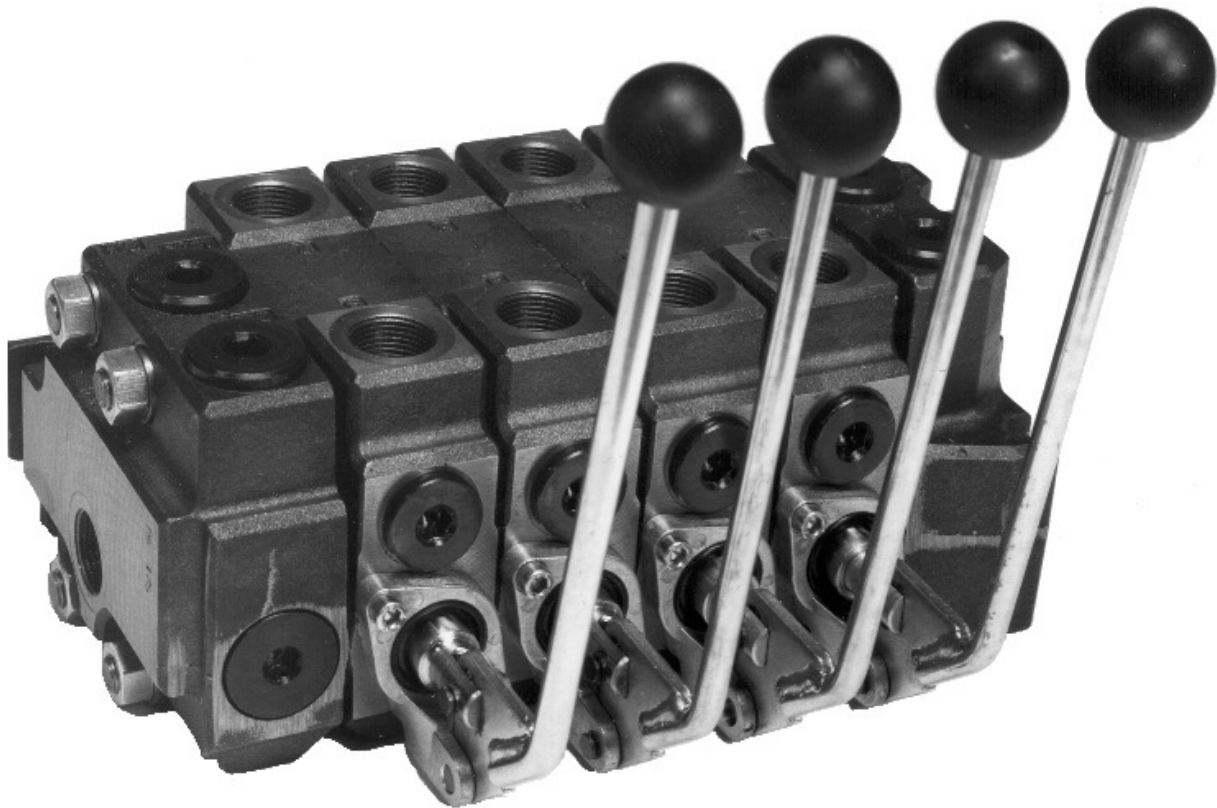


Directional Control Valve RS 280

3 RS 280-2



RS 280 is a modular parallel section directional valve. Suitable applications are medium sized and big truck loaders, medium sized backhoe loaders and other applications where there is need for good control characteristics.

RS 280 is stackable up to 10 sections. Above 10 sections after factory approval.

The mating part of the sections are carefully designed to minimize the risk of external leakage.

RS 280 is designed for a maximum working pressure of 280 bar within the recommended flow range of 40 - 110 l/min.

In relation to its flow capacity its installation sizes are small.

With its open attachment ears it is easy to install and separate valve blocks can be connected parallel.

