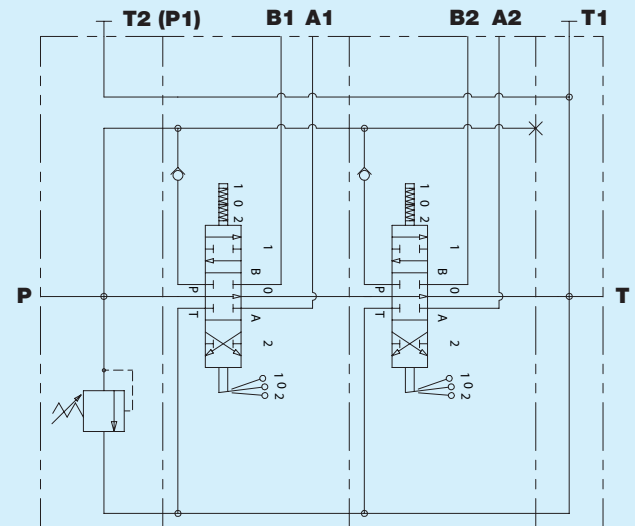


DNC65 - Modular directional control valves



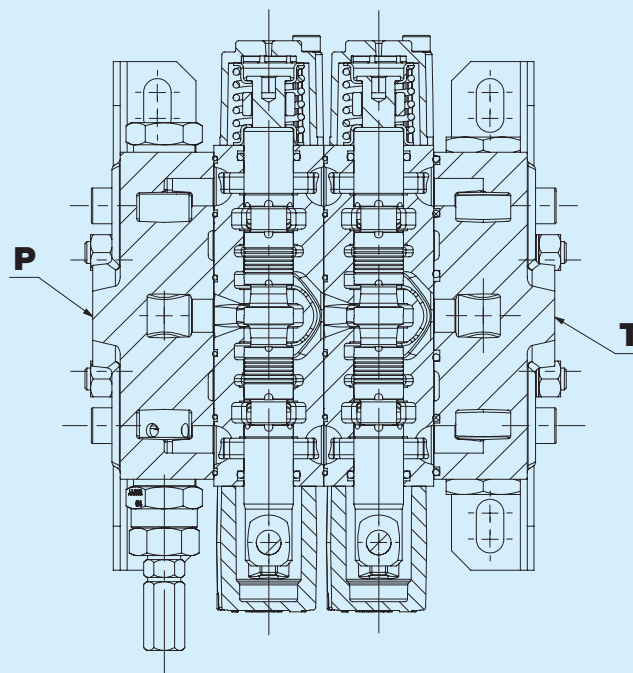
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF DIRECTIONAL CONTROL VALVES

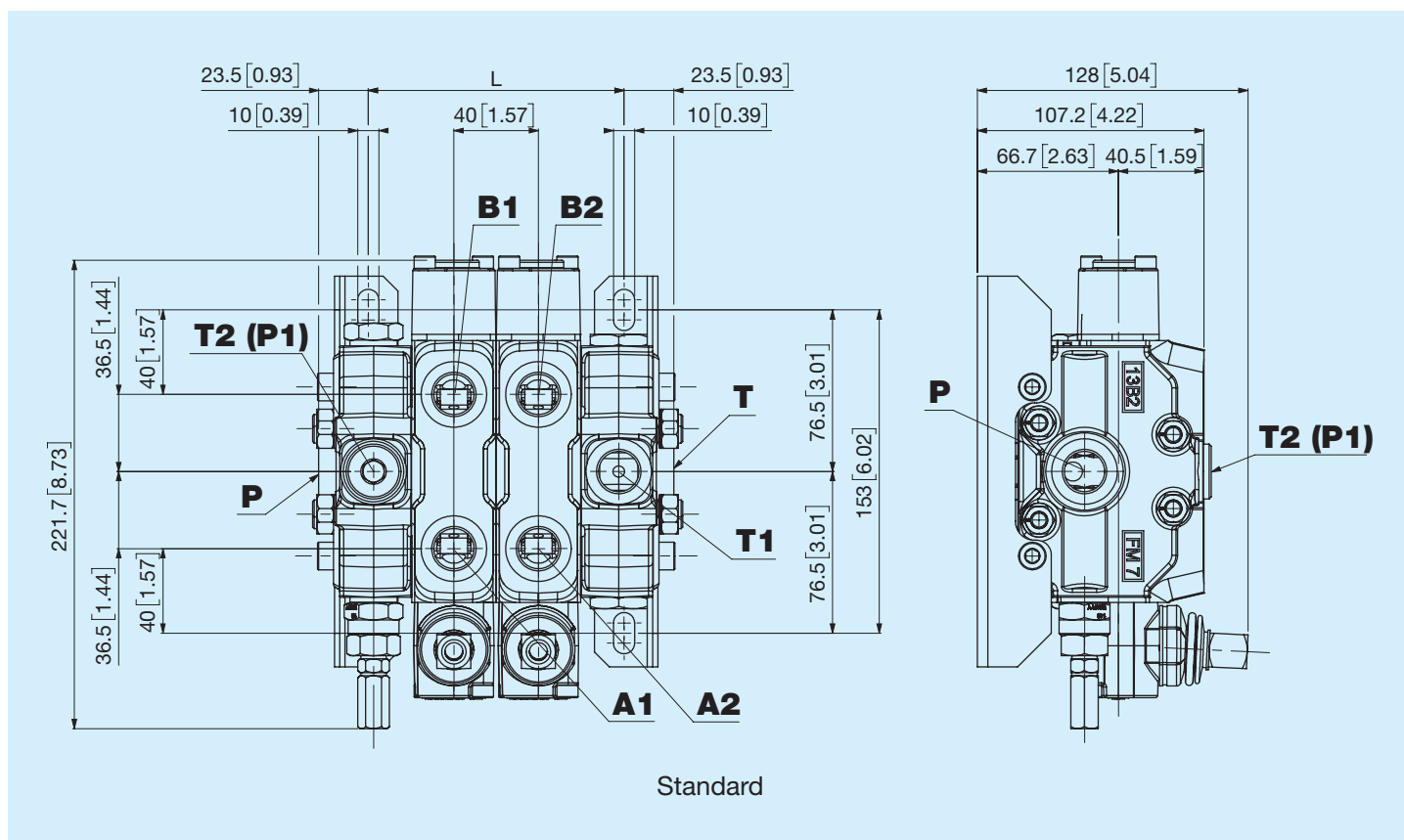
Nominal flow	60 l/min 18.5 US gpm
Nominal pressure	250 bar 3625 psi
Maximum tank pressure	50 bar 725 psi
Internal leakage (A or B -> P and T) p=100 bar (1450 psi)	6 cm³/min 0.366 in³/min
Temperature range	-20°C +85°C NBR seals (max peak +100°C) -20°C + 130°C HNBR seals
Oil viscosity	from 15 mm²/s to 90 mm²/s (15 cSt to 90 cSt)
Fluid	Hydraulic fluids as defined in ISO 6743-4 standard



STANDARD version

Section

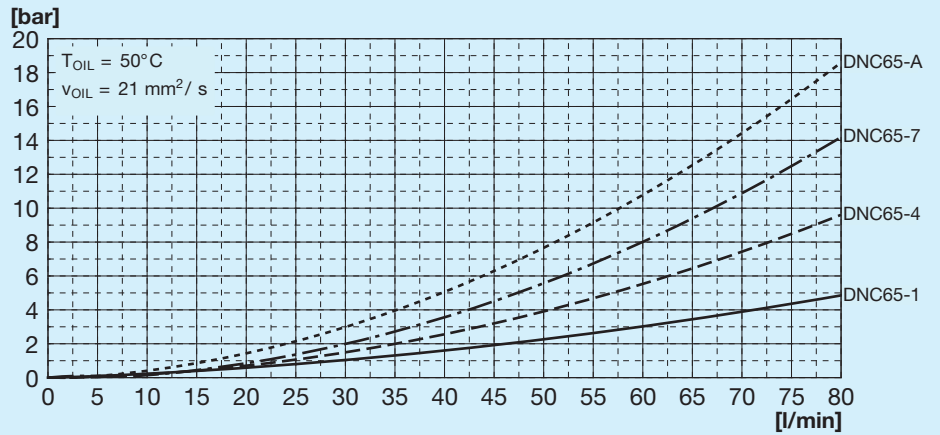
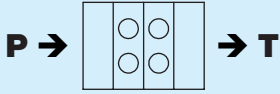




Dimensions per number of sections

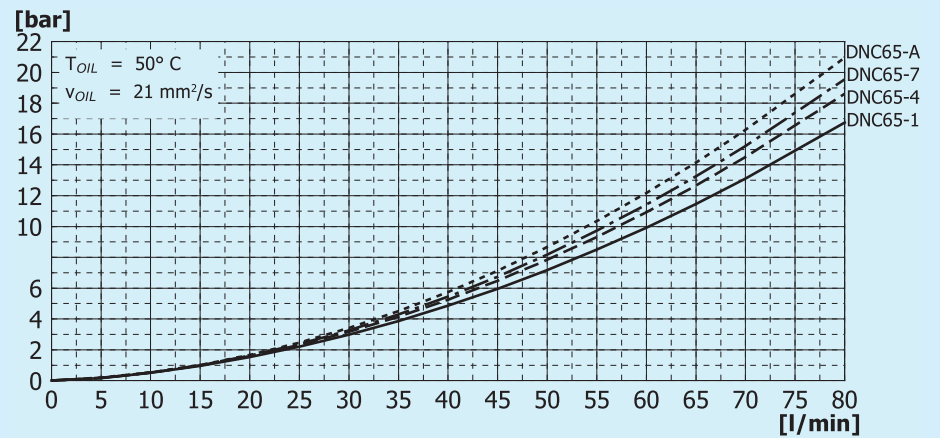
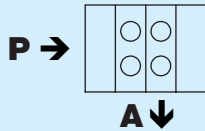
Code	N° of sections	L		Weight	
		mm	in	kg	lb
1	1	80	3,15	7,5	16,53
2	2	120	4,72	10,5	23,15
3	3	160	6,30	13.5	29,76
4	4	200	7,87	16.5	36,38
5	5	240	9,45	19,5	42,99
6	6	280	11,02	22.5	49,6
7	7	320	12,59	25,5	56,22
8	8	360	14,17	28.5	62,83
9	9	400	15,75	31,5	69,44
A	10	440	17,32	34.5	76,06

Pressure drops P-T



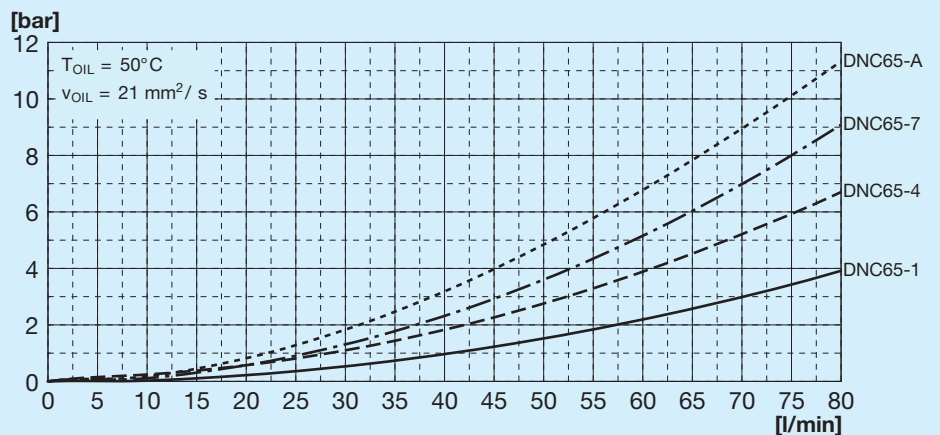
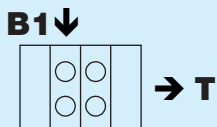
Testing parameters: Spool type **01**

