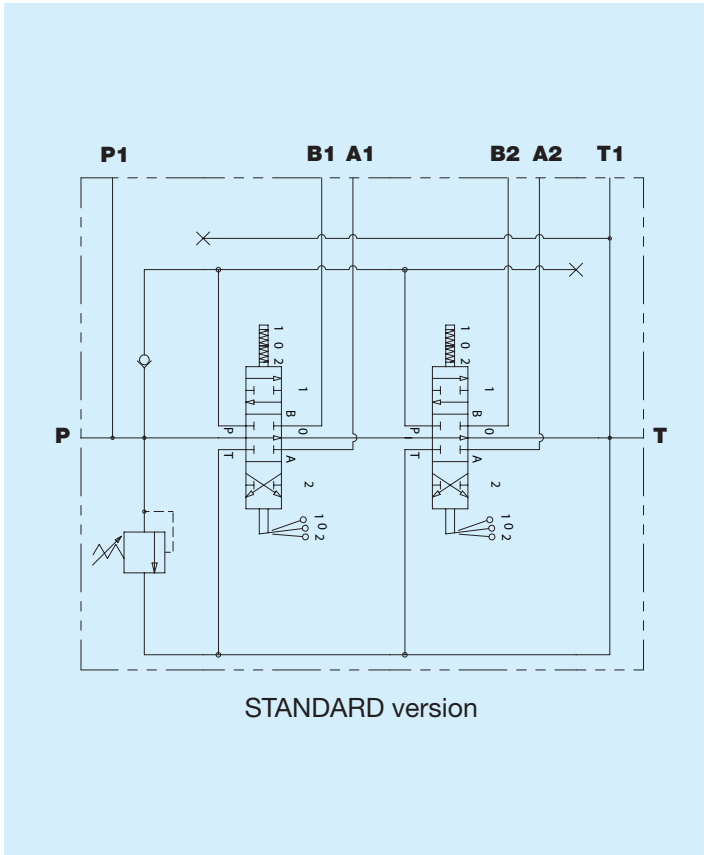


DN85 - Directional control valve

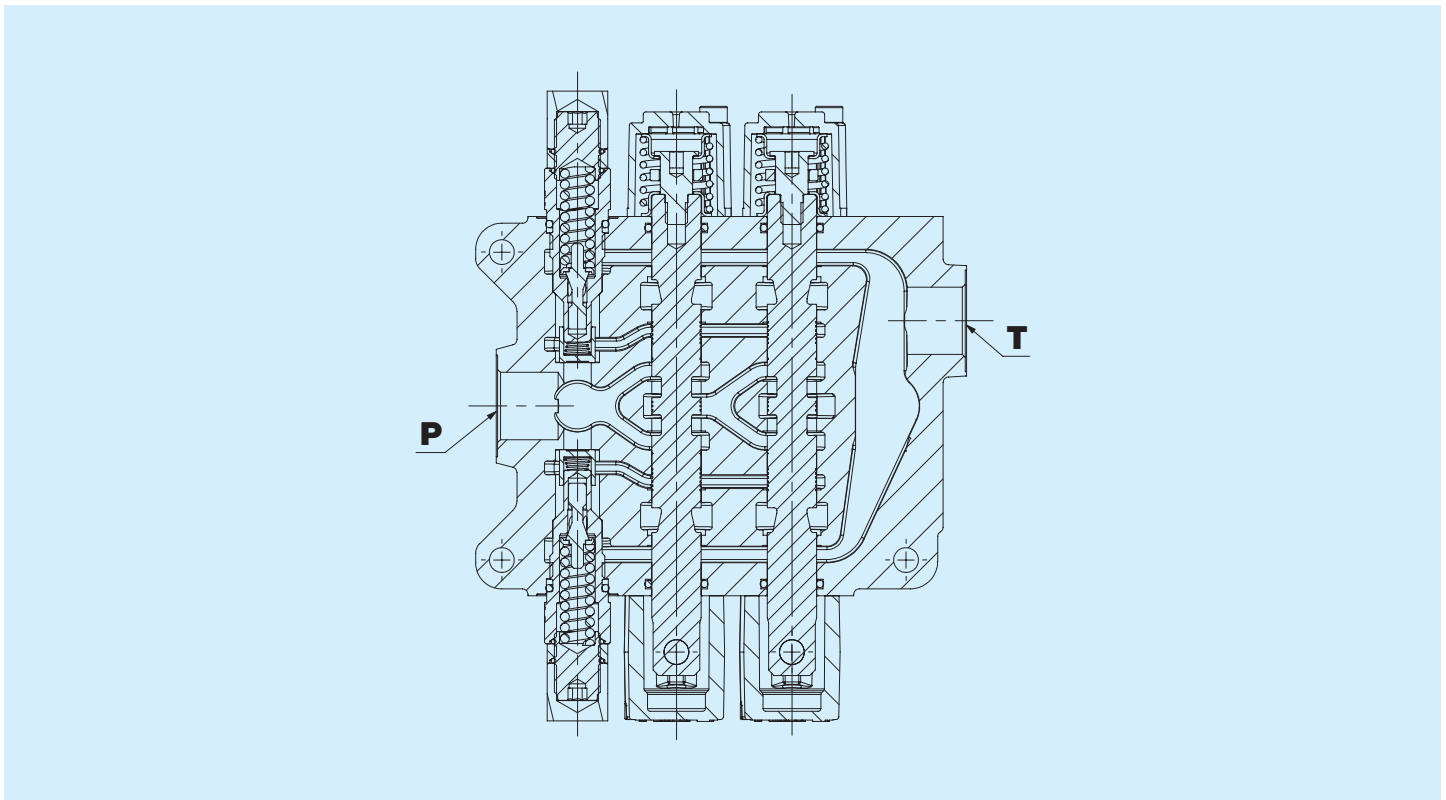


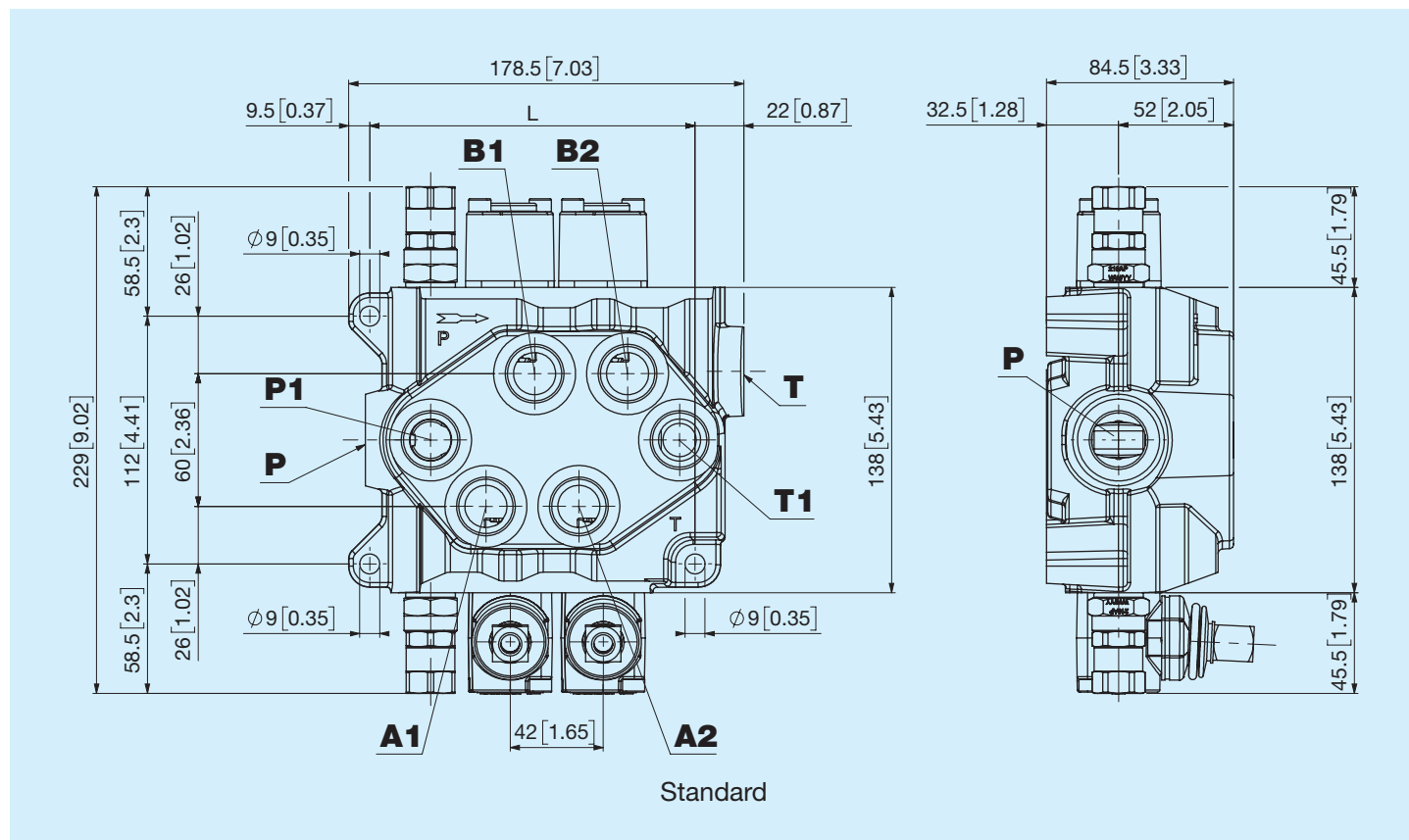
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF DIRECTIONAL CONTROL VALVES

Nominal flow	90 l/min 23.8 US gpm
Nominal pressure	250 bar 3625 psi
Maximum tank pressure	50 bar 725 psi
Maximum internal leakage (A or B -> P and T) p=100 bar (1450 psi)	8 cm³/min 0.49 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



