

Introduction of GKV35

GKV35 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. The valve series adapted 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

- A/B Port with overload valve on main section
- A Port with overload valve on main section
- B Port with overload valve on main section
- A/B Port with check valve
- End section with oil return port
- End section without oil return port
- End section with power beyond port
- Provide other cartridge valve option

Features

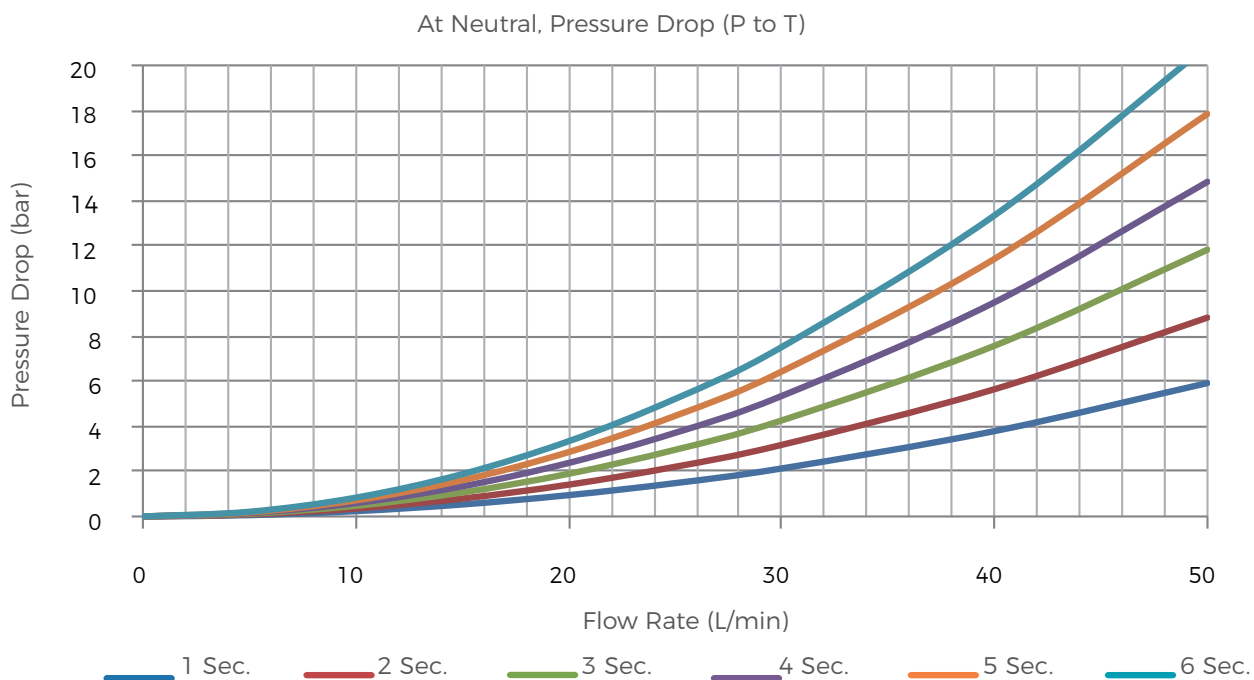
- Cast iron body (inlet section, main section and end section).
- Spring cap, mechanical detent cap, as well as electric or hydraulic pilot controlled module body are made by cast aluminum or die-cast aluminum.
- Parallel circuit. Each section has its own load check valve, Each section has load relief option and relief style options.
- Can be changed to series circuit.
- Provides dump valve options for each work port.
- Provides different drive modules (hydraulic remote, manual control, wire driving).
- Provides power beyond port.
- Can be modified to be a close circuit.
- Provides mechanical detent.
- Provides options for different type of relieves and different relief valve locations in the inlet.
- Provides options for mechanically actuated P. O. 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 proportional control without pressure compensation.
- Can be assembled with 1-8 main sections.