Pressure drops P-A



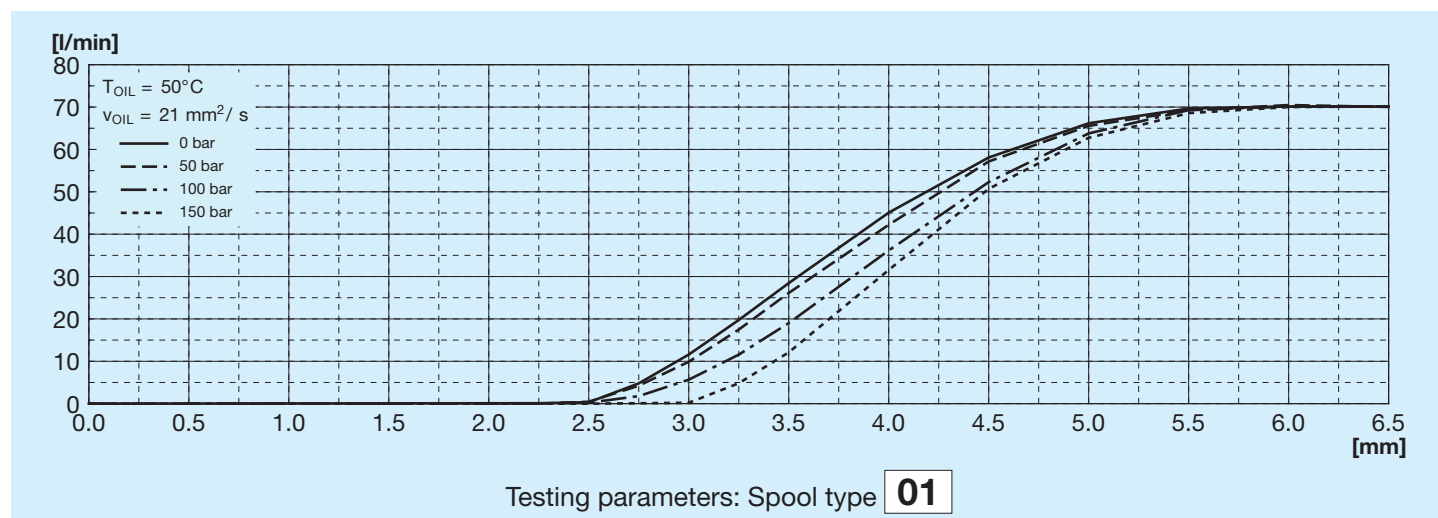
Testing parameters: Spool type **01**

Pressure drops B1-T

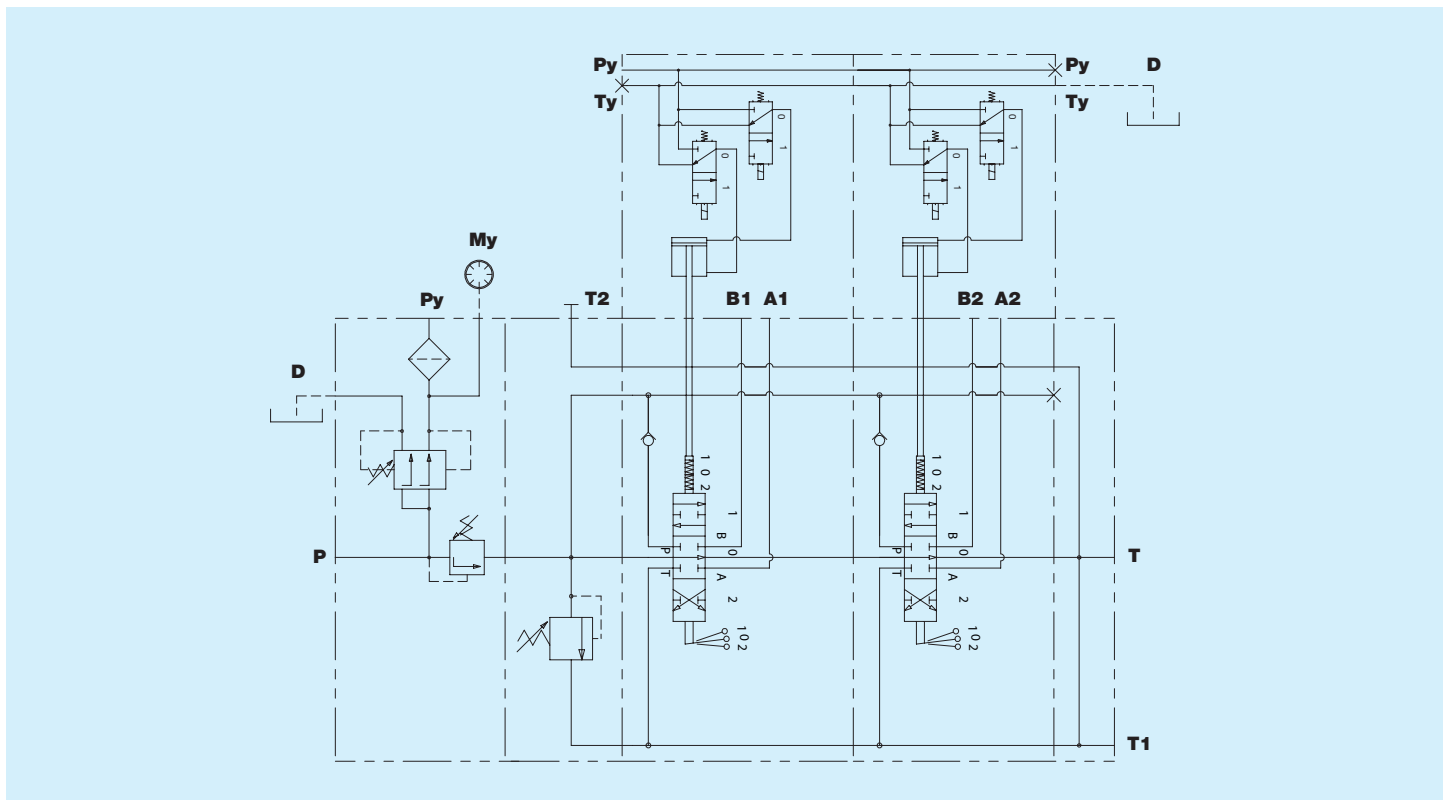
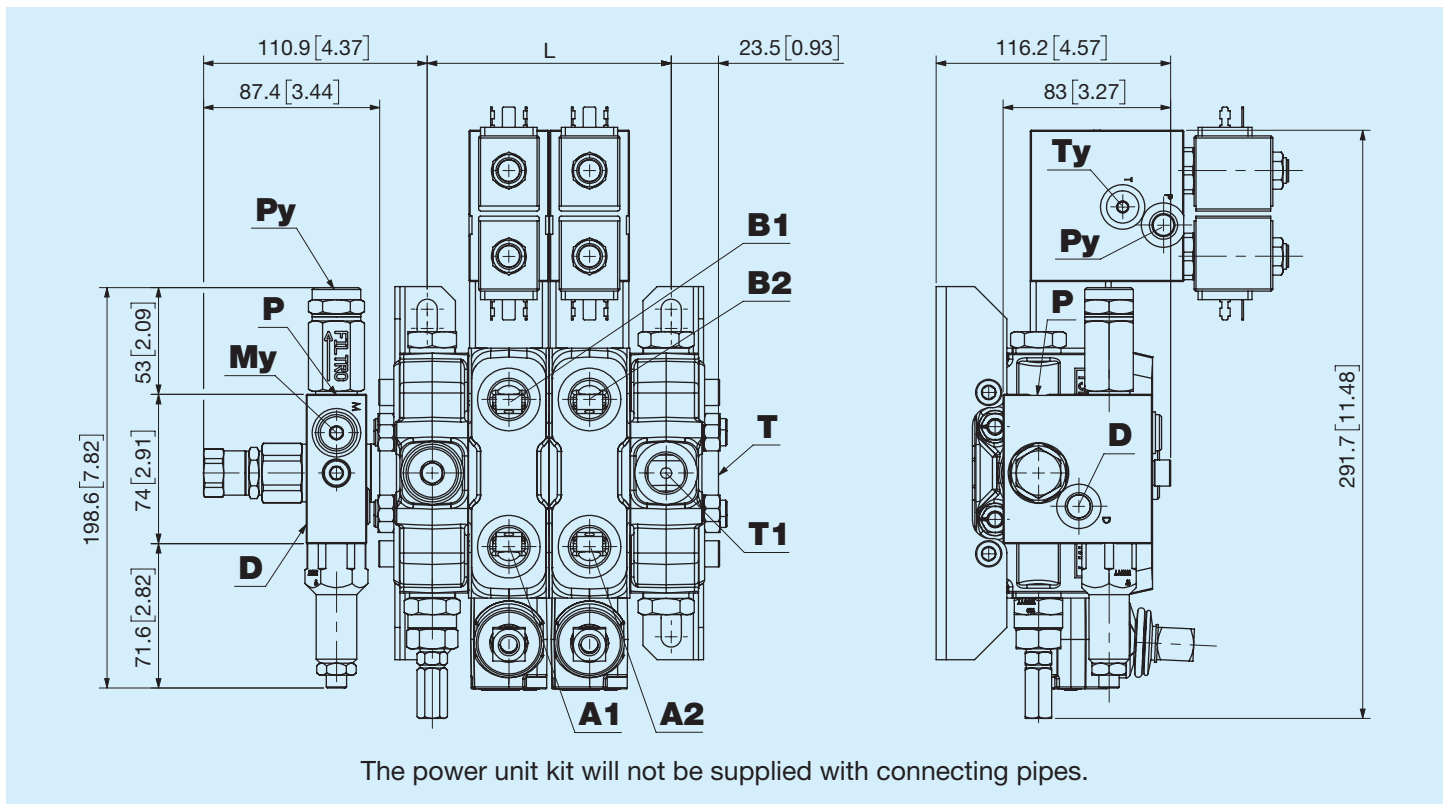


Testing parameters: Spool type **01**

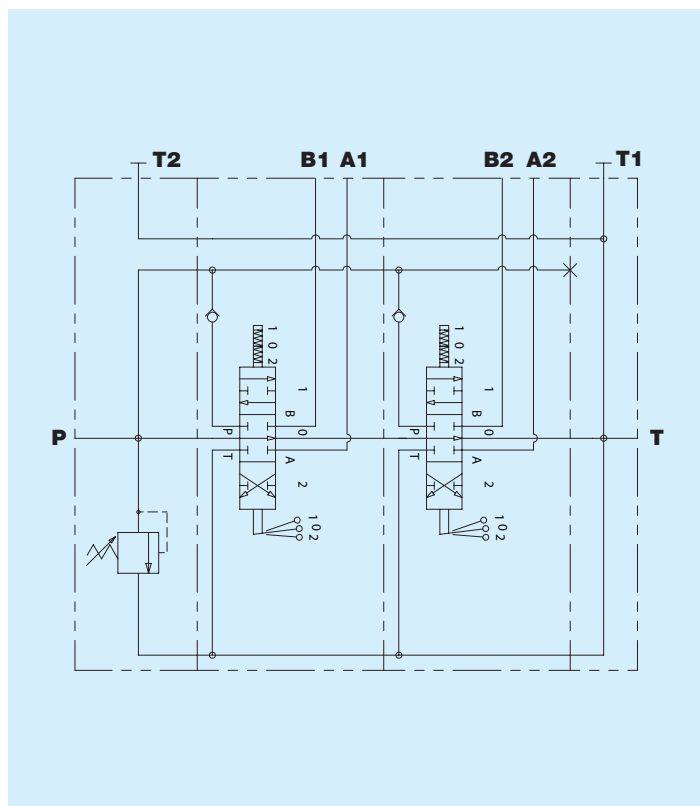
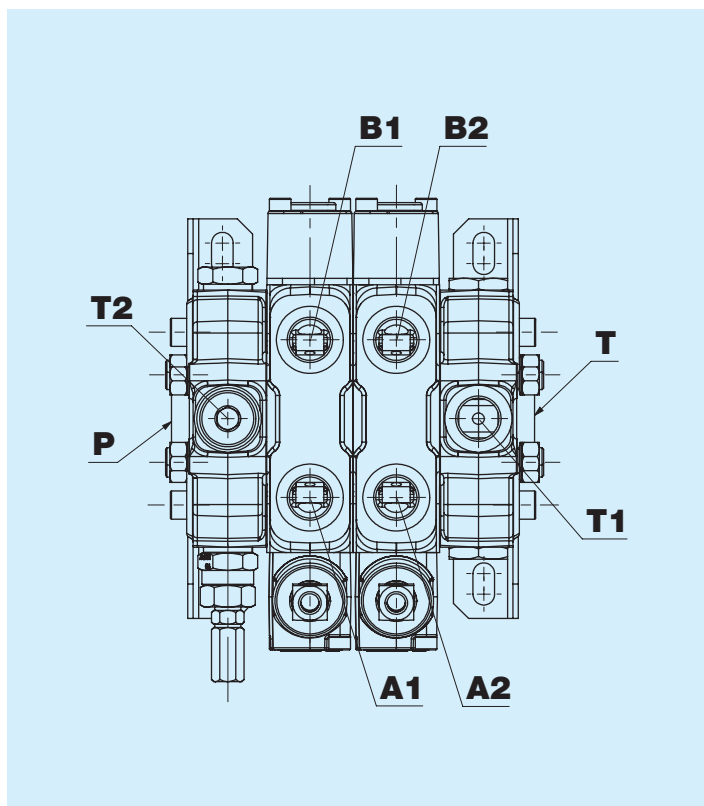
Metering



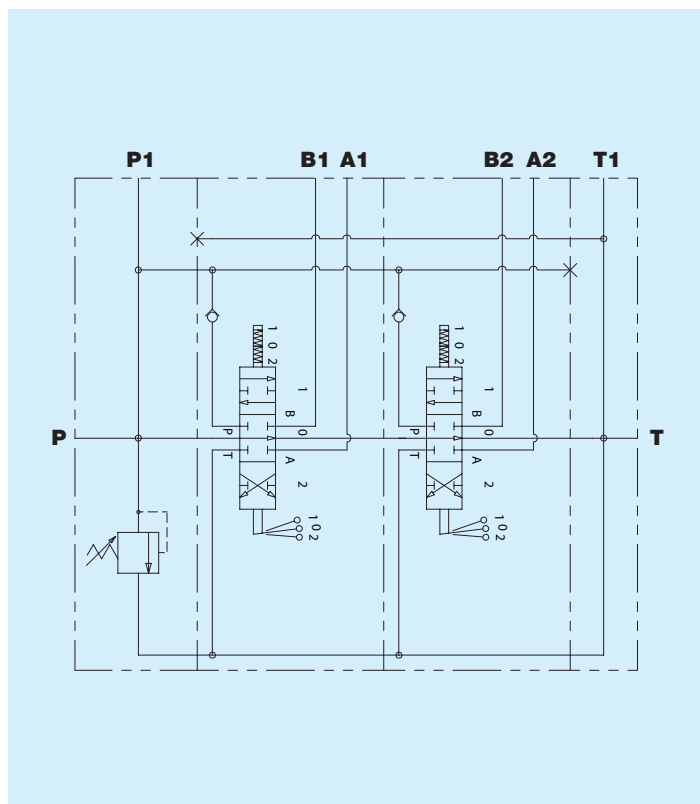
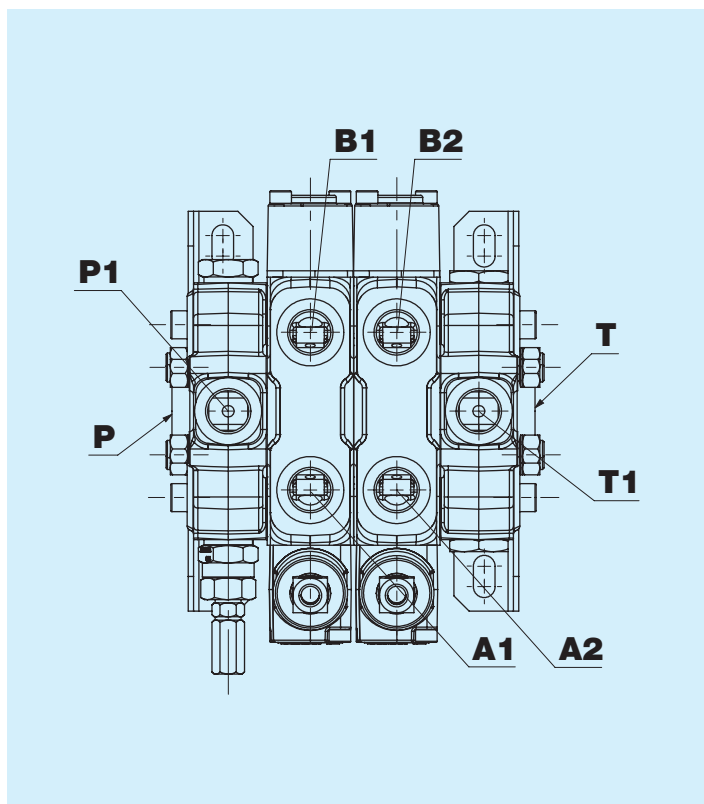
A Power unit



Port T2 plugged (standard)

