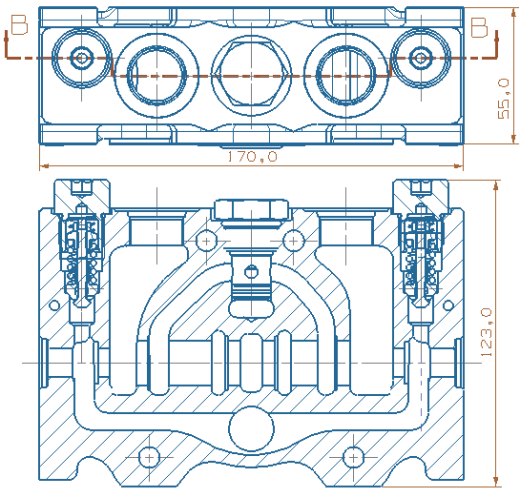
Inlet Section Hydraulic Schematics

Code	Hydraulic Schematic	Main Functions	Notes
JK01		Inlet section with pilot supply	
JK02		Inlet section without pilot supply	
JK03		Basic inlet	

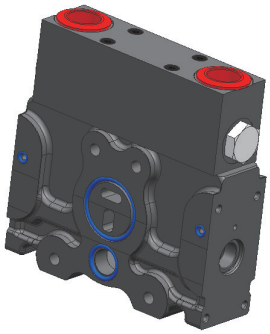
Typical Work Section (Main Section) Dimensions