Technical Data

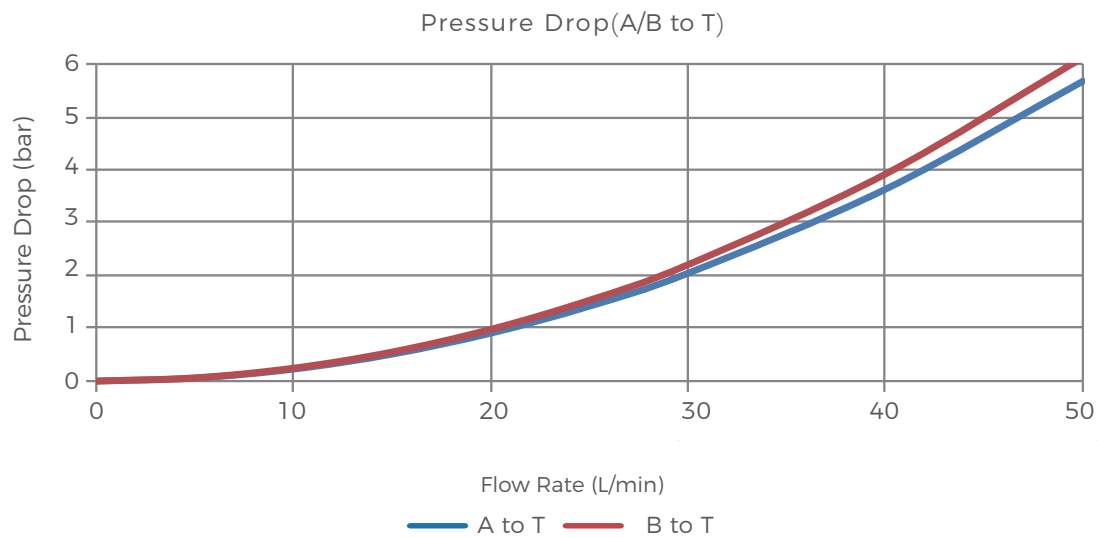
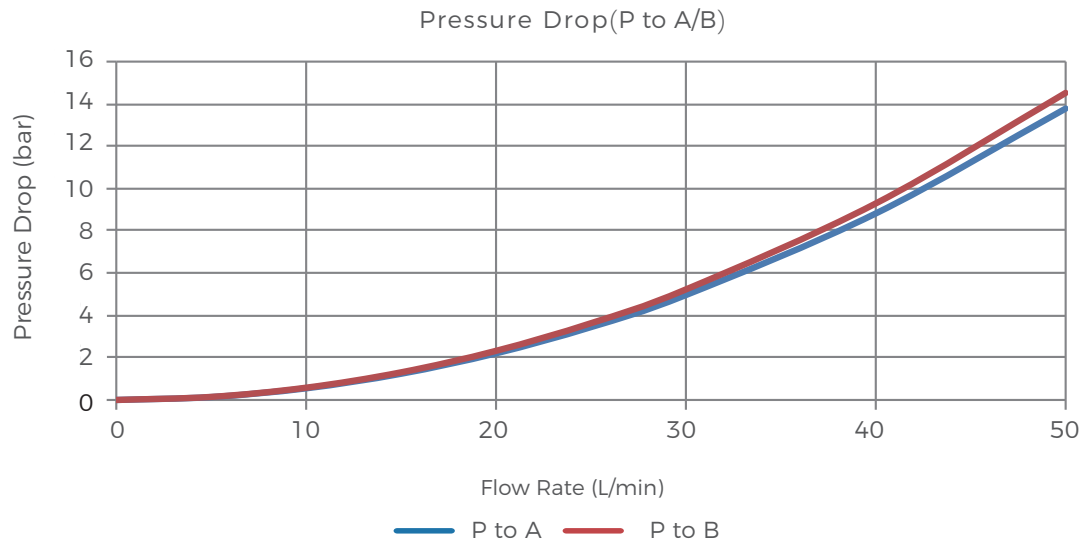
Rated Flow Rate	35L/min	Max. Pressure at T port	25bar
Max. Flow Rate	40L/min	Internal leakage(@70 bar)A, B to T	<8cc/min
Min. Flow Rate	10L/min	With P.O. check	<3cc/min
Max. Pressure at P port	250bar	Spool stroke(1, 2 position)	+7/-7mm
Max. Pressure at A, B port	210bar	With floating function(1, 2 and F position)	+7/-7 -10mm

Solenoid can be either 12 or 24VDC, corresponding current is 0-1.5 or 0-0.75 Amp.

