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GRH POWER

Sectional Valves

GRH

COMPANY INTRODUCTION

GRH is specialized in providing hydraulic components and solutions for hydraulic systems.

With continuous improvement and enthusiasm over the past 30 years, GRH has developed into an emerging power in the fluid power industry since it was established in 1986.

Research and development are the driving force that facilitates GRH's ability to create new products. Standards of TS16949 and ISO14000 are our guiding principles. Employees' capabilities and creativity are major factors that differentiate GRH from our competitors.

GRH designs and produces Hydraulic Gear Pumps & Motors, Monoblock Valves, Sectional Stack Valves, Proportional Valves and Flow Dividers. These products are used on industrial machinery, construction equipment, agricultural equipment and material handling applications. GRH is also willing to work with our customers to develop specialized products for their special needs. Our customers can count on GRH's extensive system design and application experience when they are designing their hydraulic systems.

GRH has designed and developed a series of load sensing proportional stackable valves which provides an improvement in valve operating performance and system efficiency.

GRH (Shanghai) - International Sales Office

GRH (Jiangsu) - Manufacturing Facility & Domestic Sales Office

GRH will work together with the customers to create a better future.

Over 30 years in the design and manufacture of hydraulic equipment

Introduction of GRH Sectional Valves

GRH Sectional Valves are open center 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 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's requirements, which provides excellent flow characteristics and very low flow force. With different inlet modules, it can be used in any applications. There are number of different main valve modules to choose from, to satisfy with the customer's needs. Different end sections also provide the customer's needs for return ports or power beyond functions.

GRH Sectional Valves have the following Series:

- GKV80 Series, rated flow rate 80L/min.
- GKV50 Series, rated flow rate 50L/min.
- GKV35 Series, rated flow rate 35L/min.

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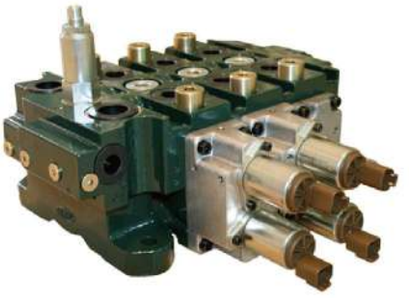

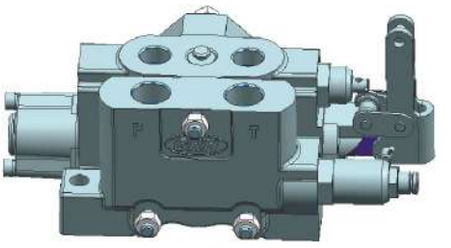

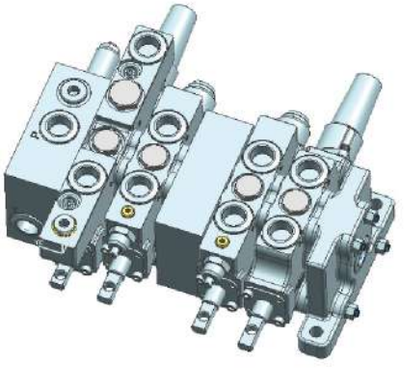

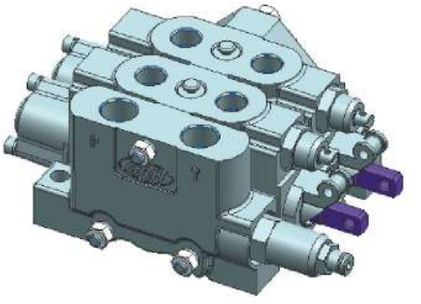

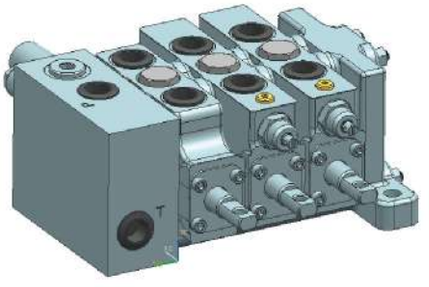

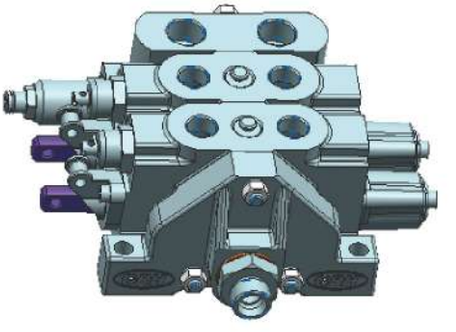

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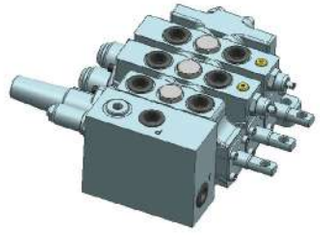
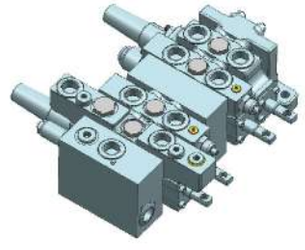
Introduction

GKV80 series sectional valves are open center 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 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's 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 number of different work section modules to choose from, to satisfy with the customer's needs. Different end sections also provide the customer's needs for return ports or power beyond functions.

GKV80 Series Sectional Valves Provide the following Functions:

- Inlet module with pilot supply.
- Inlet module 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.





Main Features

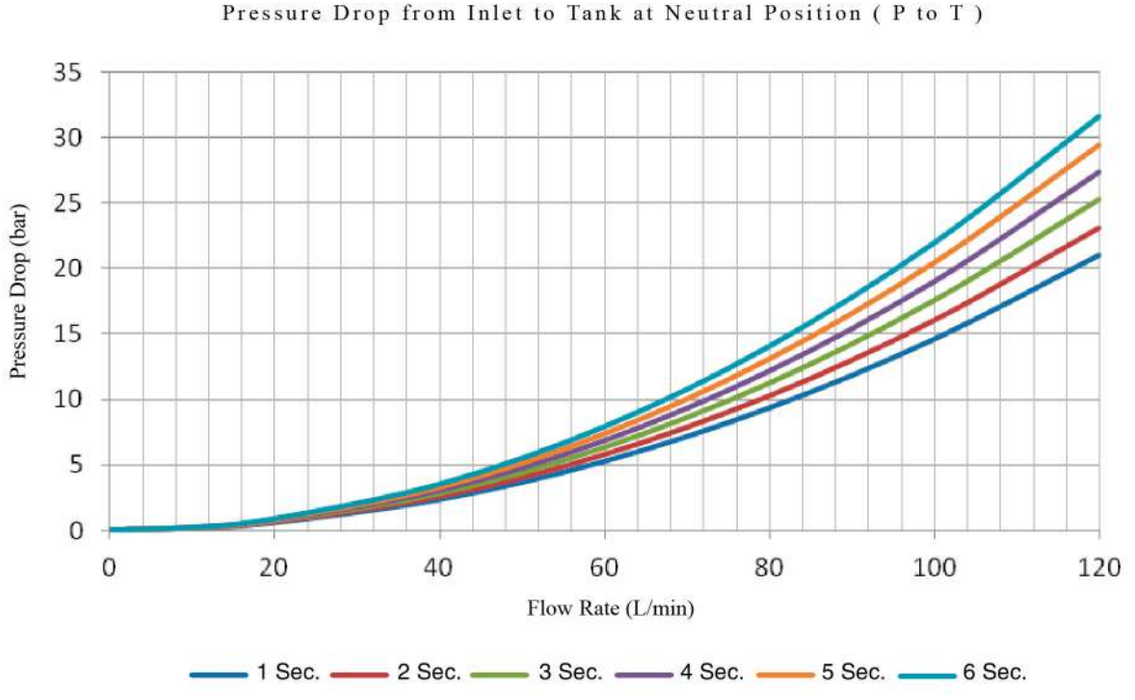
GKV80 series sectional valve provides the following features:

- Cast iron body (inlet section, main section and end section).
- Spring cap, mechanical detent cap, as well as electoral 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 (electrical, hydraulic remote, manually control, wire driving).
- Provides power beyond port.
- Can be modified to be a closed center valve.
- Provides mechanical detent.
- 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 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 proportionally controlled without pressure compensation.
- Can be assembled with 1-8 work sections.

Major Technical Data

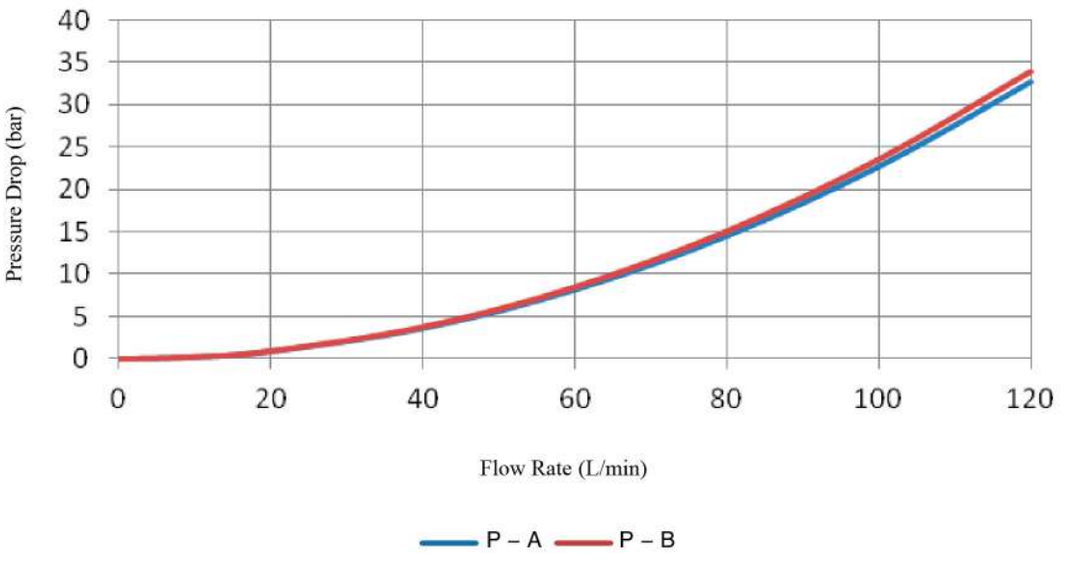
Rated flow rate	80 L/min
Maximum flow rate	100 L/min
Minimum flow rate 20 L/min	
Maximum pressure at P port	350 bar
Maximum pressure at A/B port	350 bar
Maximum pressure at T port	25 bar
Internal leakage （at 70 bar） A/B to T	15-20 CC/min
Internal leakage （at 70 bar） A/B to T	
With P.O. check	2-5 CC/min
Spool stroke （1 / 2 position）	+7/-7mm
With floating function (1 / 2 and F position)	+7/-7 -10mm
Solenoid can be either 12 VDC or 24 VDC， corresponding current is 0 - 1.5 or 0 - 0.75 Amp.	

Performance Data

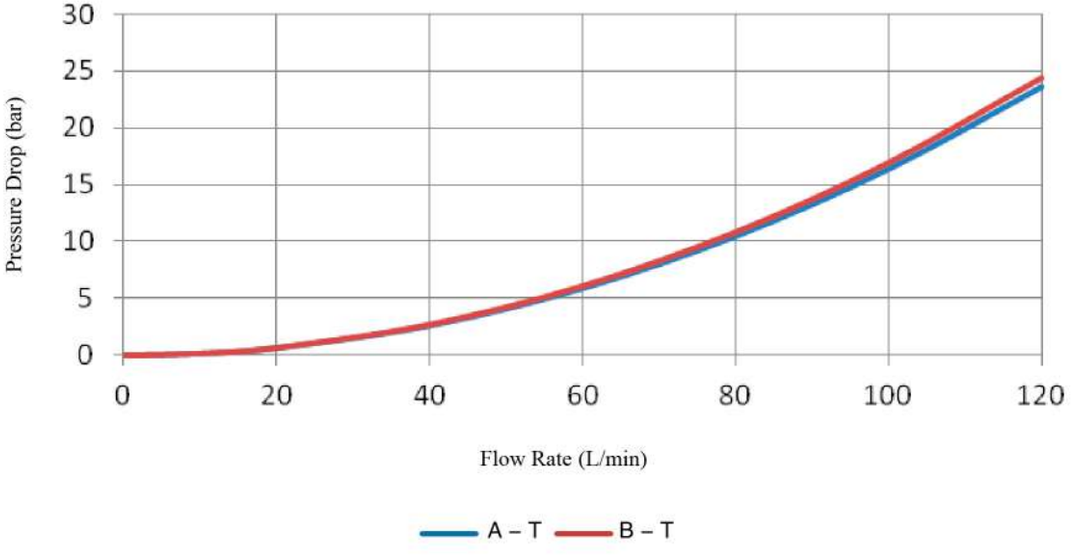


Performance Data

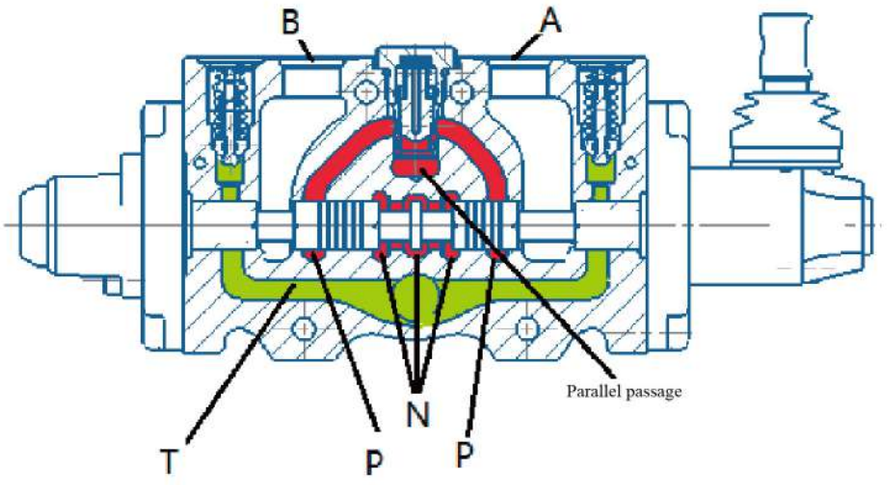
Pressure Drop from Inlet to Work Port

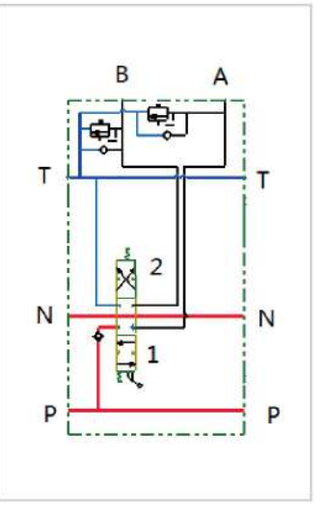


Pressure Drop from Work Port to Tank

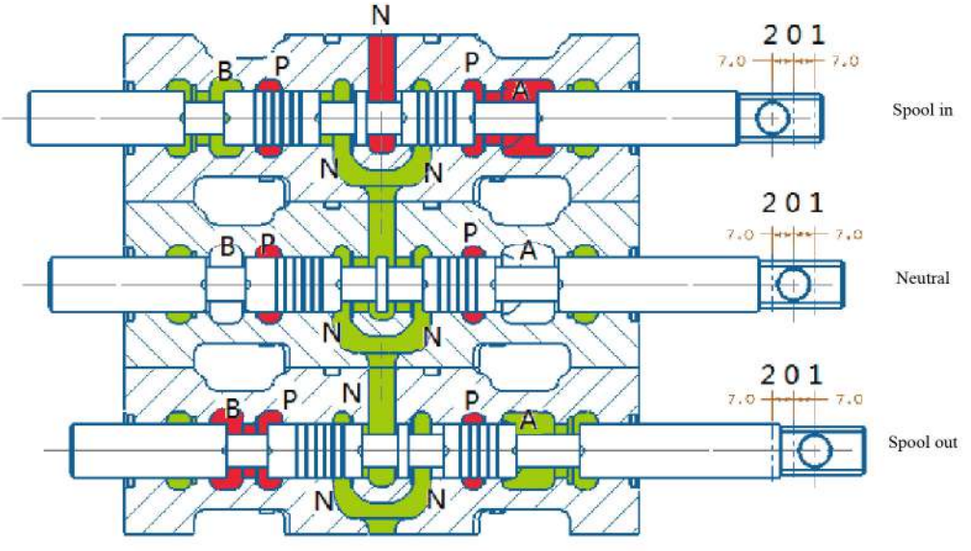


Operation Principle





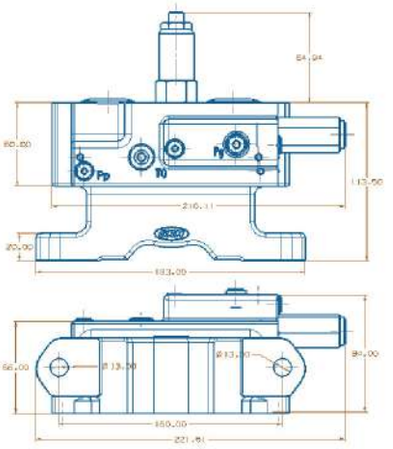
ZK series sectional valve is an open centered 3 position 4 way valve. When spool is in its neutral position, the flow from pump passes through the neutral passage to tank, with very low pressure drop. When one of the spool is moved to " 1 "or" 2 "position, the neutral passage is blocked. The flow from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

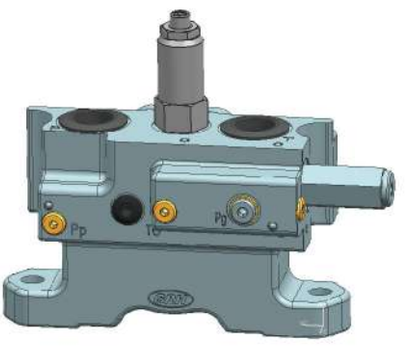


For multi-section valves, if one of the section's spool is in " 1 "or" 2 "position, then, there is no flow in its down stream section's neutral passage. The main throttle occurs on the valve opening between bridge passage and spool . The operator can control more than one spools, but the magnitude of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