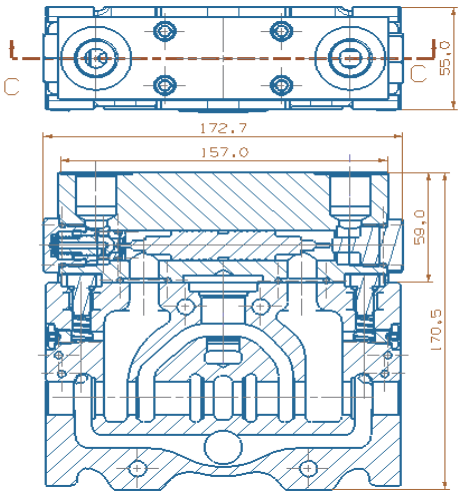
ZK01 Work Section



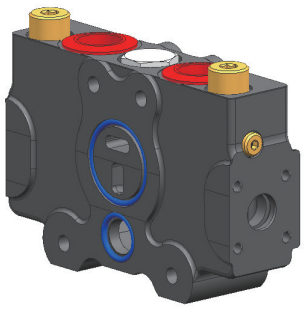


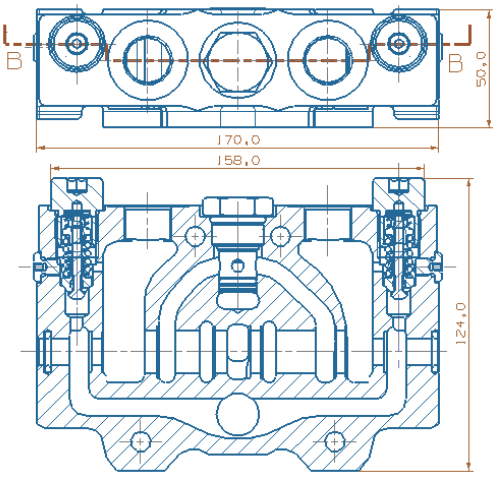
ZK05 Work Section





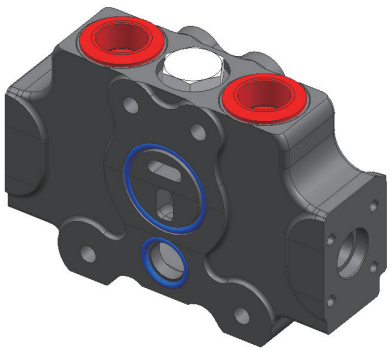
ZK07 Work Section

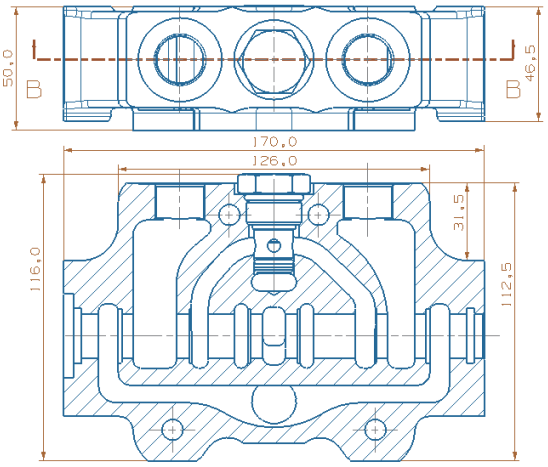




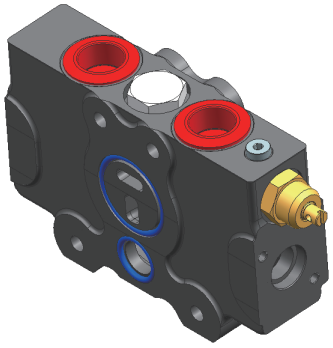
Typical Work Section (Main Section) Dimensions

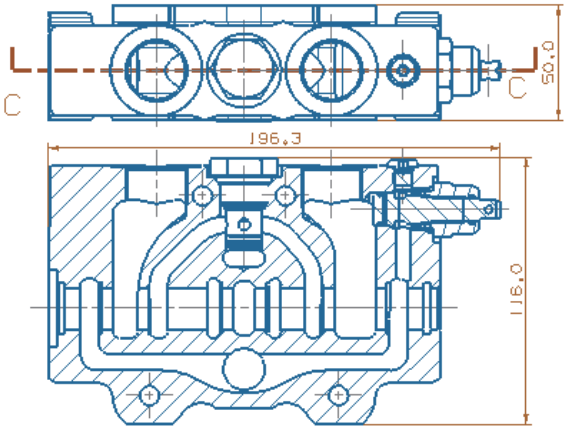
ZK08 Work Section



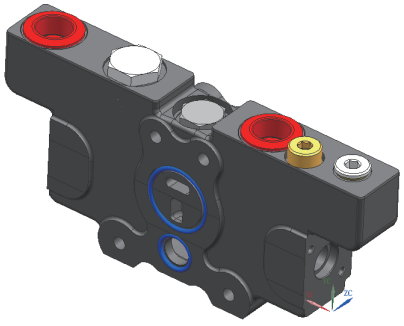


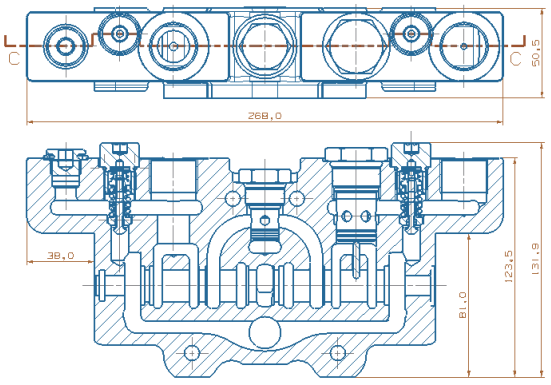
ZK10 Work Section



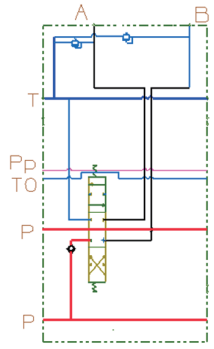
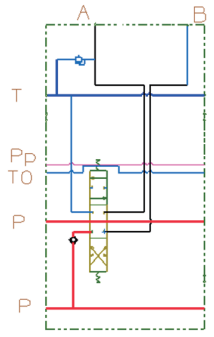
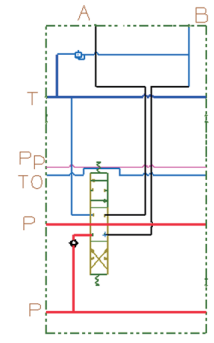
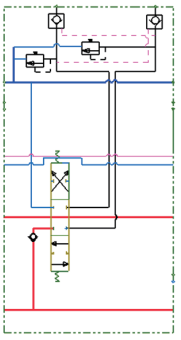


