

# DIRECTIONAL CONTROL VALVE SERIES CV 550



**nimco**  
hydraulic systems



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The **CV 550** valve is designed to operate in open center hydraulic systems up to 320 bar (4650 psi) and at a flow rate from 15 up to 90 l/min (4-24 USgpm). It can be operated with up to 10 bankable sections mounted together as one block including one or more intermediate dual pump sections.

**Some of the CV 550's main design advantages are:**

Very fine meter in and meter out characteristics at different flow rates accomplished through a wide variety of spool designs, which allows the machine operator a precise and safe operation of the load at all times. Exact simultaneous operations of several spools at the same time when necessary, thereby allowing for faster work with higher precision.

An exceptionally low work port leakage rate when holding a load, making it possible to avoid the installation of external load holding valves in most cases.

A number of options that allow the use of intermediate sections that can divide the valve into two different parallel circuits, or provide the possibility of tandem coupling between the first and second circuit.

**The CV 550 series valve can be equipped with the following differential or pilot operated relief valve functions:**

- Main relief valve in the main and intermediate inlets
- Cylinder port relief valves
- Cylinder port relief- and anticavitation valves
- Anticavitation valves

It is possible to operate the CV 550 valve manually with a range of different hand lever mechanisms including direct mounted mechanical joysticks. There are also a number of different detent options available to mechanically lock the spool in a predetermined fixed position.

**The following spool controls can also be used with the CV 550 valve:**

- Pneumatic on/off or proportional spool controls
- External hydraulic spool control kick-out option
- Electrical pneumatic on/off spool controls
- Hydraulic on/off or proportional spool controls
- Electro-hydraulic proportional on/off controls or fully proportional controls with 12V DC or 24V DC coils

**Other standard equipment available are:**

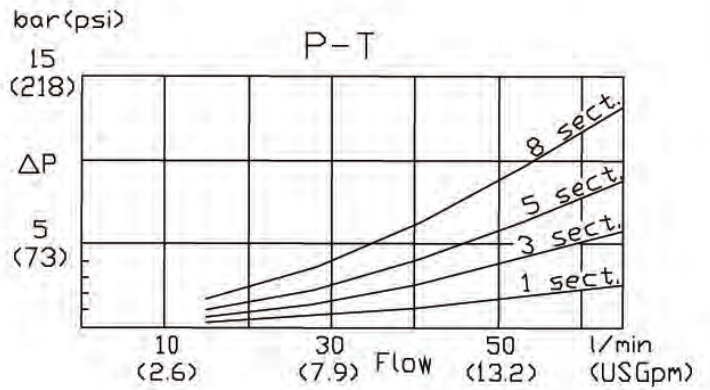
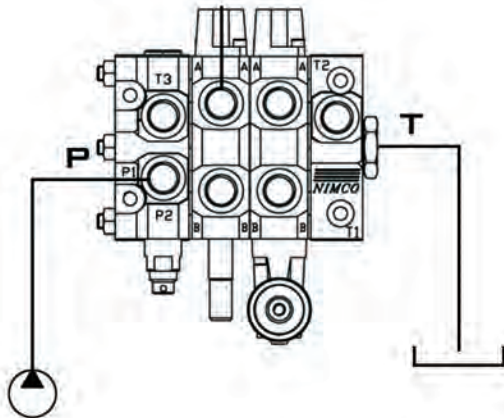
- High pressure carry over adapters
- Conversion plugs to convert from a double acting function to single acting spool function

**BSP and SAE threads are standard and the following threads can also be supplied upon request:**

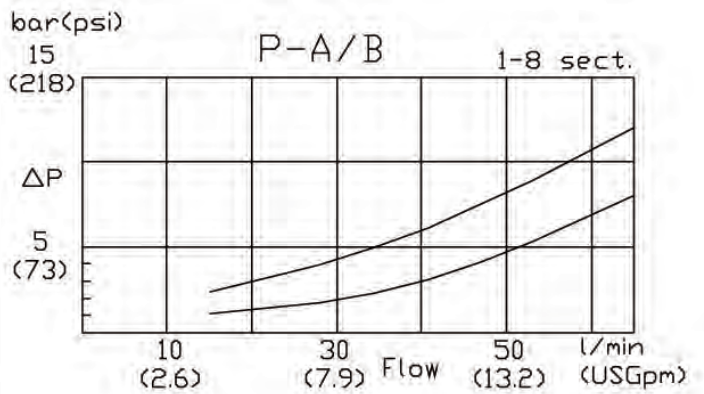
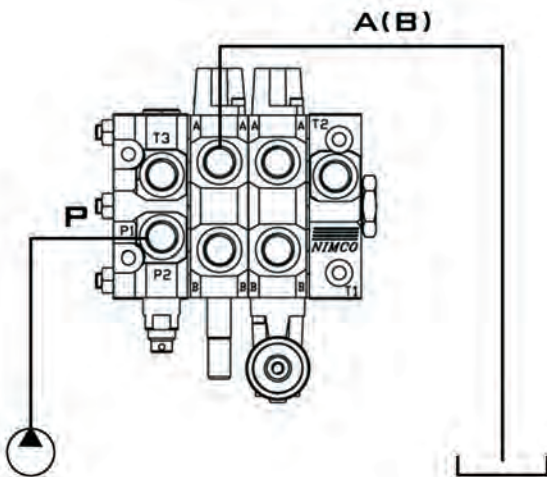
- Metric
- NPTF