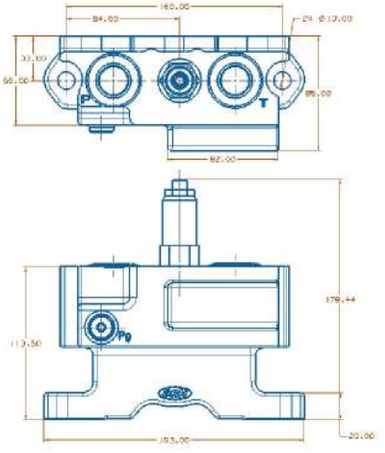
Inlet Section Dimension

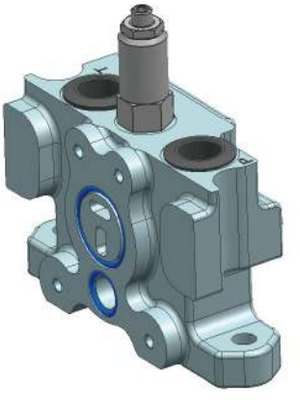
JK01 Inlet Section



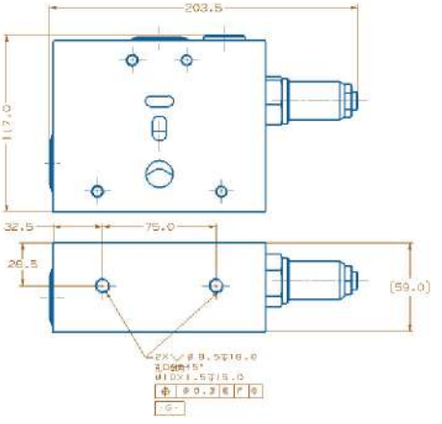


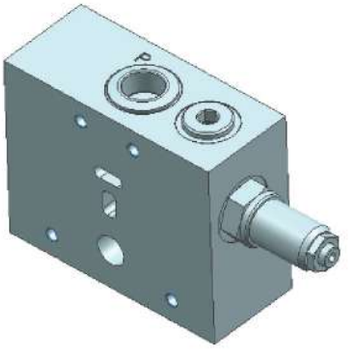
JK02 Inlet Section





JK03 Inlet Section





Inlet Section Hydraulic Schematics

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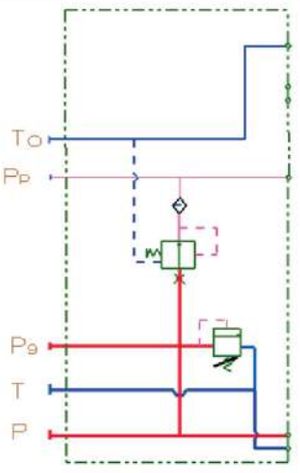
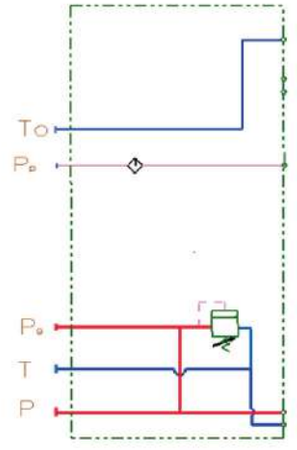
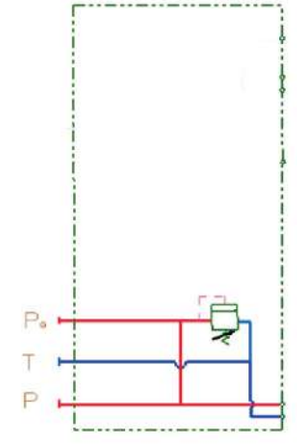
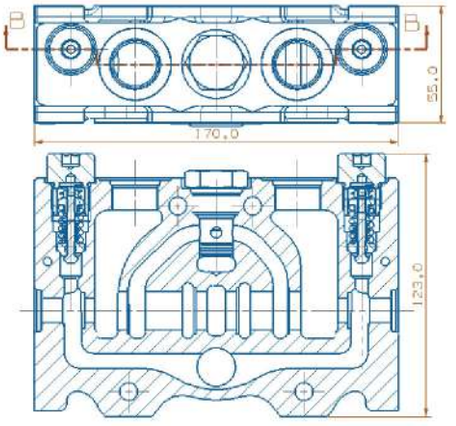
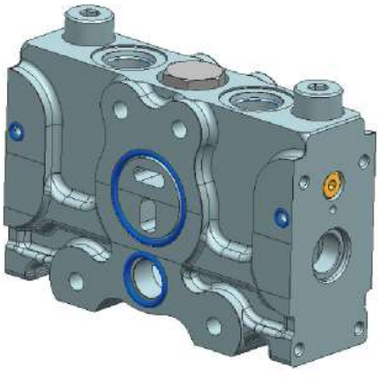
JK01		Inlet section with pilot supply	
JK02		Inlet section without pilot supply	
JK03		Basic inlet	

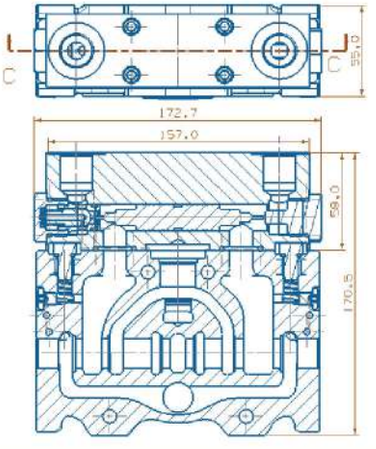
Typical Work Section Dimension

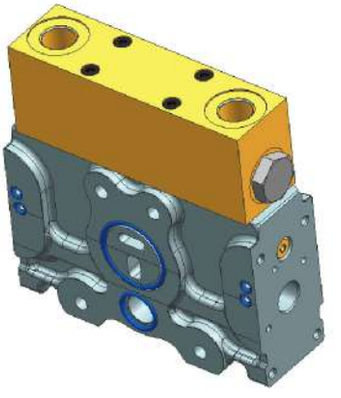
ZK01 Work Section





ZK05 Work Section





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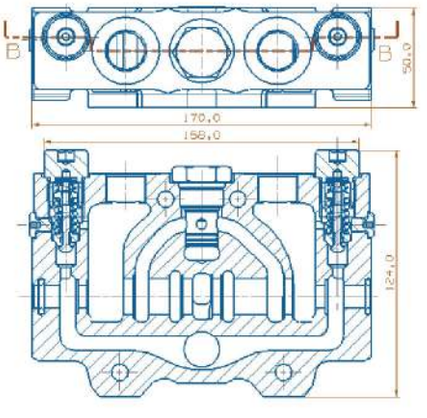
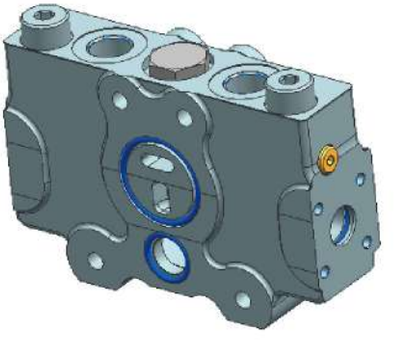
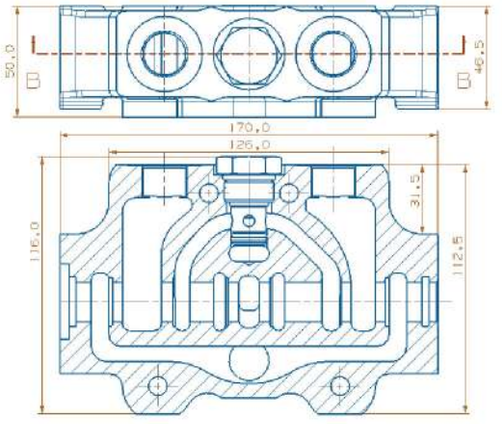
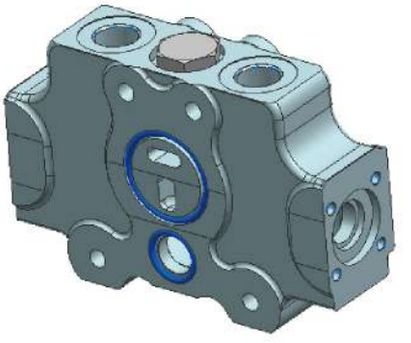




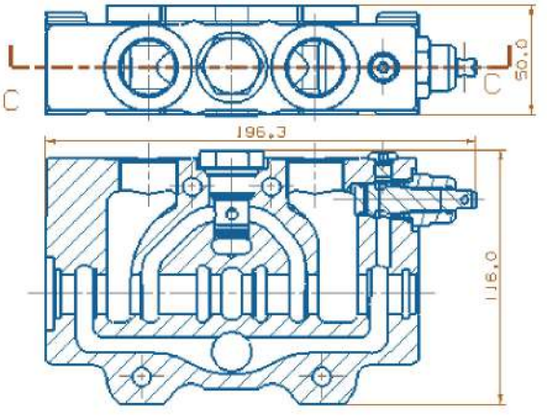
Typical Work Section Dimension

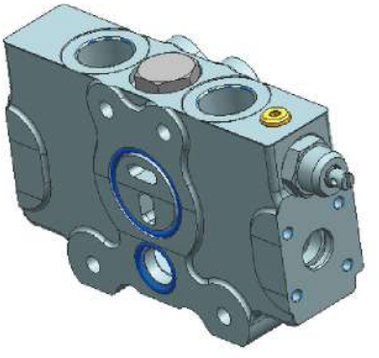
ZK08 Work Section



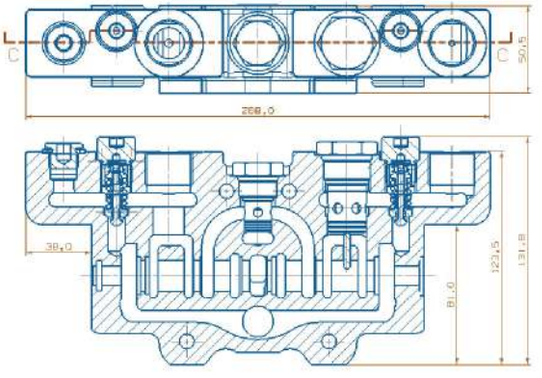


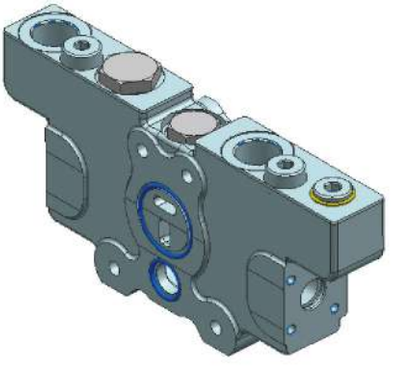
ZK10 Work Section





ZK11 Work Section





Typical Work Section Hydraulic Schematics

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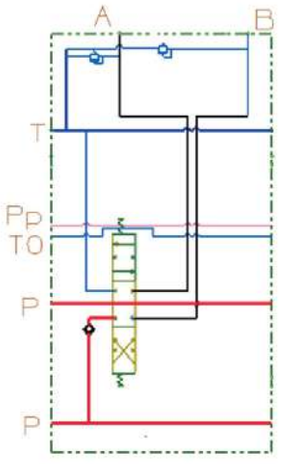
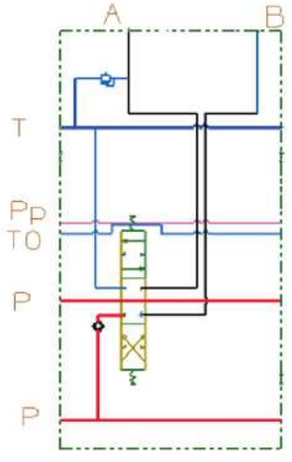
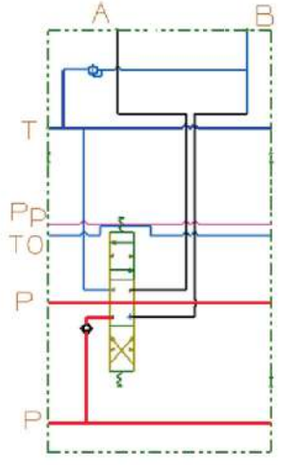
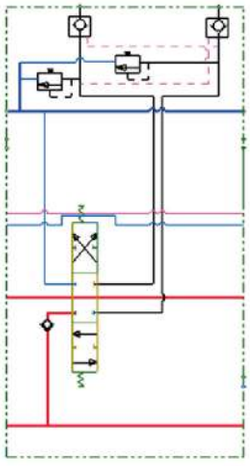
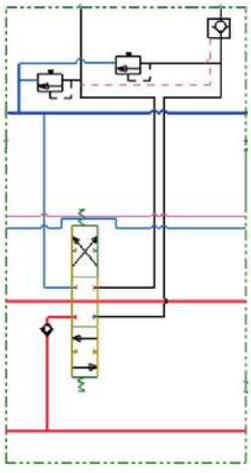
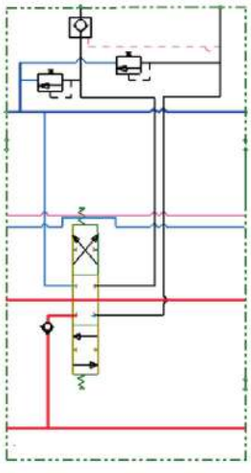
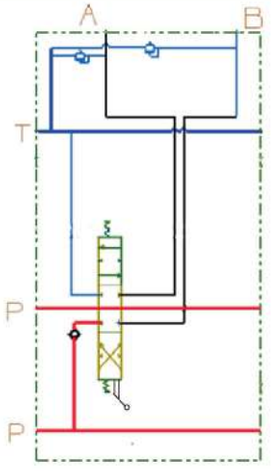
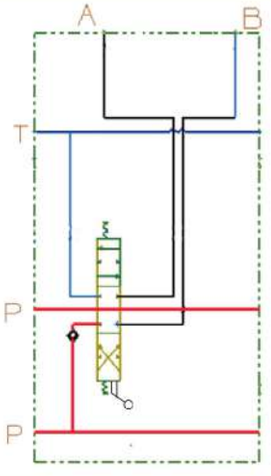
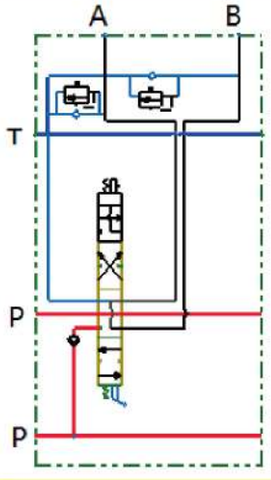
ZK01		Load relief valves at both at both A and B ports	
ZK02		Load relief valve at A port	
ZK03		Load relief valve at B port	

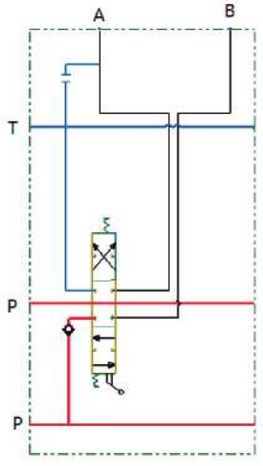
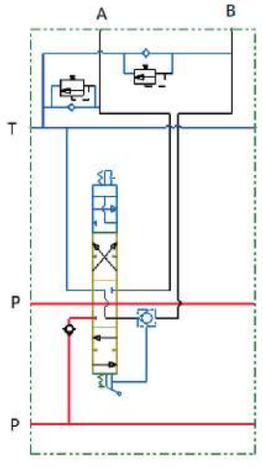
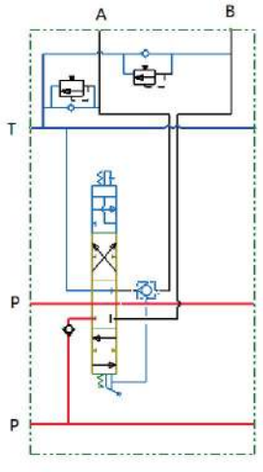
Typical Work Section Hydraulic Schematics

Code	Hydraulic Schematics	Main Function	Notes
ZK04		Load relief valves and PO check at both A and B ports	
ZK05		Load relief valves at both A and B ports and PO check at B port	
ZK06		Load relief valves at both A and B ports and PO check at A port	

Typical Work Section Hydraulic Schematics

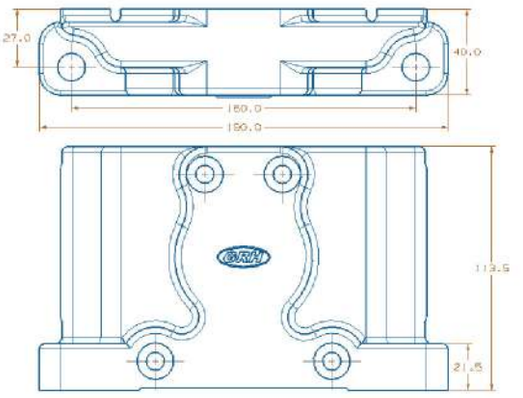
Code	Hydraulic Schematics	Main Function	Notes
ZK07		Load relief valves at both A and B ports and Manually controlled (Section thickness is 50mm)	
ZK08		Basic Work Section Manually controlled (Section thickness is 50mm)	
ZK09		Load relief valves at both A and B ports and Manually controlled 4th position floating (Section thickness is 50mm)	

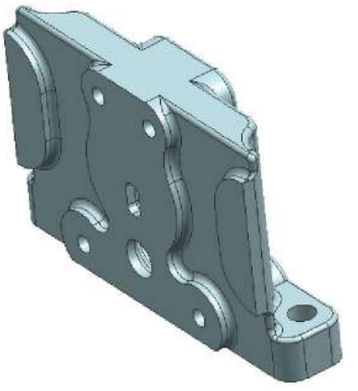
Typical Work Section Hydraulic Schematics

Code	Hydraulic Schematics	Main Function	Notes
ZK10		Basic work section Manually controlled A dump valve at A port (Section thickness is 50mm)	Agricultural tractor Applications
ZK11		Load relief valves and anti-cavitation valves at both A and B ports Manually controlled 4th position floating Mechanically operated PO check at B port. (Section thickness 50mm)	Mobile cranes and tractor hitch applications
ZK12		Load relief valves and anti-cavitation valves at both A and B ports Manually controlled 4th position floating Mechanically operated PO check at A port. (Section thickness 50mm)	Mobile cranes and tractor hitch applications

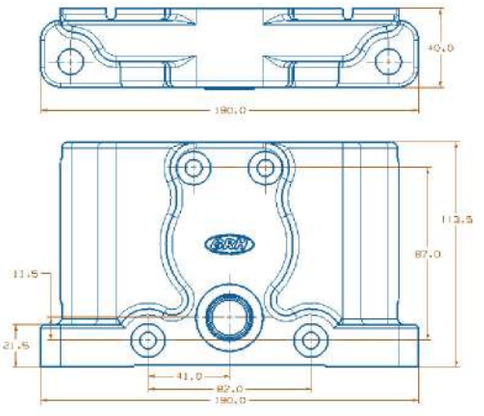
Typical End Section Dimension

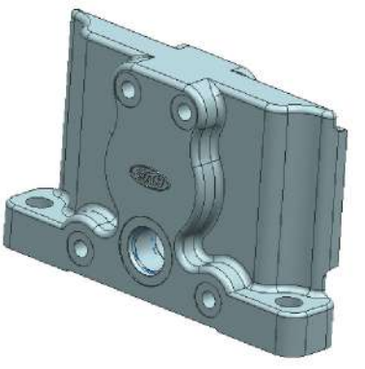
DK01 End Section



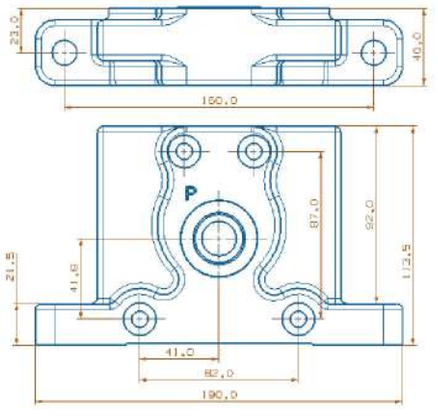


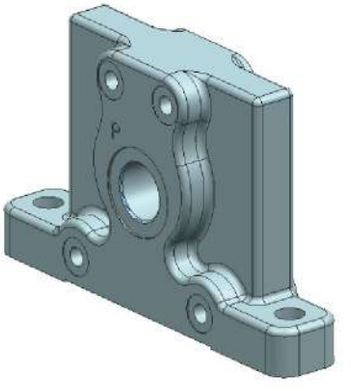
DK02 End Section



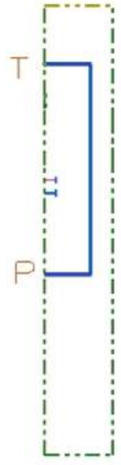
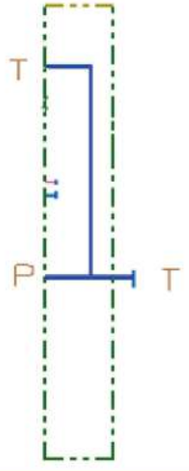
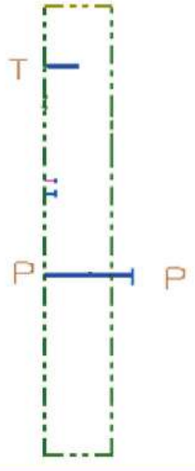