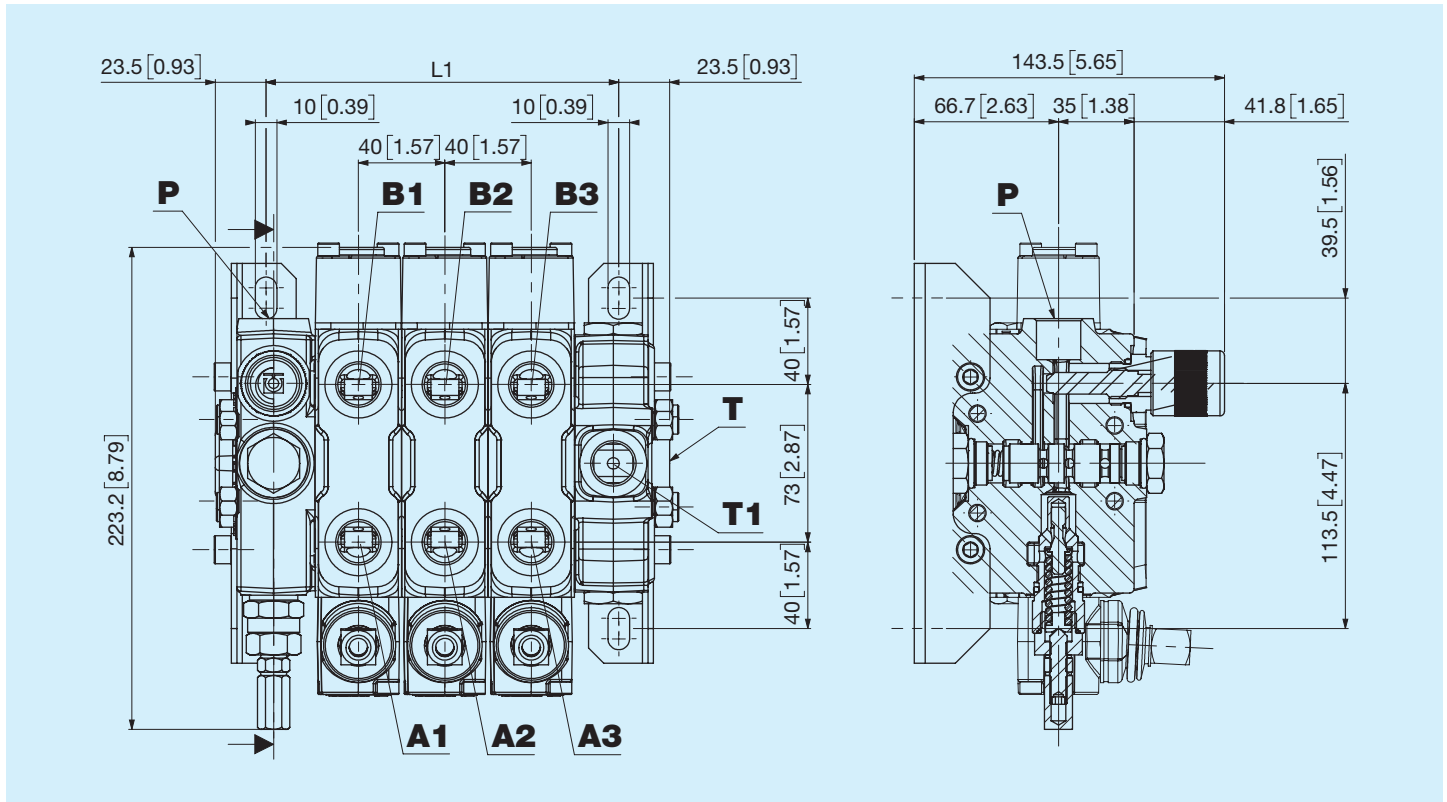


Port T2 used as P1



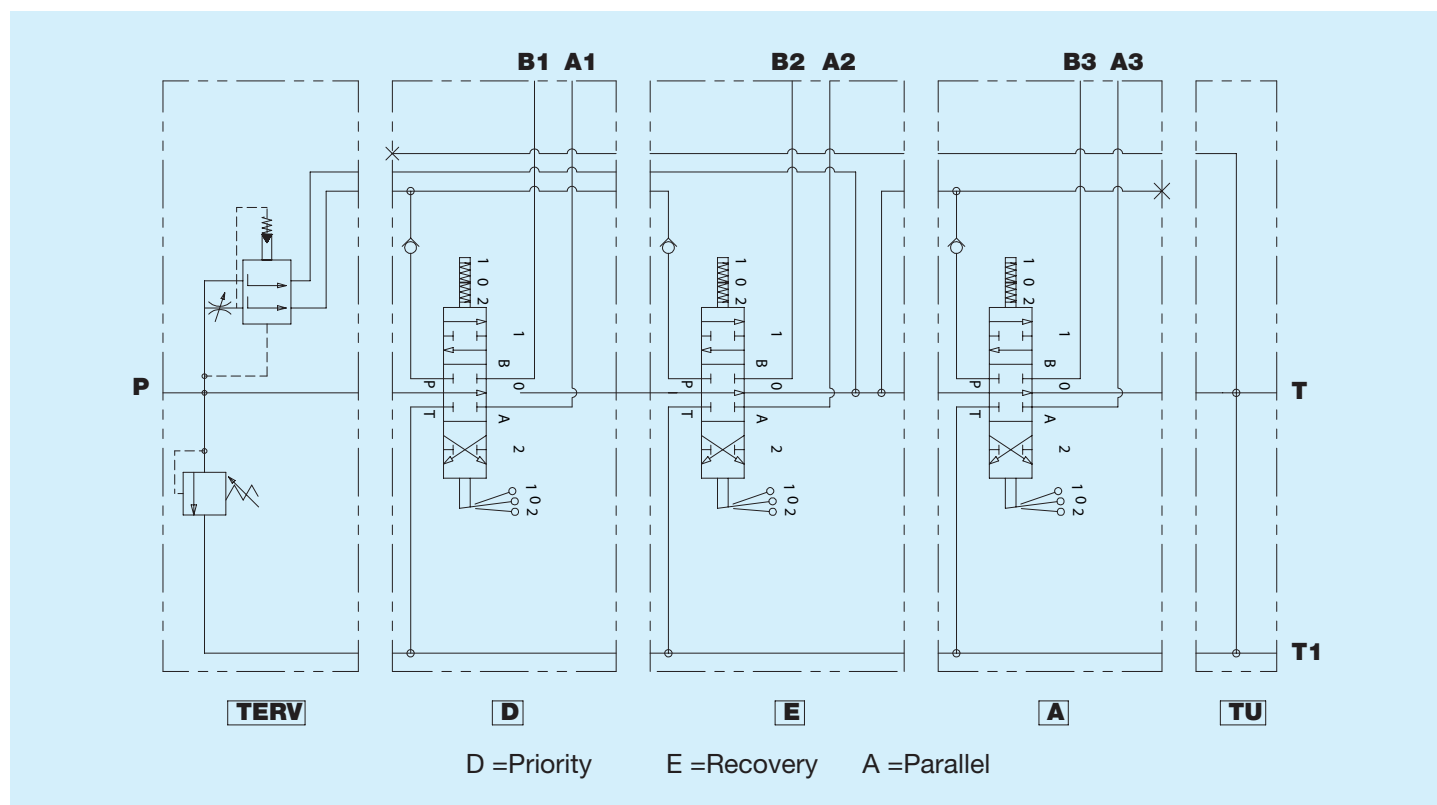
This option is used to adjust the flow rate in the downstream sections regardless of the applied load. The flow rate is adjusted by turning a knob and the excess flow can be recovered or discharged.

V TERV - Vertical flow rate control cover



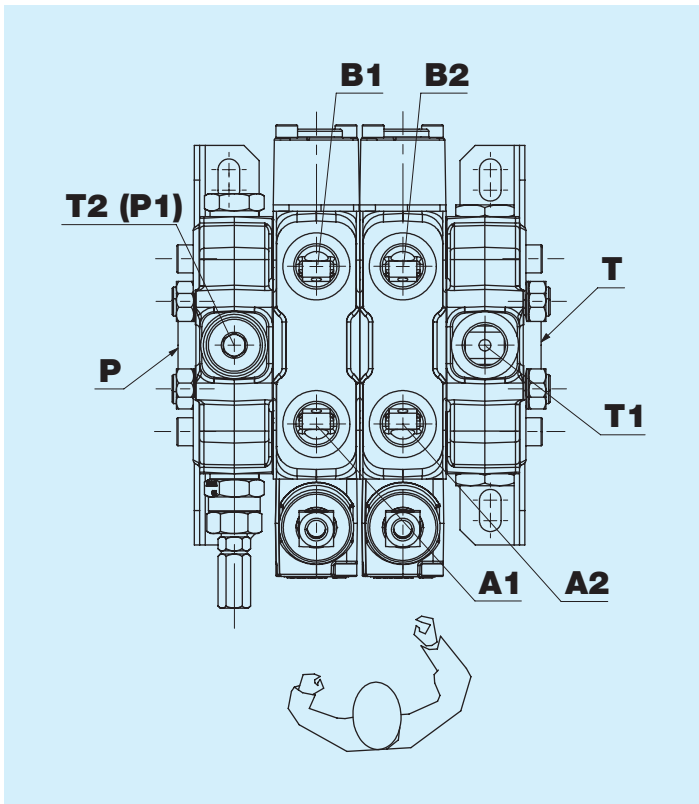
Dimensions per number of sections

Code	N° of sections	L1		Weight	
		mm	in	kg	lb
1	1	83,5	3,29	7,6	16,7
2	2	123,5	4,86	10,6	23,3
3	3	163,5	6,44	13,6	29,9
4	4	203,5	8,01	16,6	36,5
5	5	243,5	9,59	19,6	43,1

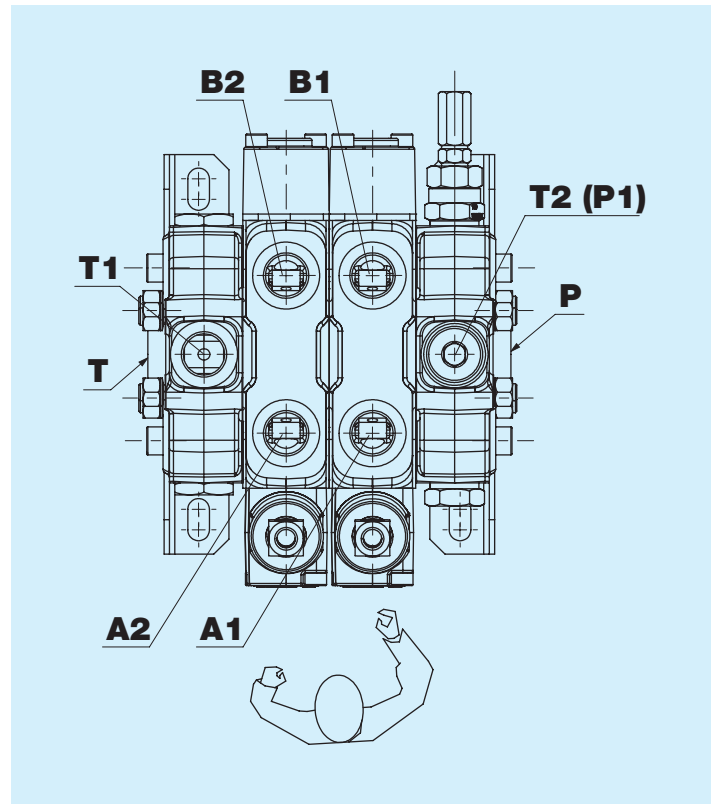


If a Terv (flow rate control cover) is present, one element must be Priority and one Recovery.

S Left (standard)



D Right



Port A is usually the nearest port to the actuator side.

Thread Port P

Code	Type	Torque Nm
B	1/2" GAS ISO 1179	65
N	M22x1.5 ISO 9974	67
J	M22x1.5 ISO 6149	67
R	7/8" - 14 SAE ISO 11926	67

Thread port T2 (P1)

Code	Type	Torque Nm
O	Not processed	
B	1/2" GAS ISO 1179	65
N	M22x1.5 ISO 9974	67
J	M22x1.5 ISO 6149	67
R	7/8" - 14 SAE ISO 11926	67

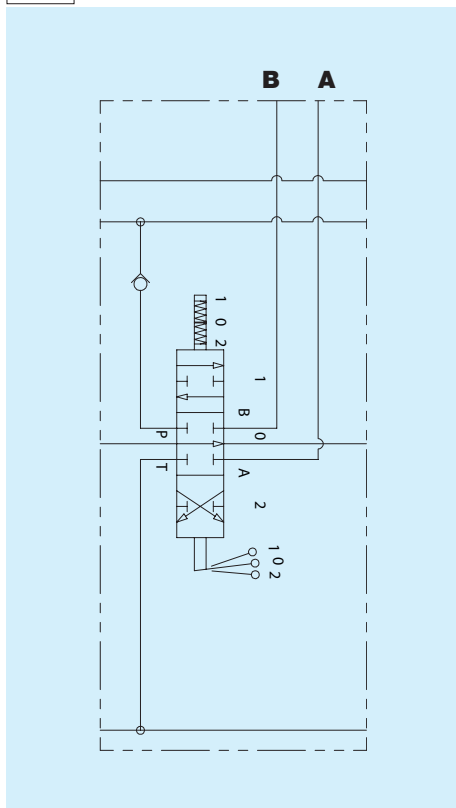
Thread ports A - B

Code	Type	Torque Nm
B	1/2" GAS ISO 1179	65
N	M22x1.5 ISO 9974	67
J	M22x1.5 ISO 6149	67
R	7/8" - 14 SAE ISO 11926	67

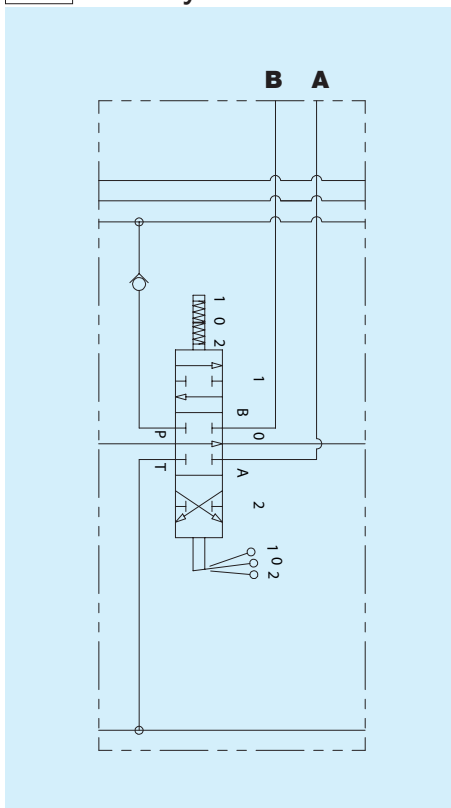
Thread port T - T1

Code	Type	Torque Nm
B	1/2" GAS ISO 1179	65
N	M22x1.5 ISO 9974	67
J	M22x1.5 ISO 6149	67
R	7/8" - 14 SAE ISO 11926	67