The inlet section of RS 280 provides both inlet and outlet ports. There is provision for a pressure gauge port as option.

The outlet section is furnished with three alternative outlet ports. By means of a plug fitted through the T4 port into the S1 port high pressure carry over is achieved, both sideways and upwards.



Technical Data

Max system pressure
(depending on appl.):350 bar 35 (MPa)

Hydraulic fluid temperature range for
continuous operation:.....-15°C - + 80°C

Max number of working/intermediate sec-
tions (depending on application):..... 10

Contamination level:
Normally

Max recommended pump flow:.....180 l/min

Equal to or better than ISO 18/14
At high system pressures and/or remote
control.....

Spring force, spool control 9,
in neutral position:.....100 N (10kp)

Equal to or better than ISO 16/12

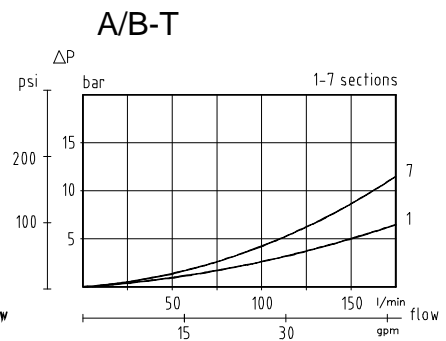
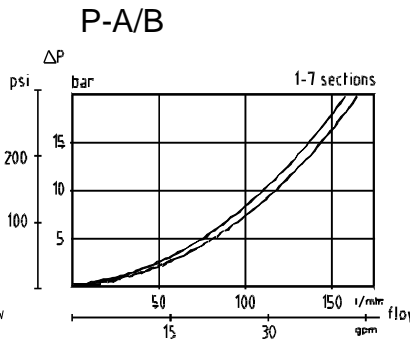
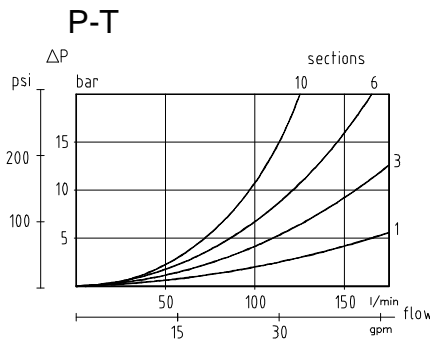
Spring force, spool control 9,
fully selected spool:120 N (12kp)

Hydraulic fluid viscosity range:
.....10-400 mm²/s (cSt)

Max continuous return line pressure:.....
.....20 bar (2,0 MPa)

Spool leakage at 100 bar och 30 mm²/s (cSt):
.....<10 cm³/min

Pressure drop

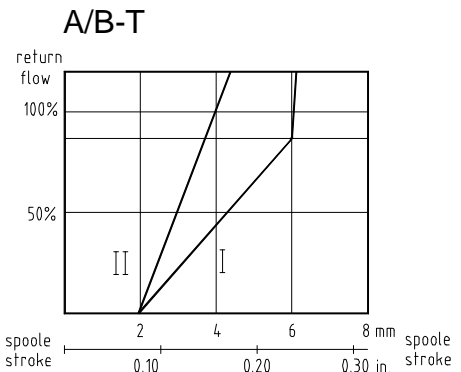
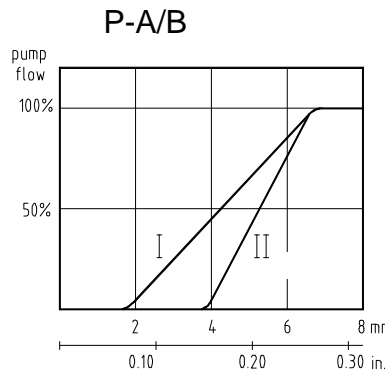


Control characteristics

Graphs show principal function,
valid for manually operated spools.
Oil viscosity 30 mm²/s (cSt) at 50°C.