<b>Max. pressure setting</b>	<b>bar</b>	<b>psi</b>
Main relief valve	320	4650
Port relief valve	330	4700
Tank line	10	145
<b>Flow rates</b>	<b>l/min</b>	<b>USgpm</b>
Maximum for the valve	90	24
<b>Temperature range</b>	<b>°C</b>	<b>°F</b>
Standard seals	40 to +80	40 to +176
<b>Spool leakage at</b>	<b>cm<sup>3</sup>/min</b>	<b>inch<sup>3</sup>/min</b>
100 bar (1450 psi) and 25 mm <sup>2</sup> /s (cSt) (117 SSU) viscosity A and B port	3-6	0.18-0.37
<b>Filtration</b>		
Contamination level equal to or better than	18/14 according to ISO 4406	NAS 1638-class 10
<b>Viscosity</b>	<b>mm<sup>2</sup>/s(cSt)</b>	<b>SSU</b>
Recommended operating viscosity range	10-400	47-1875
<b>Weight</b>	<b>kg</b>	<b>lbs</b>
Middle section	2.9	6.4
Inlet section	2.2	4.8
Outlet section	1.6	3.5
Intermediate section	1.4	3.1
<b>Operating force necessary to move the spool</b>	<b>N</b>	<b>lbf</b>
Spring centered	130	29
Detent in	230	52
Detent out	200	45

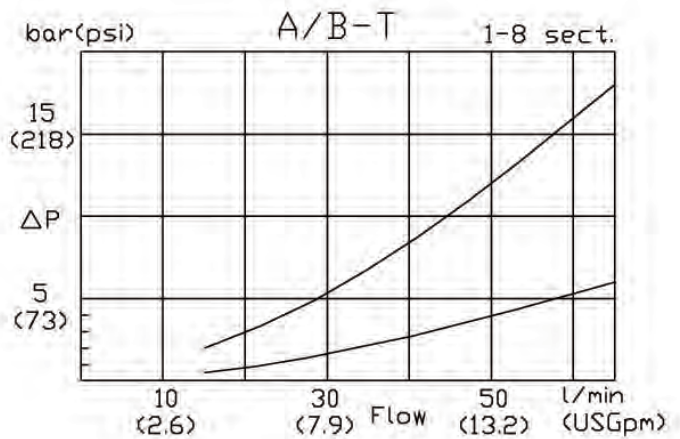
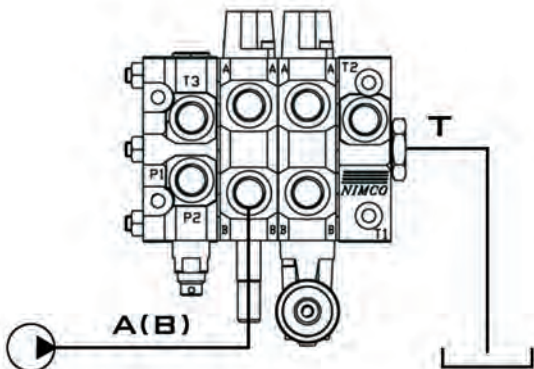
PRESSURE DROP P→T