ZK11 Work Section

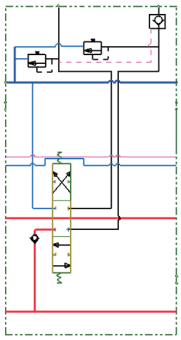
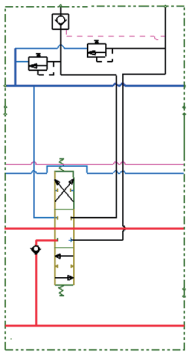
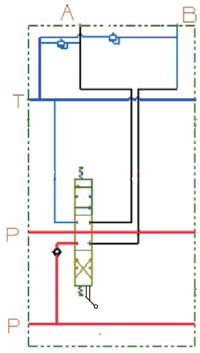
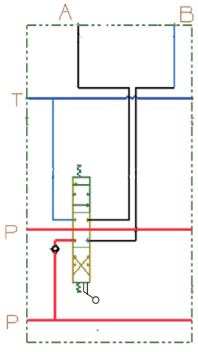




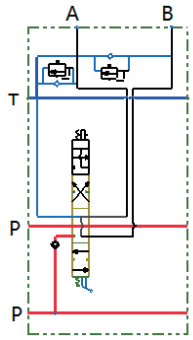
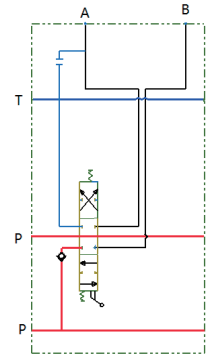
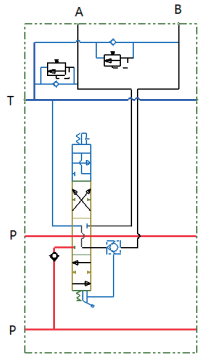
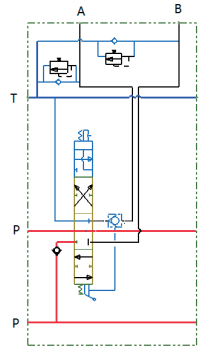
Typical Work Section (Main Section) Hydraulic Schematics

Code	Hydraulic Schematic	Main Functions	Notes
ZK01		Load relief valves at both A and B ports	
ZK02		Load relief valve at A port	
ZK03		Load relief valve at B port	
ZK04		Load relief valves and PO check at both A and B ports	

Typical Work Section (Main Section) Hydraulic Schematics

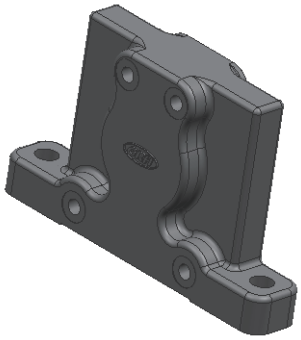
Code	Hydraulic Schematic	Main Functions	Notes
ZK05		Load relief valves at both A and B ports and P. O. check at B port	
ZK06		Load relief valves at both A and B ports and P. O. check at A port	
ZK07		Load relief valves at both A and B ports and manual control (Section thickness is 50mm)	
ZK08		Basic Work Section manual control (section thickness is 50mm)	

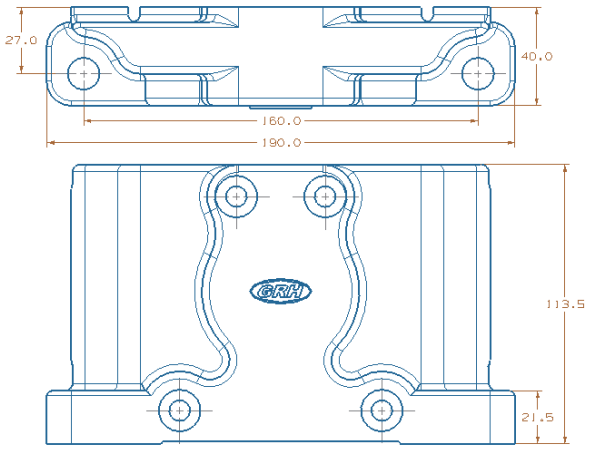
Typical Work Section (Main Section) Hydraulic Schematics