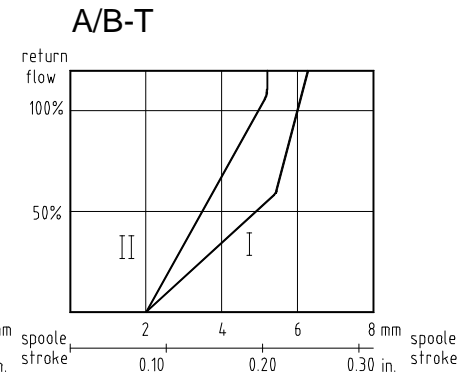
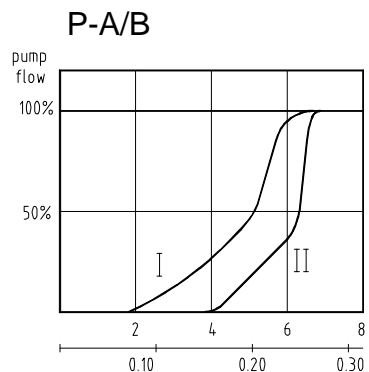
Standard spools

- I = load pressure 50
- II = load pressure 250



S-spools

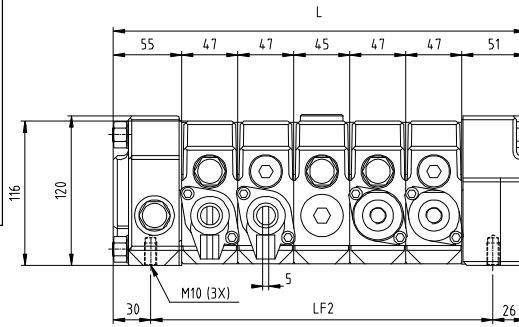
- I = load pressure 50
- II = load pressure 250 bar