DK03 End Section

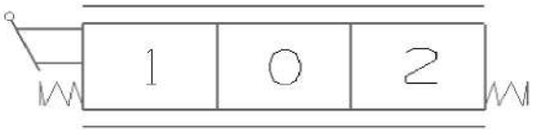
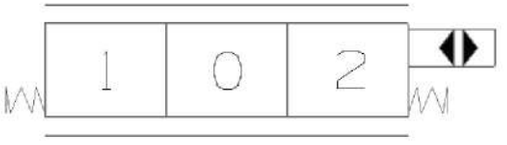
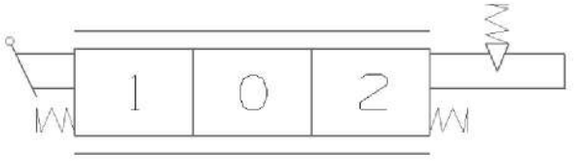
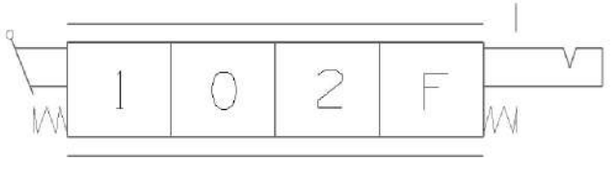
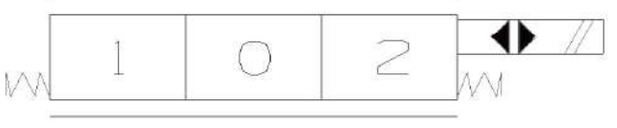
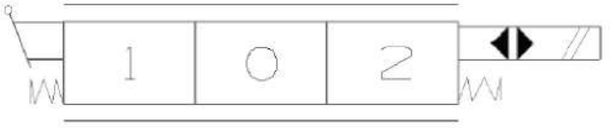




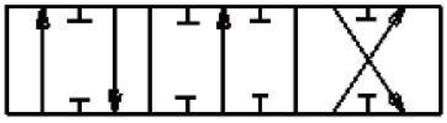
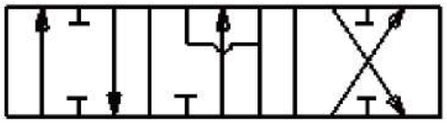
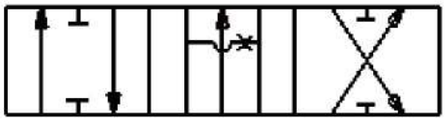
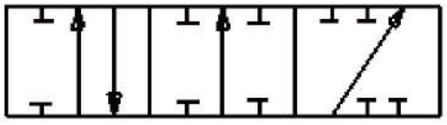
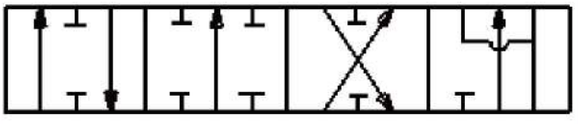
Typical End Section Hydraulic Schematics

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

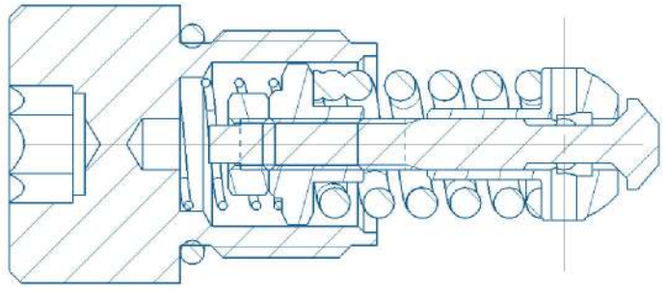
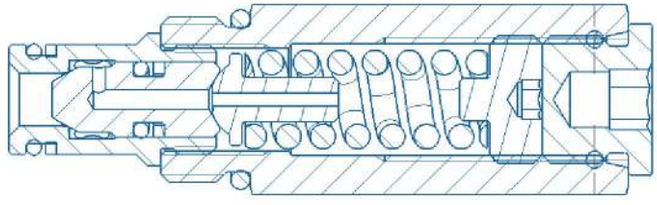
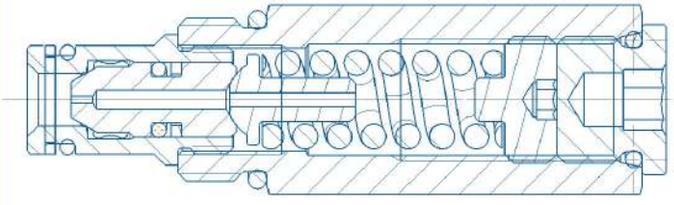
Work Section Drive Styles

Drive Style Code	Hydraulic Schematics	Function
KQ1		Standard manually controlled
KQ2		Hydraulic remote
KQ3		Manually controlled 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 manually control)

Typical Spool Functions

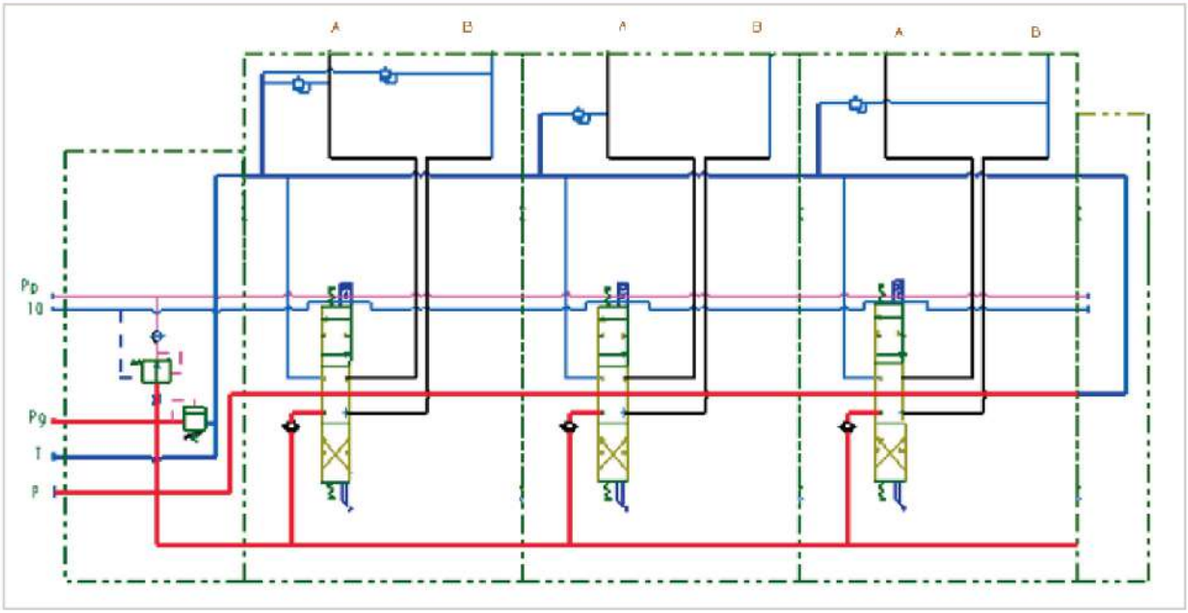
Drive Style Code	Hydraulic Schematics	Function	Notes
FG1		3 position 4 way At neutral: P,T,A,B are all blocked	Double acting cylinder applications
FG2		3 position 4 way At neutral: P blocked,T,A, Bconnected	Hydraulic motor applications
FG3		3 position 4 way At neutral: P,A,B and T all connected	Hydraulic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

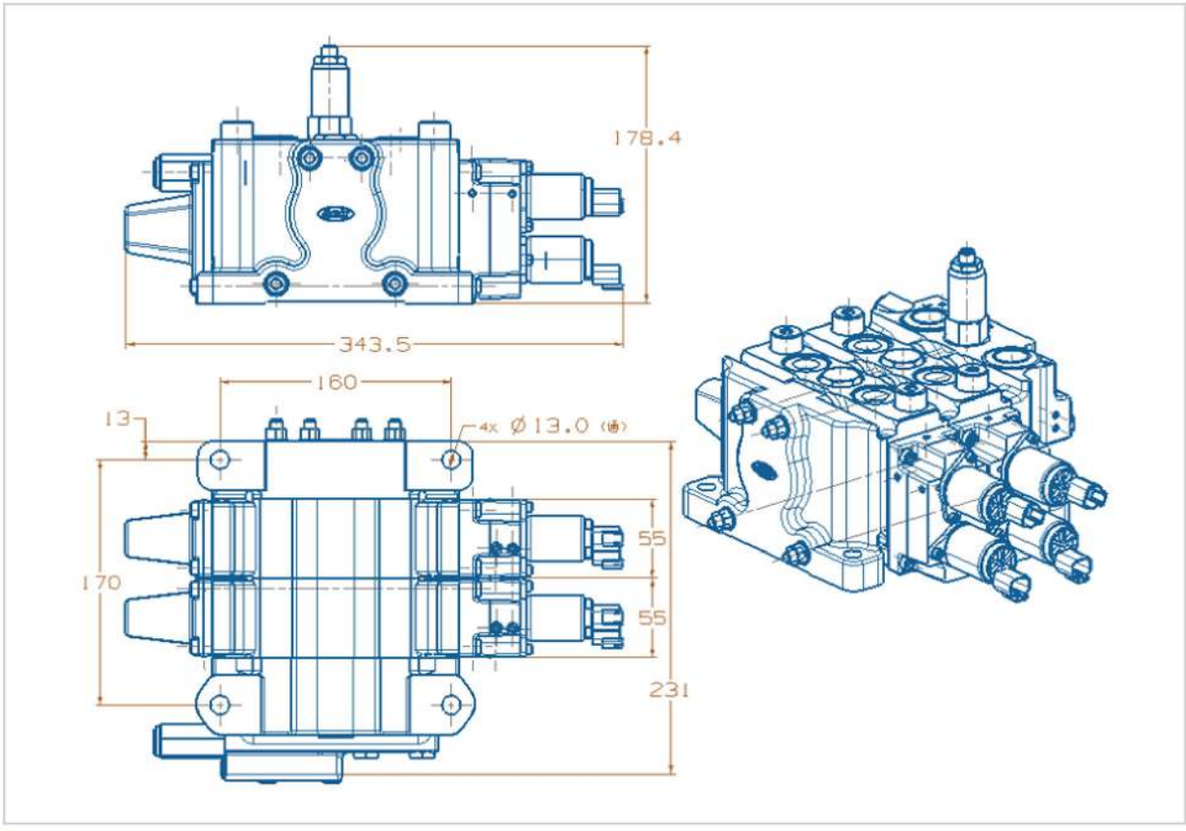
Code	Section drawing	Notes
RF0	Without load relief valve	Without load relief valve
RF1		Relief valve with anti-cavitation function
RF2		Direct acting relief valve
RF3		Differential pressure relief valve

Application Example

1.Electro-hydraulic Controlled With Manual Override

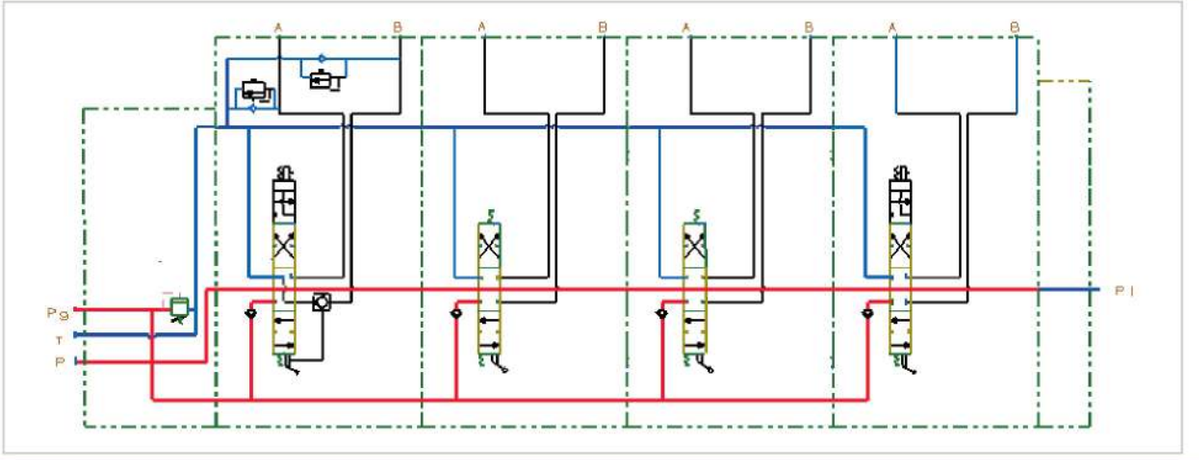


3 Section Stack Valve

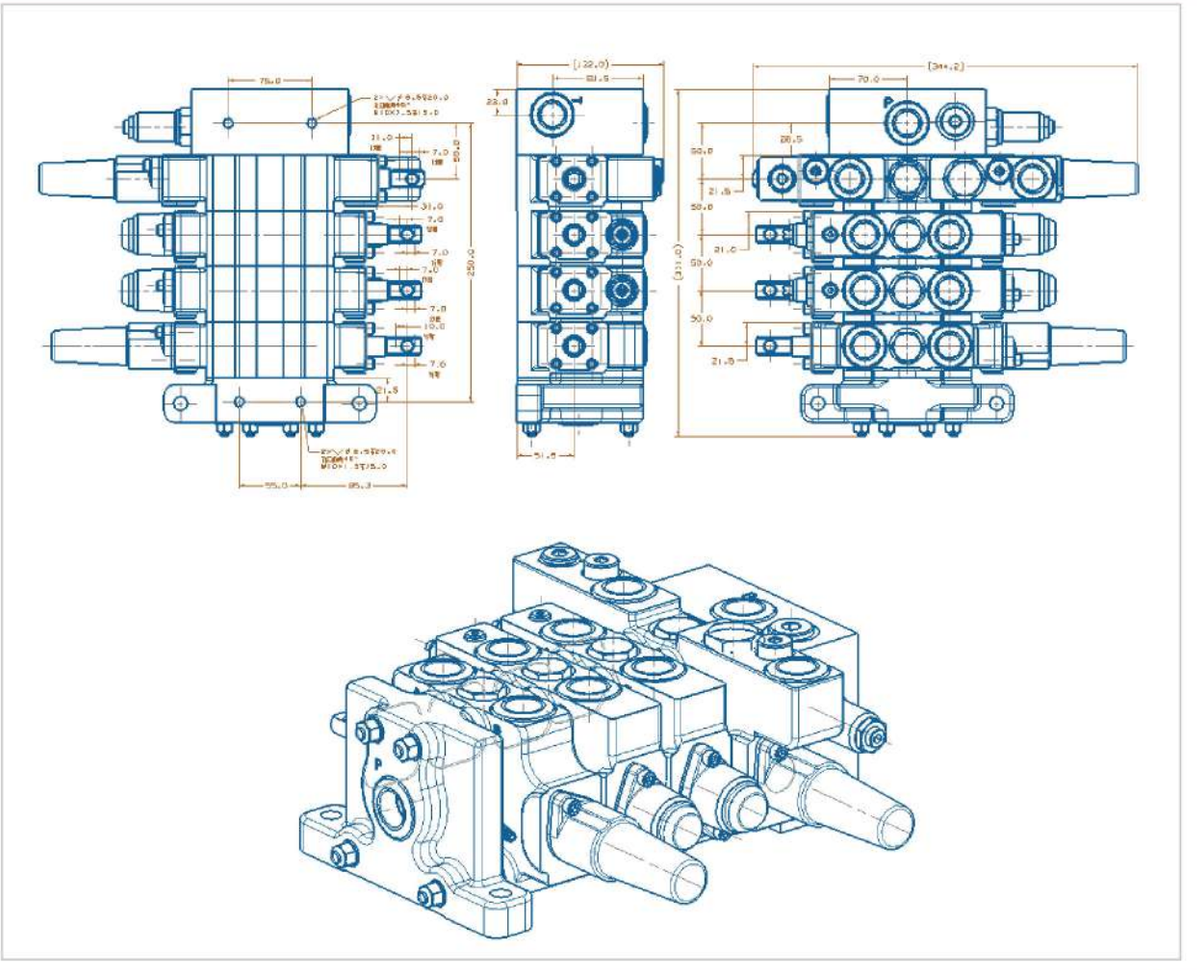


Application Example

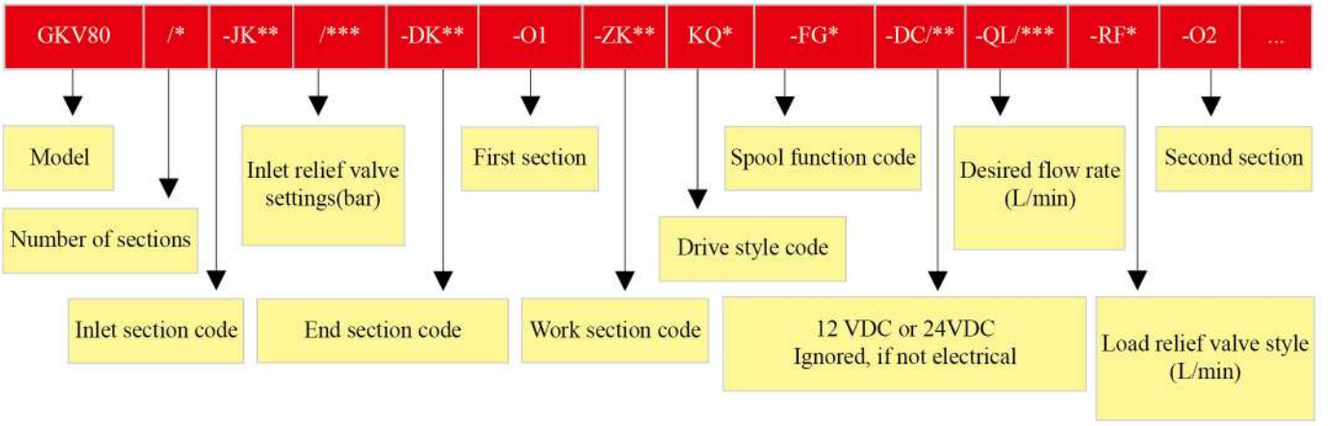
2. Manually Controlled Valves (Tractor Hydraulic System)



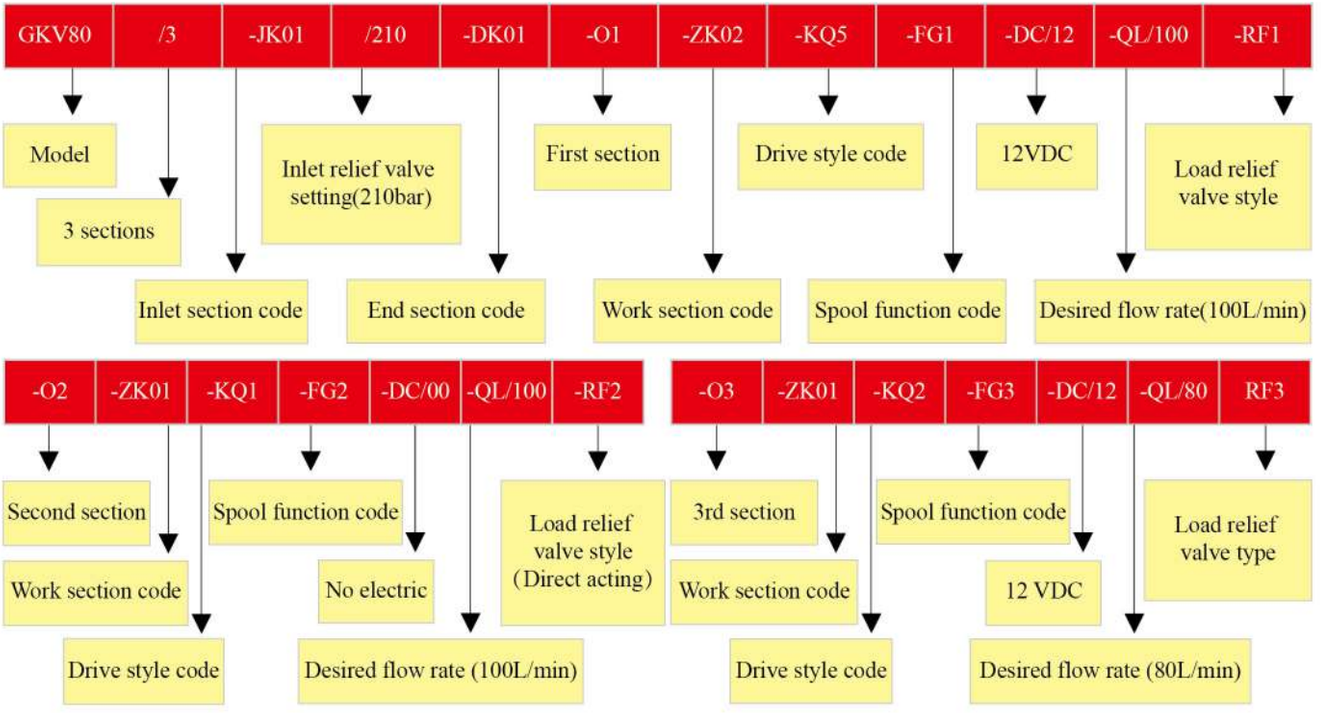
4 Section Stack Valve



Ordering Code



Ordering Example



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. Desired 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. Desired 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. Desired flow is 80L/min.The load relief valves are differential pressure type.