Code	Hydraulic Schematic	Main Functions	Notes
ZK09		Load relief valves at both A and B ports and manual control 4th position floating (section thickness is 50mm)	
ZK10		Basic work section manual control Check valve at A port (section thickness is 50mm)	Agricultural tractor auxiliary applications
ZK11		manual control 4th position floating Load relief valves and anti-cavitation valves at both A and B ports Mechanically operated P. O. check at B port. (section thickness 50mm)	Lifting circuit, lock the heavy duty on a specific height, for example circur for tractor
ZK12		Manual control 4th position floating Load relief valves and anti-cavitation valves at both A and B ports Mechanically operated P. O. check at A port. (section thickness 50mm)	Lifting circuit, lock the heavy duty on a specific height, for example circur for tractor

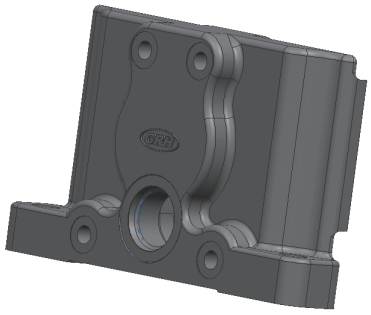
Typical Return Section (End Cap) Dimensions

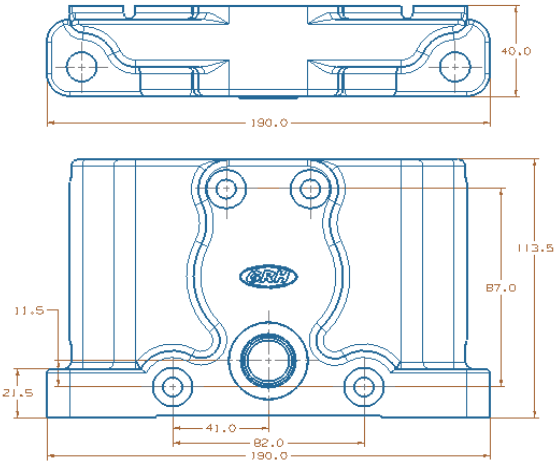
DK01 Return Section (End Cap)



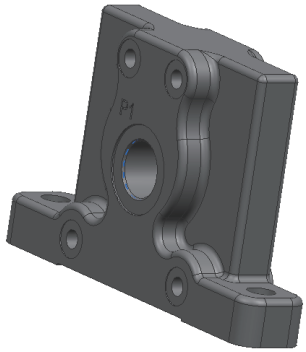


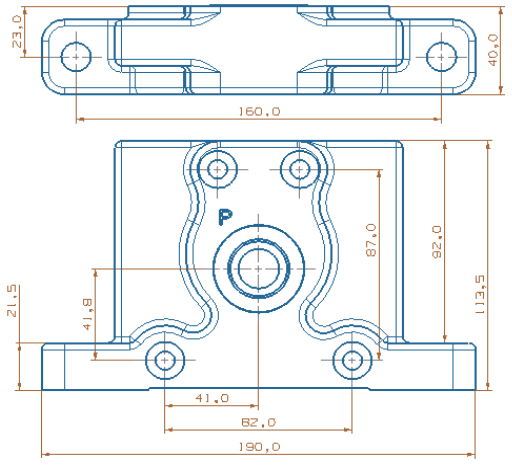
DK02 Return Section (End Cap)



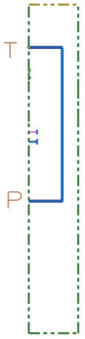
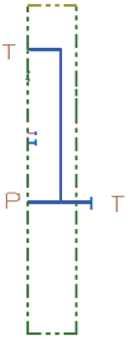
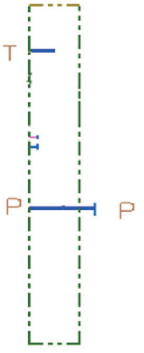


DK03 Return Section (End Cap)