Section

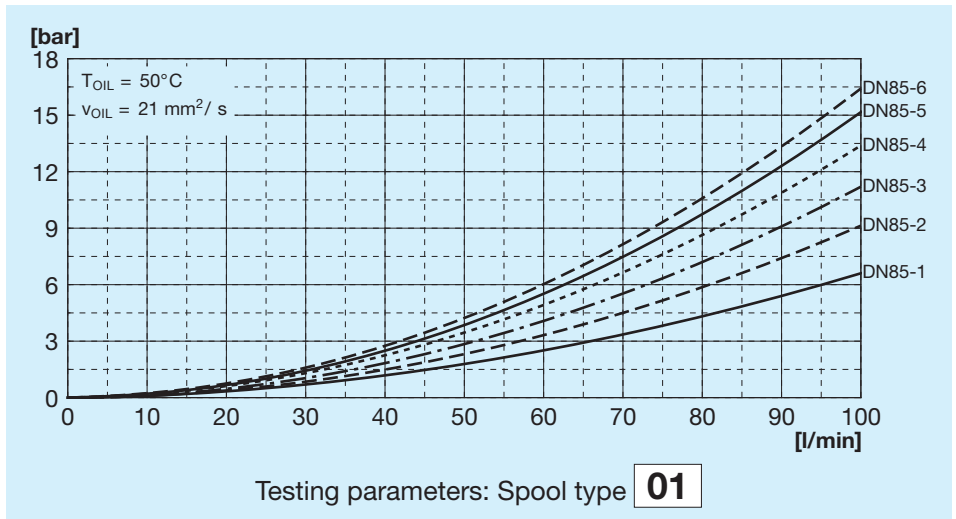
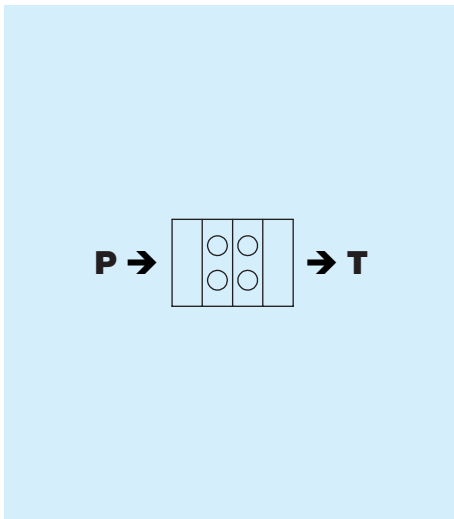




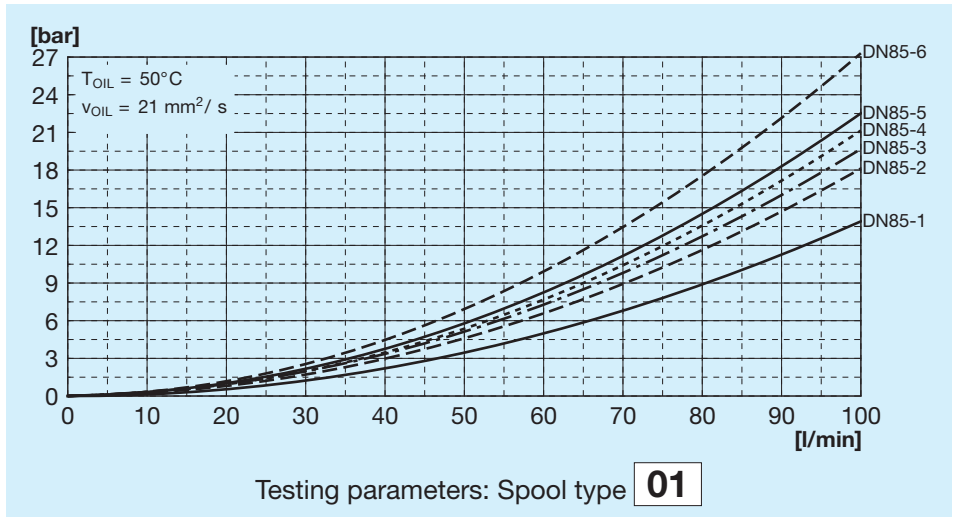
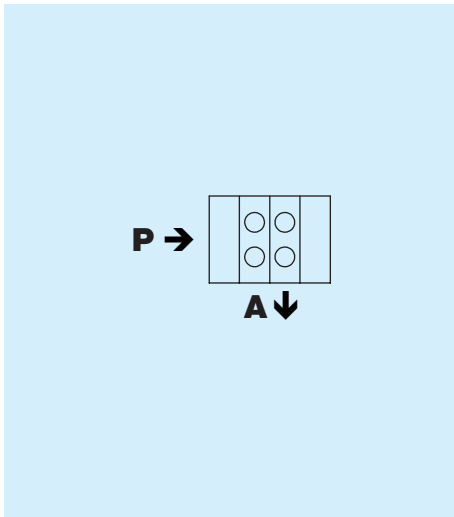
Dimensions per number of sections

Code	N° of sections	L		Weight	
		mm	in	kg	lb
1	1	105	4,1	7,5	16,5
2	2	147	5,8	10,5	23,1
3	3	189	7,4	13,5	29,7
4	4	231	9,1	16,5	36,3
5	5	273	10,7	19,5	42,9
6	6	315	12,4	22,5	49,5