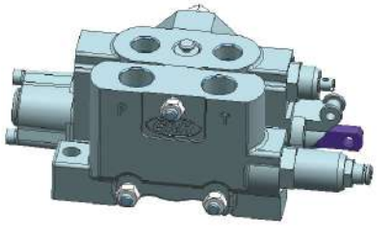
GKV50 Series Sectional Valves	

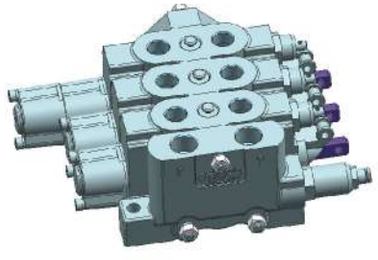
Introduction

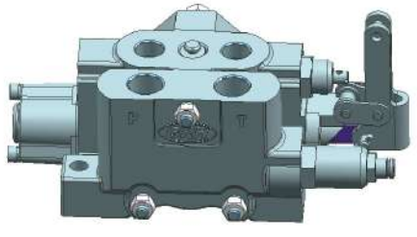
GKV50 series sectional valves are open center valves. Mainly used in mobile machines such as, agricultural machinery, construction machines, mining equipment, material handling equipment, as well as maintenance machines. All valve series adapted modular design. The system designer can choose different modules to design a complex system. The spool in work section is designed to satisfy with the customer's 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 number of different work section modules to choose from, to satisfy with the customer's needs. Different end sections also provide the customer's needs for return ports or power beyond functions.

GKV50 Series Sectional Valves Provide the following Functions:

- Inlet module with two stage relief valve.
- Inlet module with direct acting relief valve.
- A/B port with overload valve on main sectionV
- A port with overload valve on work section.
- B port with overload valve on work section.
- A port with dump valve.
- B port with dump valve.
- A/B port with a mechanical P. O. check.
- A port with a mechanical P. O. check.
- B port with a mechanical P. O. check.
- End section with oil return port.
- End section without oil return port.
- End section with power beyond.







Main Features

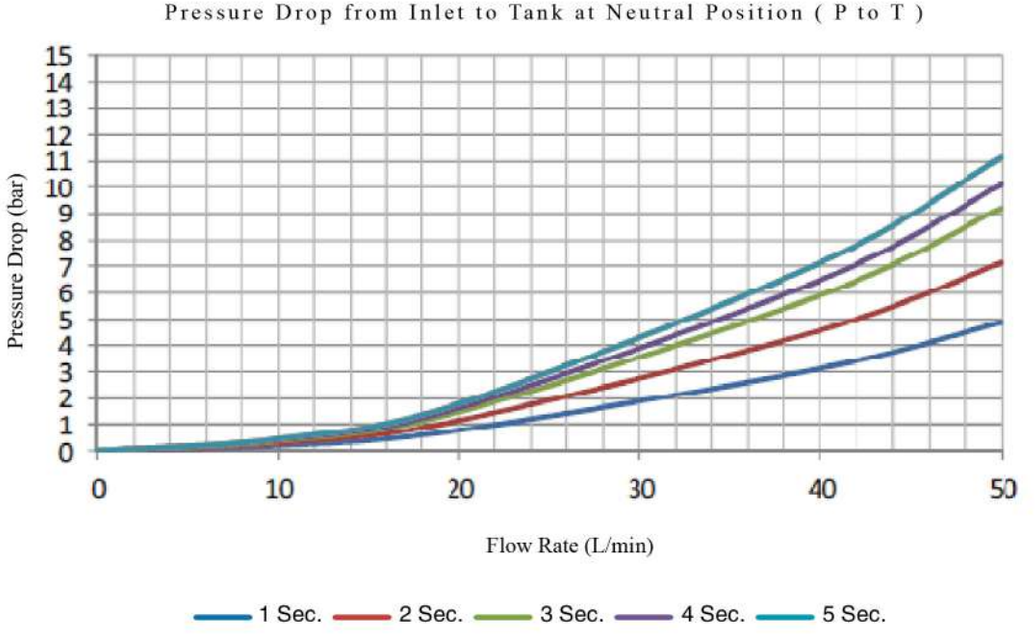
GKV50 series sectional valve provides the following features:

- Cast iron body (inlet section, main section and end section).
- Spring cap, mechanical detent cap, as well as electoral 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 (electrical, hydraulic remote, manually control, wire driving).
- Provides power beyond port.
- Can be modified to be a closed center valve.
- 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 proportionally controlled without pressure compensation.
- Can be assembled with 1-8 main sections.

Major Technical Data

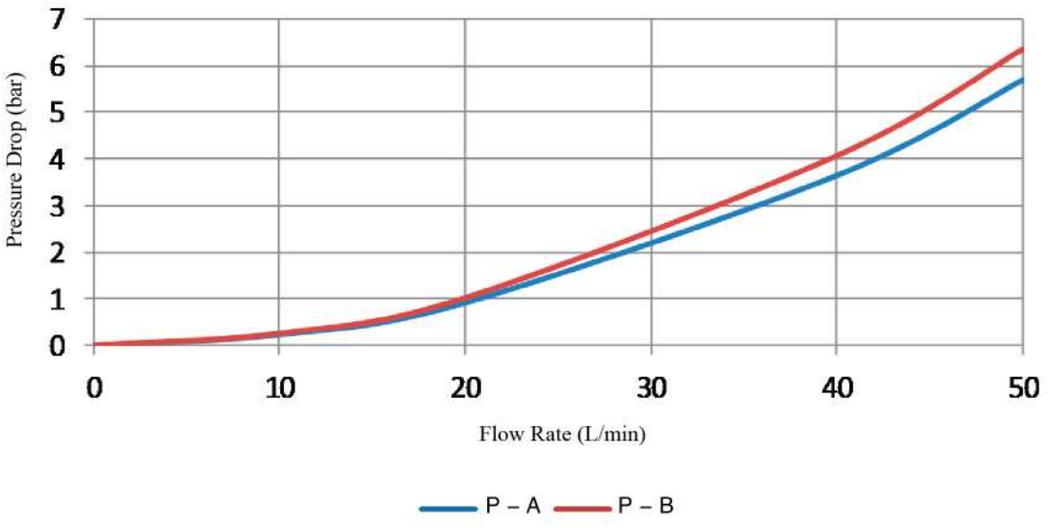
Rated flow rate	50 L/min
Maximum flow rate	60 L/min
Minimum flow rate	20 L/min
Maximum pressure at P port	350 bar
Maximum pressure at A/B ports	350 bar
Maximum pressure at T port	25 bar
Internal leakage (at 70 bar) A/B to T	25-35 CC/min
Internal leakage (at 70 bar) A/B to T	
With P. O. check	2-5 CC/min
Spool stroke (1/ 2 position)	+7/-7mm
With floating function (1/ 2 and F position)	+7/-7 -10mm
Solenoid can be either 12 VDC or 24 VDC, corresponding current is 0 - 1.5 or 0 - 0.75 Amp.	

Performance Data

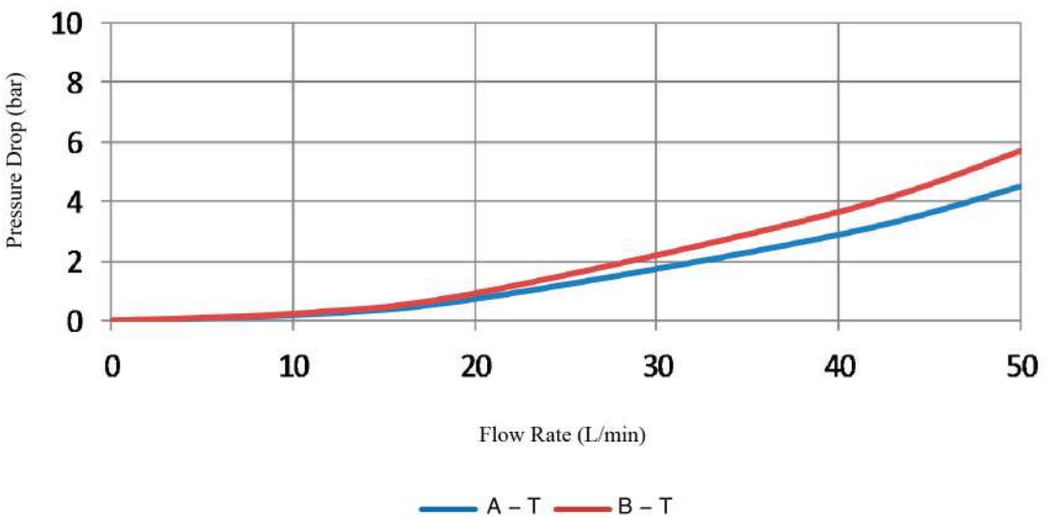


Performance Data

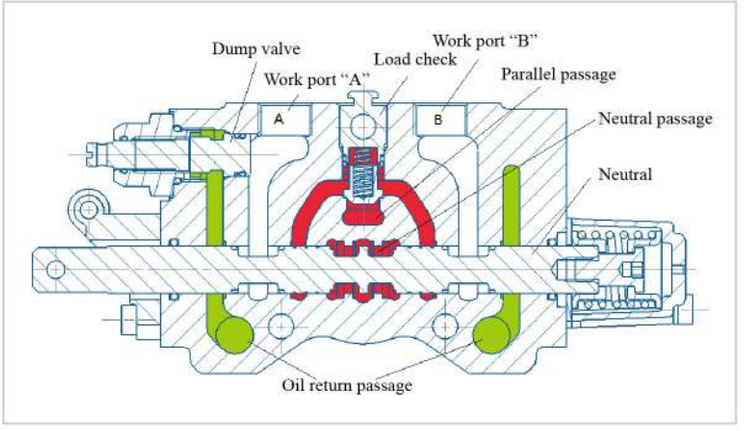
Inlet to Work Port

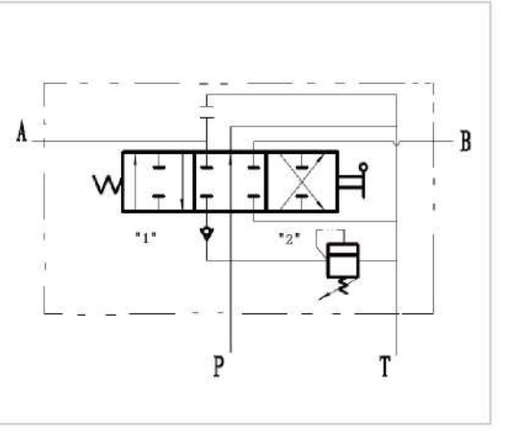


Work Port to Tank

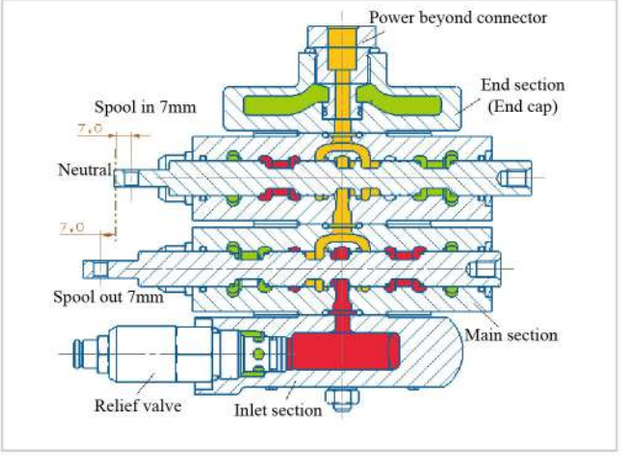


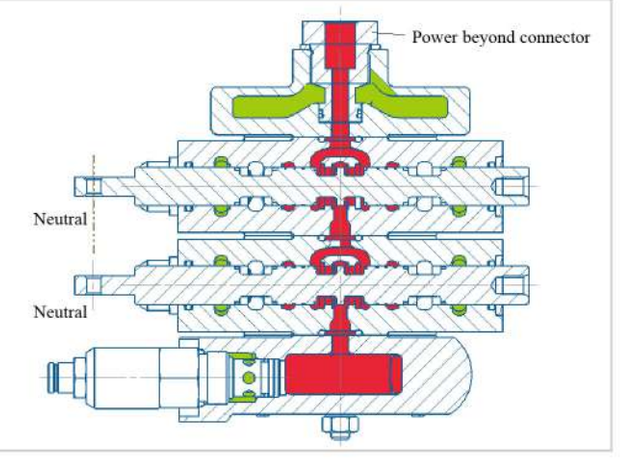
Operation Principle





GKV50 series sectional valves is an open centered 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 " 1 "or" 2 "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 "A"or"B".



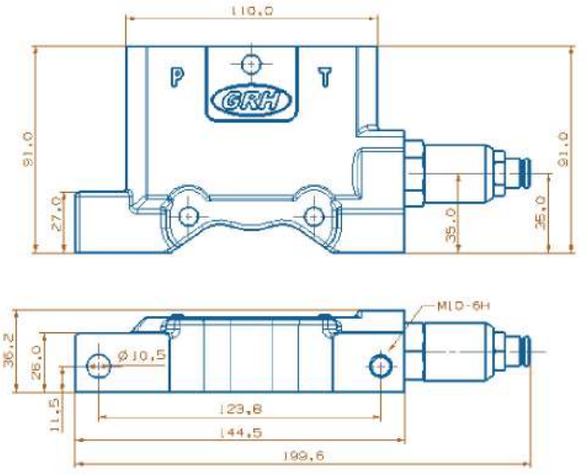


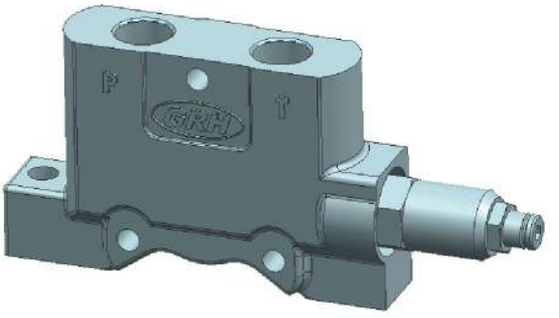
For multi-section valves, if one of the section's spool is in "Spool in"or"Spool out"position, then, there is no flow in its down stream section's neutral passage. The main throttle occurs on the valve opening between bridge passage and spool . The operator can control more than one spools, but the magnitude of the flow rate for each controlled section depends on the magnitude of the load, as shown in Fig. 3.

When power beyond function is selected as shown in Fig.4, when all spools are in neutral position, The flow from inlet passes neutral passage to power beyond port to provide source of the flow to other auxiliary functions.

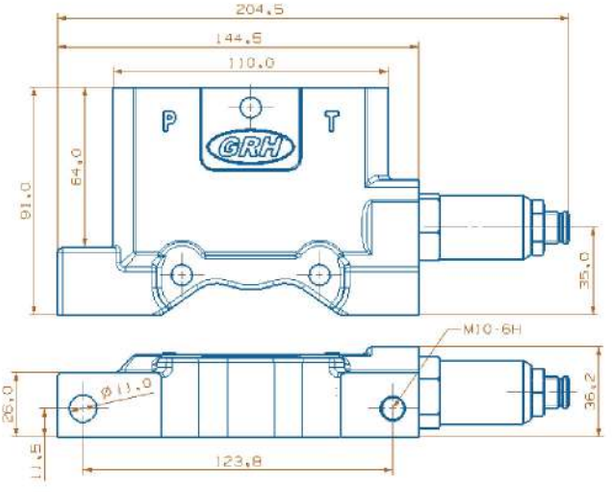
Inlet Section Dimension

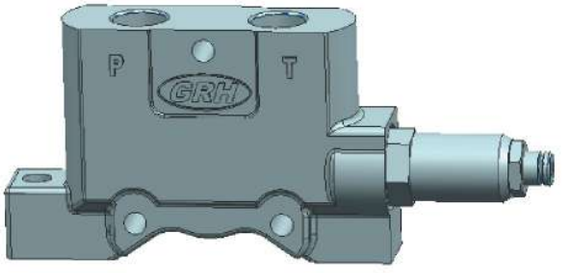
JK01 Inlet Section



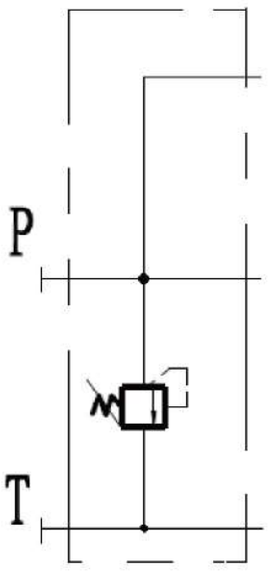
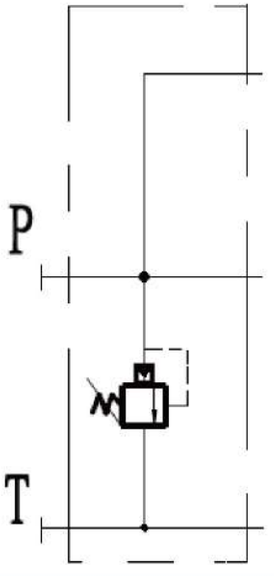


JK02 Inlet Section



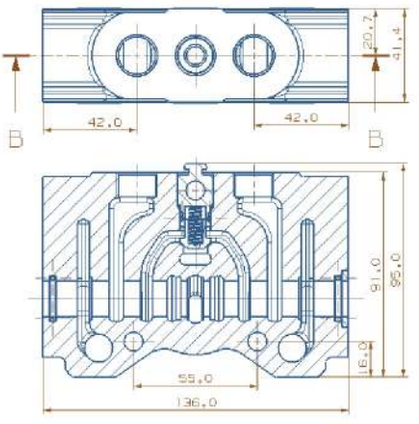


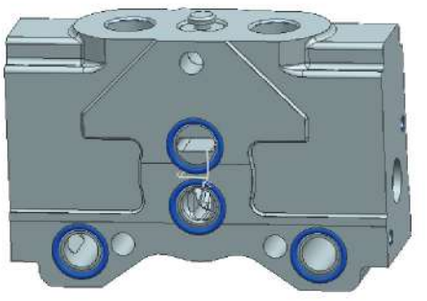
Inlet Section Hydraulic Schematics

Code	Hydraulic Schematics	Main Function	Notes
JK01		Inlet section with direct acting relief valve	
JK02		Inlet section with two stage relief valve	