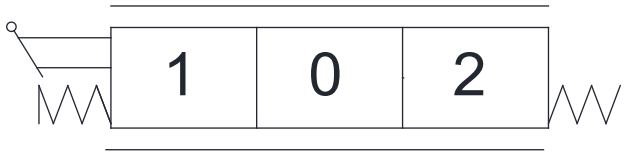
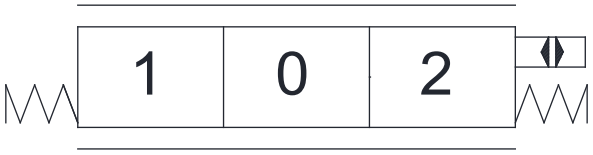
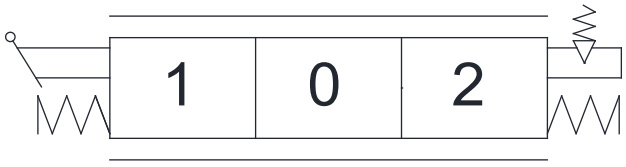
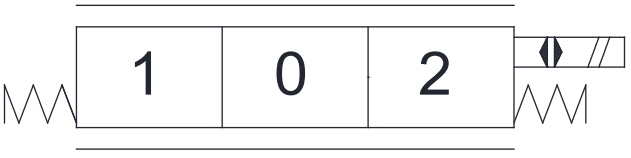
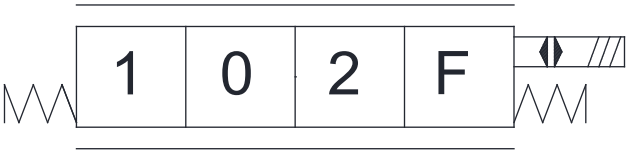
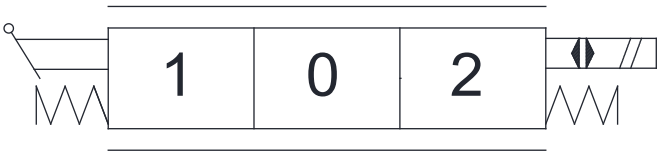




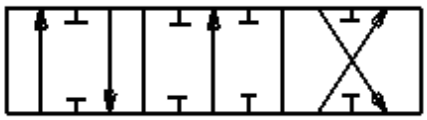
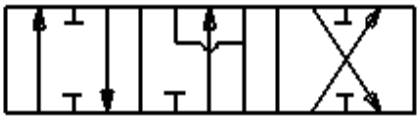
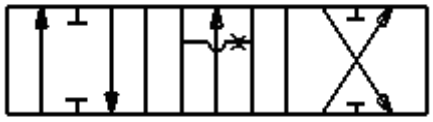
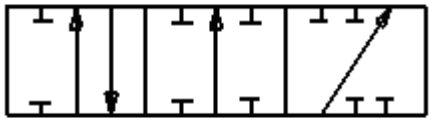
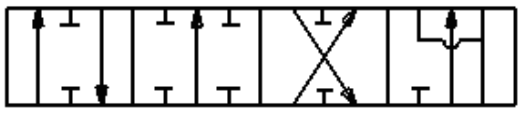
Typical Return Section (End Cap) Hydraulic Schematics

Code	Hydraulic Schematic	Main Functions	Notes
DK01		End section without T port	
DK02		End section with T port	
DK03		End section with power beyond port	Tractor applications

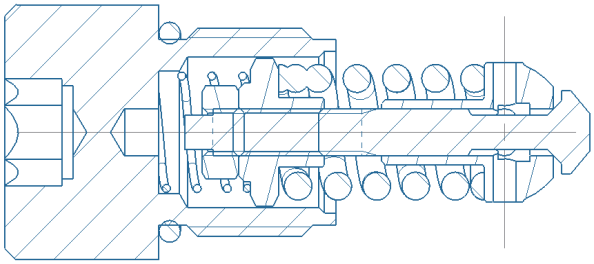
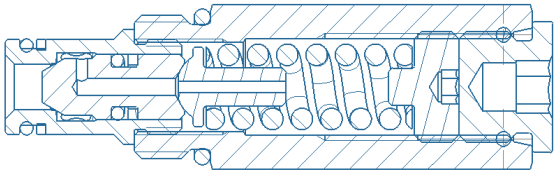
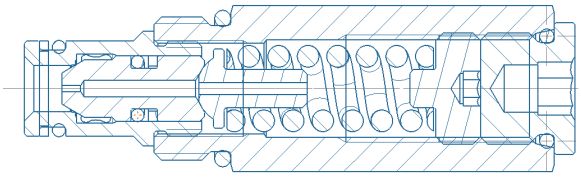
Work Section (Main Section) Drive Styles

Drive Style Code	Hydraulic Schematic	Functions
KQ1		Standard manual control
KQ2		Hydraulic remote control
KQ3		Manual control with mechanical detent
KQ4		Manually controlled with 4th position floating and detent
KQ5		Electrical actuated (on/off)
KQ6		Electrical actuated with floating function
KQ7		Electrical control (on/off control with option of manual control)