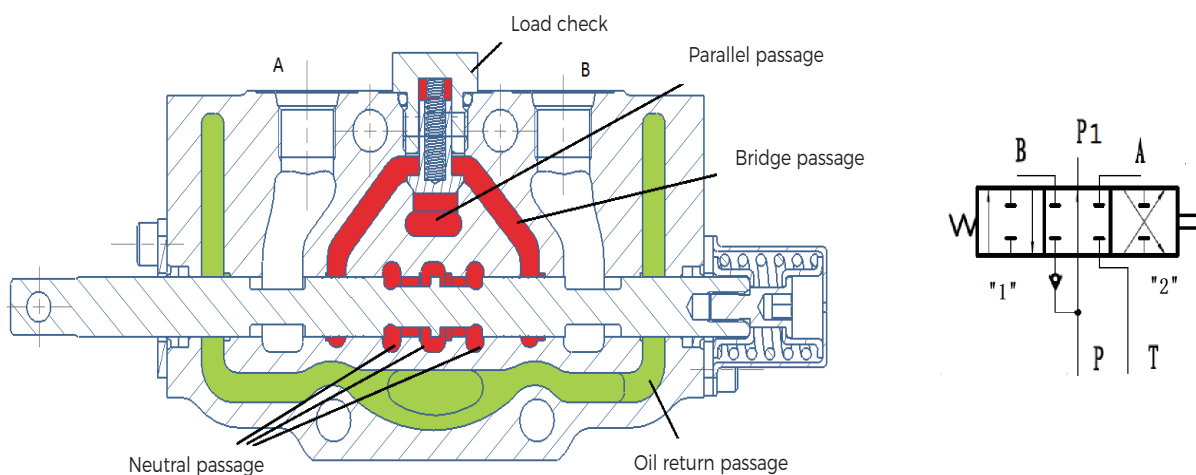
Performance Data



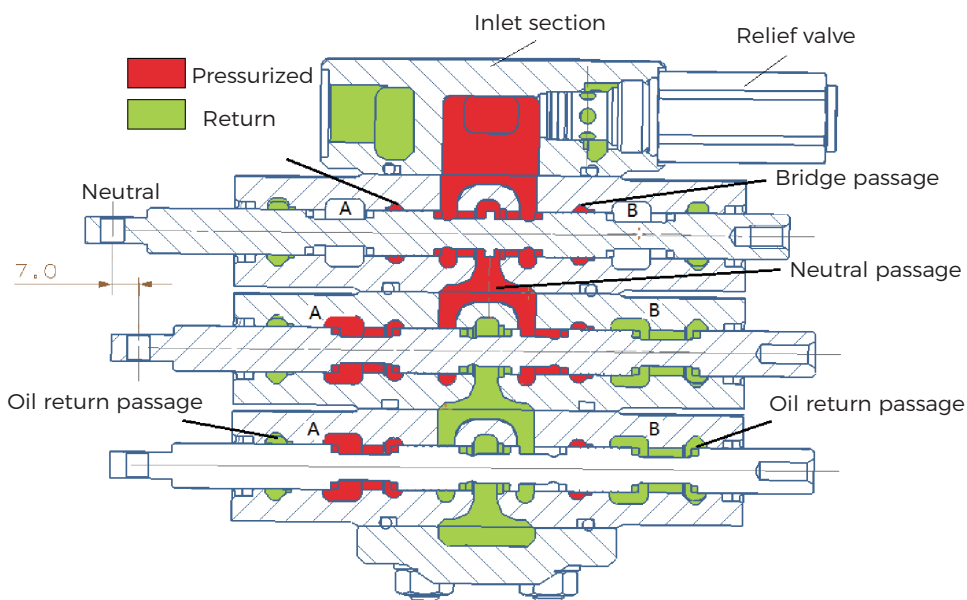
Performance Data



Operation Principle



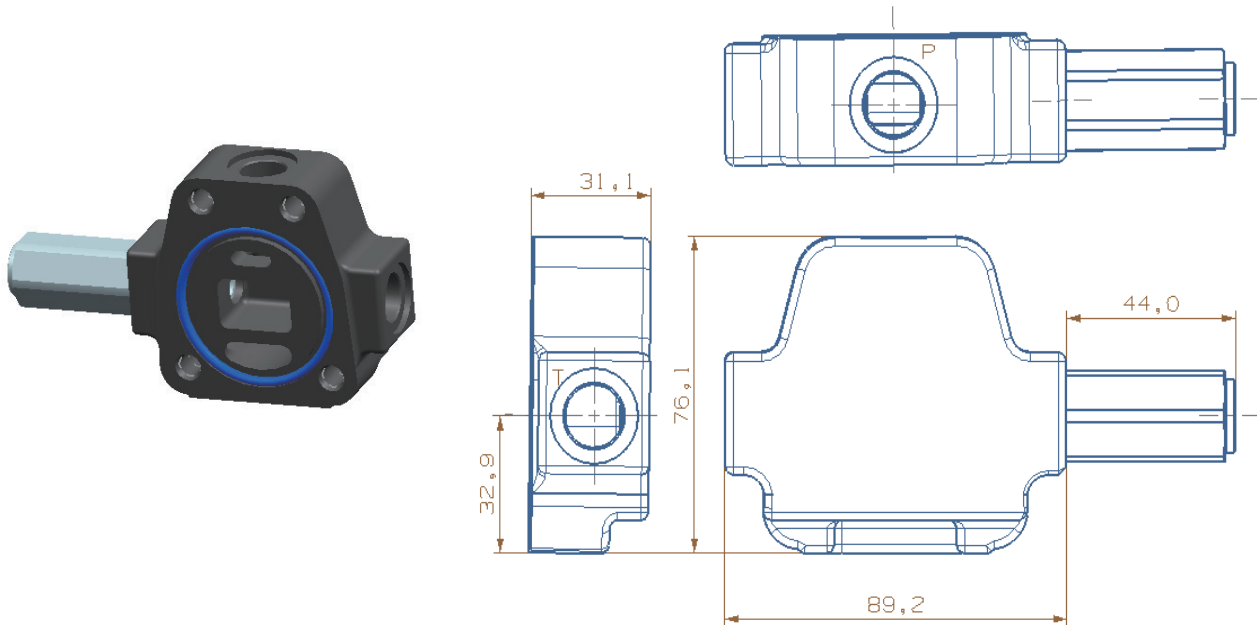
GKV35 series sectional valve is an open circuit 3-position 4-way valve. When spool is in its neutral position, the flow from pump passes through the neutral passage to tank, with small pressure drops. When one of the spool is moved to LEFT or RIGHT position, the neutral passage is blocked. The flow from pump can only pass the parallel passage to load check valve, then passes through the bridge and spool opening to work port B or A.



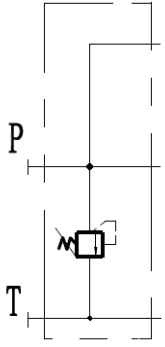
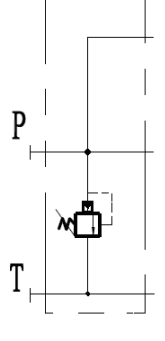
For multi-section valves, if one of the section spool is in left or right position, there is no flow in its down stream section neutral passage. The main throttle occurs on the valve opening between bridge passage and spool. The operator can control more than one spools, but the flow rate for each controlled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