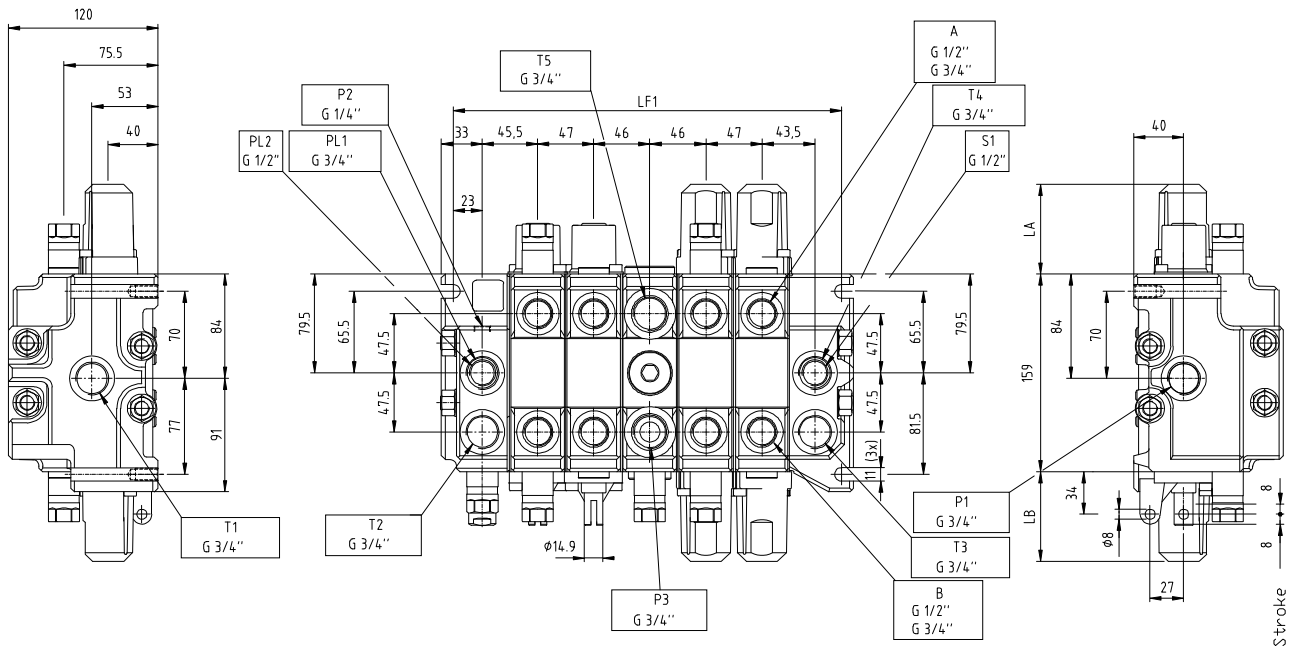


Dimensions, Weight

L, LF1, LF2, LA and LB - dimensions acc. to tables below.
 All dimensions in mm.
 Type G thread = BSP thread.
 SAE port threads available on request.



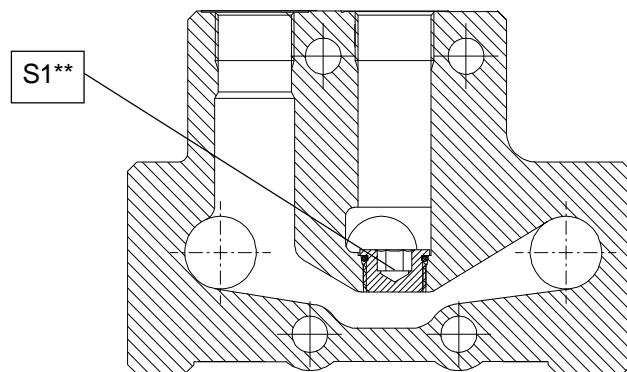
Section	Weight Kg
Inlet	4,4
Working	5,0
Intermediate	4,4
Outlet	5,0



Length mm	Spool control type (see page 5)												
	9	9M	10-15	L81-L83	P/PP	EP	MM	HD HPD	HPDM	EH	EHP	3W	4W
LA	41	72	87	102	99	max 134	-	72	-	max 189	185	-	-
LB	-	-	-	-	-	-	92	72	92	-	-	100	110

No. sect	L mm	LF1 mm	LF2 mm
1	153	134	97
2	200	181	144
3	247	228	191
4	294	275	238
5	341	322	285
6	388	369	332
7	435	416	379
8	482	463	426
9	529	510	473
10	576	557	520

Carry-over



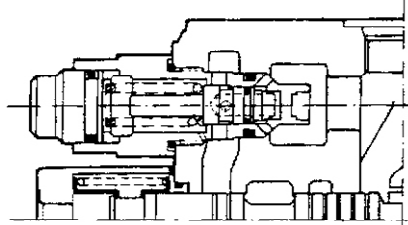
** Plug mounted in port S1.



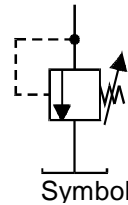
Relief Valve and Auxiliary Valves

Main relief valve TBB 201

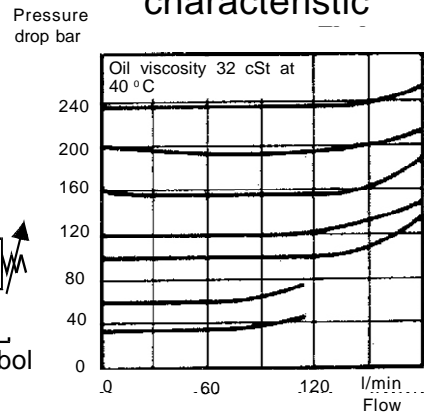
Differential area relief valve for the main circuit



Setting range:
35 - 65 bar
65 - 95 bar
95 - 125 bar
125 - 160 bar
160 - 200 bar
200 - 240 bar
240 - 250 bar