Typical Spool Functions

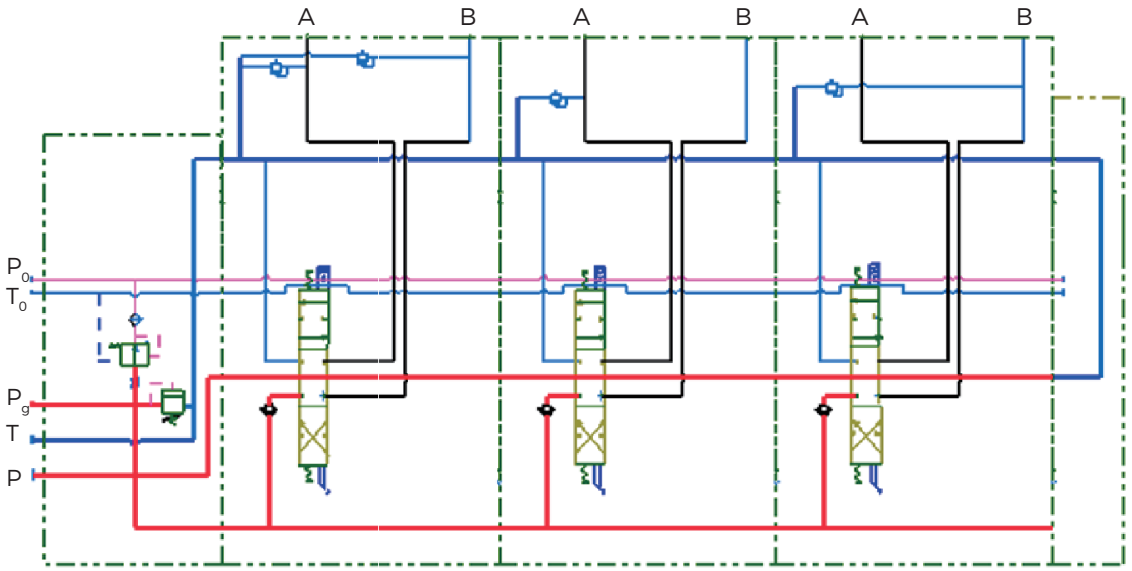
Drive Style Code	Spool Type	Functions	Notes
FG1		3-position 4-way At neutral: P, T, A, B are all blocked	Double acting cylinder applications
FG2		3-position 4-way At neutral: P blocked, T, A, B connected	Hydraulic motor applications
FG3		3-position 4-way At neutral: P, A, B and T all connected	Hydraulic motor applications
FG4		3-position 3-way At neutral: P, T, A, B all blocked	Single acting cylinder applications
FG5		4-position 4-way At neutral: P, T, A, and B are all blocked 4th position floating	Double acting cylinder applications
FG6		4-position 4-way At neutral: P blocked, T, A and B are connected 4th position floating	Double acting cylinder or hydraulic motor applications

Load Relief Valve Types

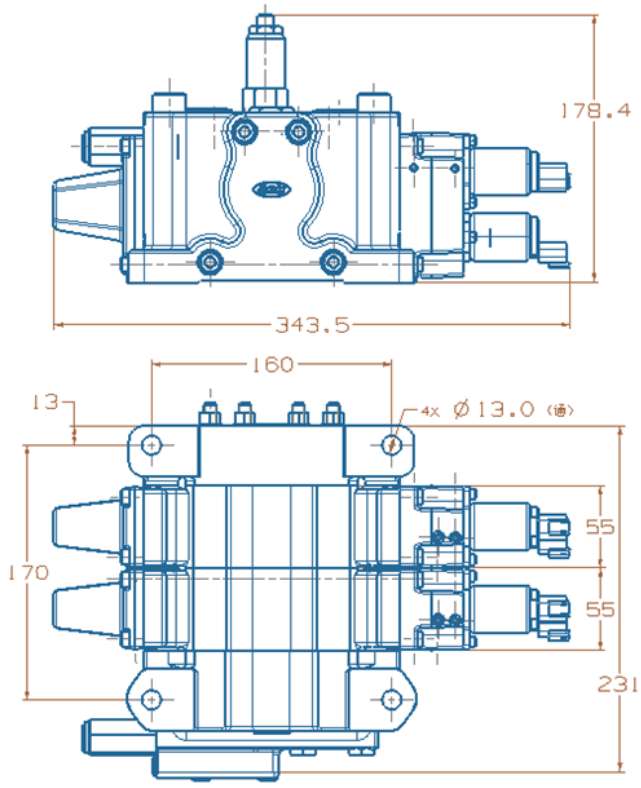
Code	Section drawing	Notes
RF0	Without load relief valve	Without load relief valve
RF1		Relief valve with anti-cavitation function
RF2		Direct acting relief valve
RF3		Differential pressure relief valve