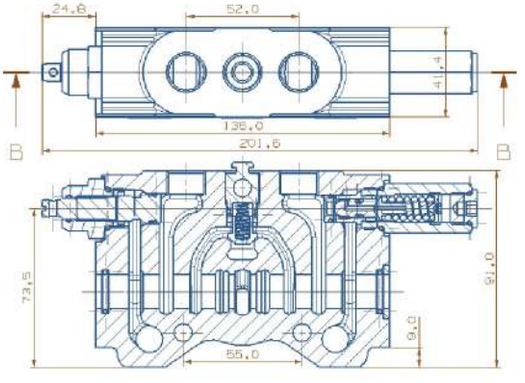
Typical Work Section Dimension

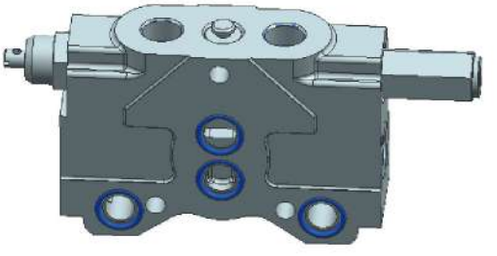
YT01 Work Section



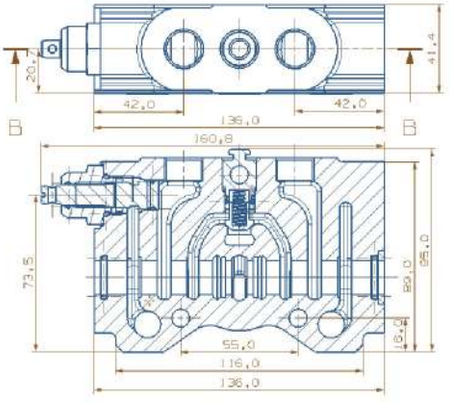


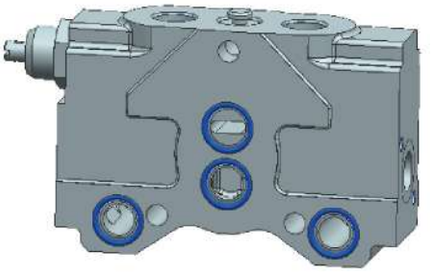
YT06 Work Section



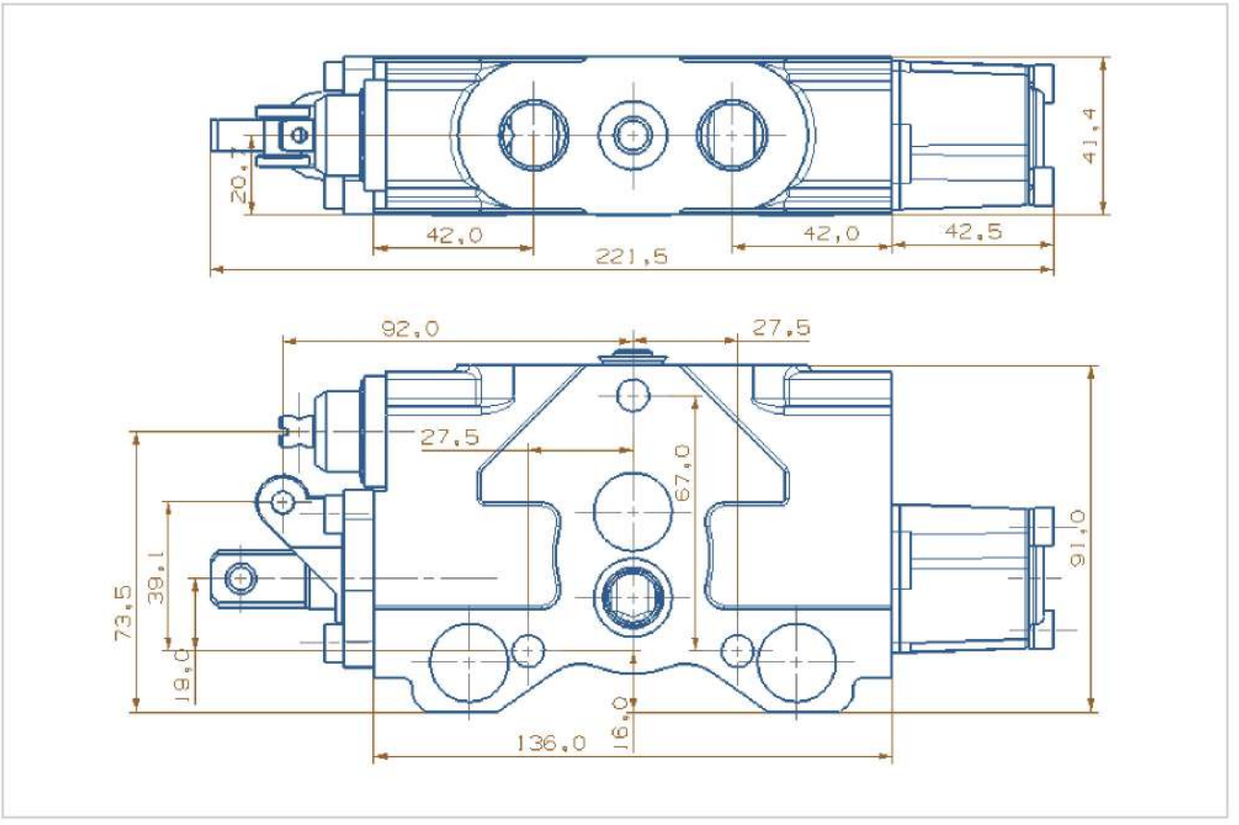


YT07 Work Section

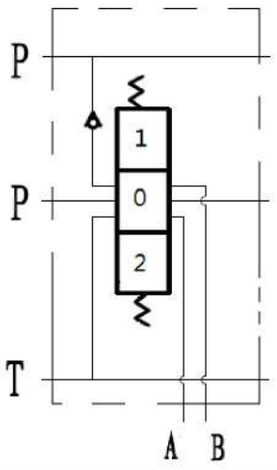
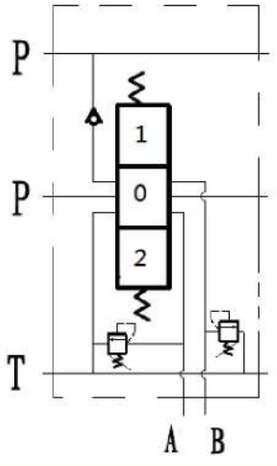
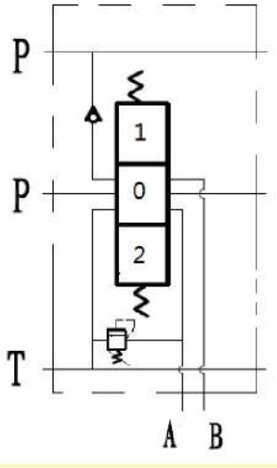




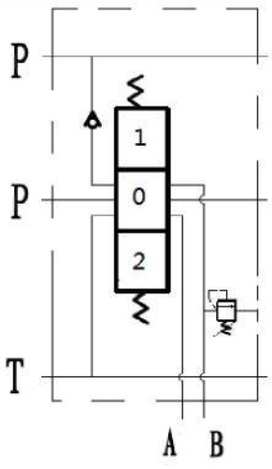
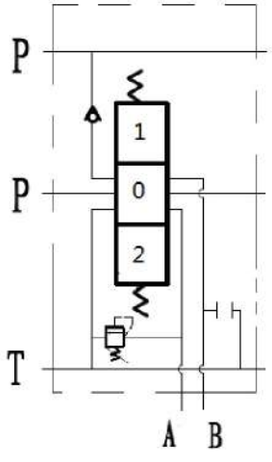
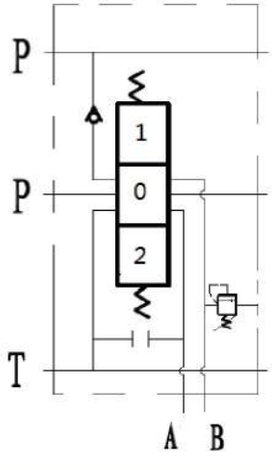
Typical Work Section Dimension



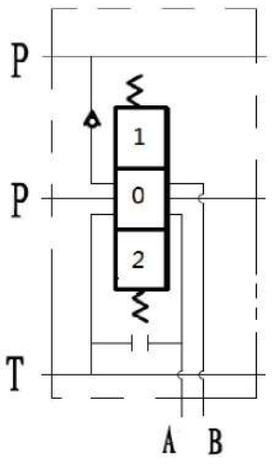
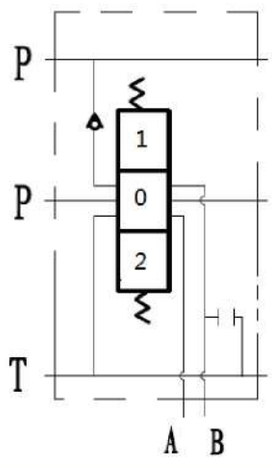
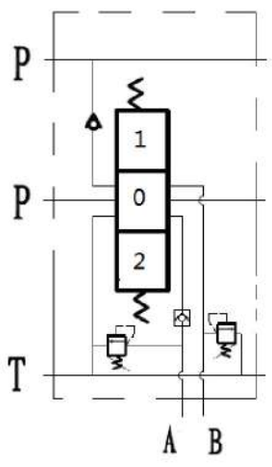
Typical Work Section Hydraulic Schematics

Code	Hydraulic Schematics	Main Function	Notes
YT01		Standard Section Without over load relief valves at both A and B ports	
YT02		Both A and B ports have over load relief valves	
YT03		One over load relief valve on A port	

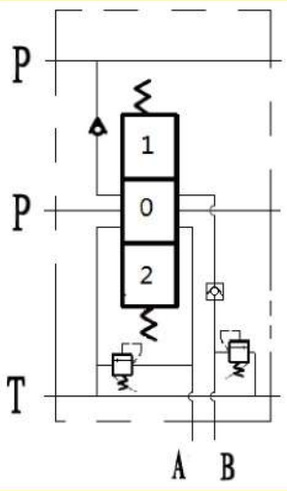
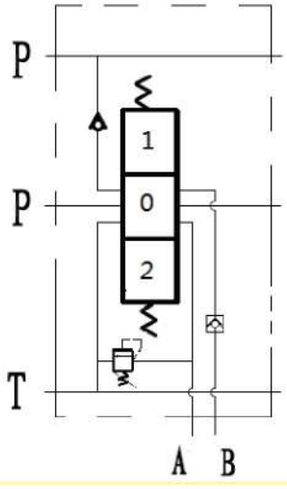
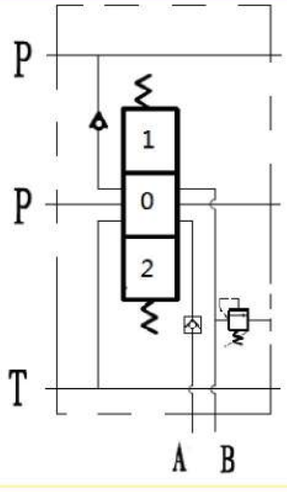
Typical Work Section Hydraulic Schematics

Code	Hydraulic Schematics	Main Function	Notes
YT04		One over load relief valve on B port	
YT05		One over load relief valve on A port One dump valve on B port	Tractor and other auxiliary equipment applications
YT06		One over load relief valve on B port One dump valve on A port	Tractor and other auxiliary equipment applications

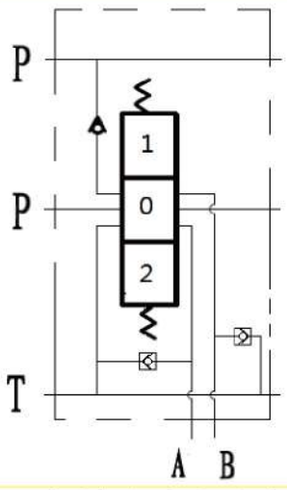
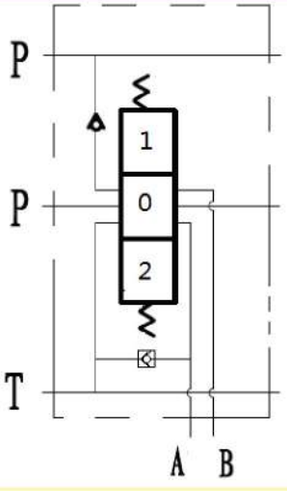
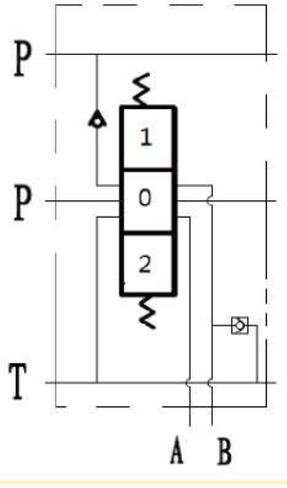
Typical Work Section Hydraulic Schematics

Code	Hydraulic Schematics	Main Function	Notes
YT07		One dump valve on A port	Tractor and other auxiliary equipment applications
YT08		One dump valve on B port	Tractor and other auxiliary equipment applications
YT09		Over load relief valves on both A and B ports. One mechanically actuated P. O. check on A port.	Tractor and other load lifting equipment applications

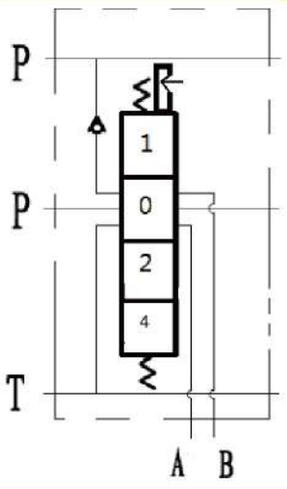
Typical Work Section Hydraulic Schematics

Code	Hydraulic Schematics	Main Function	Notes
YT10		Over load relief valves on both A and B ports.One mechanically actuated P. O. check on B port.	Tractor and other load lifting equipment applications.
YT11		One load relief valves on A port. One mechanically actuated P. O. check on B port.	Tractor and other load lifting equipment applications.
YT12		One load relief valves on B port. One mechanically actuated P. O. check on A port.	Tractor and other load lifting equipment applications.

Typical Work Section Hydraulic Schematics

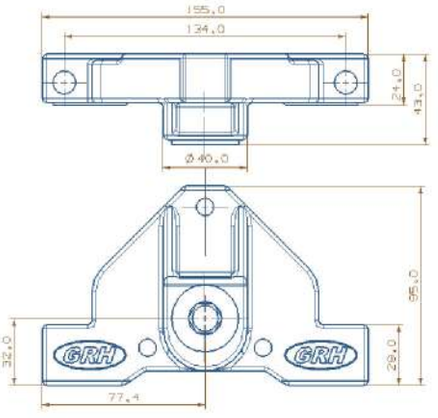
Code	Hydraulic Schematics	Main Function	Notes
YT13		Anti-cavitation valves on both A and B ports	Hydraulic motor applications
YT14		Anti-cavitation valves on A port	Hydraulic motor applications
YT15		Anti-cavitation valves on B port	Hydraulic motor applications

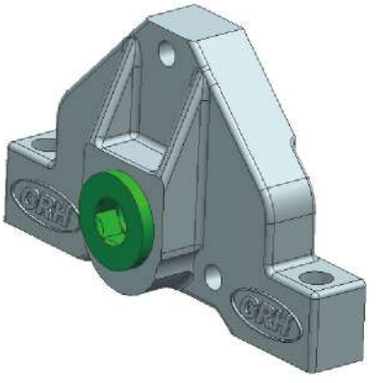
Typical Work Section Hydraulic Schematics

Code	Hydraulic Schematics	Main Function	Notes
YT16		Fourth section has mechanical detent	

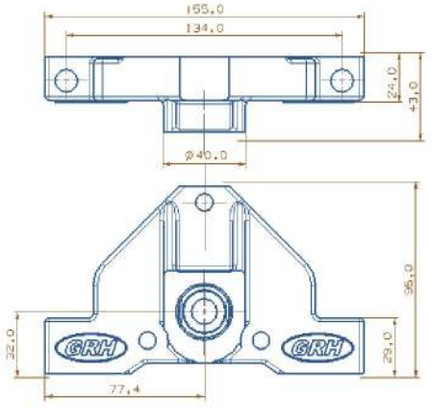
Typical End Section Dimension

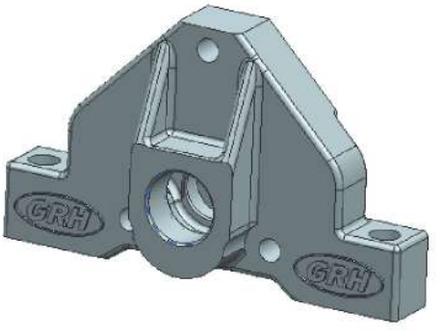
DY01 End Section（End Cap）



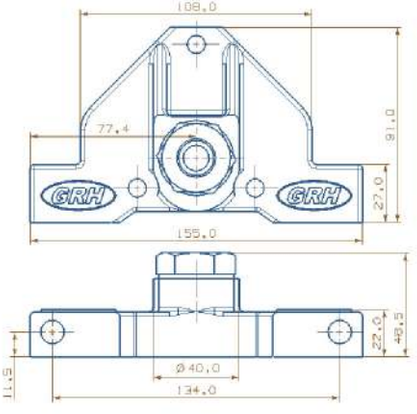


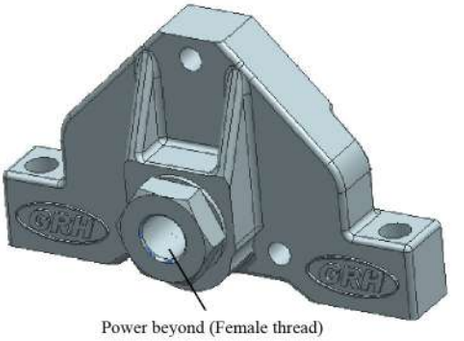
DY02 End Section（End Cap）





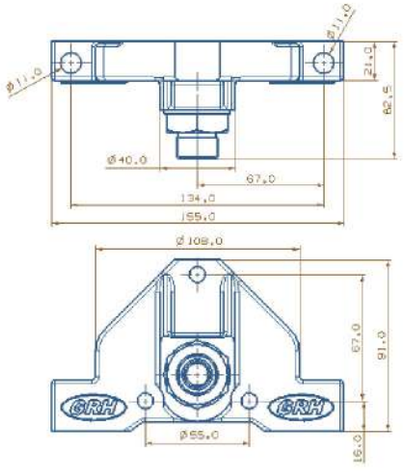
DY03 End Section（End Cap）

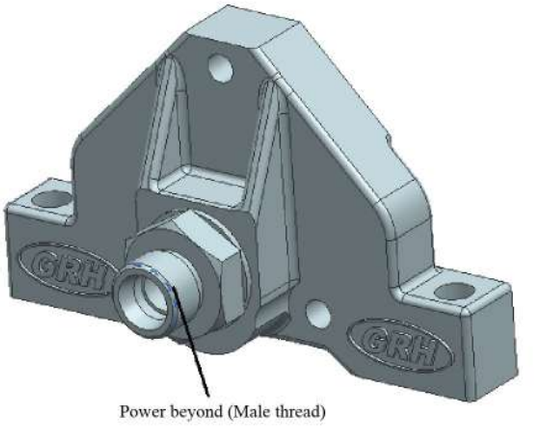




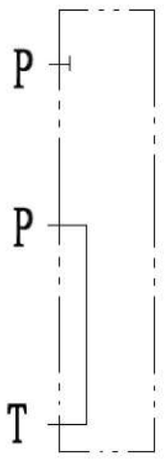
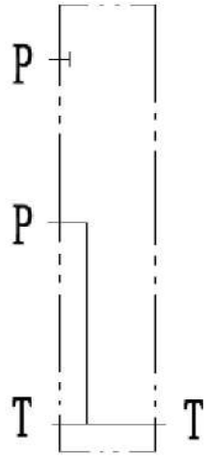
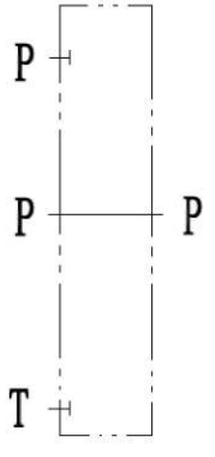
Typical End Section Dimension