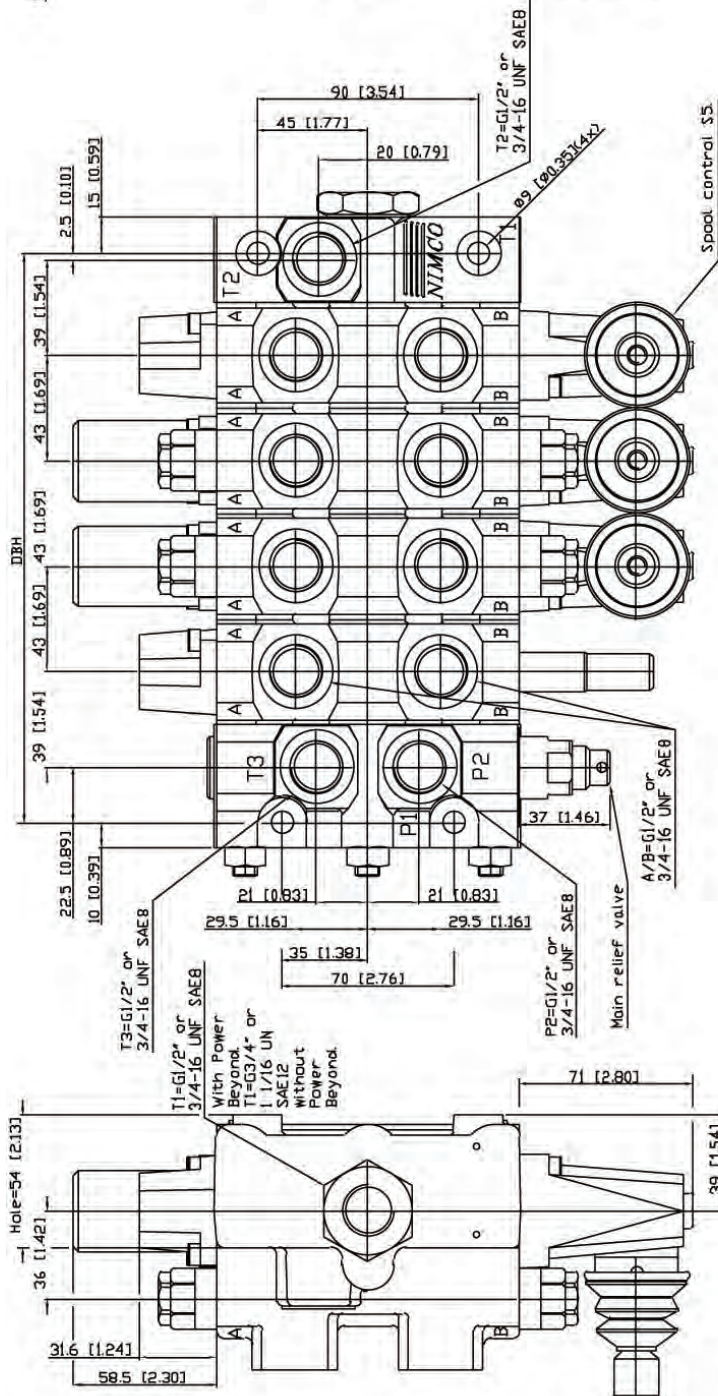
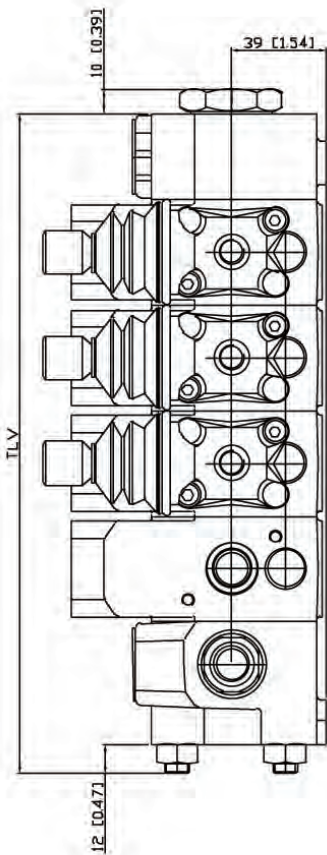
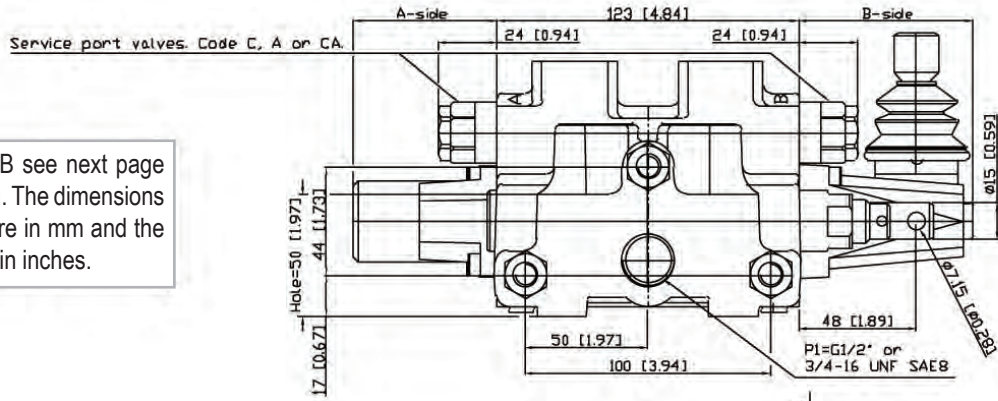
PRESSURE DROP P→A(B)



PRESSURE DROP A(B)→T



For TLV, DBH, A and B see next page for detailed information. The dimensions outside the brackets are in mm and the dimensions inside are in inches.



TLV stands for Total Length of the Valve. DBH stands for Distance Between Mounting Holes. For any specific valve configuration of sections please see the matrix to the right for the specific valve's TVL and DBH.

The side on which the hand lever is mounted is named "B-side". The opposite side is named "A-side". The measurements in the matrix below relate to how much any given control on either the A- or the B side builds out from the valve housing.