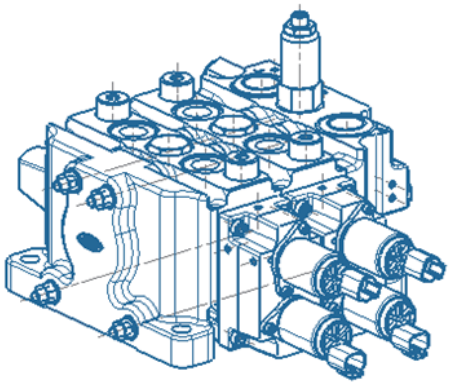
Application Example

Electro-hydraulic Controlled with Manual Override



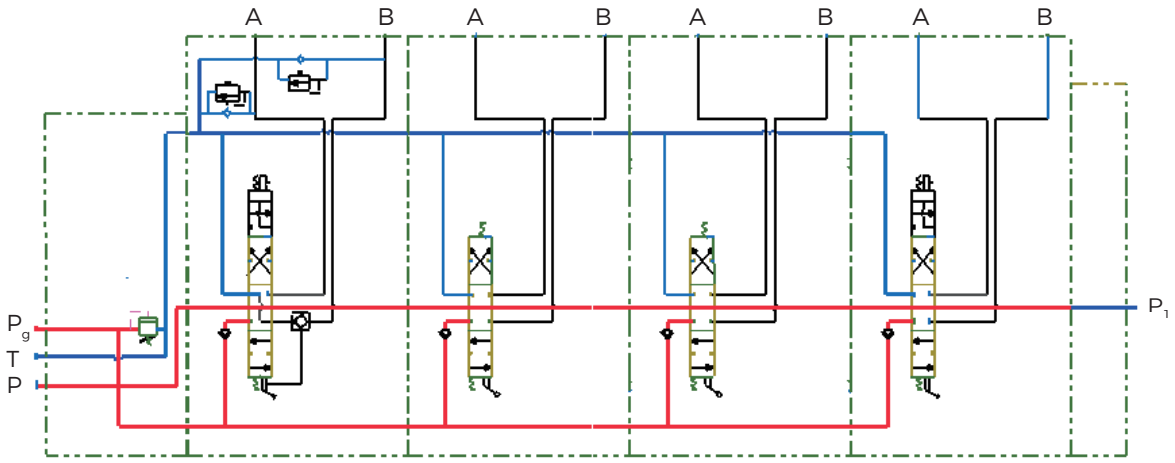
2 Sections Valve



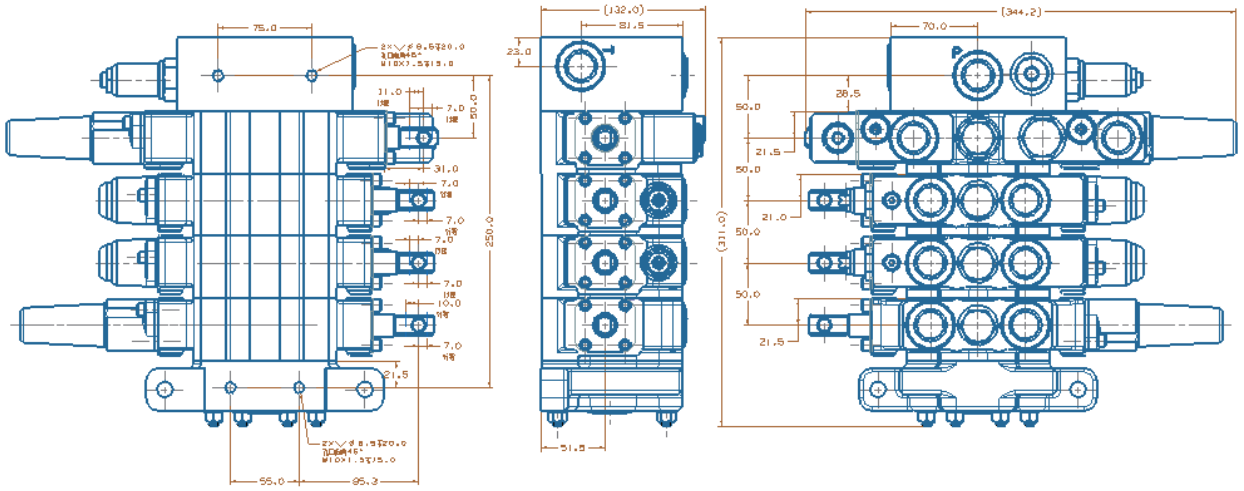


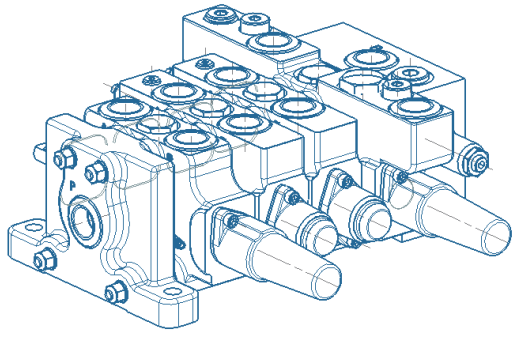
Application Example

Manual Control Valve with Two Secions of Floating Function (Tractor Hydraulic System)



4 Sections Valve





Ordering Code

GKV80	-*	-JK**	/***	-DK**	-O1	-ZK**	KQ*	-FG*	-DC/**	-QL/***	-RF*	-O2	...
a	b	c	d	e	f	g	h	i	j	k	l	m	n

ⓐ Model
ⓑ Number of sections
ⓒ Inlet section code
ⓓ Main relief valve settings (bar)
ⓔ Return section (end cap) code
ⓕ First section
ⓖ Work section code
ⓗ Drive style code
ⓘ Spool function code
ⓙ Electrical option
12VDC, 24VDC, 00=None electrical
ⓚ Expected flow rate (L/min)
ⓛ Load relief valve style
ⓜ Second section
ⓝ .....

Ordering Example

GKV80	-3	-JK01	/210	-DK01	-O1	-ZK02	-KQ5	-FG1	-DC/12	-QL/100	-RF1
a	b	c	d	e	f	g	h	i	j	k	l

ⓐ Model
ⓑ Three sections
ⓒ Inlet section code
ⓓ Main relief valve settings (210bar)
ⓔ Return ection code
ⓕ First section
ⓖ Work section code
ⓗ Drive style code
ⓘ Spool function code
ⓙ 12VDC
ⓚ Expected flow rate (100L/min)
ⓛ Load relief valve with anti-cavitation