Inlet Section Dimensions

JS01 Inlet Section

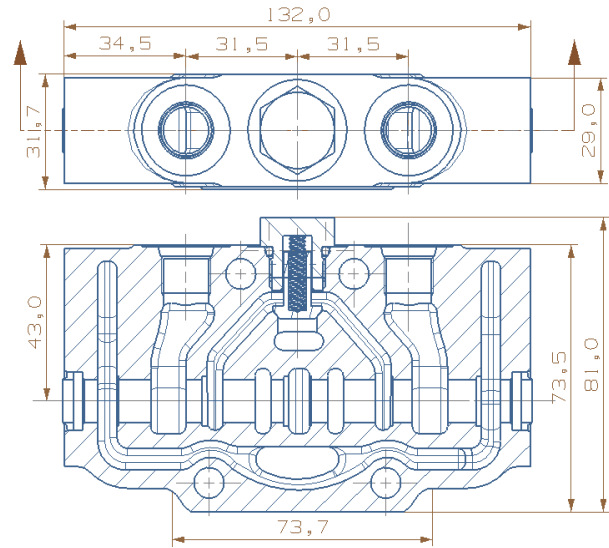
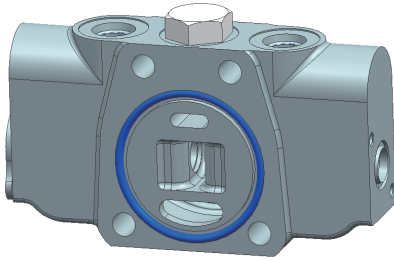


Inlet Section Hydraulic Schematics

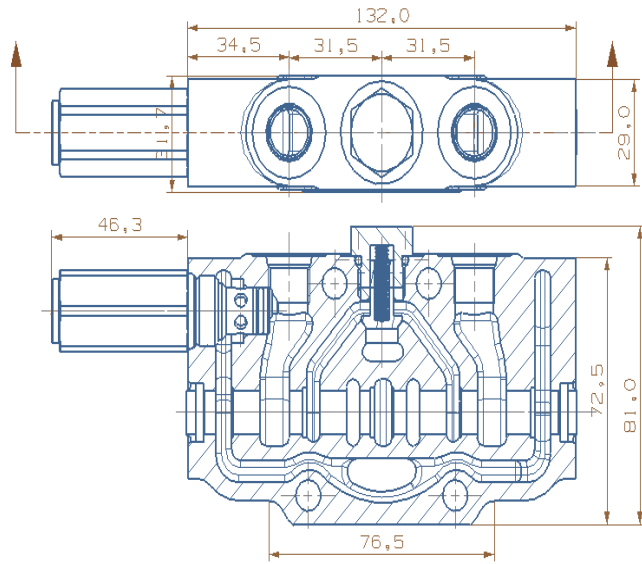
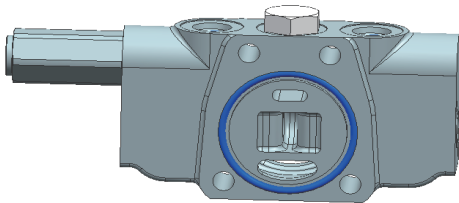
Code	Hydraulic Schematic	Main Functions	Notes
JS01		Inlet section with direct acting relief valve	
JS02		Inlet section with two stage relief valve	

Typical Work Section (Main Section) Dimensions

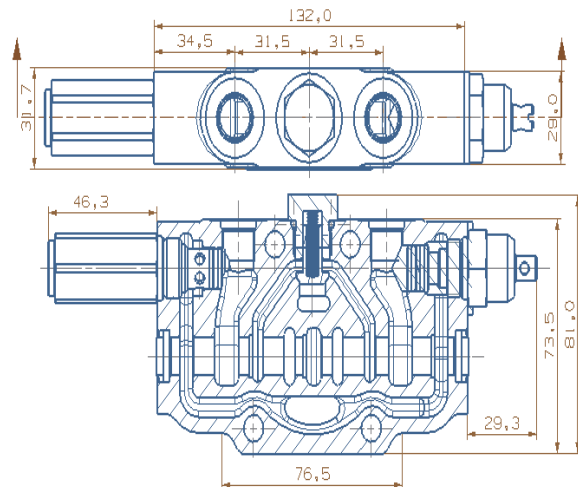
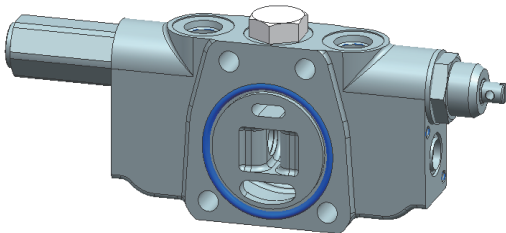
ZS01 Work Section