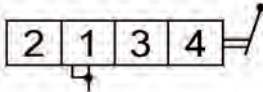
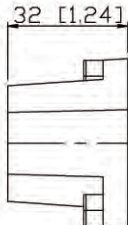
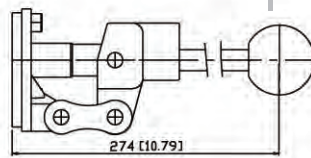
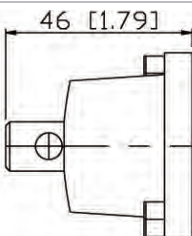
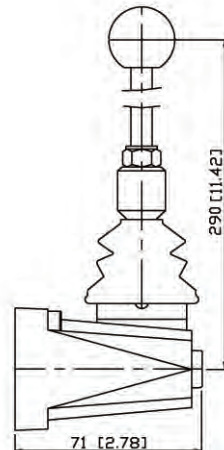
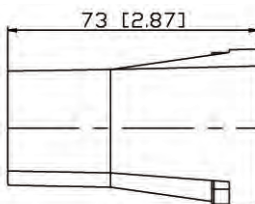
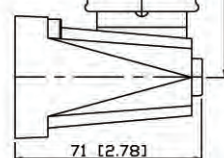
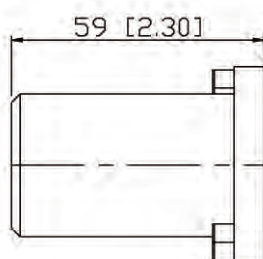
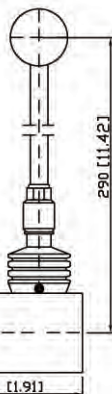
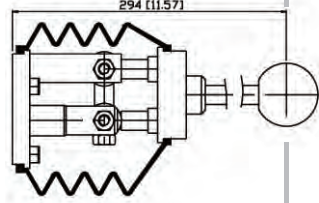

Dimensions	TLV mm(inch)	DBH mm(inch)
1	140(5.51)	103(4.06)
2	183(7.20)	146(5.75)
3	226(8.90)	189(7.44)
4	269(10.59)	232(9.13)
5	312(12.28)	275(10.83)
6	355(13.98)	318(12.52)
7	398(15.67)	361(14.21)
8	441(17.36)	404(15.91)
9	484(19.06)	447(17.60)
10	527(20.75)	490(19.29)

Length mm (inch)	Spool control type										
	9, 10	10S	11	12-16	EP	P, PP H, HP	S1, S2	S6	3W	S5	4W
<b>A (A-side)</b>	32 (1.26)	46 (1.81)	73 (2.87)	59 (2.32)	98 (3.86)	98 (3.86)	-	-	-	-	-
<b>B (B-side)</b>	-	-	-	-	-	-	274 (10.8)	294 (11.6)	123 (4.8)	71 (2.8)	132 (5.2)

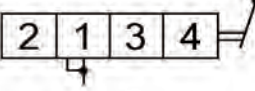
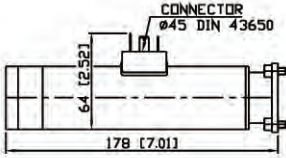
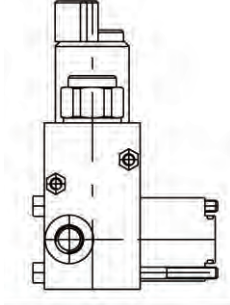
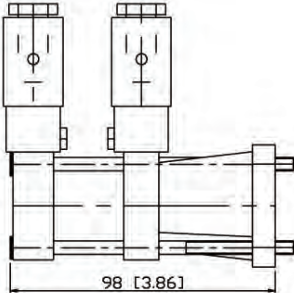
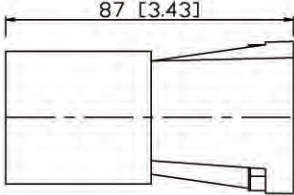
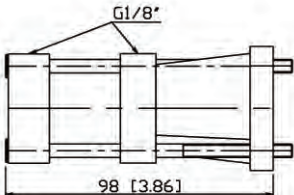
Main relief valve and service port valves. Please see main dimensional drawing on page 6 for dimensions of valve.

Description	Symbol	Order code	Part No.
Main relief valve		RV	4S-4029
Relief valve		C	4S-5501
Anticav. valve		A	4S-5503
Relief/Anticav. valve		CA	4S-5502

Spool type	Symbol	Order code standard spool	Part No.	Remark
Double acting		1S	4B-5599	In addition to our standard spools there are a wide range of specially designed spools to maximize load control at different pump flows and applications. Please contact our factory or any authorized distributor to discuss your specific requirements.
Single acting A		2SA	4B-5602	
Single acting B		2SB	4B-5601	
Double acting with float position		3S	4B-5604	
Motor		4S	4B-5603	

Code	Type	A-side	 B-side	Type	Code
<b>9</b>	Spring centered.			Hand lever vertical.	<b>S1</b>
<b>9M</b>	Marine version.			Other lengths on request.	
<b>10</b>	Detent in position 1, 2 and 3			Hand lever horizontal.	<b>S2</b>
<b>10M</b>	Marine version				
<b>10S</b>	Detent in pos. 1, 2, 3 and straight through spool.			<b>Standard</b> Hand lever vertical. Encased.	<b>S5</b>
<b>11</b>	Spring centered. Detent in pos. 4.				
<b>12</b>	Spring centered. Detent in pos. 3 and 4.			Hand lever vertical. Encased. Marine version.	<b>S5M</b>
<b>13</b>	Spring centered. Detent in pos. 2.				
<b>14</b>	Spring centered. Detent in pos. 3.			4 axis joystick for dual-spool control.	<b>S6</b>
<b>15</b>	Spring centered. Detent in pos. 2 and 4.				
<b>16</b>	Spring centered. Detent in pos. 1, 2, 3 and 4.				