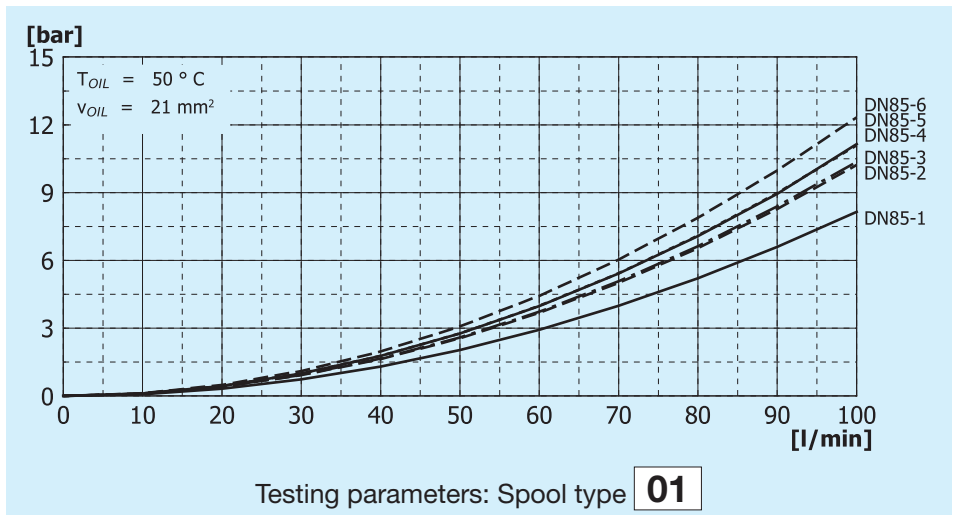
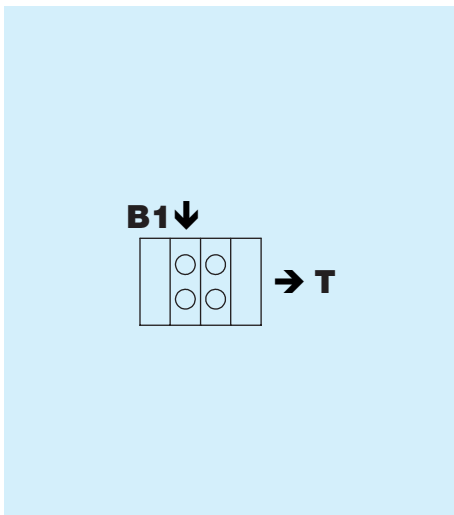
Flow curve P-T