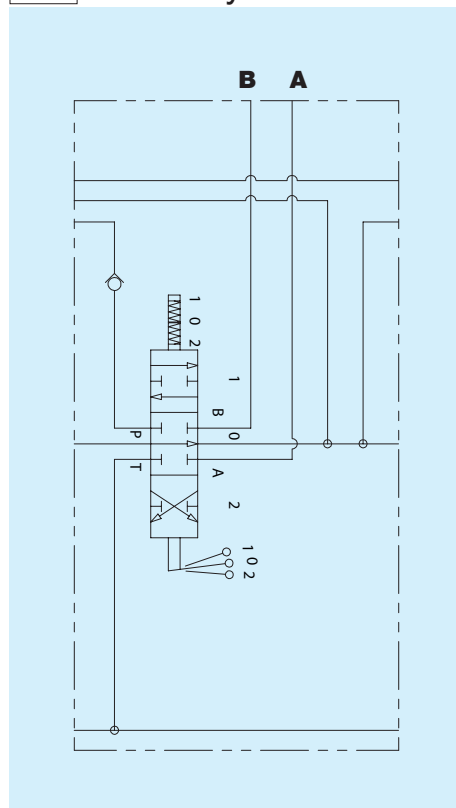
A Parallel



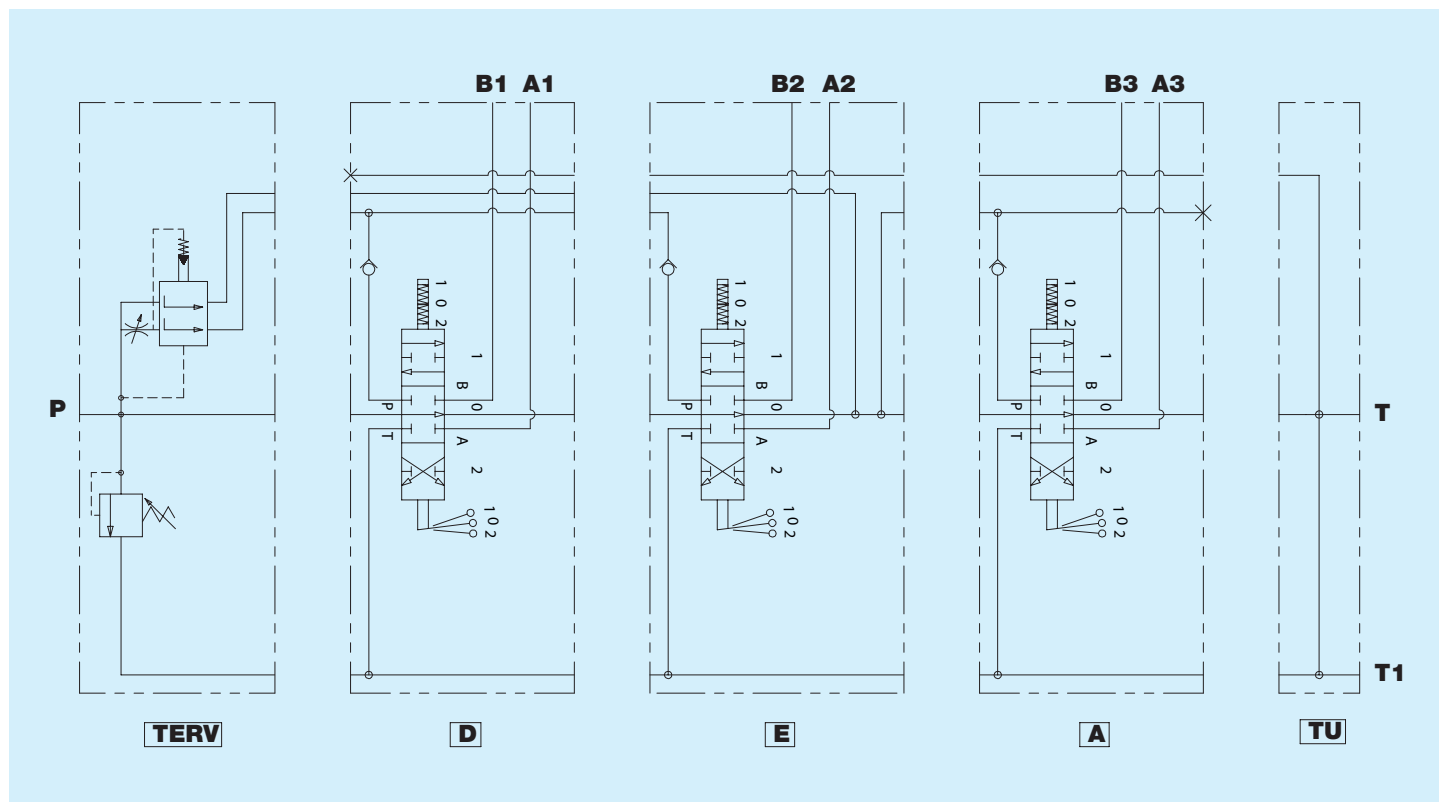
D Priority



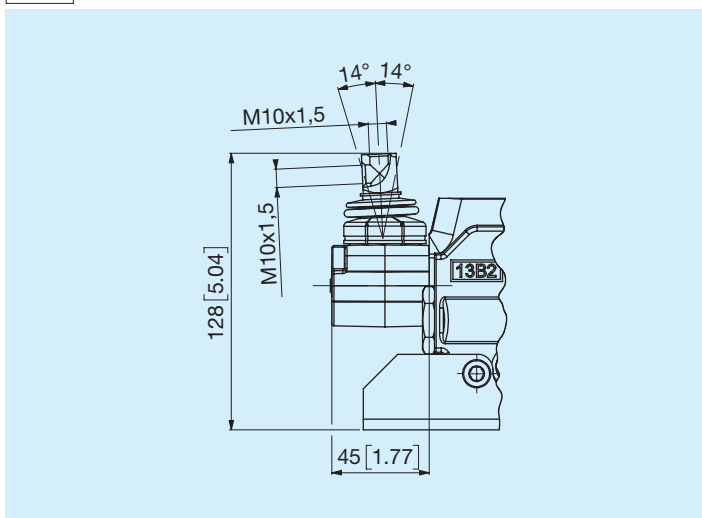
E Recovery



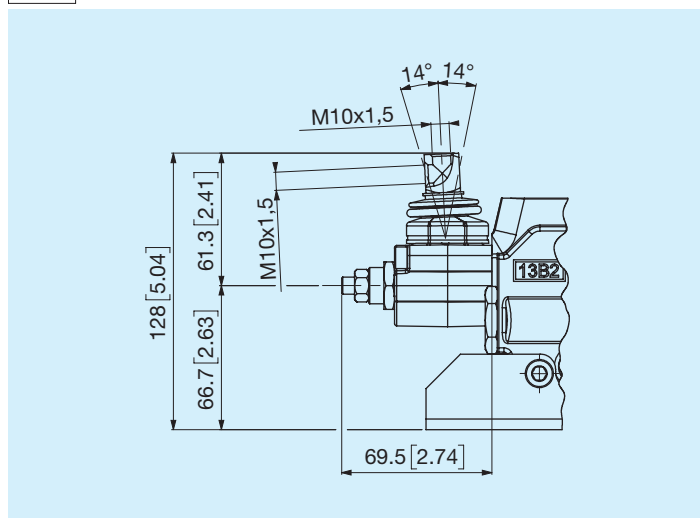
Example of directional control valve



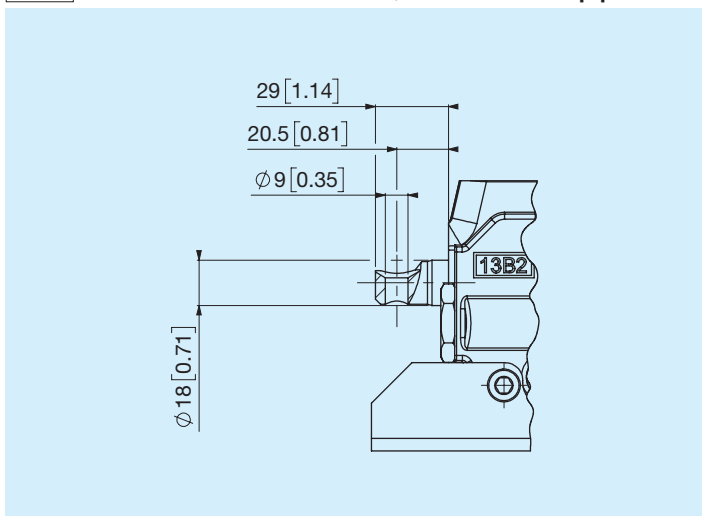
L Standard kit for lever holder



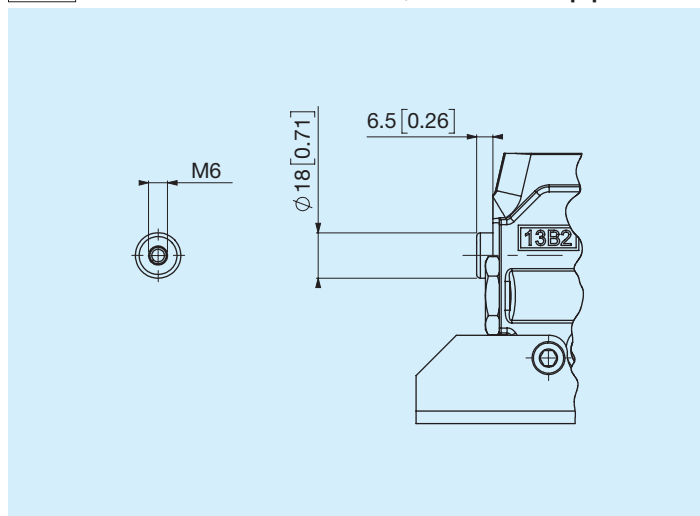
Z Lever holder with stroke limiter



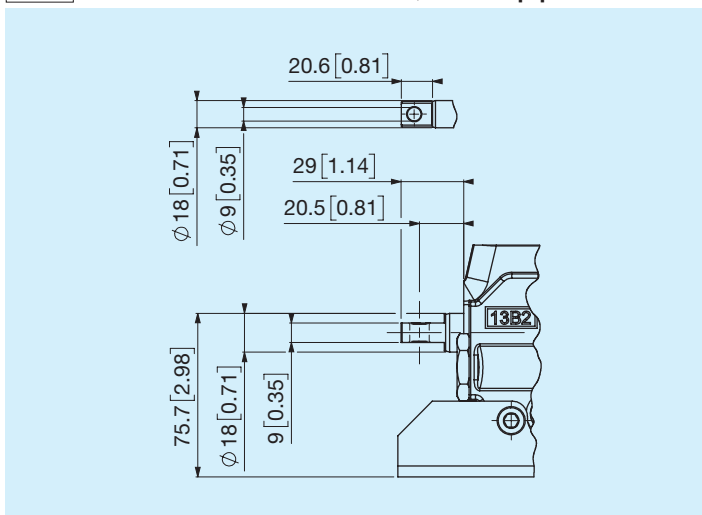
A Without lever holder, standard appendix



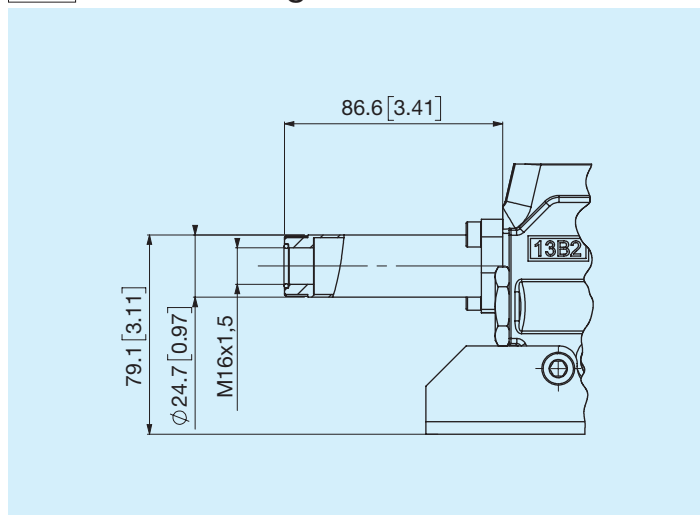
B Without lever holder, without appendix



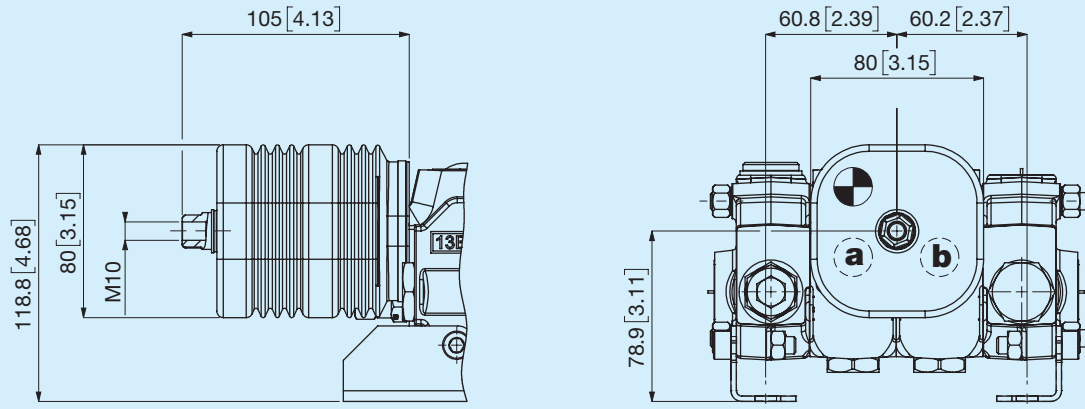
C Without lever holder, flat appendix



T Cable setting

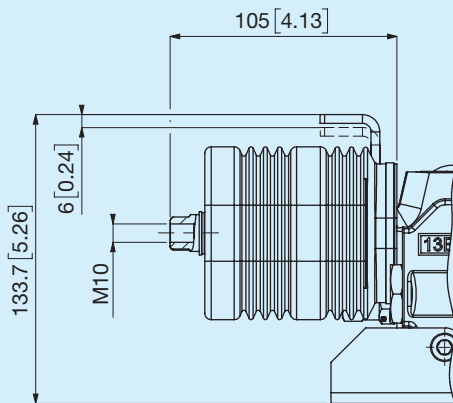


M Joystick

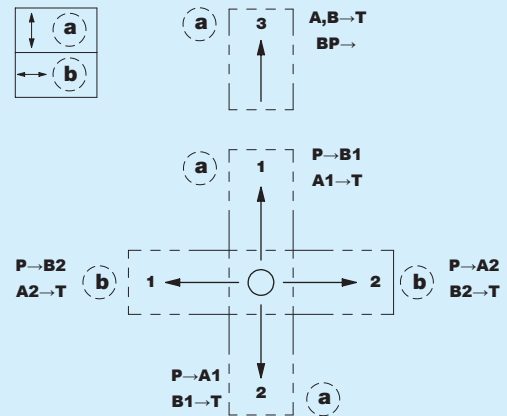


a=Spool 1st section b=Spool 2nd section

G Joystick with spool lock

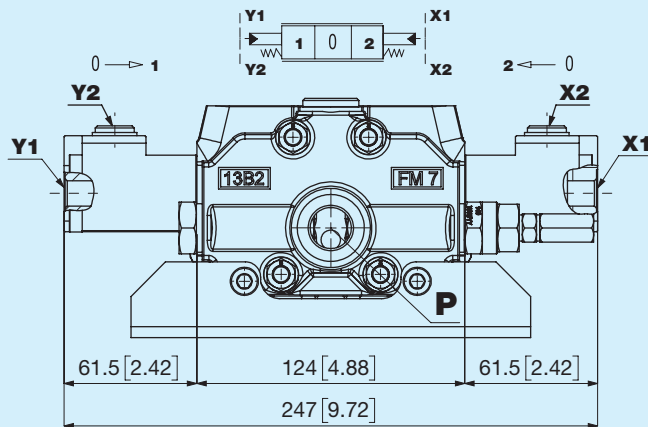


Joystick functions

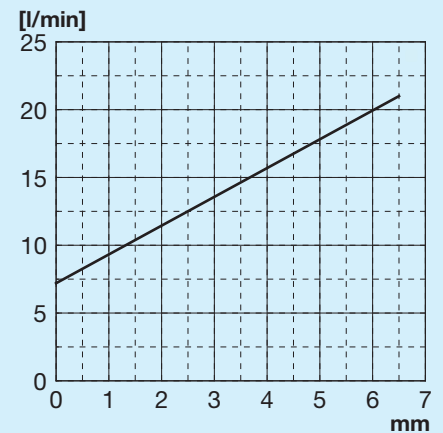


Also available in other configurations.