Code	Type	<p>A-side</p>  <p>B-side</p>	Type	Code
<b>EDA</b>	Electric direct acting solenoid on - off. 12 V / 3.6 A 24 V / 1.8 A		Electro-hydraulic proportional. 12V/1.5 A 24V/0.75 A With manual override	<b>EHP</b>
<b>EHP</b>	Electro-hydraulic proportional. 12V/1.5 A 24V/0.75 A		Wire control for 3-position spool.	<b>3W</b>
<b>EP</b>	Electropneumatic on-off. 12V/270mA alt. 24V/150mA.		Wire control for 4-position spool.	<b>4W</b>
<b>EK</b>	External kickout. From pos. 3 to pos. 1.			
<b>H</b>	Hydraulic on/off. Pilot pressure 6-15 bar (87-217 psi)			
<b>HP</b>	Hydraulic proportional. Pilot pressure 6-15 bar (87-217 psi)			
<b>P</b>	Pneumatic on/off.			
<b>PP</b>	Pneumatic proportional.			

One purpose of an intermediate section is to allow for more than one pump to feed into the valve and thereby create a different or larger flow for different operations controlled from the same control valve.

Another purpose is to allow for a valve to be operated both in series as well as in tandem.

All intermediate sections available have the same width (43 mm or 1.69 inch) as a standard valve section and can therefore be assembled by using standard tie rods.

**Single Circuit Section. Type IM 1.**

Intermediate section code IM 1 is designed so that the valve is internally parallel connected and allows for a separate main relief valve to be installed in the intermediate section for the second pump flow into the valve (please see the hydraulic circuit for IM 1).

**Dual Circuit Section. Type IM 2.**

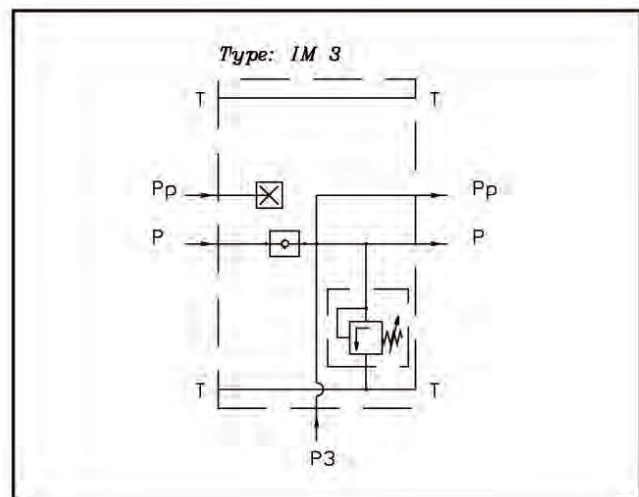
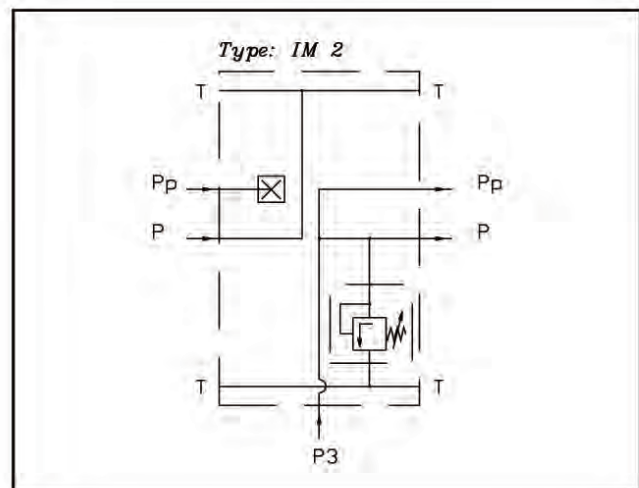
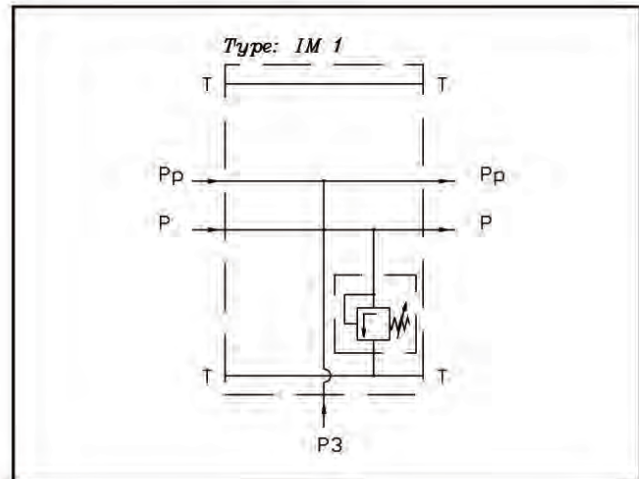
Intermediate section IM 2 divides the valve in two independent circuits allowing the option of operating two different circuits from the same valve, also the option of two different pump flows (please see the hydraulic circuit for IM 2)

**Dual Tandem Circuit Section. Type IM 3.**

Intermediate section IM 3 makes a tandem coupling between the first and second circuit. The first circuit is thereby always supplied by the first pump only and the second circuit supplied from the second pump only when both circuits are activated.