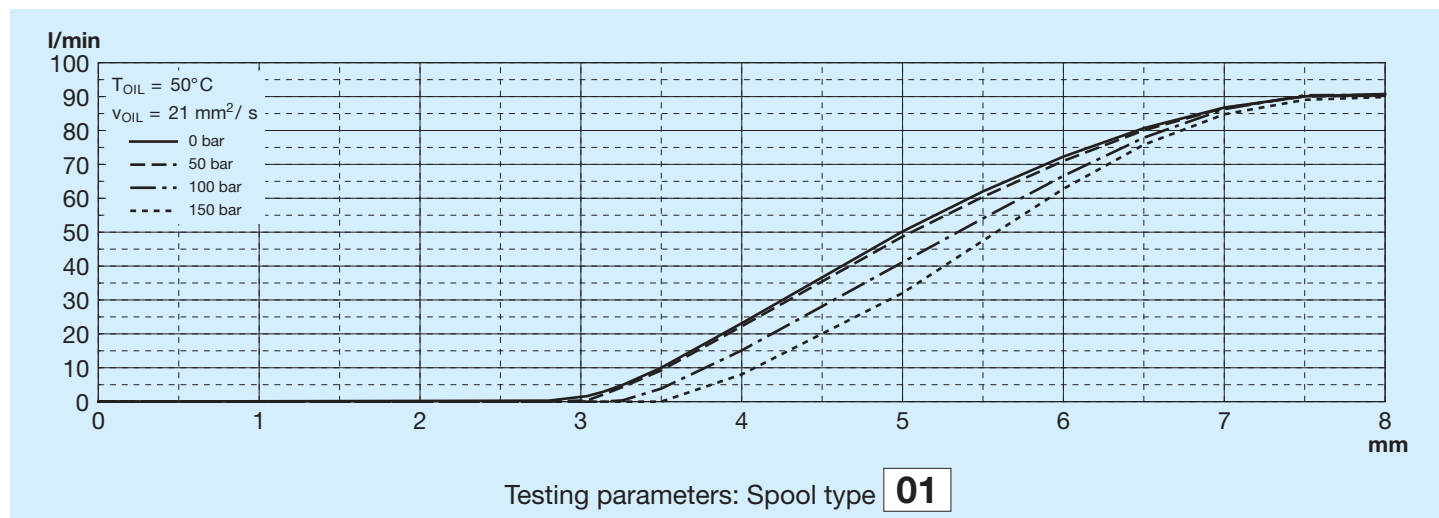
Flow curve P-A



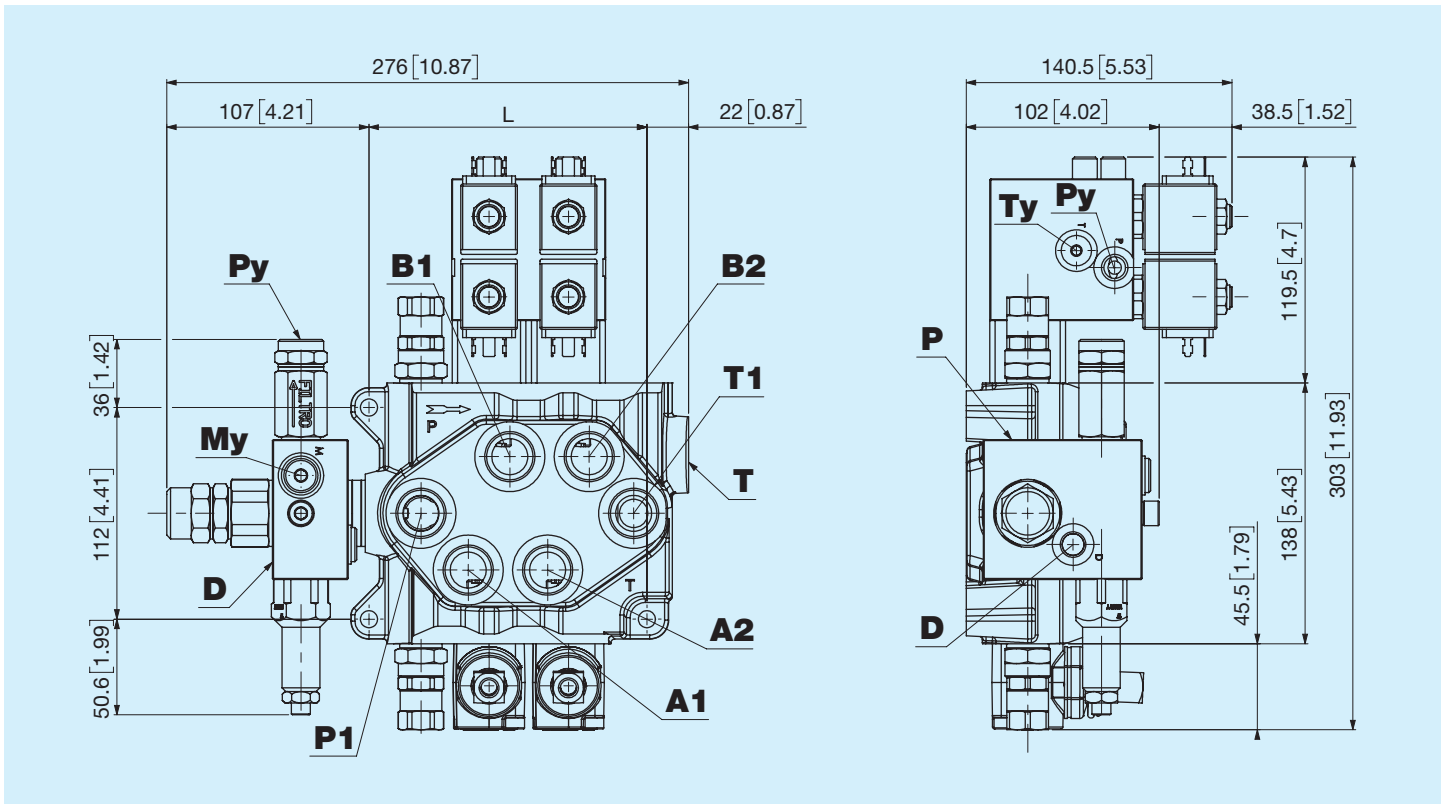
Flow curve B1-T



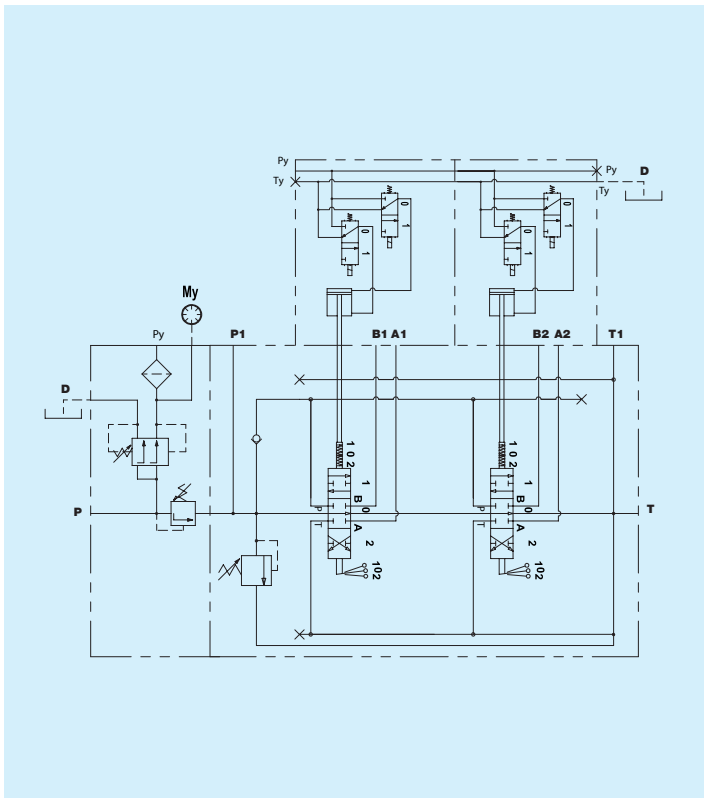
Metering



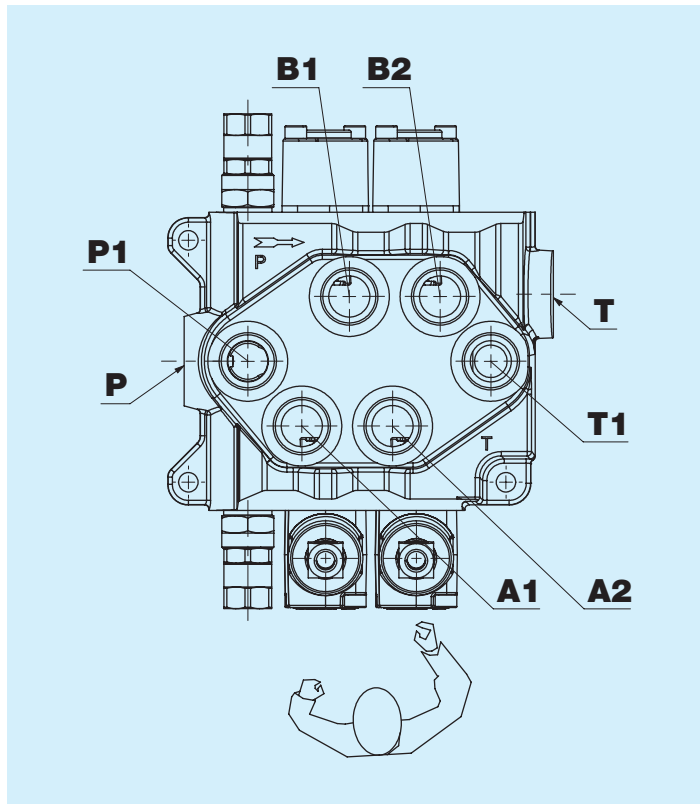
A Power unit



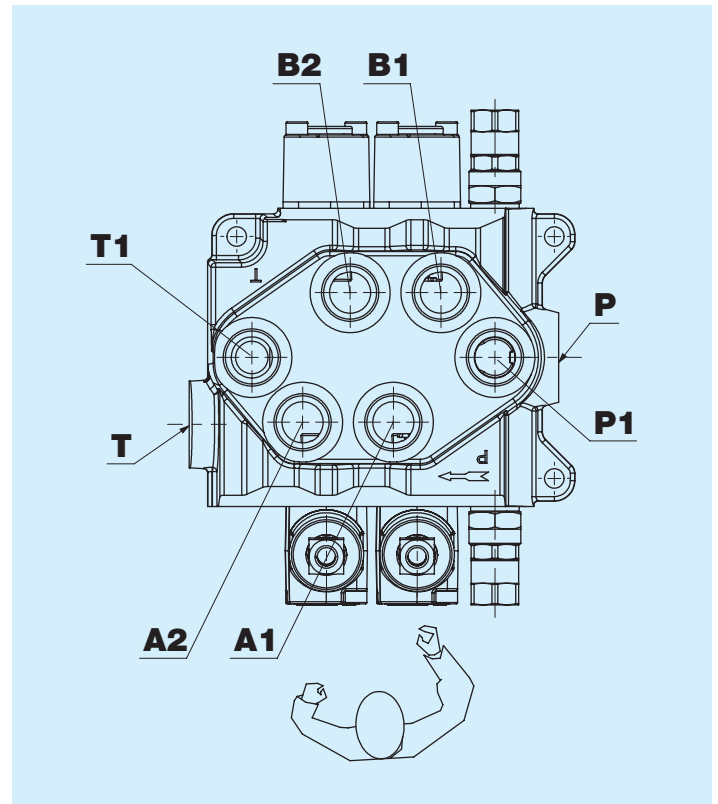
This option is mostly used when you want electro-hydraulic or just hydraulic actuation of the directional control valve. With this option, the electro-hydraulic kit will not be supplied with connecting pipes.



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
F	3/4" GAS ISO 1179	140
N	M22x1.5 ISO 9974	78
J	M22x1.5 ISO 6149	78
R	7/8" - 14 SAE ISO 11926	77
V	1" 1/16 - 12 SAE ISO 11926	125

Thread port P1

Code	Type	Torque Nm
O	Not processed	
L	1/4" GAS ISO 1179	28
B	1/2" GAS ISO 1179	65
F	3/4" GAS ISO 1179	140
N	M22x1.5 ISO 9974	78
J	M22x1.5 ISO 6149	78
R	7/8" - 14 SAE ISO 11926	77
V	1" 1/16 - 12 SAE ISO 11926	125