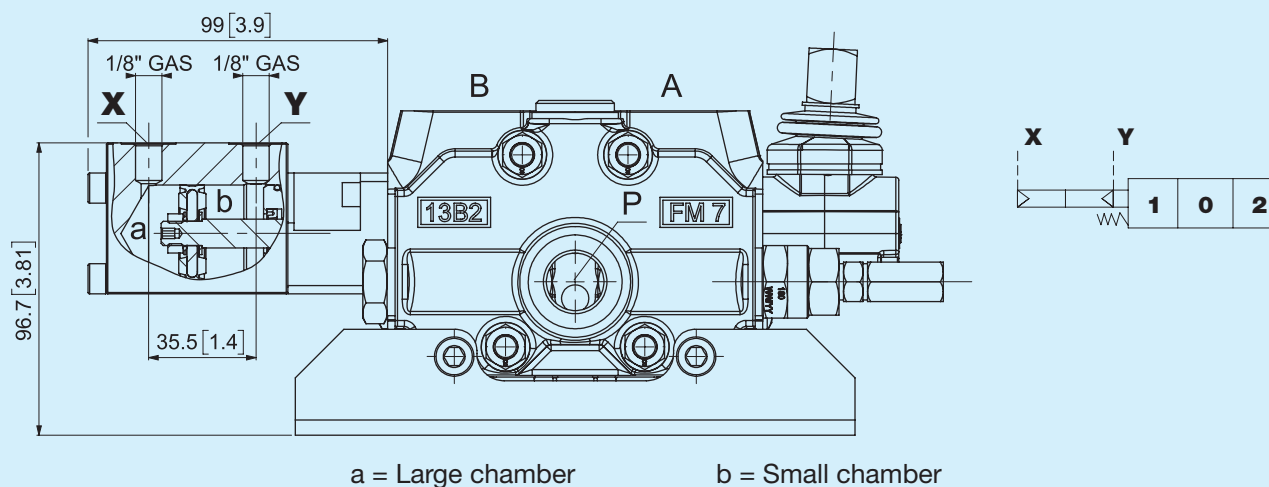
K Hydraulic control



Hydraulic control

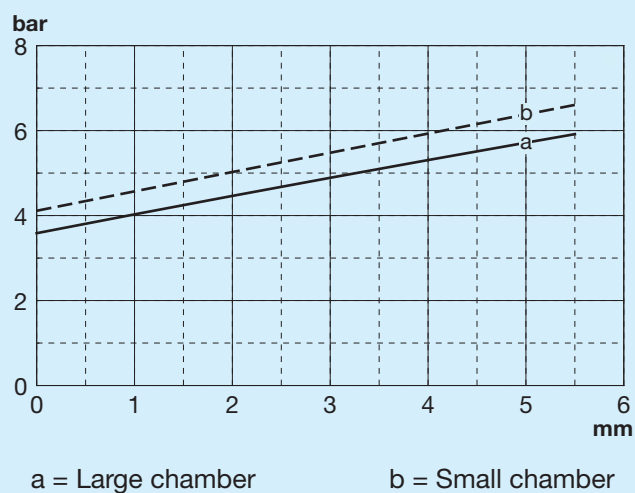


P Pneumatic

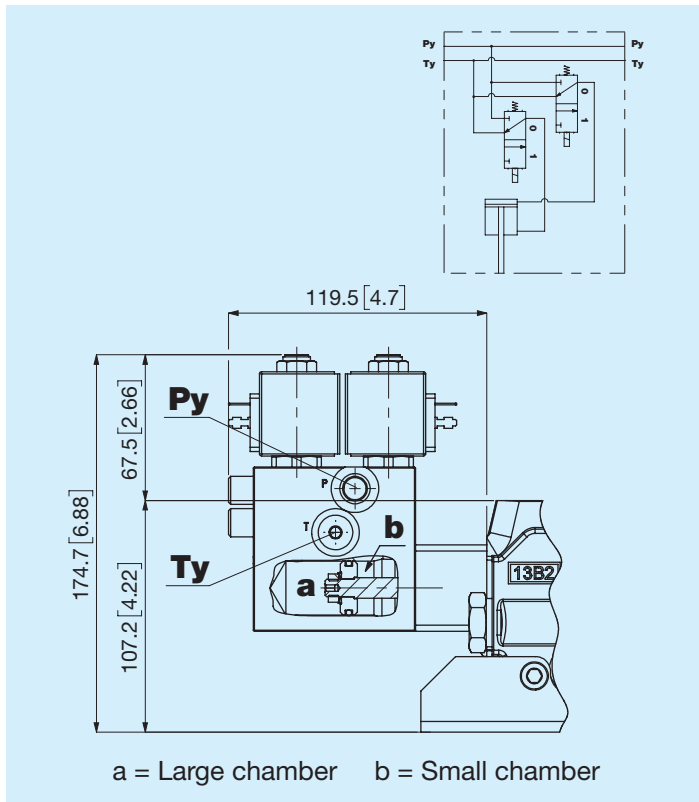


The pneumatic actuator is located on the side where the spool control is normally placed and is the main actuator. The directional control valve will also be supplied as standard with the lever holder on the opposite side.

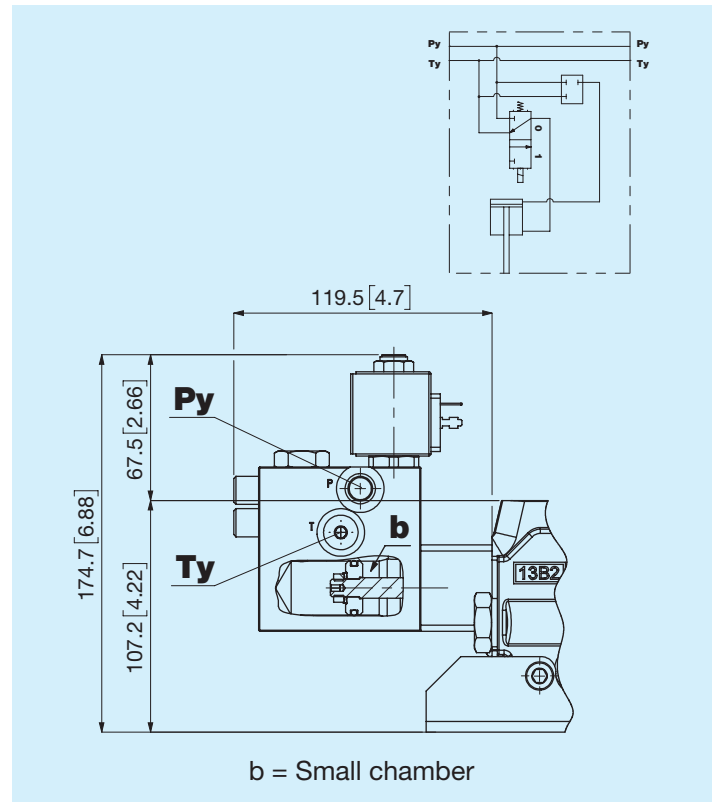
Pneumatic control



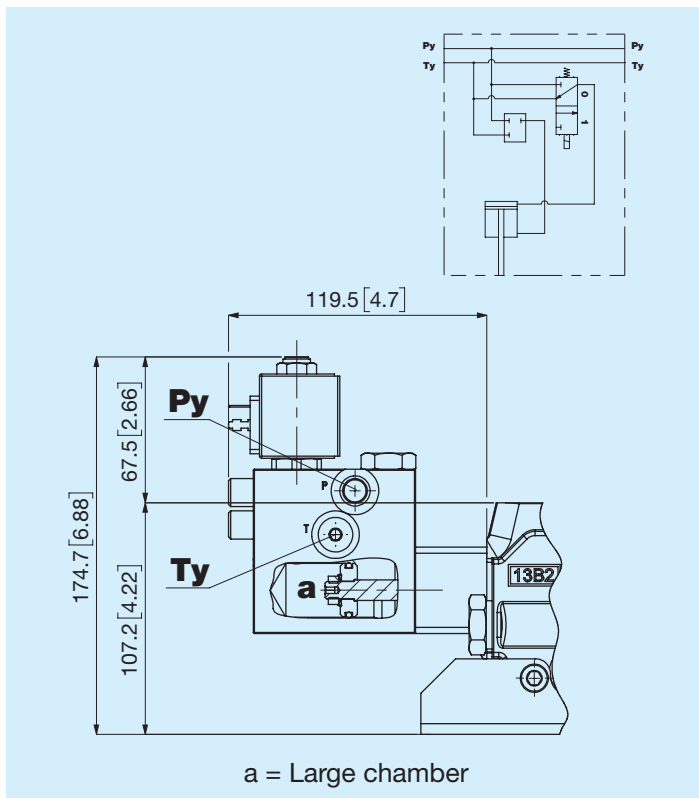
H Dual effect



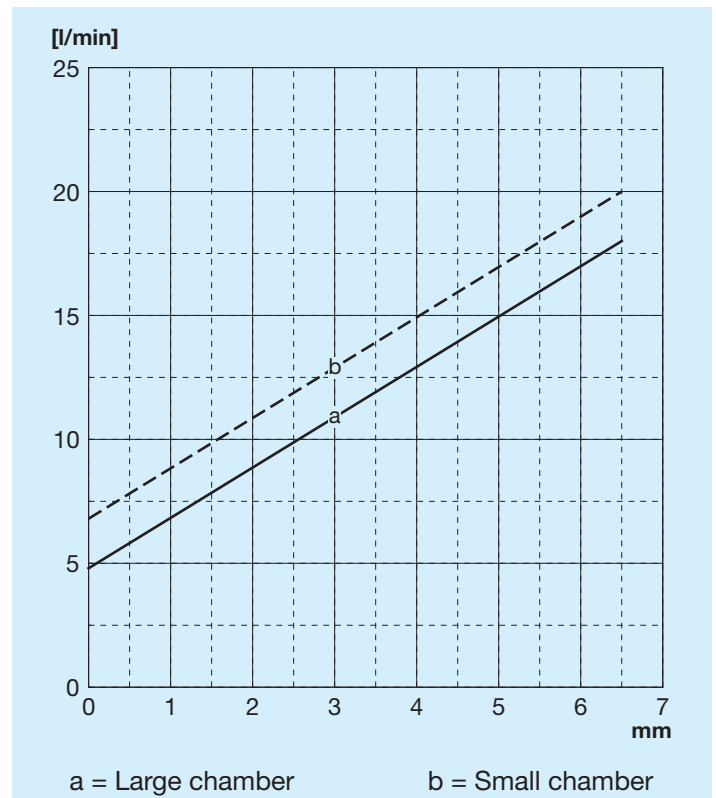
S Simple effect port A



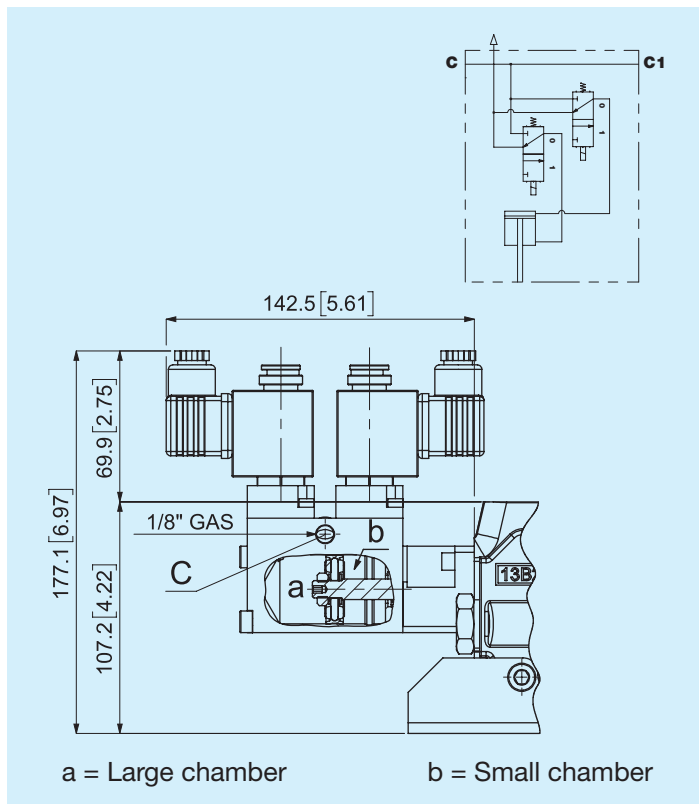
X Simple effect port B



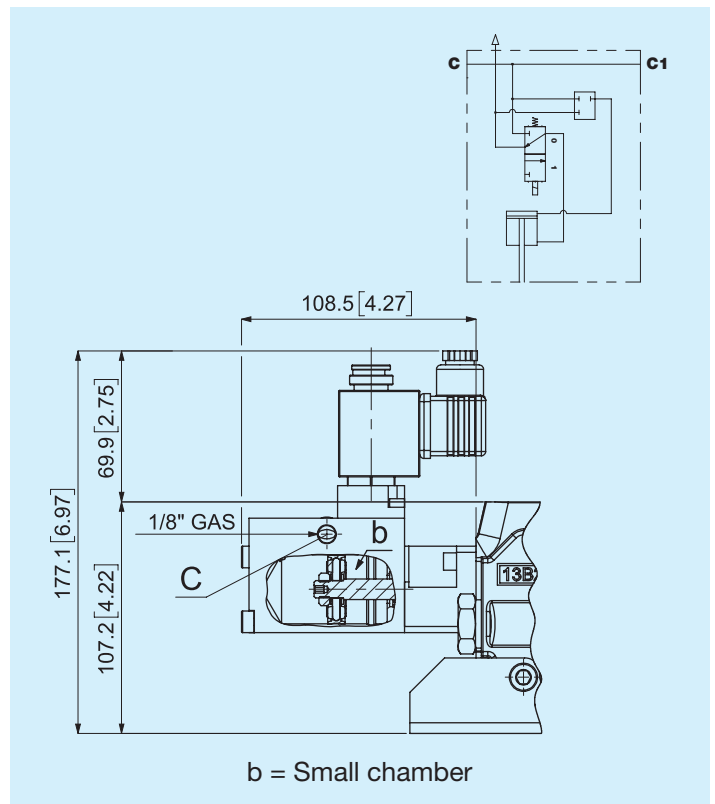
Electro-hydraulic control



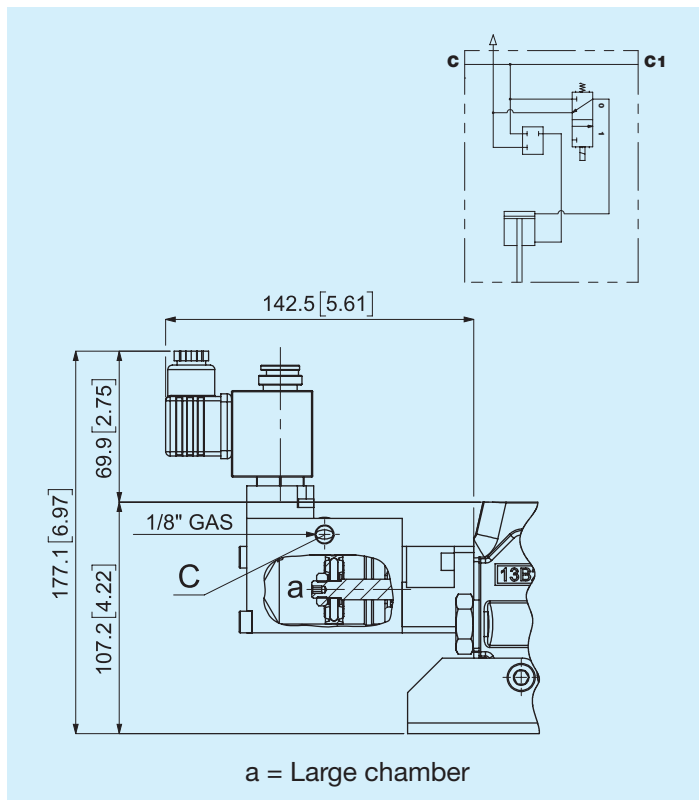
U Dual effect



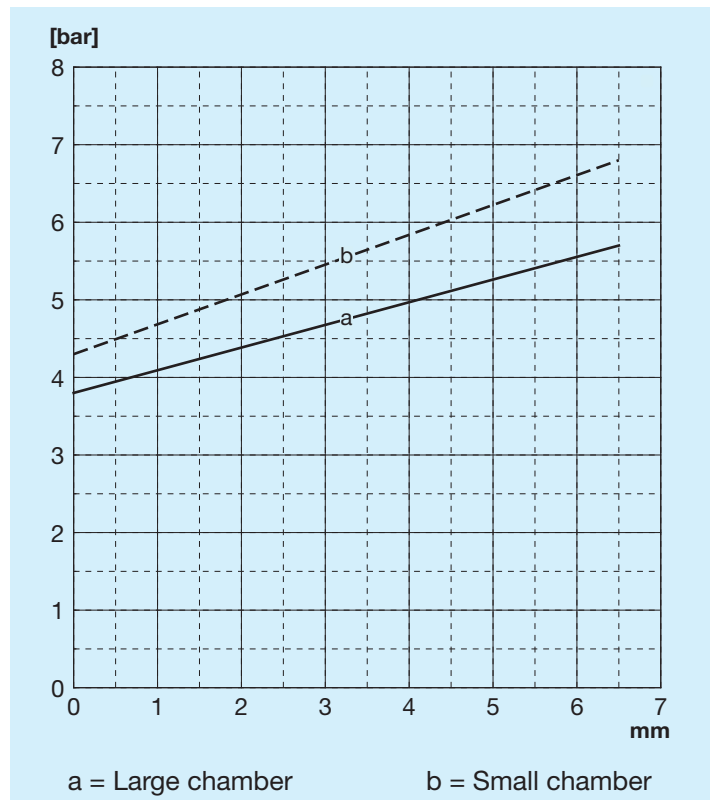
I Simple effect port A



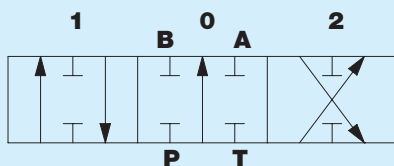
W Simple effect port B



Electro-pneumatic control



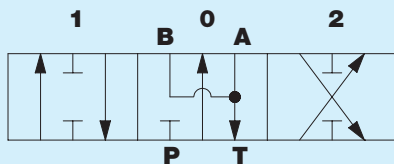
01 Spool type



Positions

3	1	0	2	4
	$P \rightarrow B$ $A \rightarrow T$ $BP \rightarrow$	$P, T \rightarrow$ $A, B \rightarrow$ $BP \rightarrow$	$P \rightarrow A$ $B \rightarrow T$ $BP \rightarrow$	