However, when the first circuit is inactive the second circuit will be supplied with the sum of flows from both pump one and two (please see the hydraulic circuit for IM3).

It is possible to add more than one intermediate section and thereby to allow for more than a two pump system and thus create a multi circuit operation in one CV 550 series valve.



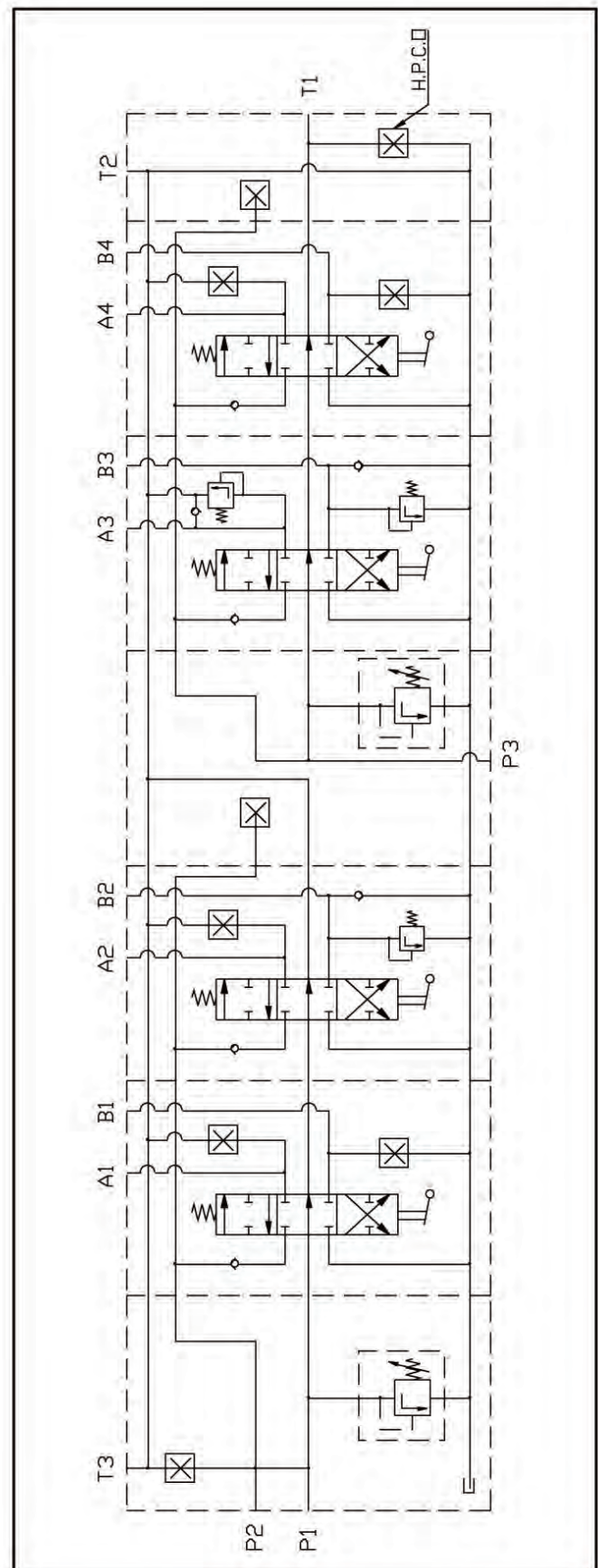
The hydraulic circuit to the right shows a possible valve build, equipped with four regular spool sections and one intermediate section.