-O2	-ZK01	-KQ1	-FG2	-DC/00	-QL/100	-RF2
m	n	o	p	q	r	s

ⓜ Second section
ⓝ Work section code
ⓞ Drive style code
ⓟ Spool function code
ⓠ No electrical
ⓡ Expected flow rate (100L/min)
ⓢ Load relief valve style (Direct acting)

-O3	-ZK01	-KQ2	-FG3	-DC/12	-QL/80	RF3
t	u	v	w	x	y	z

ⓣ Third section
ⓤ Work section code
ⓥ Drive style code
ⓦ Spool function code
ⓧ 12VDC
ⓨ Expected flow rate (80L/min)
ⓩ Load relief valve with anti-cavitation

Notes

Ordered valve is GKV80 series with 3 work sections. Inlet relief setting pressure is 210 bar. End section has no T port. In the first work section, there is a load relief valve in A port. The spool of this section is driven by electrical drive module with 12VDC. The spool function is O function. Required flow rate is 100L/min. The load relief has an anti-cavitation function. The second work section is manually controlled. There are load relief valves on both A and B ports. Spool function is Y function. Required flow is 100L/min. Load relief is a direct acting relief. The third section is hydraulic remote controlled. There are load relief valves on both A and B ports. The spool function is H function. Required flow is 80L/min.The load relief valves are differential pressure type.