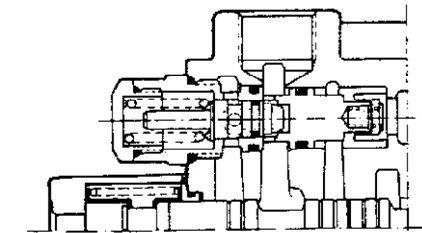


Relief function characteristic

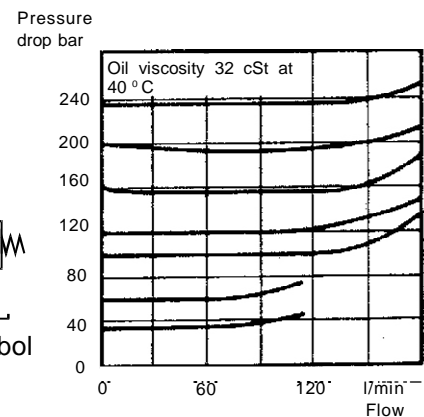
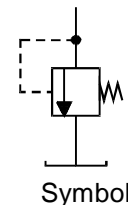


Service line relief valve TB 202

Differential area relief valve for the secondary circuit

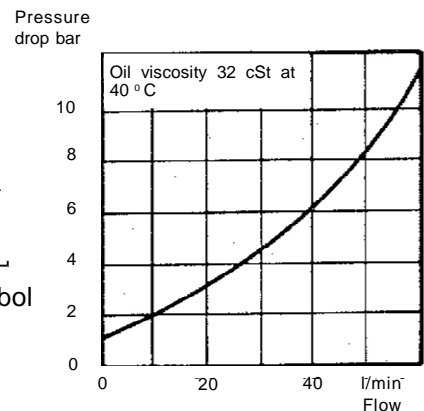
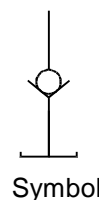
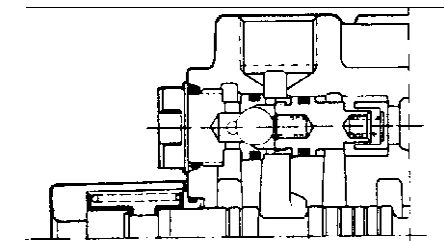


Setting range:
35 - 65 bar
65 - 95 bar
95 - 125 bar
125 - 160 bar
160 - 200 bar
200 - 240 bar
240 - 300



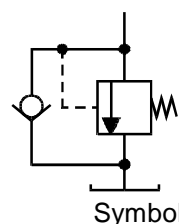
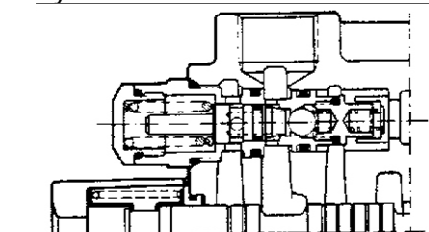
Anti-cavitation valve SB 250

Check valve for equalising vacuum in the secondary circuit.



Line relief and Anti-cavitation valve TBS 202

Combination of relief and anti-cavitation valve for the secondary circuit.



Characteristics:
See particulars of the
line relief valve and
anti-cavitation valve



Spool Controls

Symbol	Description	Type	Symbol	Description	Type
	Spring centred. Marine version	9 9M		External kick-out from spool, pos. 3. ***	L82
	Detent in positions 1, 2 and 3.	10		External kick-out from spool, pos 2 and 3.. ***	L83
	Spring centred. Detent in position 4.	11		PP= pneumatic proportional.	PP
	Spring centred. Detent in positions 3 and 4	12		Electric pneumatic on/off. Rated voltage 12/24V= *	EP
	Spring centred. Detent in position 2.	13		Hydraulic on/off.*** Pilot pressure min 7 bar. Pilot pressure max 40 bar.	HD
	Spring centred. Detent in position 3.	14		Hydr. proportional.*** Pilot pressure 6 - 16 bar. Pilot pressure max 40 bar.	HPD4
	Spring centred. Detent in position 2 and 4.	15		El. hydr. on/off..*** Flow demand 1 l/min for operation. Pilot pressure min 7 bar. Pilot pressure max 40 bar. Duty factor 100%.**	EH
	External kick-out from spool, pos 2. ***	L81			