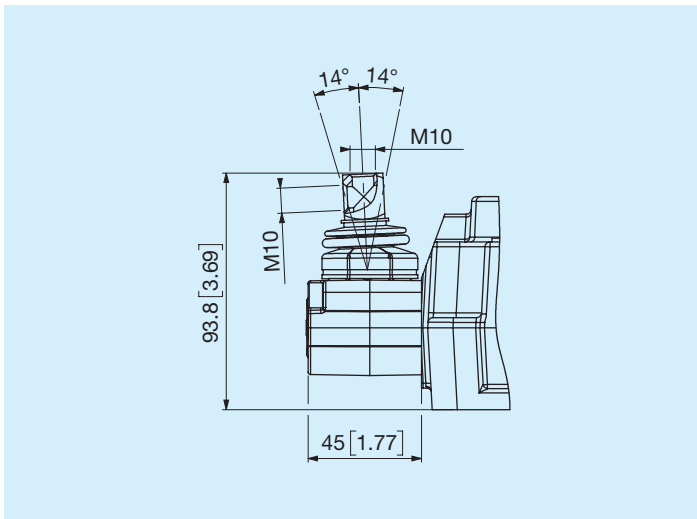
Thread ports A - B

Code	Type	Torque Nm
B	1/2" GAS ISO 1179	65
F	3/4" GAS ISO 1179	140
N	M22x1.5 ISO 9974	78
J	M22x1.5 ISO 6149	78
R	7/8" - 14 SAE ISO 11926	77

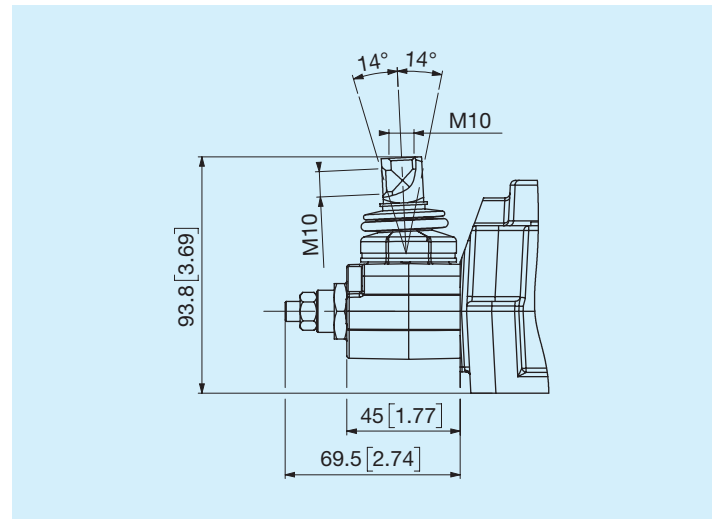
Thread ports T - T1

Code	Type	Torque Nm
B	1/2" GAS ISO 1179	65
F	3/4" GAS ISO 1179	140
N	M22x1.5 ISO 9974	78
J	M22x1.5 ISO 6149	78
R	7/8" - 14 SAE ISO 11926	77
V	1" 1/16 - 12 SAE ISO 11926	125