ZS04 Work Section



ZS06 Work Section



Typical Work Section (Main Section) Hydraulic Schematics

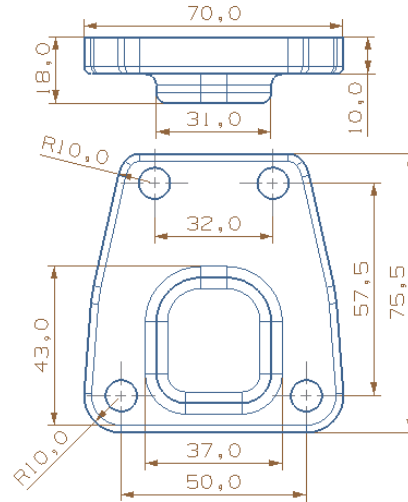
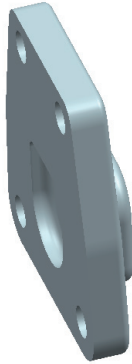
Code	Hydraulic Schematic	Main Functions	Notes
ZS01		<p>Basic section (no overload relief)</p>	
ZS02		<p>Overload relief valves on both A and B ports</p>	
ZS03		<p>Overload relief on A port</p>	
ZS04		<p>Overload relief on B port</p>	

Typical Work Section (Main Section) Hydraulic Schematics

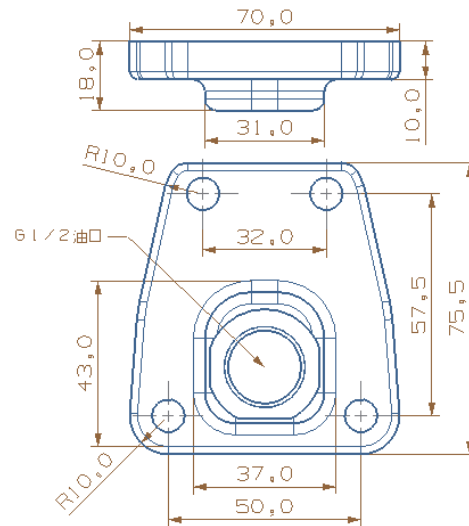
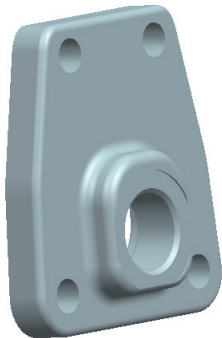
Code	Hydraulic Schematic	Main Functions	Notes
ZS05		<p>Overload relief on A port Check valve on B port</p>	<p>Tractor and auxiliary valve application</p>
ZS06		<p>Overload relief on B port Check valve on A port</p>	<p>Tractor and auxiliary valve application</p>

Typical Return Section (End Cap) Dimensions

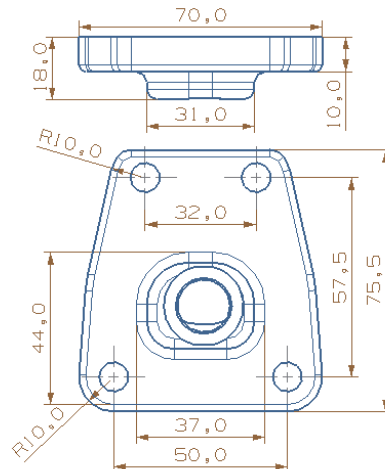
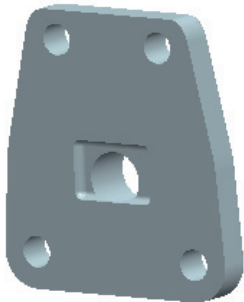
DK01 Return Section (End Cap)



DK02 Return Section (End Cap)



DK03 Return Section (End Cap)