DY04 End Section（End Cap）

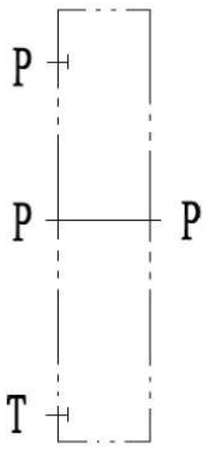




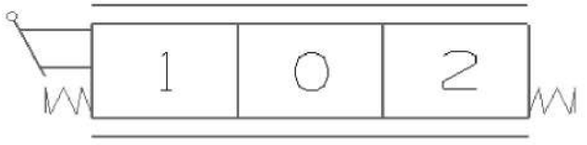
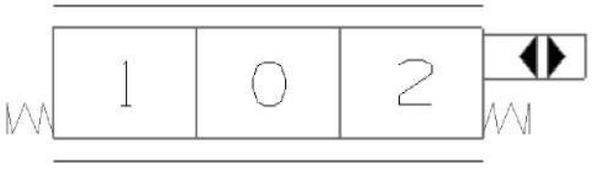
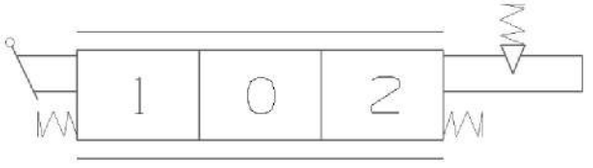
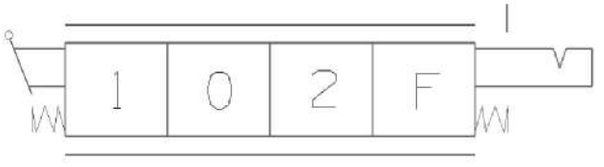
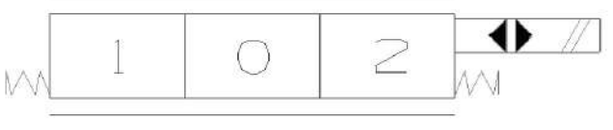
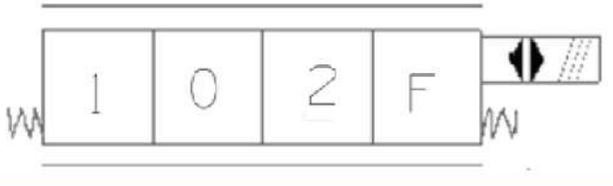
Typical End Section Hydraulic Schematics

Code	Hydraulic Schematics	Main Function	Notes
DY01		No oil return port	
DY02		Oil return port on the end section	
DY03		No oil return port With power beyond port (Internal threaded connector)	Tractor application

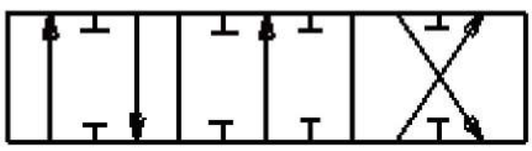
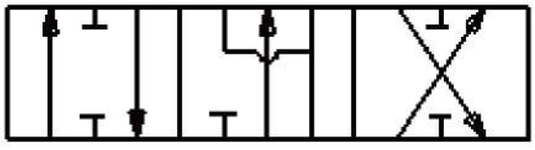
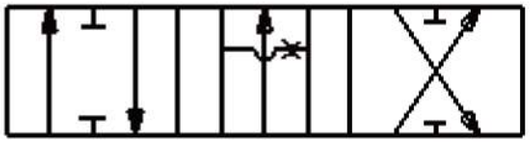
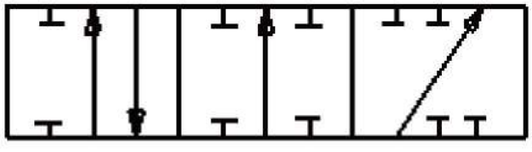
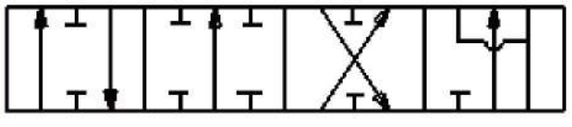
Typical End Section Hydraulic Schematics

Code	Hydraulic Schematics	Main Function	Notes
DY04		No oil return port With power beyond port (External threaded connector)	Tractor application

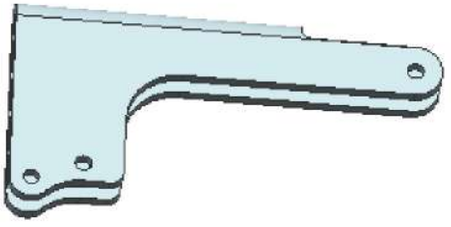
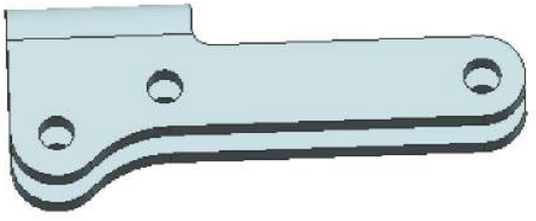
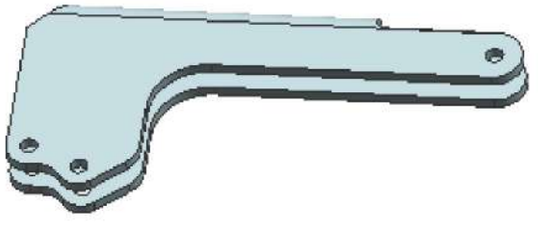
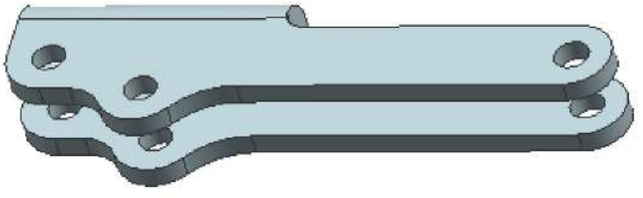
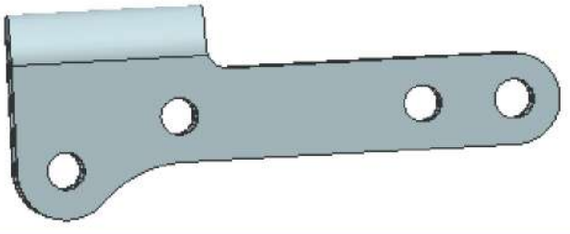
Work Section Drive Styles

Drive Style Code	Hydraulic Schematics	Function
KQ1		Standard manually controlled
KQ2		Hydraulic remote
KQ3		Manually controlled with mechanical detent
KQ4		Manually controlled with 4th position floating and detent
KQ5		Electrical actuated（on/off）
KQ6		Electrical actuated with floating function

Typical Spool Functions

Drive Style Code	Hydraulic Schematics	Function	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, Bconnected	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

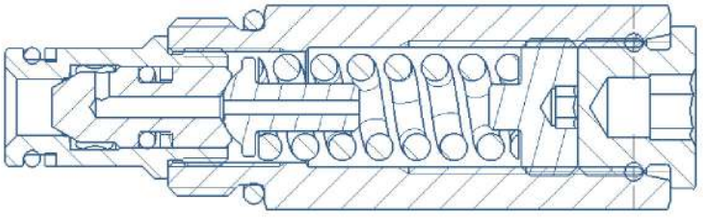
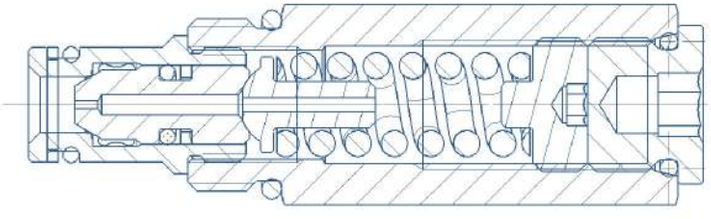
Handle Bracket Type

Code	Drawing	Notes
SL0	Valve without handle bracket	
SL1		
SL2		
SL3		
SL4		
SL5		

Handle Type

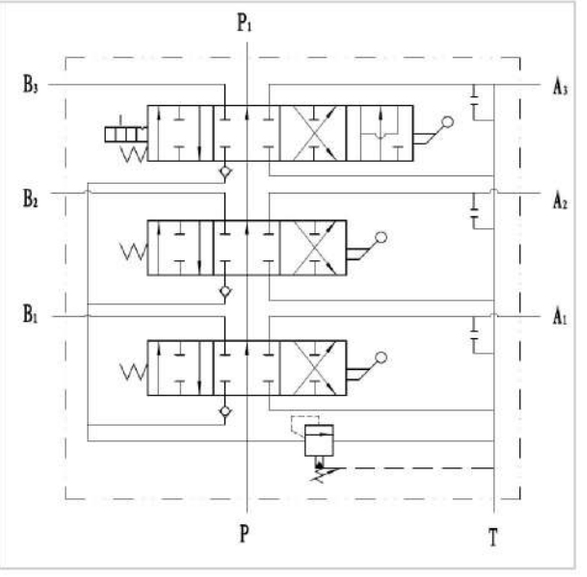
Code	Drawing	Notes
SB0	No Handle	
SB1		
SB2		
SB3		
SB4		Long handle

Load Relief Valve Types

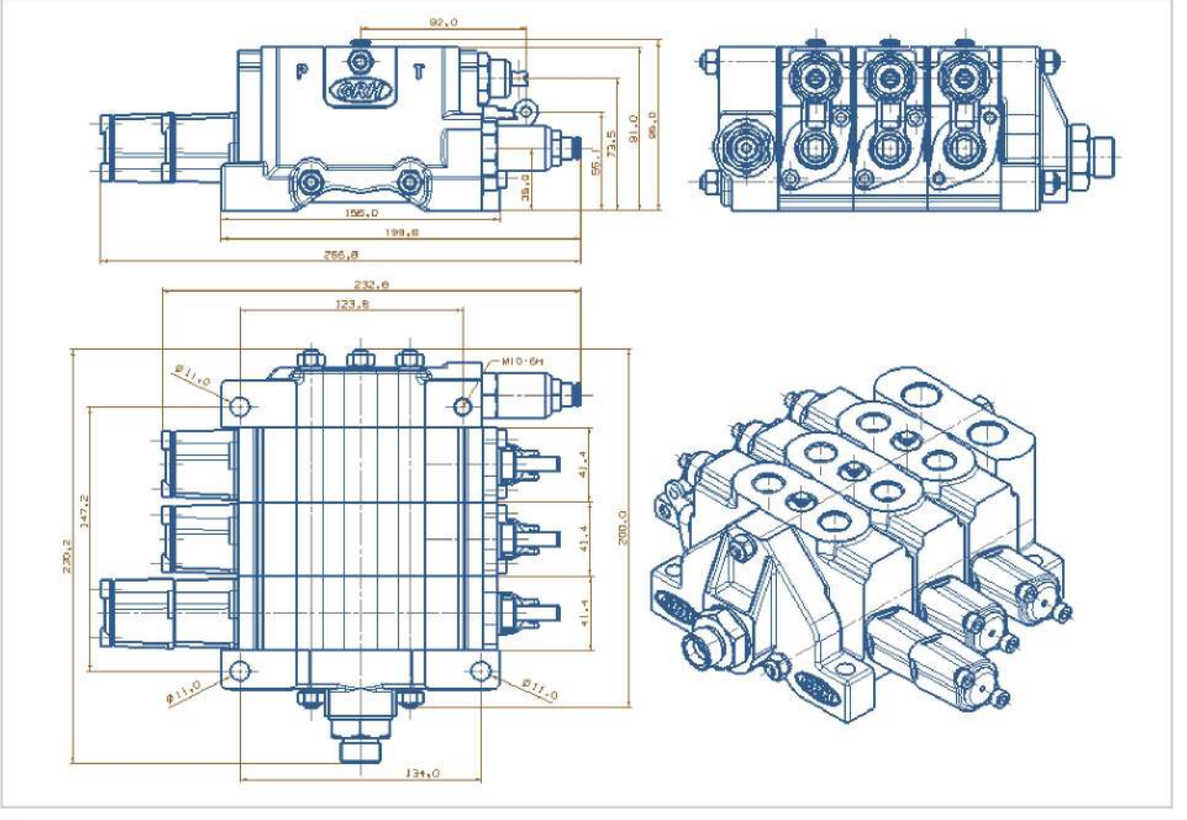
Code	Drawing	Notes
RF0	No over load relief valve	No over load relief valve
RF1		Direct acting relief valve
RF2		Differential relief valve

Application Example

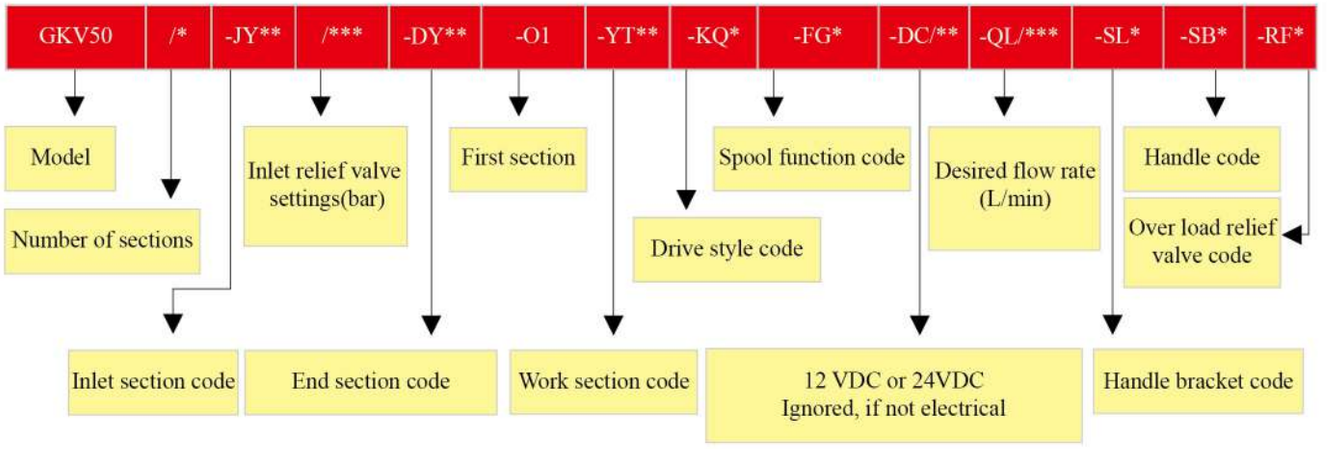
3 Section Stack Valve (Third Section Has Mechanical Detent And Floating Function)

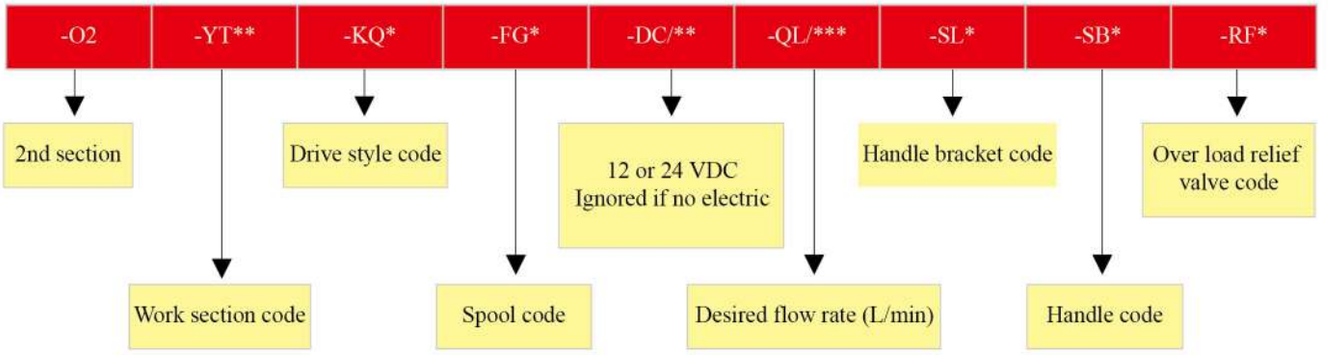


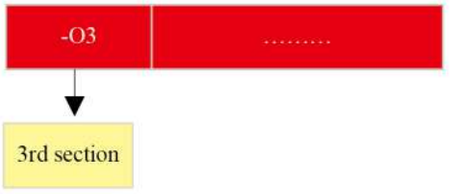
Manually Controlled 3 Section Valve



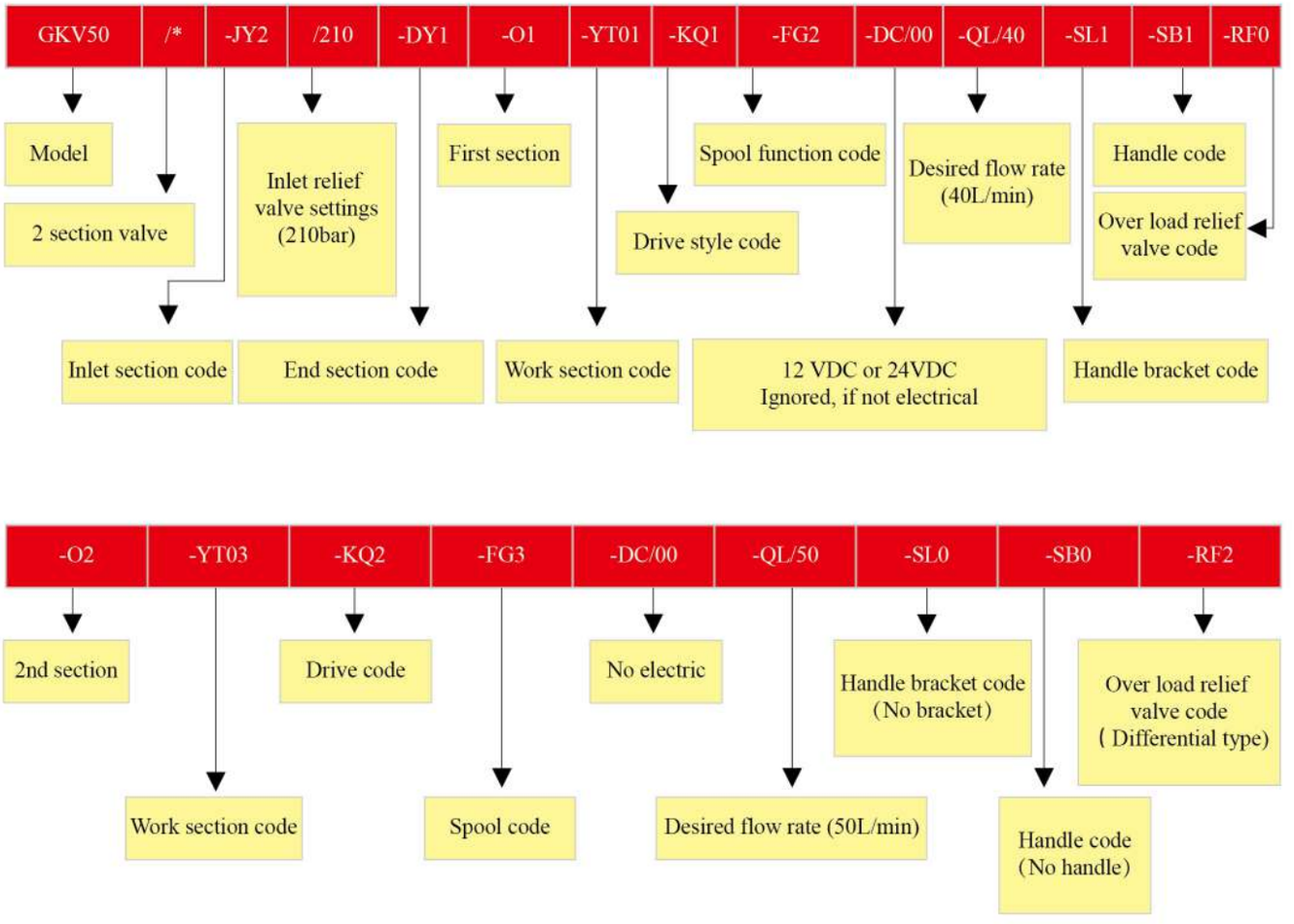
Ordering Code







Ordering example



Order example notes

Choose GKV50 series sectional valve, with two work sections， Inlet relief valve is set 210 bar. There is no return port on end section of the stack. The first work section is basic standard section without over load relief valves. This section is manually controlled (wire pulling type). Spool is "Y" type. Desired flow rate for the first section is 40L/min. Not required for handle and handle bracket. The second section is hydraulic remote controlled. There is an over load relief on "A" port. Spool is "H" type. Desired flow is 50L/min。 Not required for handle and handle bracket. The overload relief is differential type.