In addition to presented spool controls following standard spool controls are available:

- MM- marine/enclosed hand lever.
- HPDM- hydr. prop., with hand lever.
- 3W, 4W, - spool controls for cable control.

Contact us for further information.

* Rated current 350/190mA. Energizing power 2,3 W. Min. holding power 0,15 W. Max voltage variation. ±5%. Duty factor 100%. Conn M5. For hose 6 x 1.

**Rated voltage 12/24V =. Rated current 180/90 mA. Max voltage variation ± 16%. Selection time to extr. pos. 200 ms, spring centering time 110 ms.

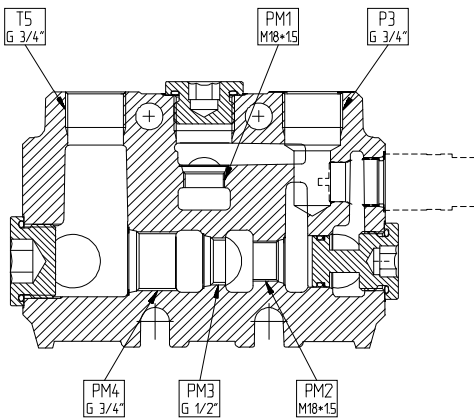
*** Connection: 1/4" BSP

Spools

Symbol	Recommended flow range, l/min					Notes
	40-75	50-100	60-110	80-130	120-180	
	1D	1F 1FS	1HR 1HSR 1G	1K 1KR	1Q	Further standard spools and variants are available. R = spool with round solid lever end, for joystick hand lever.
	-	2F 2FB	-	2K 2KB	-	
	-	-	-	3K	-	
	-	-	-	4K	4Q	

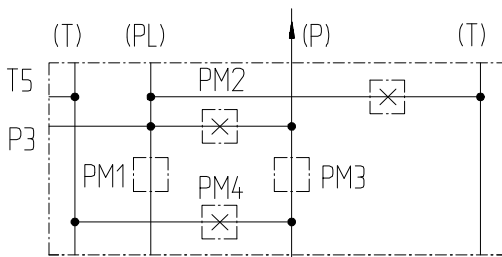


System alternatives

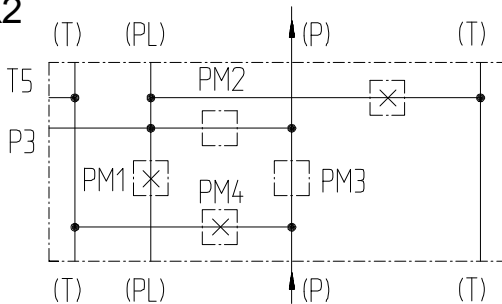


Internal circuit type

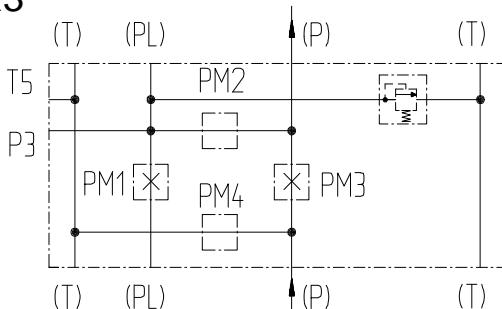
K1



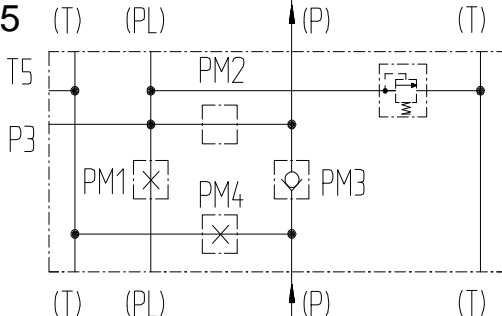
K2



K3



K5



The **intermediate section** for RS 270, thanks to its carefully thought-through design, allows a number of different valve internal and external system alternatives.