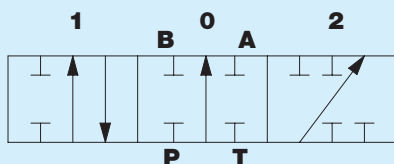
03 Spool type



Positions

3	1	0	2	4
	$P \rightarrow B$ $A \rightarrow T$ $BP \rightarrow$	$A, B \rightarrow T$ $P \rightarrow$ $BP \rightarrow$	$P \rightarrow A$ $B \rightarrow T$ $BP \rightarrow$	

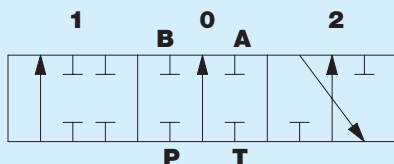
04 Spool type



Positions

3	1	0	2	4
	$A \rightarrow T$ $P, B \rightarrow$ $BP \rightarrow$	$P, T \rightarrow$ $A, B \rightarrow$ $BP \rightarrow$	$P \rightarrow A$ $B, T \rightarrow$ $BP \rightarrow$	

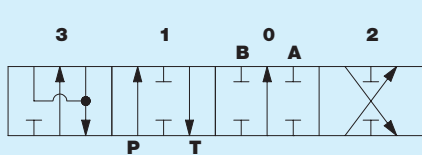
05 Spool type



Positions

3	1	0	2	4
	$P \rightarrow B$ $A, T \rightarrow$ $BP \rightarrow$	$P, T \rightarrow$ $A, B \rightarrow$ $BP \rightarrow$	$A \rightarrow$ $B \rightarrow T$ $BP \rightarrow$	

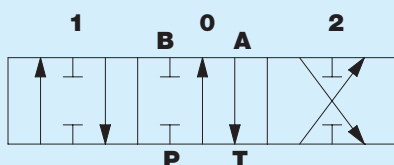
07 Spool type



Positions

3	1	0	2	4
$A, B \rightarrow T$ $P \rightarrow$ $BP \rightarrow$	$P \rightarrow B$ $A \rightarrow T$ $BP \rightarrow$	$P, T \rightarrow$ $A, B \rightarrow$ $BP \rightarrow$	$P \rightarrow A$ $B \rightarrow T$ $BP \rightarrow$	

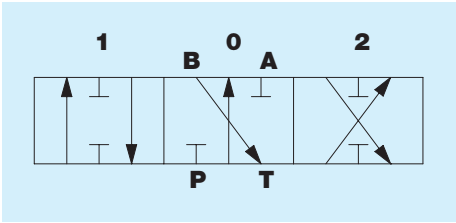
08 Spool type



Positions

3	1	0	2	4
	$P \rightarrow B$ $A \rightarrow T$ $BP \rightarrow$	$A \rightarrow T$ $P, B \rightarrow$ $BP \rightarrow$	$P \rightarrow A$ $B \rightarrow T$ $BP \rightarrow$	

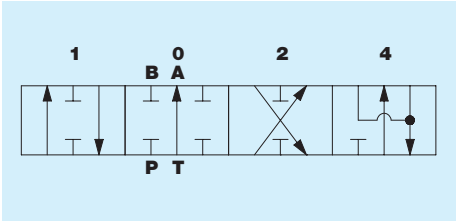
10 Spool type



Positions

3	1	0	2	4
	P → B A → T BP —	B → T P, A — BP →	P → A B → T BP —	

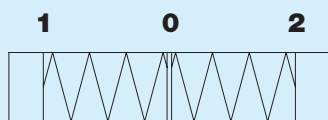
70 Spool type



Positions

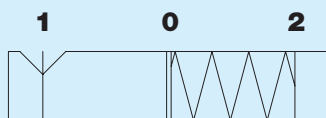
3	1	0	2	4
	P → B A → T BP —	P, T — A, B — BP →	P → A B → T BP —	A, B → T P — BP →

0A



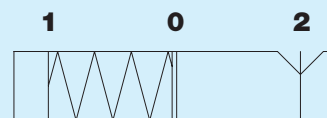
Neutral position in 0

0B



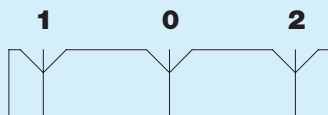
Neutral position in 0,
detent in 1

0C



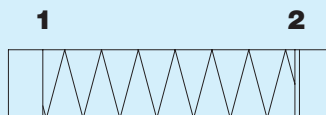
Neutral position in 0,
detent in 2

0D



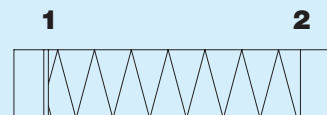
Detent in 0, 1, 2

0R



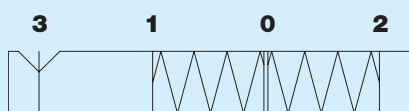
Neutral position in 2

0S



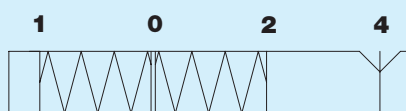
Neutral position in 1

NS



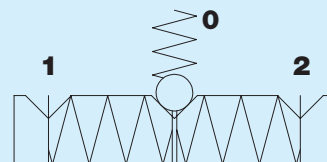
Neutral position in 0, detent in 3

NT



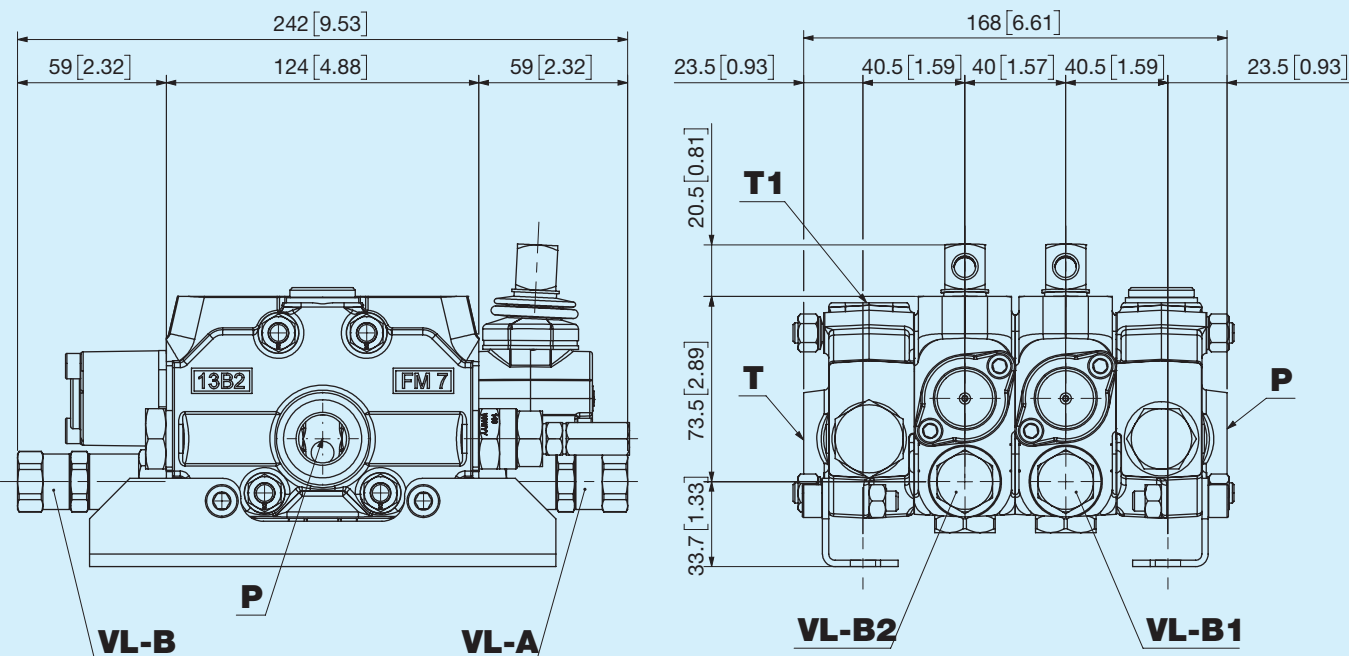
Neutral position in 0, detent in 4

KD

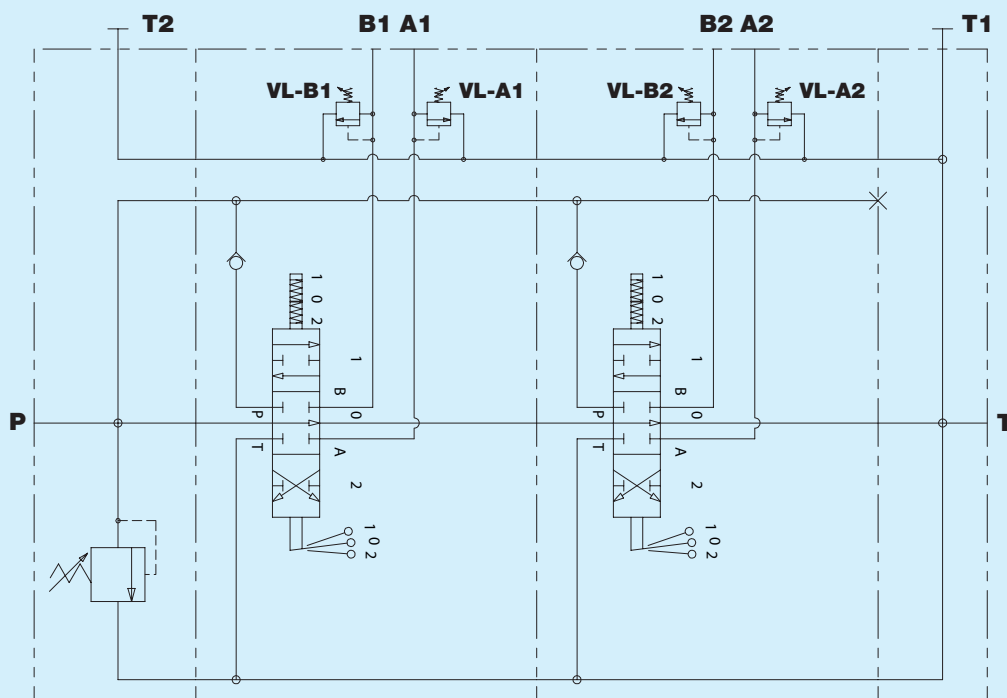


For kick-off

VL Pressure limiter valve

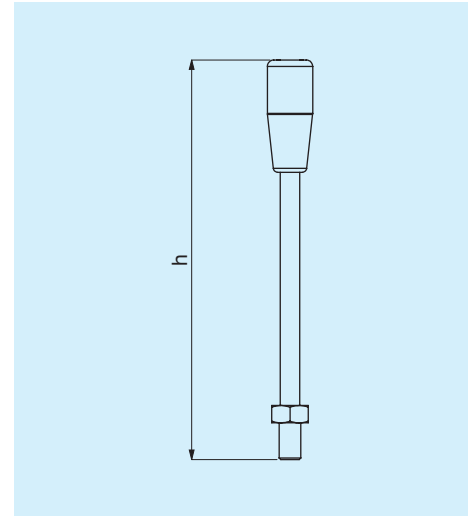


This option includes special cast iron



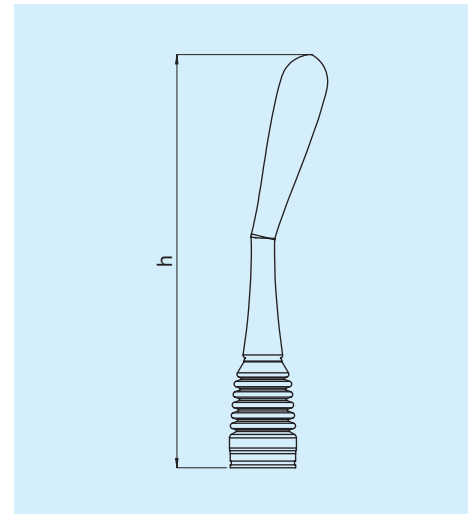
Straight standard knob

Code	Description	h [mm]	h [in]
A	Straight standard knob	109	4,3
B	Straight standard knob	134	5.28
C	Straight standard knob	184	7,24
D	Straight standard knob	214	8,42
E	Straight standard knob	254	10
F	Straight standard knob	304	11,97

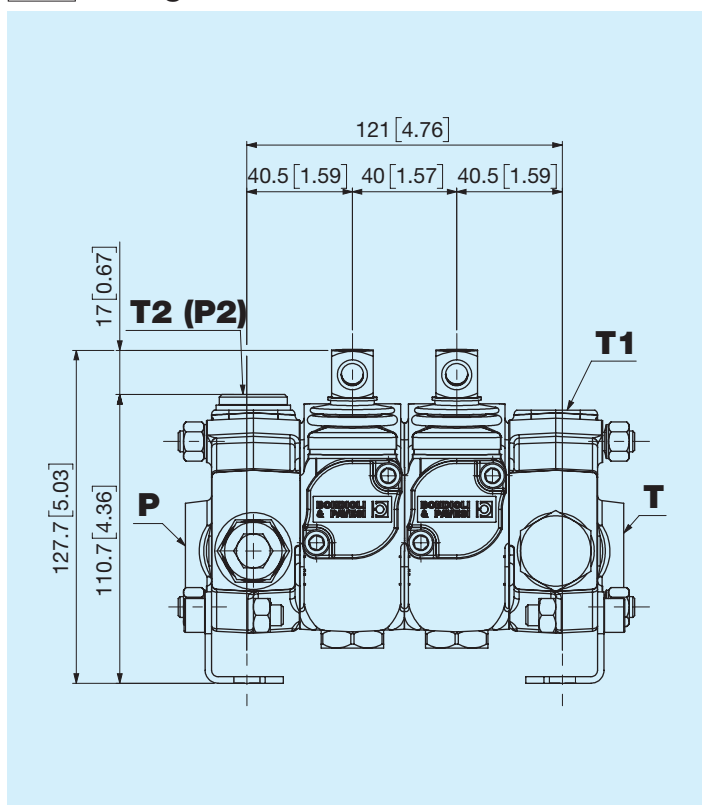


Ergonomic lever

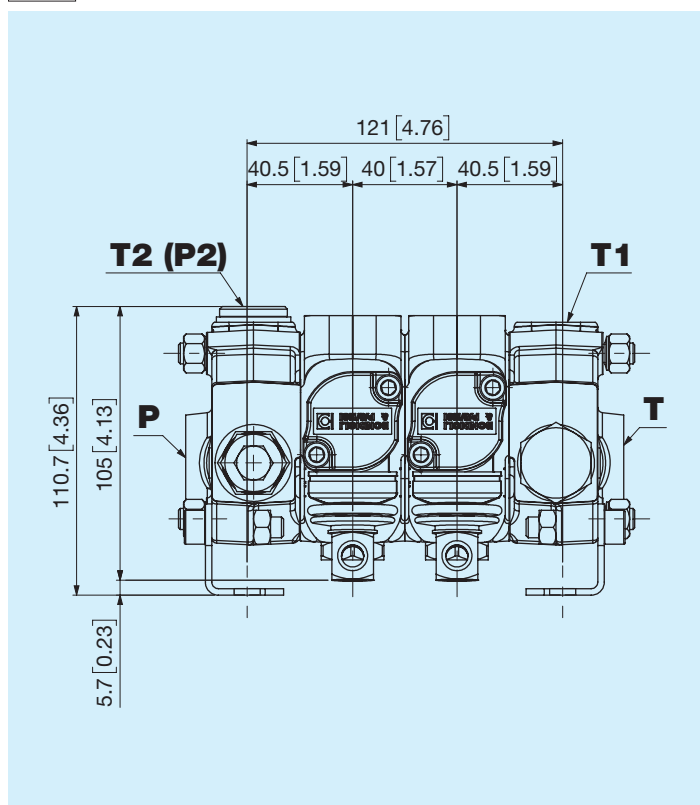
Code	Description	h [mm]	h [in]
L	Straight vertical	180	7.09
O	Bent 15° vertical	180	7.09
R	Bent 30° vertical	180	7.09
M	Straight horizontal	180	7.09
Y	Bent 15° horizontal	180	7.09
Q	Bent 30° horizontal	180	7.09