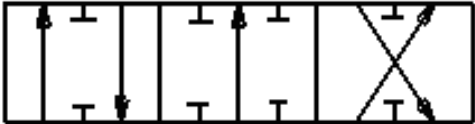
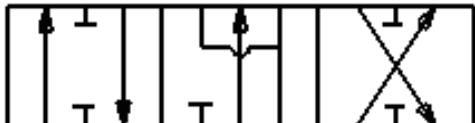
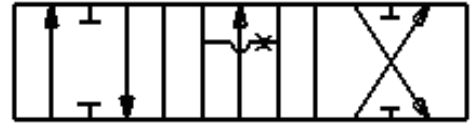
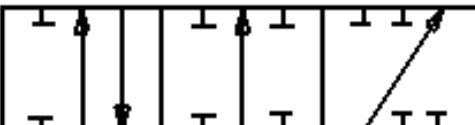
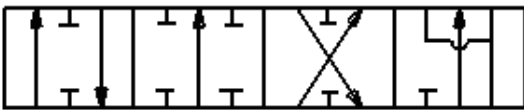

Typical Return Section (End Cap) Hydraulic Schematics

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

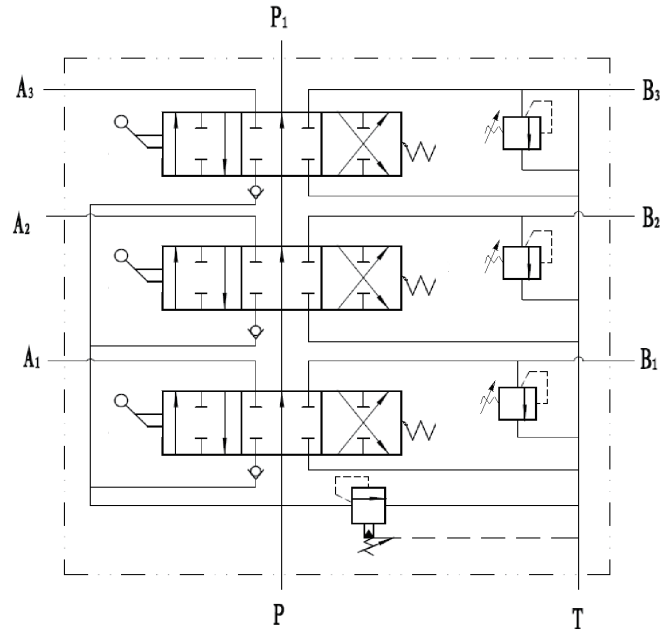
Drive Style Code	Hydraulic Schematic	Functions
KQ1		Standard manual control
KQ2		Hydraulic remote control
KQ3		Manual control with mechanical detent
KQ4		Manual control with 4th position floating and detent
KQ5		Wire controlled

Typical Spool Functions

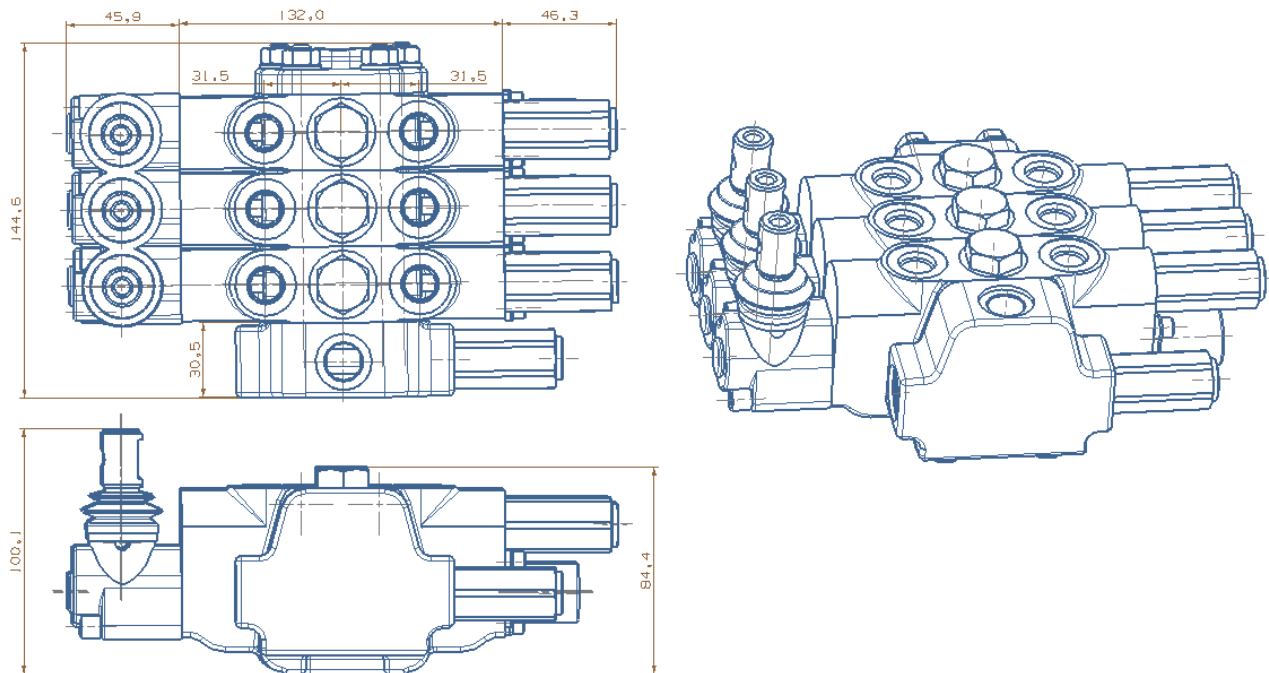
Drive Style Code	Hydraulic Schematic	Functions	Notes
FG1		3-position 4-way At neutral: P, T, A, B are all blocked	Double acting cylinder applications
FG2		3-position 4-way At neutral: P blocked, T, A, B connected	Hydraulic motor applications
FG3		3-position 4-way At neutral: P, A, B and T all connected	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, 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