Existing valve equipped with the intermediate section, without dismantling, can easily be altered to other system configurations. See below:

Single circuit

Valve internally **parallel** coupled.

Main relief valve for the system can be positioned in the intermediate section.

Single circuit

Valve internally **tandem** coupled, i.e. working sections upstream of the intermediate section with fully selected spools have complete priority as far as flow supply is concerned in relation to working sections downstream of the intermediate section.

A second main relief valve, positioned in the intermediate section, can be used to reduce the pressure to working sections downstream from the intermediate section.

Dual circuit

The intermediate section divides the valve into two completely separated circuits. Tank gallery is common.

Multicircuit operation is possible according to the same pattern.

Dual circuit

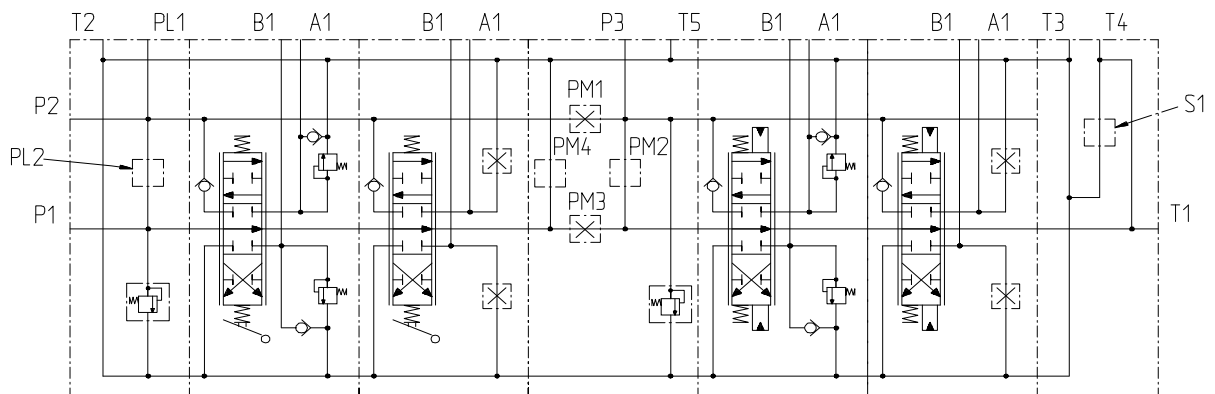
Tandem coupling between first and second circuit.

First circuit is always solely supplied from the first pump. Second circuit is always supplied from the second pump. When first circuit is inactive then the second circuit is supplied from both pumps.

Multicircuit operation is possible according to the same pattern.



Valve example



The hydraulic circuit plan shows a possible valve design equipped with an intermediate section furnished for system alternative K3 - two separate circuits with common tank channel.

The **inlet section** in shown valve example has type designation I04A and is equipped with main relief valve - TBA201 - for the first circuit.

The four **working sections** are all of standard design S04A, they are differently equipped in terms of spool functions and spool controls and they are furnished with line relief and anti-cavitation valves or service line valve plugs. The load check valves in the supply channel, are standard.

The **intermediate section** (see page 6), which has designation M02A, is assembled, with main relief valve. Pump connection for second circuit is port P2.

The type designation of the **outlet section** as shown is U04A. S1 is not plugged. Thus this valve example can not be used for high pressure carry over (connected with dir. valves downstream).