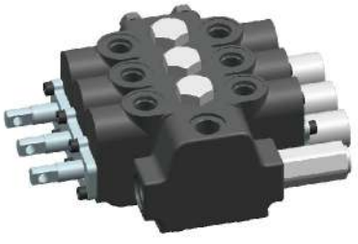
GKV35 Series Sectional Valves	

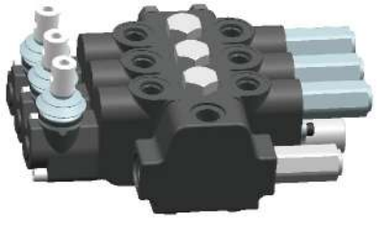
Introduction

GKV35 series sectional valves are open center 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's 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 number of different work section modules to choose from, to satisfy with the customer's needs. Different end sections also provide the customer's needs for return ports or power beyond functions.

GKV35 Series Sectional Valves Provide the following 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 dump valve.
- End section with oil return port.
- End section without oil return port.
- End section with power beyond port.
- Provide other cartriage valve option.





Main Features

GKV35 series sectional valve provides the following features:

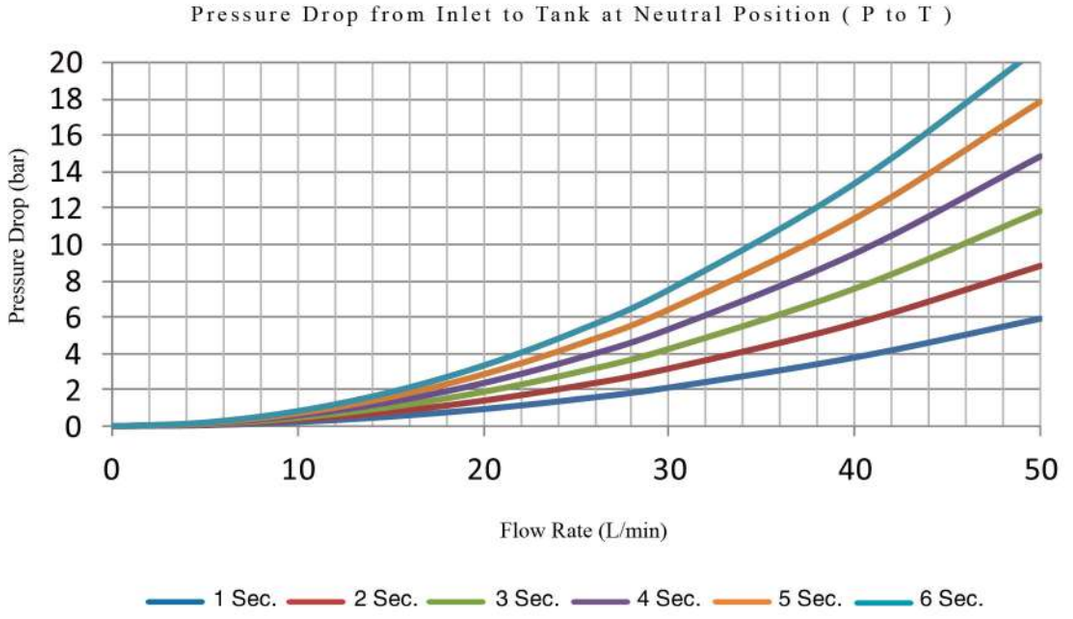
- Cast iron body (inlet section, main section and end section).
- Spring cap, mechanical detent cap, as well as electoral or hydraulic pilot controlled module body are made by cast aluminum or die cast aluminum.
- Parallel circuit. Each section has its own load check valve, Each section has load relief 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, manually control, wire driving).
- Provides power beyond port.
- Can be modified to be a closed center valve.
- 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 proportionally controlled without pressure compensation.
- Can be assembled with 1-8 main sections.

Major Technical Data

Rated Flow Rate	35 L/min
Maximum Flow Rate	40 L/min
Minimum Flow Rate	10 L/min
Maximum Pressure at P port	210 bar
Maximum Pressure at A/B port	210 bar
Maximum Pressure at T port	25 bar
Internal Leakage (at 70 bar) A/B to T	15-20 CC/min
Internal Leakage (at 70 bar) A/B to T With P.O. check	2-5 CC/min
Spool Stroke (1 / 2 position)	+7/-7 mm
With floating function (1 / 2 and F position)	+7/-7 -10 mm

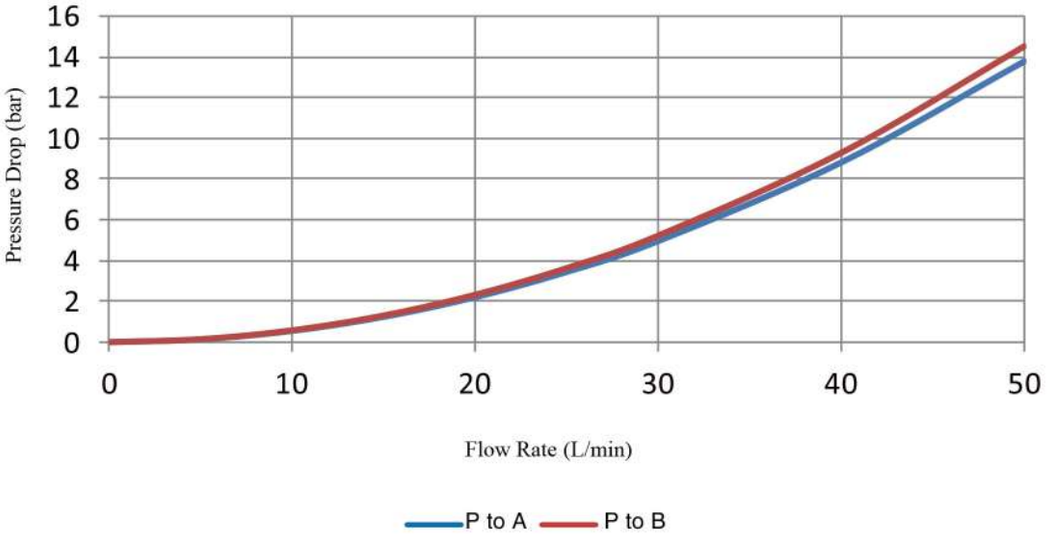
Solenoid can be either 12 VDC or 24 VDC, corresponding current is 0 - 1.5 or 0 - 0.75 Amp.

Performance Data

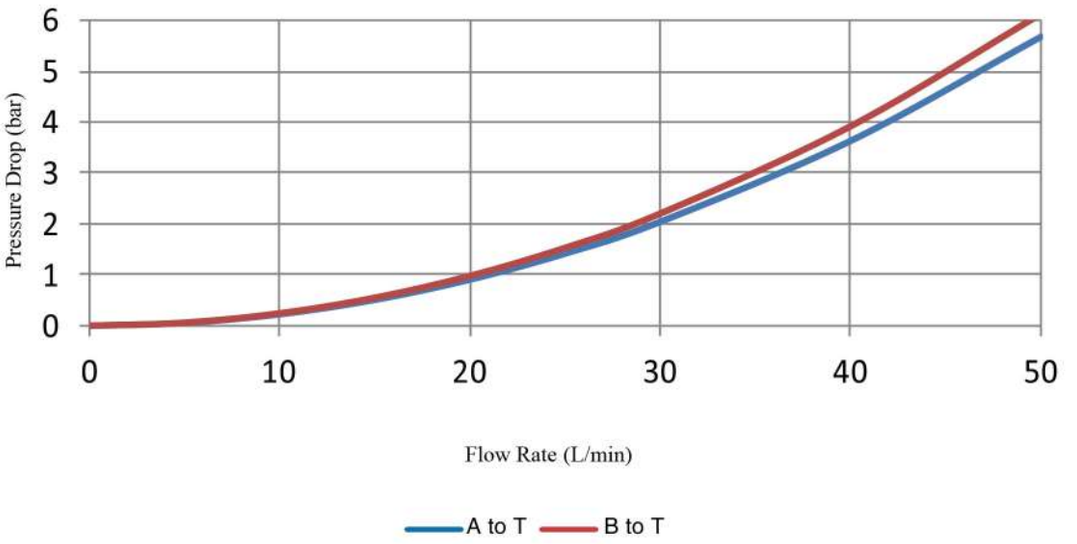


Performance Data

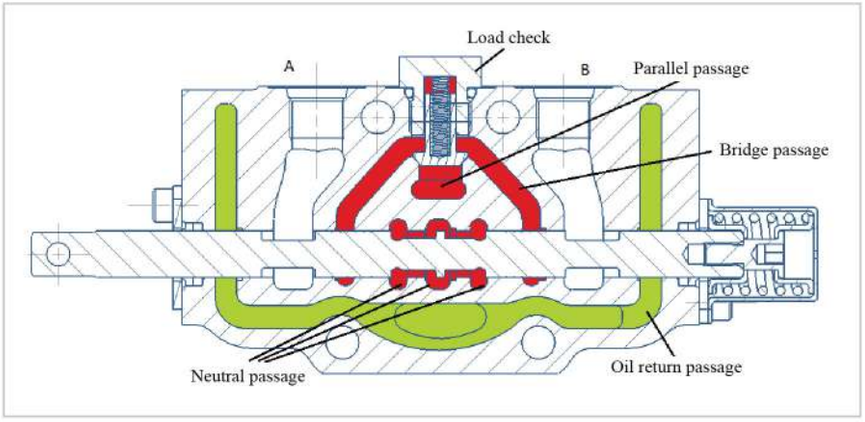
Inlet to Work Port (P to A/B)

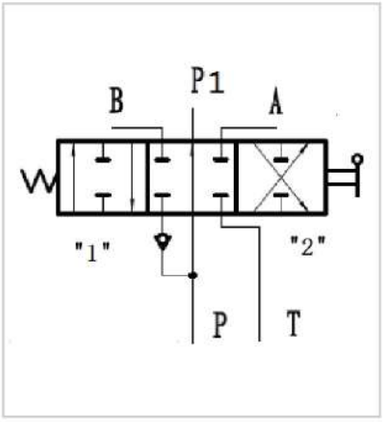


Pressure Drop (A/B to T)

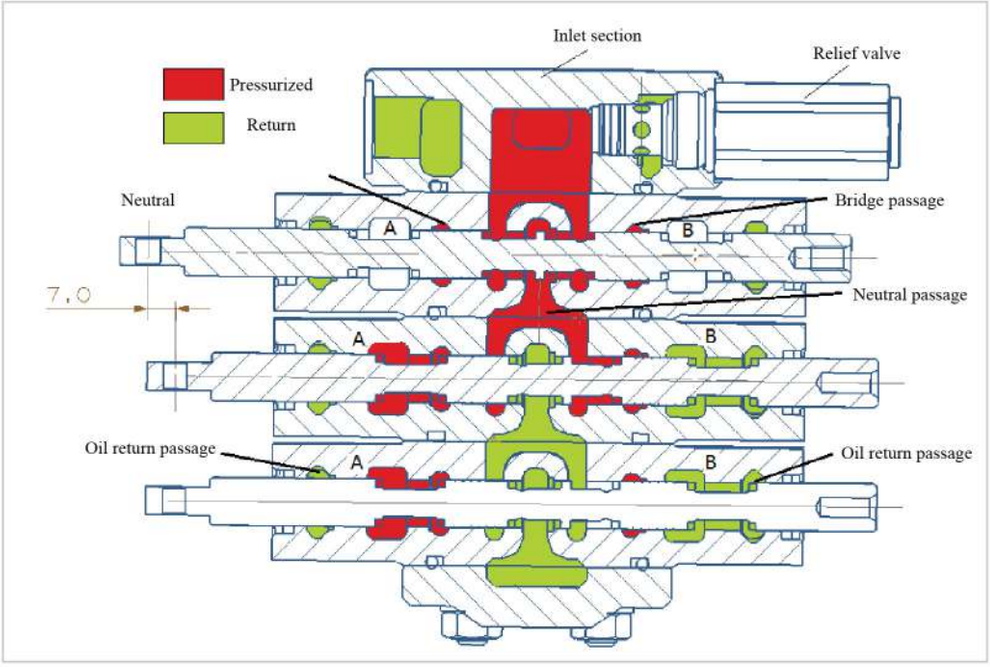


Operation Principle





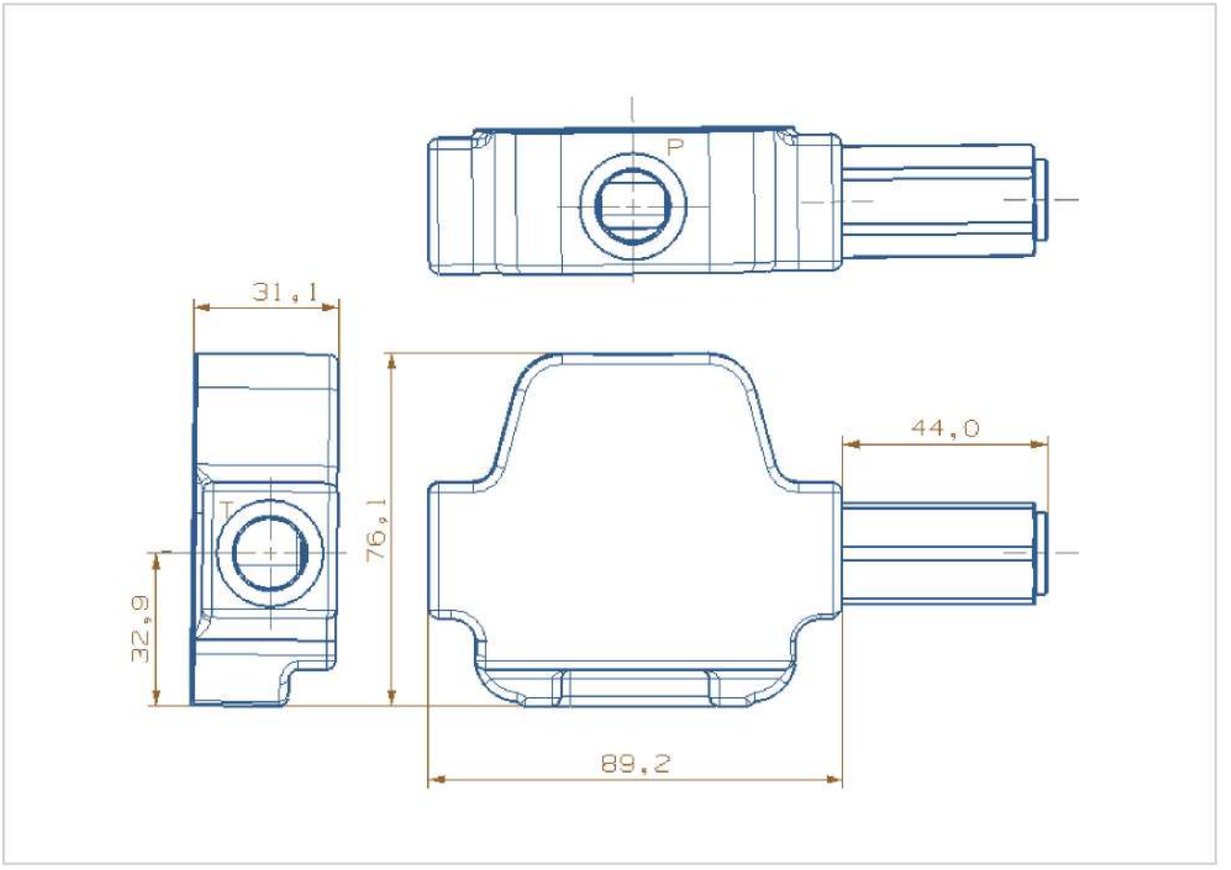
GKV35 series sectional valve is an open centered 3 position 4 way valve. When spool is in its neutral position, the flow from pump passes through the neutral passage to tank, with small pressure drops. When one of the spool is moved to " 1 "or" 2 "position, the neutral passage is blocked. The flow from pump can only pass the parallel passage to load check valve. Then, passes through the bridge and spool opening to work port "A"or"B".



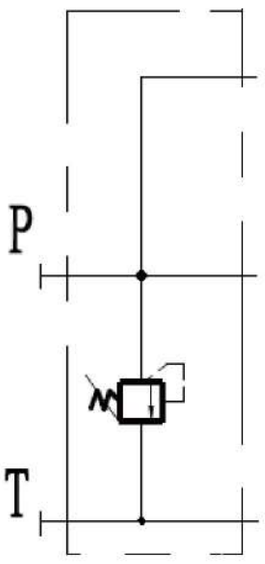
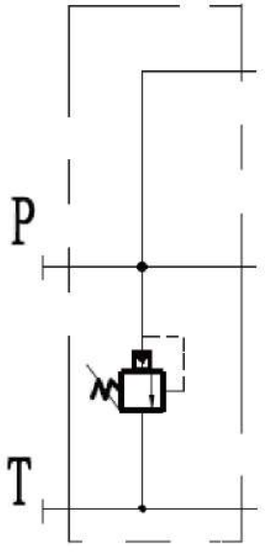
For multi-section valves, if one of the section's spool is in " 1 "or" 2 "position, then, there is no flow in its down stream section's neutral passage. The main throttle occurs on the valve opening between bridge passage and spool . The operator can control more than one spools, but the magnitude of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

Inlet Section Dimension

JS01 Inlet Section

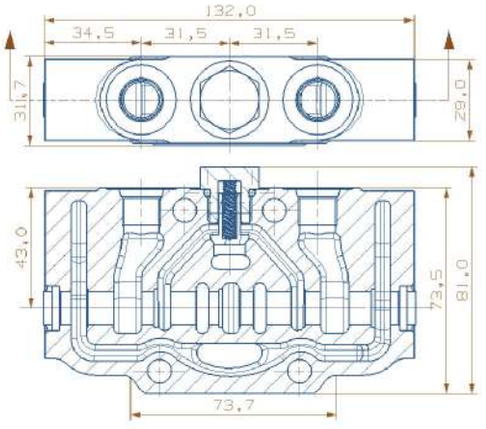


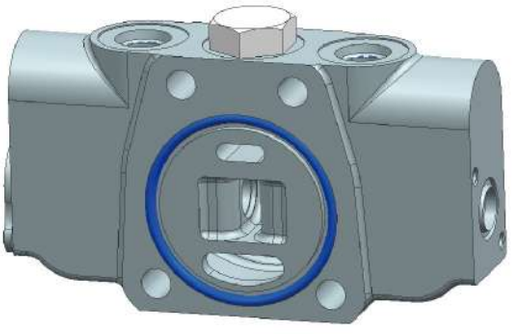
Inlet Section Hydraulic Schematics

Code	Hydraulic Schematics	Main Function	Notes
JS01		Inlet section with direct acting relief valve	
JS02		Inlet section with two stage relief valve	