**The inlet section** is equipped with a main relief valve.

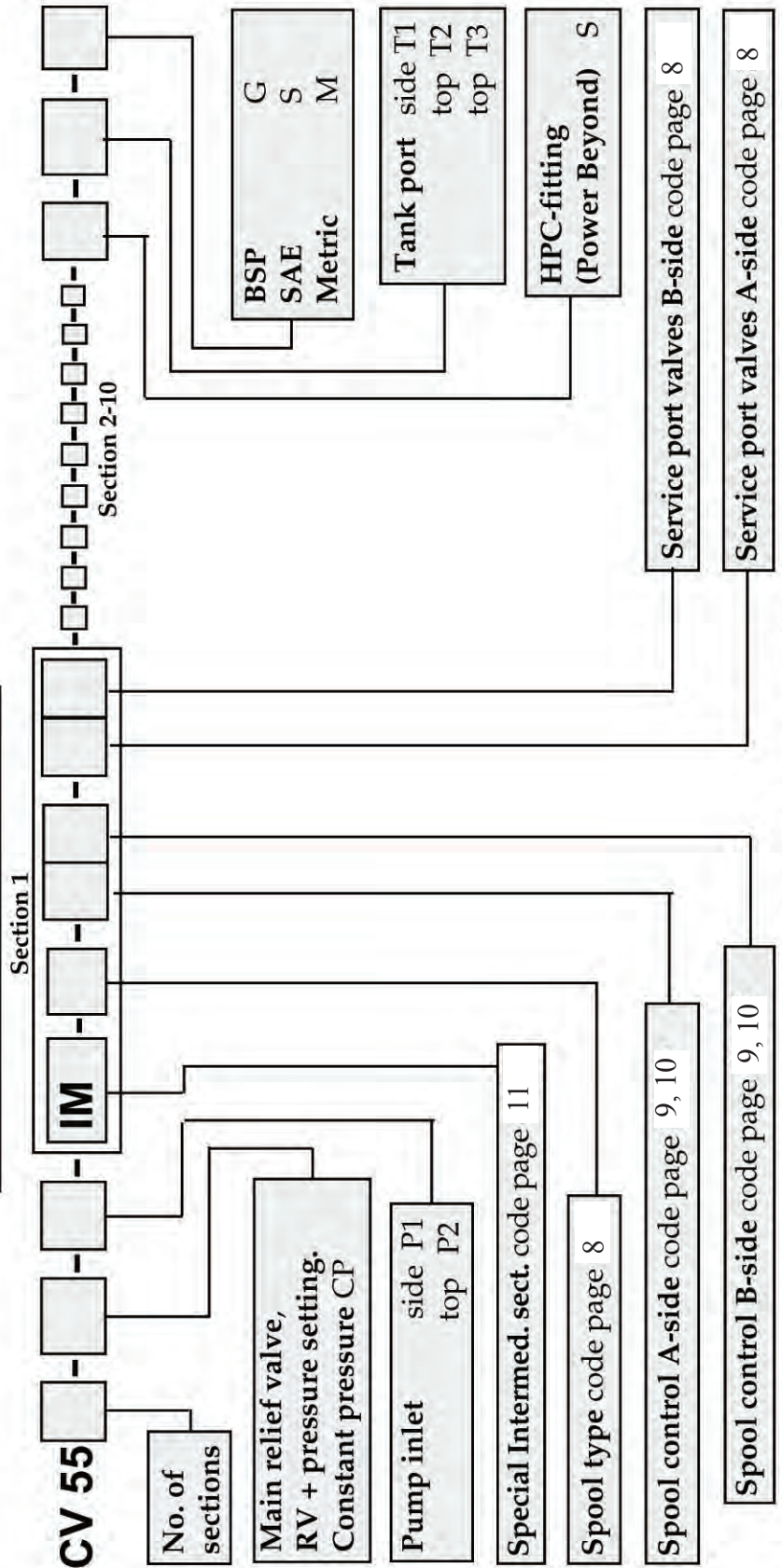
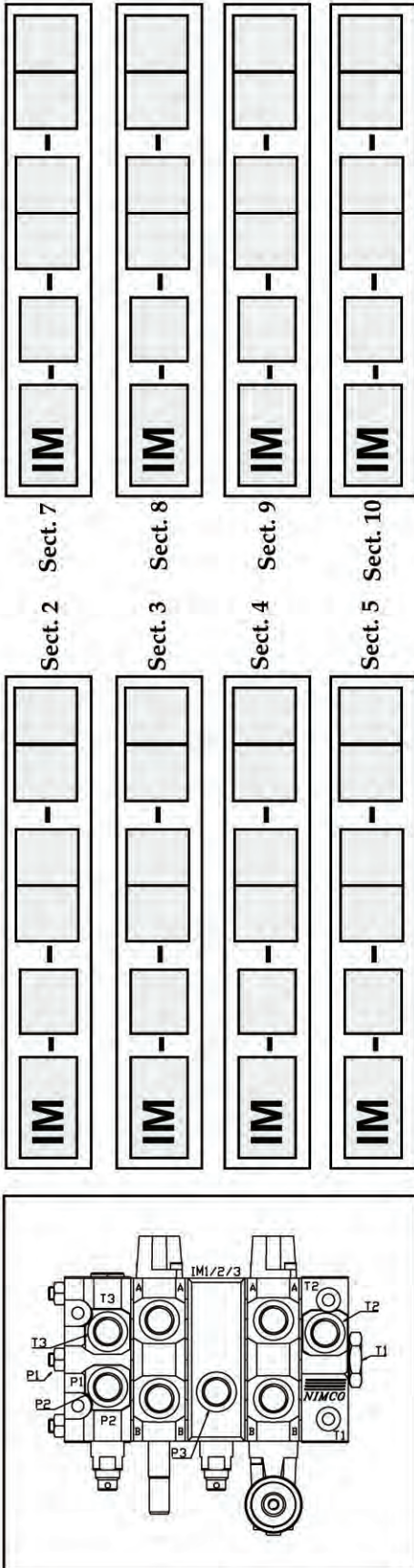
**The four regular spool sections** all have spring centered (code 9) standard spools (code 1S) and are all equipped with hand levers (code S5). Section 2 is, on the B-side, equipped with a service port valve, type relief/anticavitation (code CA). Section 3 is on both the A- and the B-side equipped with relief/anticavitation valves.