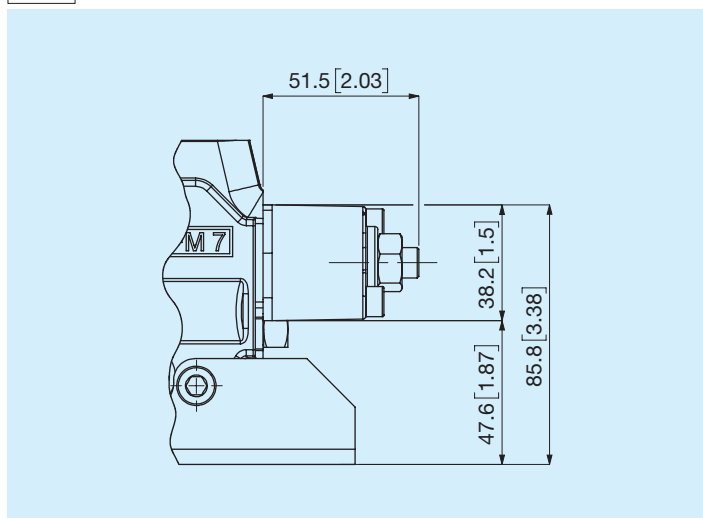
A Straight



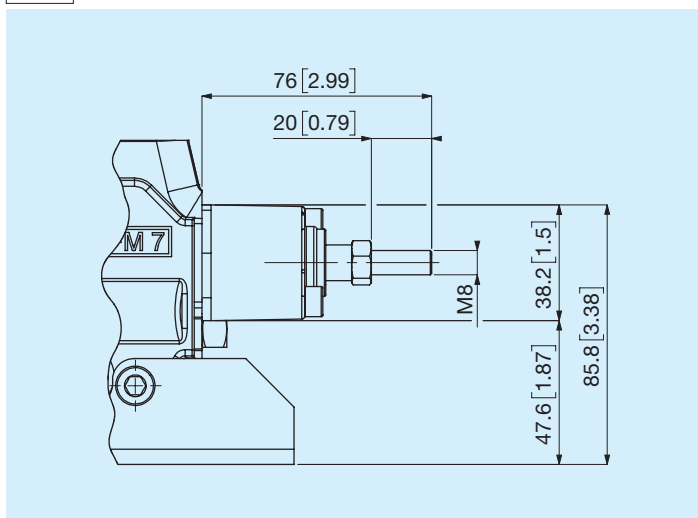
C Rotated 180°



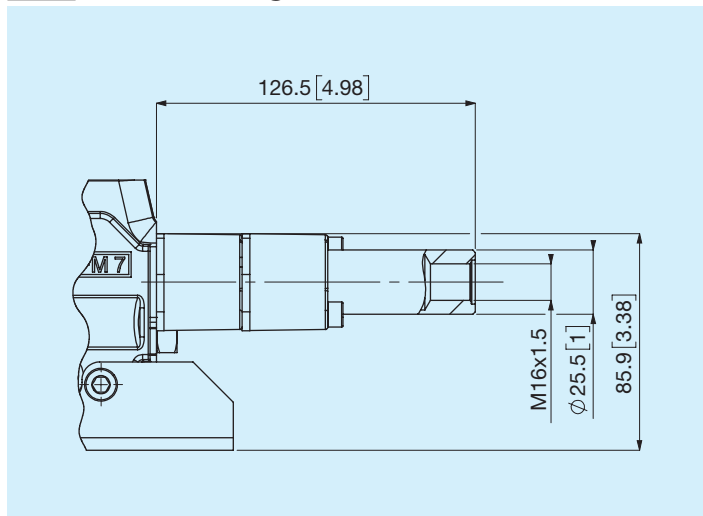
C Stroke limiter



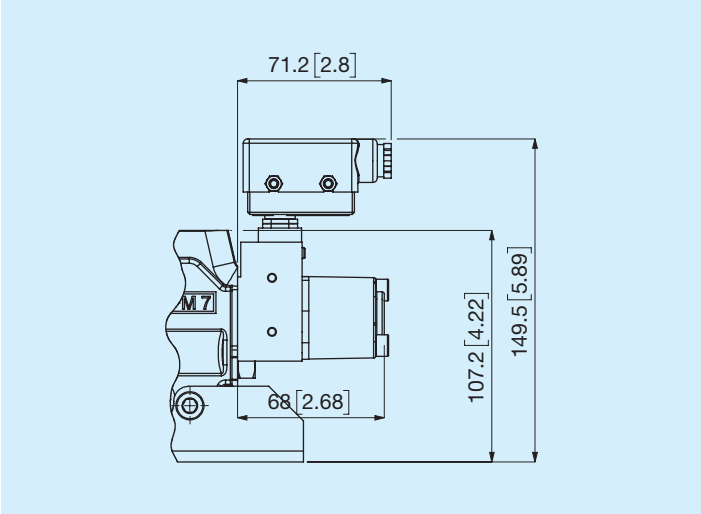
M Male dual control



T Cable fitting



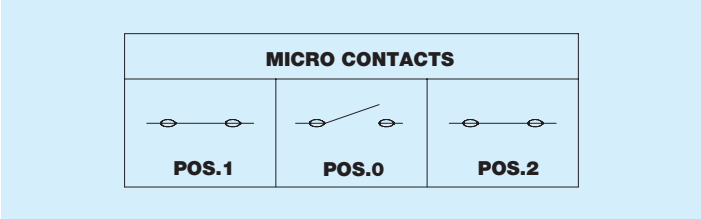
Microswitch



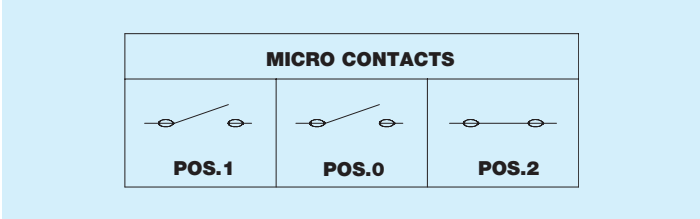
Characteristics of microswitch positioner

Contact rating	16(5)A at 250V A.C 50 Hz 3A at 30V D.C. L/R= 5 ms
Temperature range	-20° to 85° C
Expected mechanical life	10 million cycles at 1 Hz
Insulation	Up to 100 MΩ

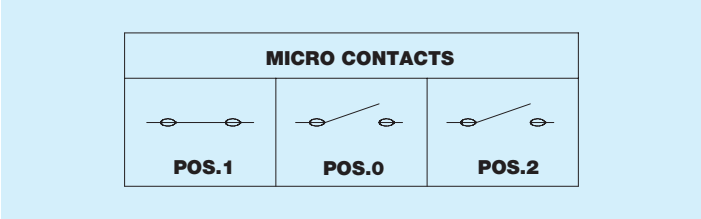
Y Dual effect microswitch



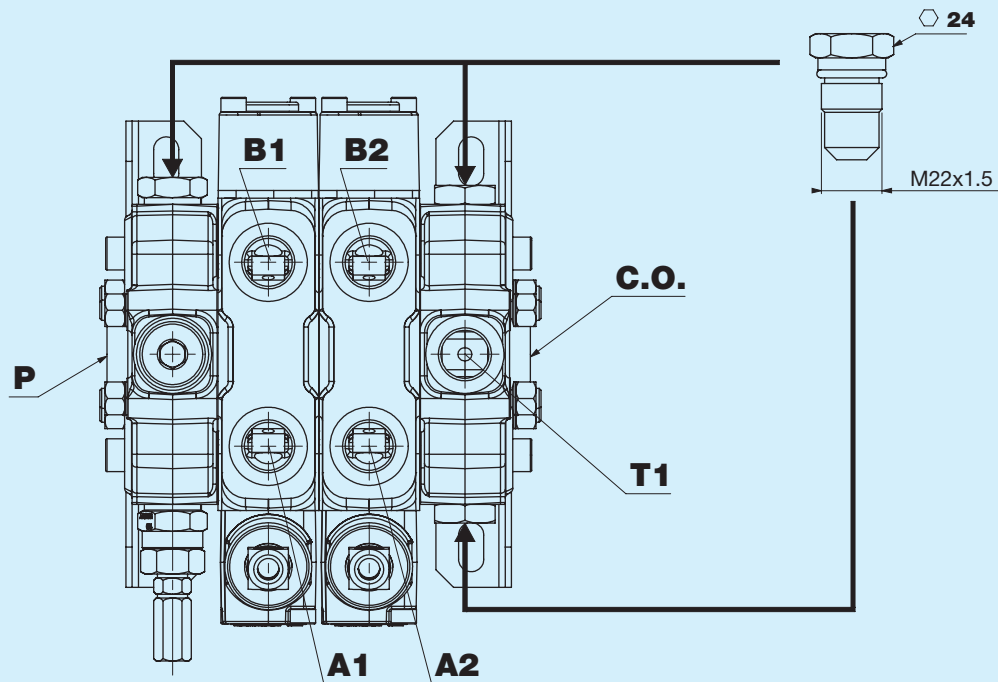
P Simple effect microswitch port A



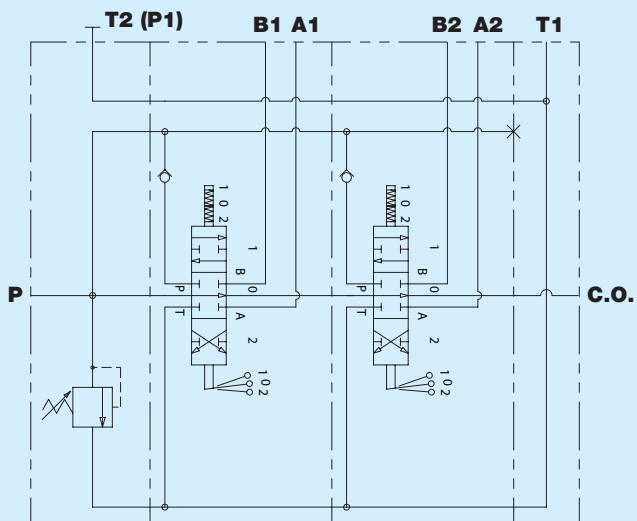
O Simple effect microswitch port B



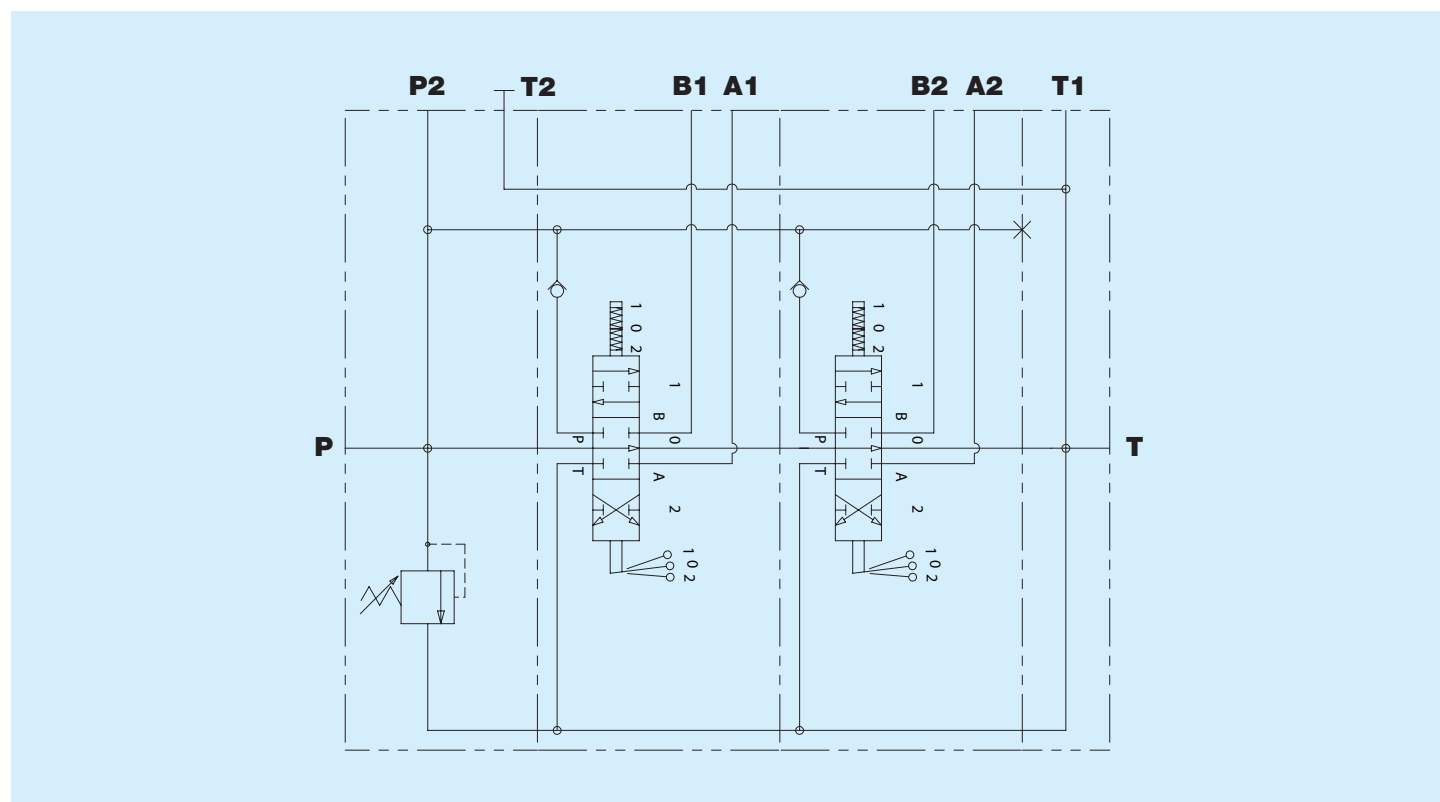
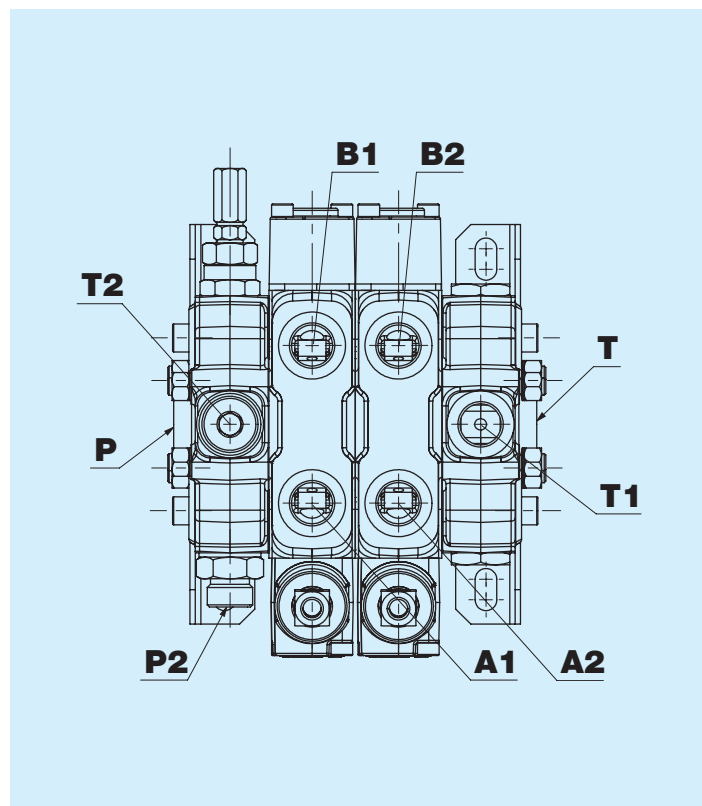
A With carry-over port T1 (standard)