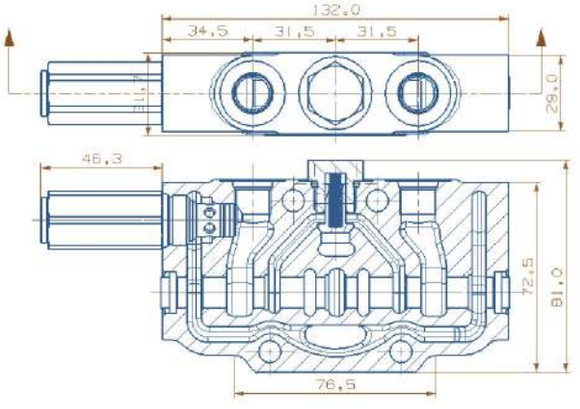
Typical Work Section Dimension

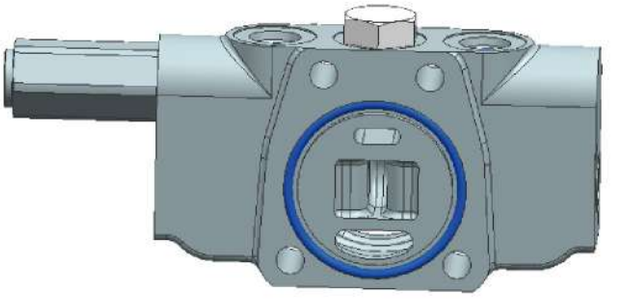
ZS01 Work Section



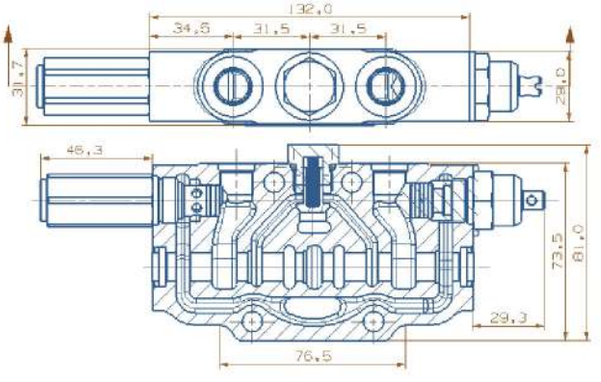


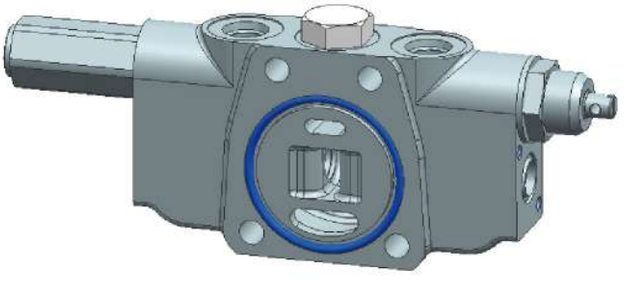
ZS04 Work Section



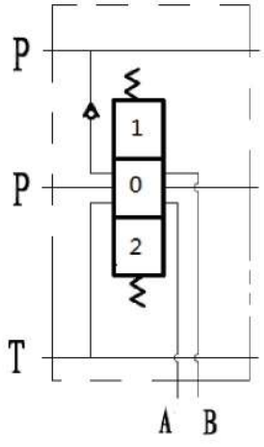
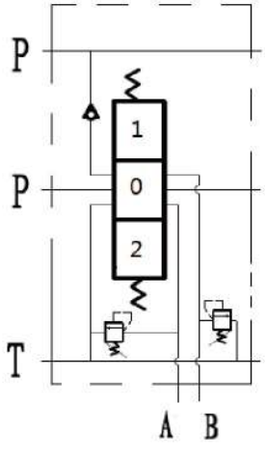
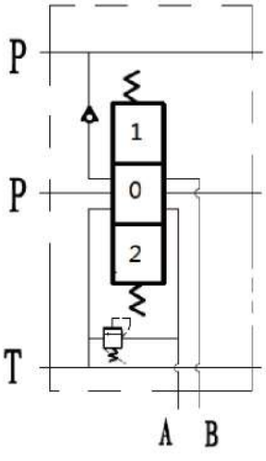


ZS06 Work Section

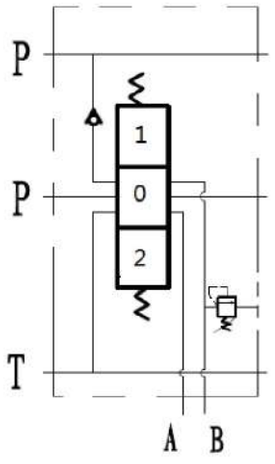
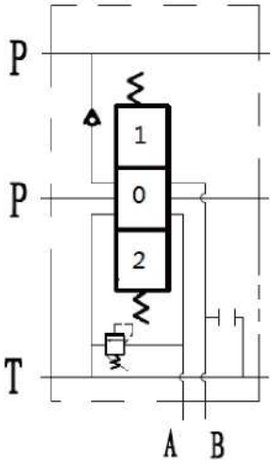
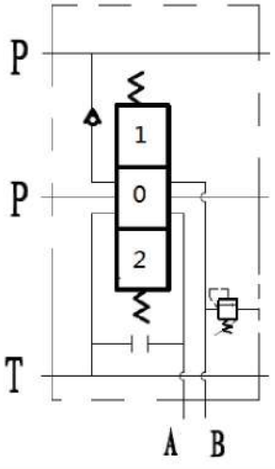




Typical Work Section Hydraulic Schematics

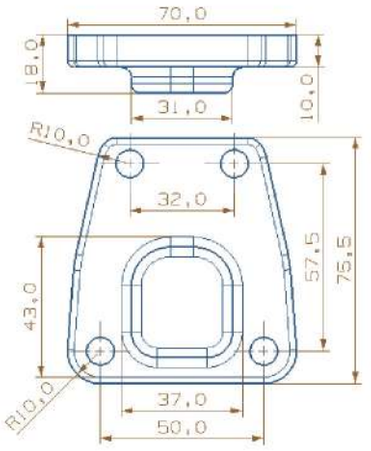
Code	Hydraulic Schematics	Main Function	Notes
ZS01		Basic section (no over load relief)	
ZS02		Overload relief valves on both A and B ports	
ZS03		Overload relief on A port	

Typical Work Section Hydraulic Schematics

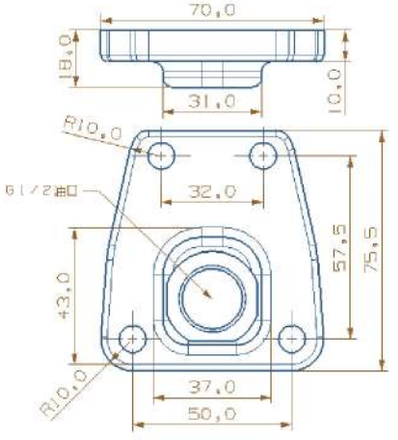
Code	Hydraulic Schematics	Main Function	Notes
ZS04		Overload relief on B port	
ZS05		Overload relief on A port Dump valve on B port	Tractor and auxiliary valve application
ZS06		Overload relief on B port Dump valve on A port	Tractor and auxiliary valve application

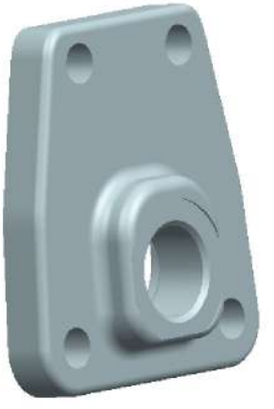
Typical End Section Dimension

DK01 End Section

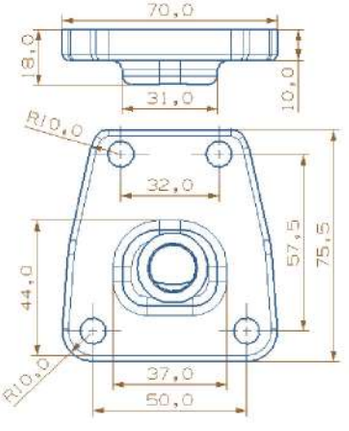


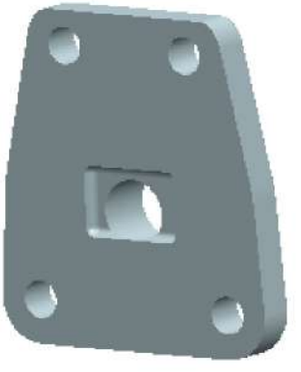
DK02 End Section



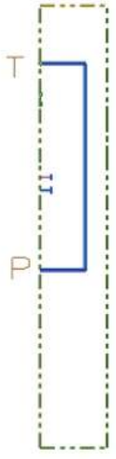
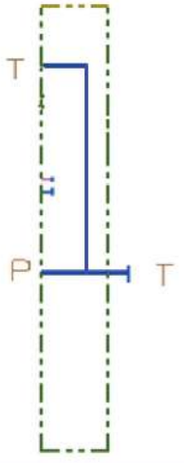
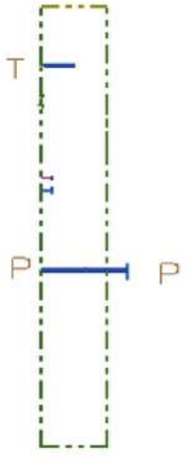


DK03 End Section

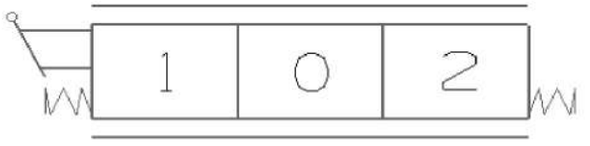
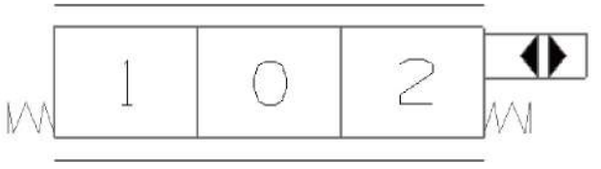
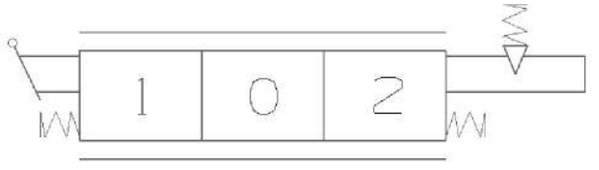
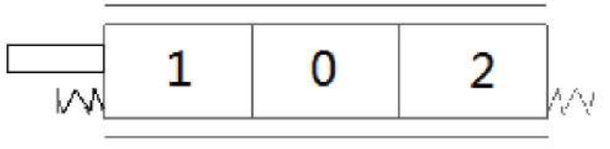




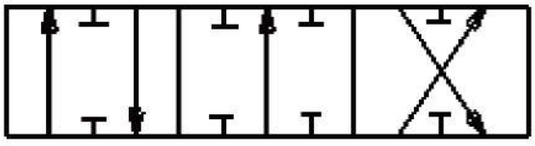
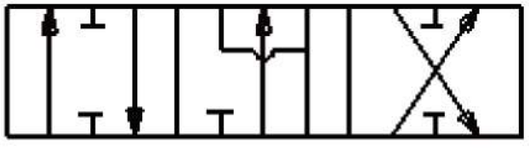
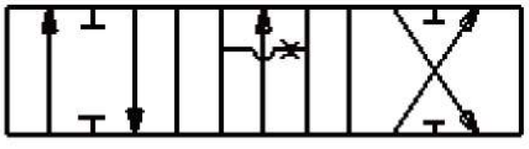
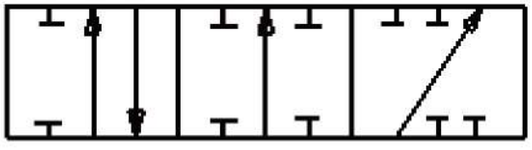
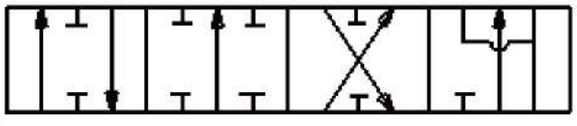
Typical End Section Hydraulic Schemati

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

Work Section Drive Styles

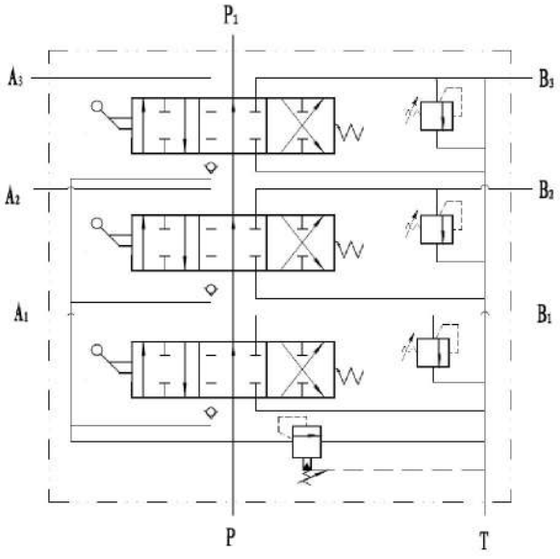
Drive Style Code	Hydraulic Schematics	Function
KQ1		Standard manually controlled
KQ2		Hydraulic remote
KQ3		Manually controlled with mechanical detent
KQ4		Manually controlled with 4th position floating and detent
KQ5		Wire controlled

Typical Spool Functions

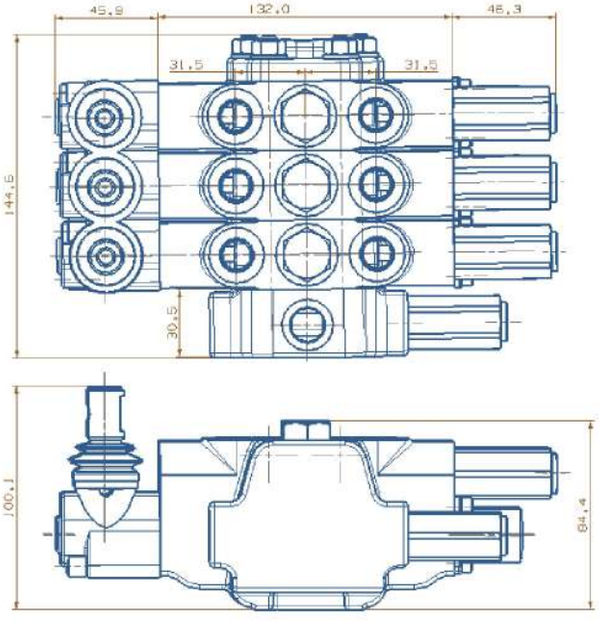
Drive Style Code	Hydraulic Schematics	Function	Notes
FG1		3 position 4 way At neutral: P,T,A,B are all blocked	Double acting cylinder applications
FG2		3 position 4 way At neutral: P blocked,T,A, Bconnected	Hydraulic motor applications
FG3		3 position 4 way At neutral: P,A,B and T all connected	Hydraulic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

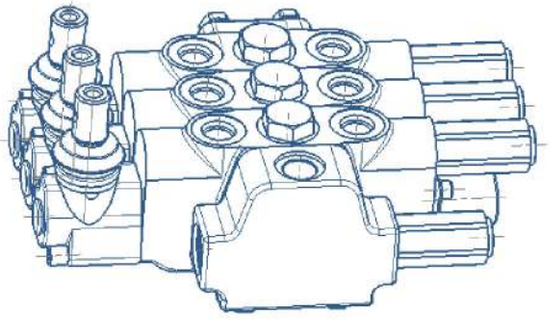
Application Example

Example Of Manually Controlled Sectional Valve

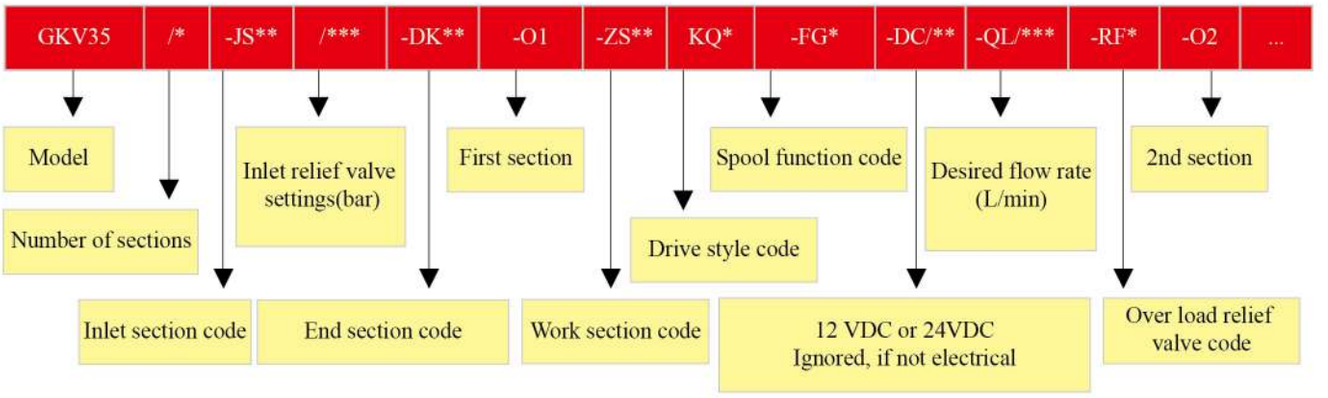


Three Section Valve Dimension

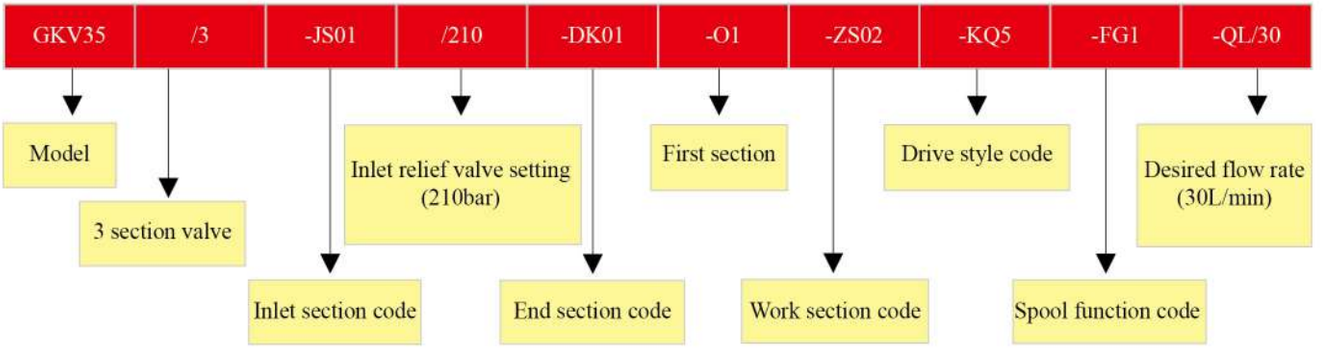


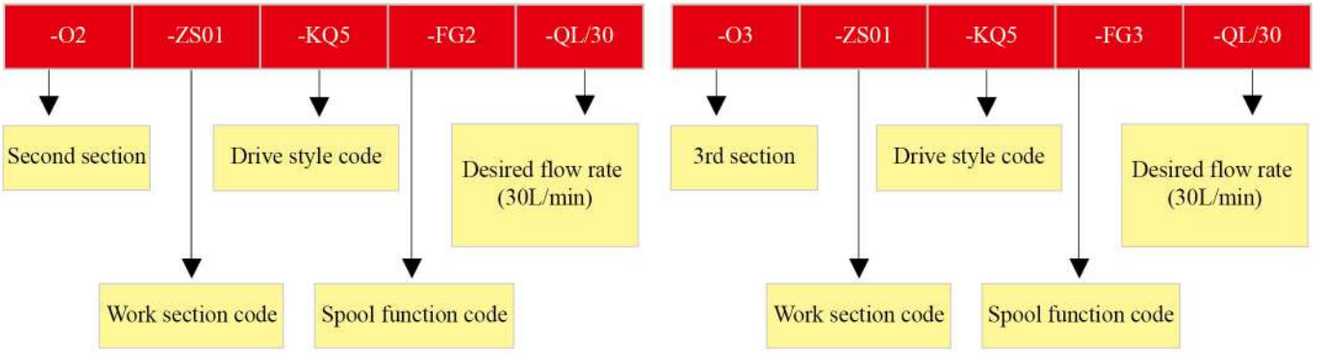


Ordering Code



Ordering example





Notes

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 it's a/B ports. The section is droved by wire. The spool function is a "O' type. The desired flow for the 30L/min. The overload relief is with anti-cavitation function. The second section is also droved by wire. There is no overload relief on either A or B port. The spool function is"Y"type, The desired flow is 30L/min. The third section is droved by hydraulic remote. No overload relief on either "A"or"B"port. Spool function is"H"type, Desires 30L/min flow。

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