Application Example

Example Of Manually Controlled Sectional Valve



Three Sections Valve Dimensions



Ordering Code

GKV35	/*	-JS**	/***	-DK**	-O1	-ZS**	KQ*	-FC*	-DC/**	-QL/**	-RF*	-O2	...
a	b	c	d	e	f	g	h	i	j	k	l	m	n

- | | |
|------------------------------------|----------------------------------|
| Ⓐ Model | ⓓ Drive style code |
| Ⓑ Number of sections | ⓔ Spool function code |
| Ⓒ Inlet section code | ⓙ Electrical option |
| Ⓓ Main relief valve settings (bar) | 12VDC, 24VDC, 00=none electrical |
| Ⓔ Return section (end cap) code | Ⓚ Expected flow rate (L/min) |
| Ⓕ First section | Ⓛ Over load relief valve code |
| Ⓖ Work section code | Ⓜ Second section |
| | Ⓝ |

Ordering Example

GKV35	/3	-JS01	/210	-DK01	-O1	-ZS02	-KQ5	-FG1	-QL/30
a	b	c	d	e	f	g	h	i	j

- | | |
|---------------------------------------|-------------------------------|
| Ⓐ Model | Ⓕ First section |
| Ⓑ 3 section valve | Ⓖ Work section code |
| Ⓒ Inlet section code | ⓓ Drive style code |
| Ⓓ Main relief valve settings (210bar) | ⓔ Spool function code |
| Ⓔ Return section code | ⓙ Desired flow rate (30L/min) |

-O2	-ZS01	-KQ5	-FG2	-QL/30	-O3	-ZS01	-KQ5	-FG3	-QL/30
k	l	m	n	o	p	q	r	s	t

- | | |
|--------------------------------|--------------------------------|
| Ⓚ 2nd section | Ⓟ 3rd section |
| Ⓛ Work section code | ⓖ Work section code |
| Ⓜ Drive style code | ⓓ Drive style code |
| ⓔ Spool function code | ⓔ Spool function code |
| ⓙ Expected flow rate (30L/min) | ⓙ Expected flow rate (30L/min) |

Notes

The selected valve is GKV35 series. Ordered section valve is a three sectional valve. Inlet relief valve setting pressure is 210 bar. There is no return port on the end section. The first section has two load relief valves on A、B ports. The section is driven by wire. The spool function is a O type, the required flow is 30L/min. The overload relief is with anti-cavitation function. The second section is also driven by wire. There is no overload relief on either A or B port. The spool function is Y type, the required flow is 30L/min. The third section is driven by hydraulic remote. No overload relief on either A or B port. Spool function is H type, the required flow is 30L/min.