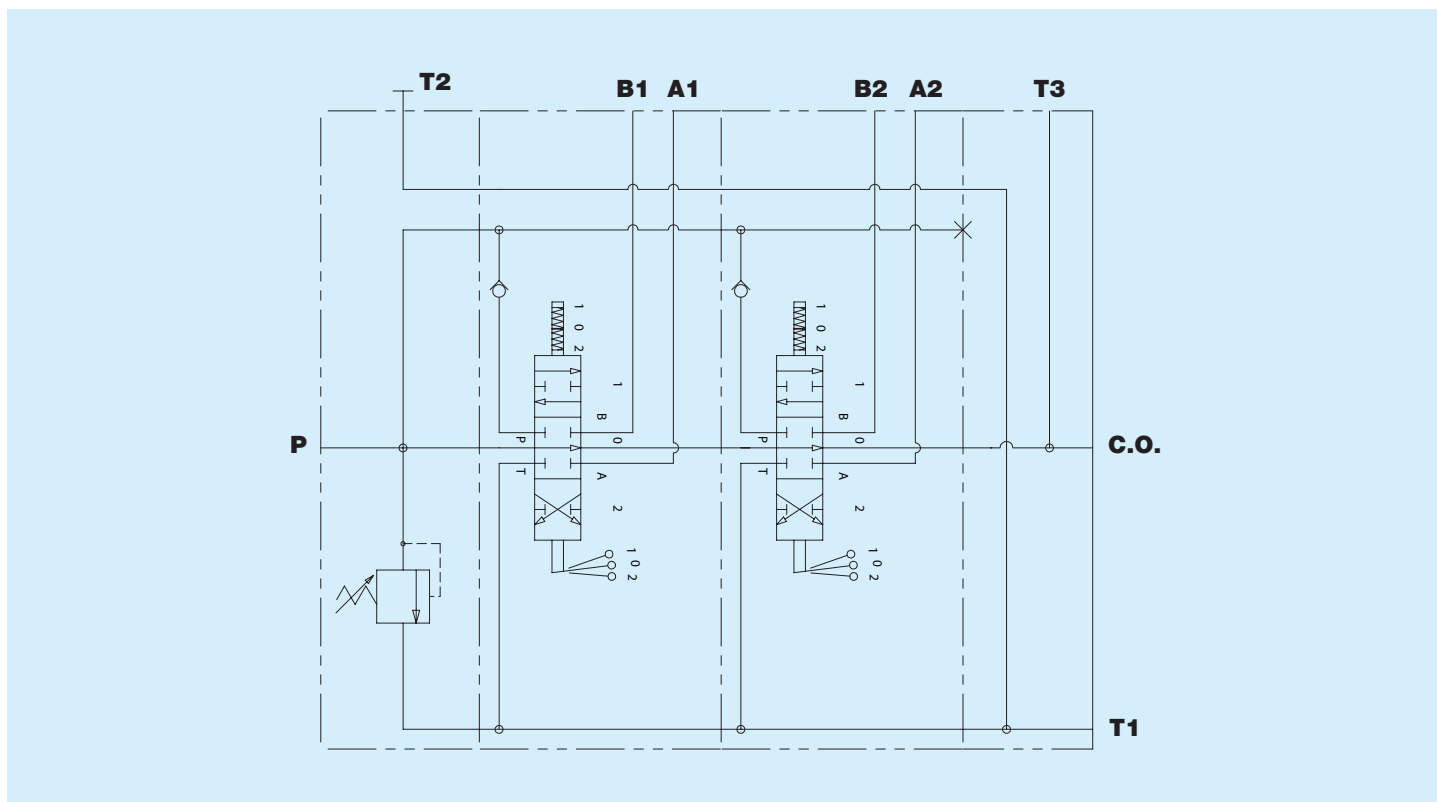
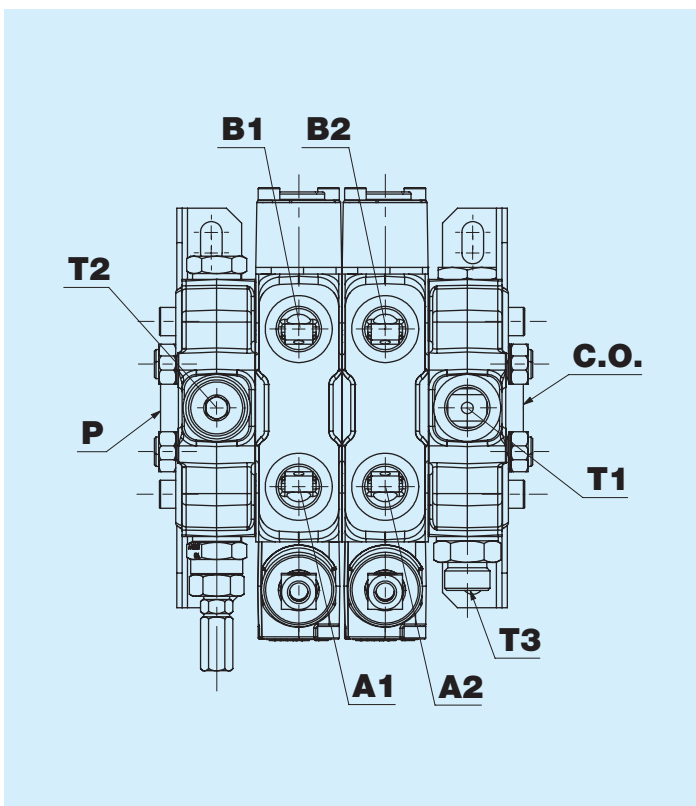
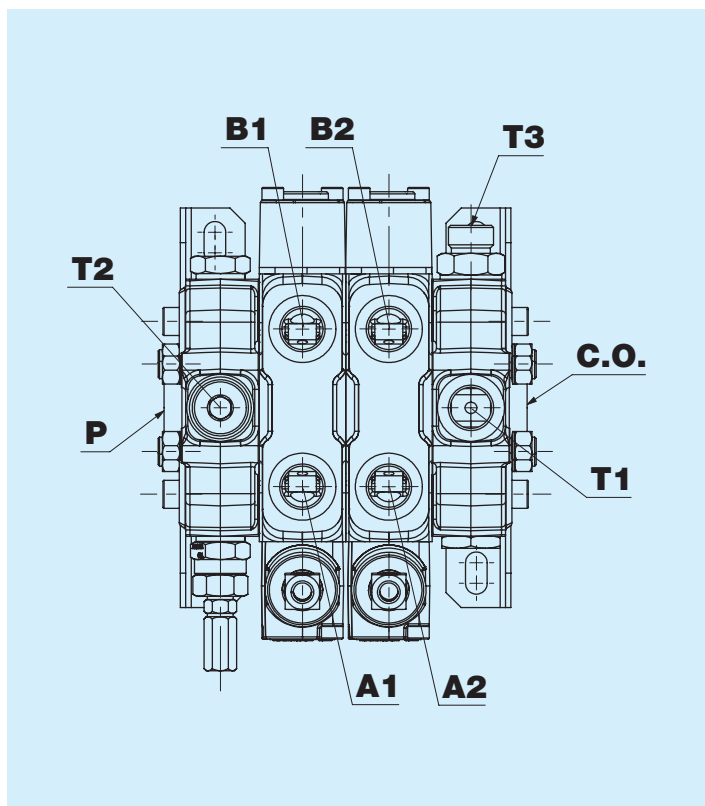
All the DNC65 directional control valves are set up for carry-over

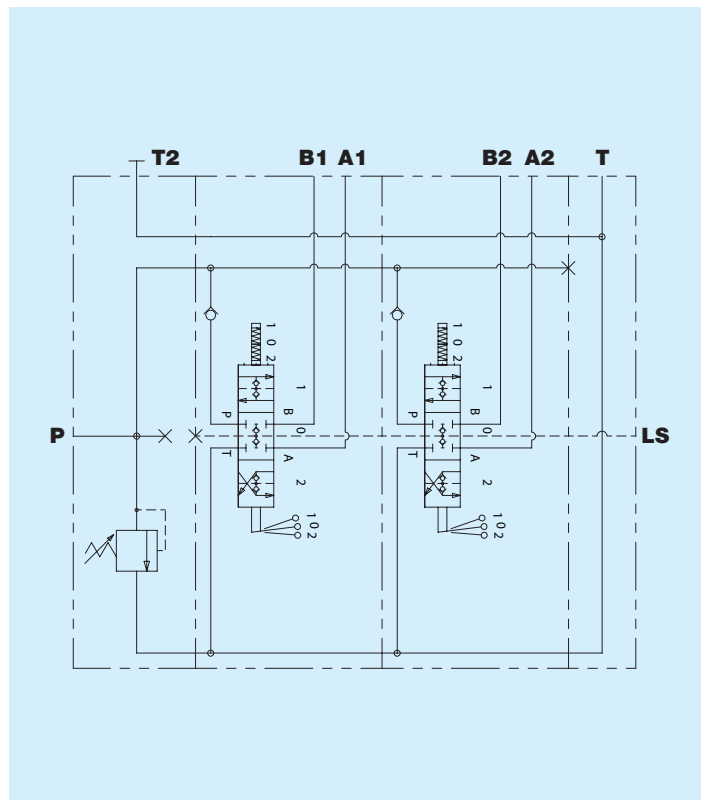


Technical drawing of a 4-way valve. The drawing shows a symmetrical design with two main vertical sections. The left section has a top port labeled **P2**, a middle port labeled **T2**, and a bottom port labeled **P**. The right section has a top port labeled **T**, a middle port labeled **T1**, and a bottom port labeled **A2**. The central section has two ports labeled **B1** and **B2** at the top, and two ports labeled **A1** and **A2** at the bottom. The drawing is a line drawing with no shading.



T lateral





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	1	2	3	4	5	6	7	8	9	10	11	Repeat for each section of the valve			
												12	13	14	15
DNC65															
1	Number of sections														
	1 1 Section			4 4 Sections			7 7 Sections				A 10 Sections				
	2 2 Sections			5 5 Sections			8 8 Sections								
	3 3 Sections			6 6 Sections			9 9 Sections								
2	General options														
	N None			Z Zinc plating			B Black painted and power supply								
	V Black paint			A Power unit			E Zinc plating and power supply								
3	Inlet cover type														
	S Standard			V TERV - Vertical flow rate control cover											
4	Type of inlet														
	S Left (standard)			D Right											
5	Thread port P														
	B 1/2" GAS ISO 1179			N M22x1.5 ISO 9974			J M22x1.5 ISO 6149				R 7/8" - 14 SAE ISO 11926				
6	Thread port T2														
	O Not processed			N M22x1.5 ISO 9974			R 7/8" - 14 SAE ISO 11926								
	B 1/2" GAS ISO 1179			J M22x1.5 ISO 6149											
7	Options on port P - T2														
	A P open - T2 plugged (standard)			C P open - T2 open			E P plugged - T2 used as P1								
	B P plugged - T2 open			D P open - T2 used as P1			G P lateral (TERV vertical)								
8 9	Maximum pressure relief valve type														
	00 VMP replacement plug			14 140 bar			19 190 bar				24 240 bar				
	10 100 bar			15 150 bar			20 200 bar				25 250 bar				
	11 110 bar			16 160 bar			21 210 bar								
	12 120 bar			17 170 bar			22 220 bar								
	13 130 bar			18 180 bar			23 230 bar								
10	Sealing type maximum pressure relief valve														
	G Grub screw			P Sealed			N None								
	C Cap			R Sealing provided											
11	Thread ports A - B														
	B 1/2" GAS ISO 1179			N M22x1.5 ISO 9974			J M22x1.5 ISO 6149				R 7/8" - 14 SAE ISO 11926				
12	Element type														
	A Parallel (standard)			D Priority			E Recovery								

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

13

14 15

16

17 18

19 20

21 22

23

24

25

Actuators

N	None	Z	Lever holder with stroke limiter	P	Pneumatic control	I	Simple effect electro-pneumatic control port A
L	Standard kit for lever holder	T	Cable setting	H	Dual effect electro-hydraulic control	W	Simple effect electro-pneumatic control port B
A	Without lever holder, standard appendix	M	Joystick	S	Simple effect electro-hydraulic control port A		
B	Without lever holder, without appendix	G	Joystick with spool lock	X	Simple effect electro-hydraulic control port B		
C	Without lever holder, flat appendix	K	Hydraulic control	U	Dual effect electro-pneumatic control		

Spool types

01	Spool type	04	Spool type	07	Spool type	10	Spool type
03	Spool type	05	Spool type	08	Spool type	70	Spool type

Spool options

A	Standard spool 45-70 l/min	C	Nickel-plated spool 45-70 l/min	N	None
B	Standard spool 20-45 l/min	D	Nickel-plated spool 20-45 l/min		

Spool control

NN	None	0C	Neutral position in 0, detent in 2	NS	Neutral position in 0, detent in 3	KD	For kick-off
0A	Neutral position in 0	0D	Detent in 0, 1, 2	0R	Neutral position in 2	...	
0B	Neutral position in 0, detent in 1	NT	Neutral position in 0, detent in 4	0S	Neutral position in 1	...	For selection, see the relevant chapter

Valve type port A

00	None	10	VL 100 bar	16	VL 160 bar	22	VL 220 bar
TP	Processed and plugged	11	VL 110 bar	17	VL 170 bar	23	VL 230 bar
06	VL 60 bar	12	VL 120 bar	18	VL 180 bar	24	VL 240 bar
07	VL 70 bar	13	VL 130 bar	19	VL 190 bar	25	VL 250 bar
08	VL 80 bar	14	VL 140 bar	20	VL 200 bar		
09	VL 90 bar	15	VL 150 bar	21	VL 210 bar		

Valve type port B

00	None	10	VL 100 bar	16	VL 160 bar	22	VL 220 bar
TP	Processed and plugged	11	VL 110 bar	17	VL 170 bar	23	VL 230 bar
06	VL 60 bar	12	VL 120 bar	18	VL 180 bar	24	VL 240 bar
07	VL 70 bar	13	VL 130 bar	19	VL 190 bar	25	VL 250 bar
08	VL 80 bar	14	VL 140 bar	20	VL 200 bar		
09	VL 90 bar	15	VL 150 bar	21	VL 210 bar		

Lever options

N	None	C	h 184 mm / 7.24 in	L	Straight vertical	Y	Bent 15° horizontal
S	Without lever	D	h 214 mm / 8.42 in	O	Bent 15° vertical	Q	Bent 30° horizontal
A	h 109 mm / 4.3 in	E	h 254 mm / 10 in	R	Bent 30° vertical		
B	h 134 mm / 5.28 in	F	h 304 mm / 11.97 in	M	Straight horizontal		

Lever holder position

A	Straight	C	Rotated 180°	N	None
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Spool control options

N	None	M	Male dual control	Y	Dual effect microswitch	O	Simple effect microswitch port B
C	Stroke limiter	T	Cable fitting	P	Simple effect microswitch port A		

26	Voltage and connector	N None	A 12V DIN 43650	B 24V DIN 43650	
27	Thread port T	B 1/2" GAS ISO 1179	N M22x1.5 ISO 9974	J M22x1.5 ISO 6149	R 7/8" - 14 SAE ISO 11926
28	Thread port T1	B 1/2" GAS ISO 1179	N M22x1.5 ISO 9974	J M22x1.5 ISO 6149	R 7/8" - 14 SAE ISO 11926
29	Options on port T - T1	A T open - T1 open (standard)	B T open - T1 plugged	C T plugged - T1 open	
30	Discharge options	A Carry-over option (standard)	B With carry-over port T1	C Carry-over not available	