**The intermediate section**, IM 2, has a pressure port, P3, which is separated from pump port P1 and pump port P2. The tank outlet, T1, is also separated from the tank outlets T2 and T3. This allows the same valve to have the option of operating two different circuits, and through its IM2 section to have of two different pump flows.

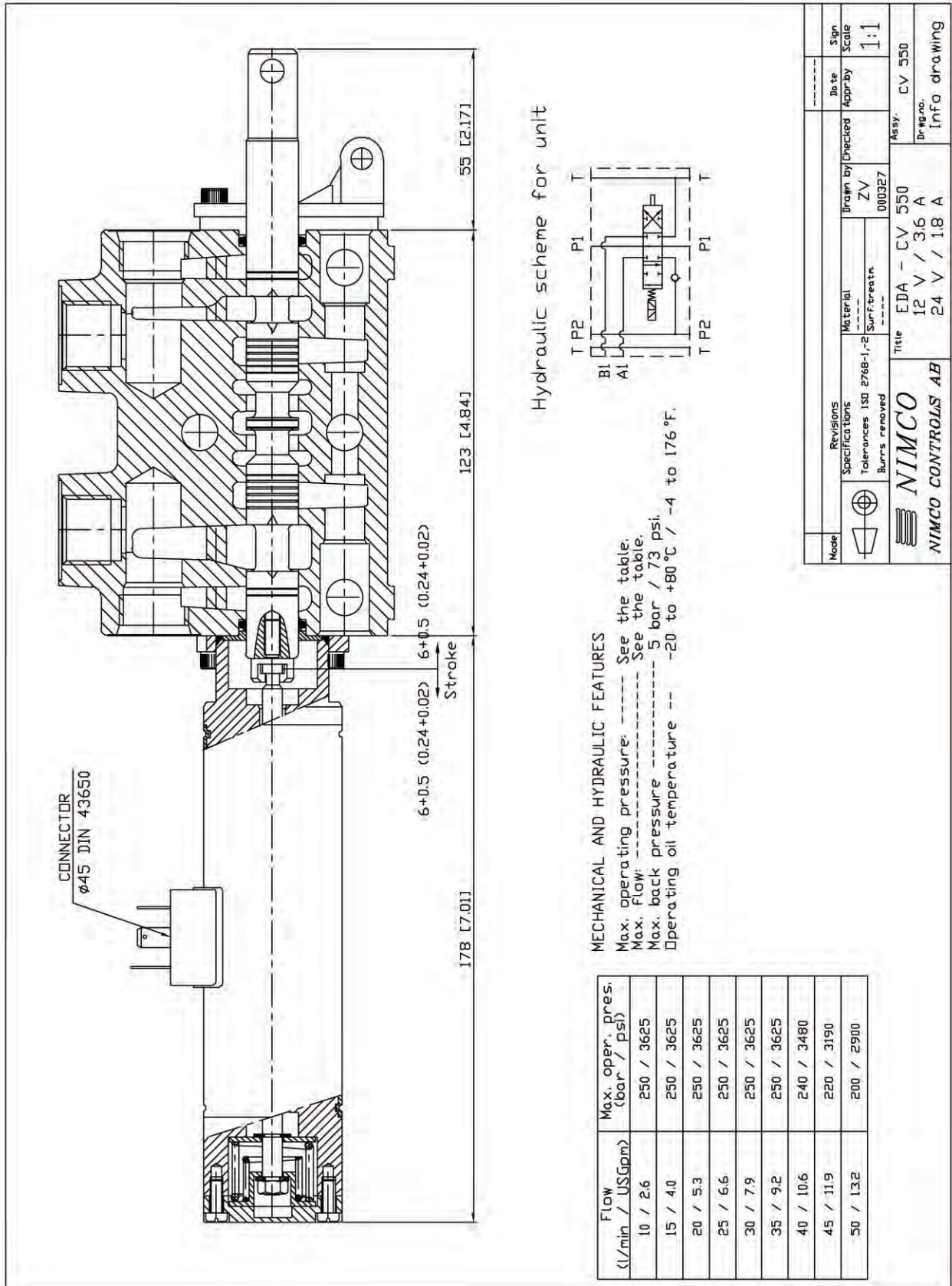
**The outlet section** is equipped with a high pressure carry over Power Beyond adapter and can thereby be connected in series with other directional control valves.



Copy this page and use as technical order form.



Set at the through flow 50 l/min (16 USGpm). Please indicate if you want the pressure to be set at other through flow.



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