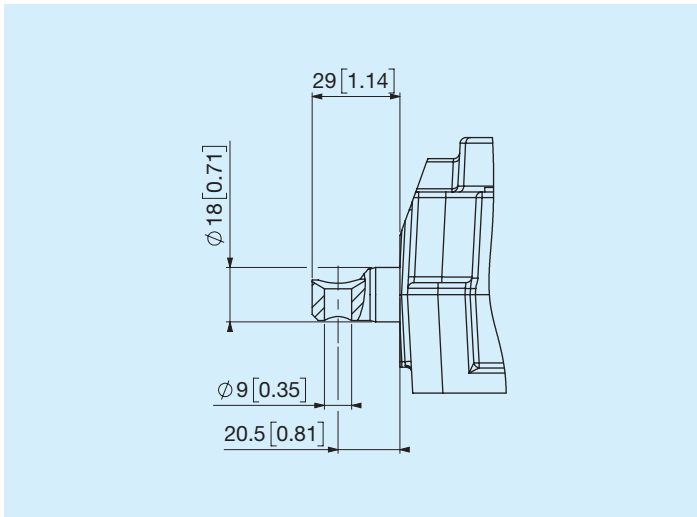
L Standard kit for lever holder



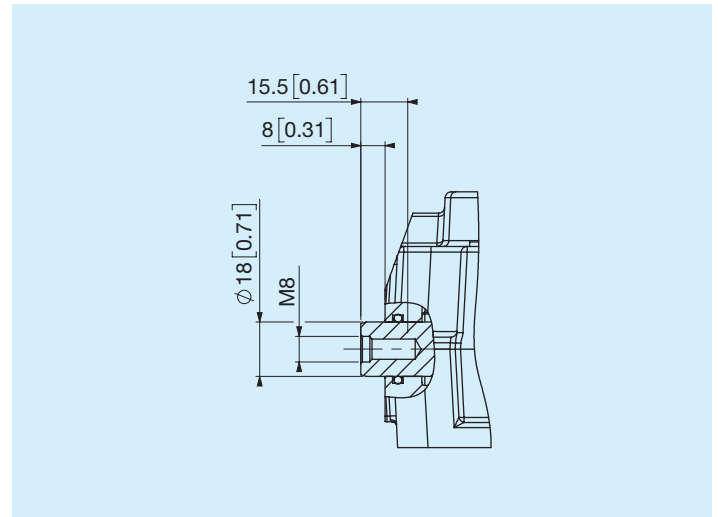
Z Lever holder with stroke limiter



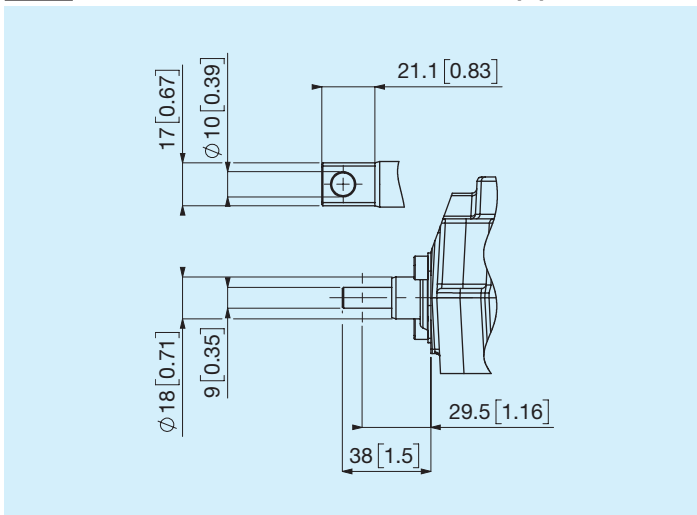
A Without lever holder, standard appendix



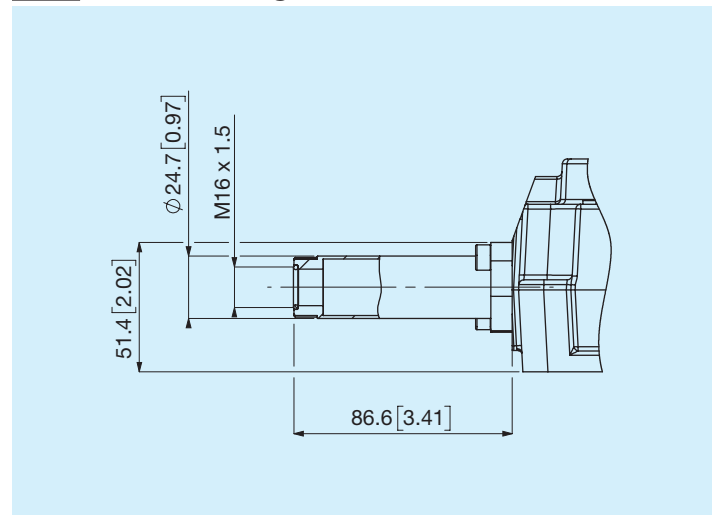
B Without lever holder, without appendix



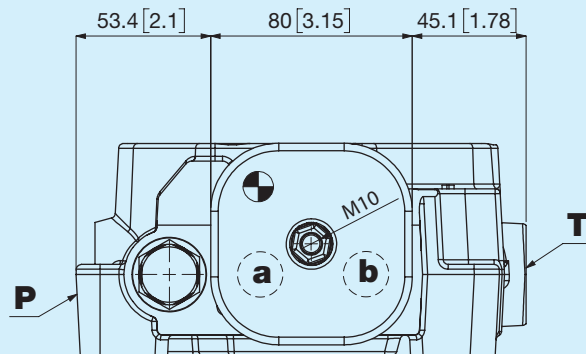
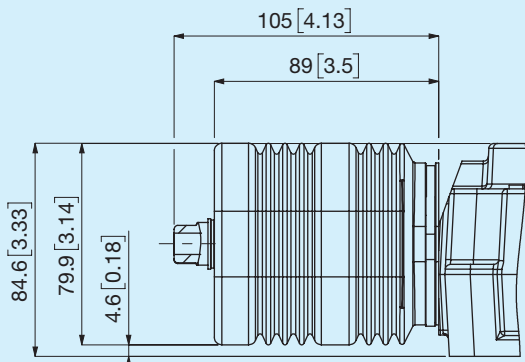
C Without lever holder, flat appendix



T Cable fitting on actuator side

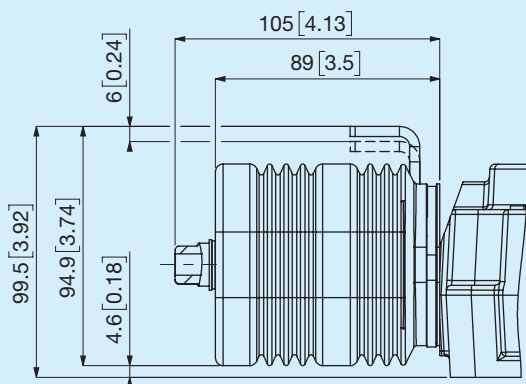


M Joystick

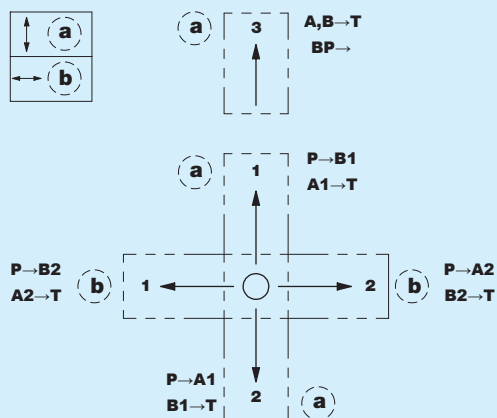


a=Spool 1st section b=Spool 2nd section

G Joystick with spool lock

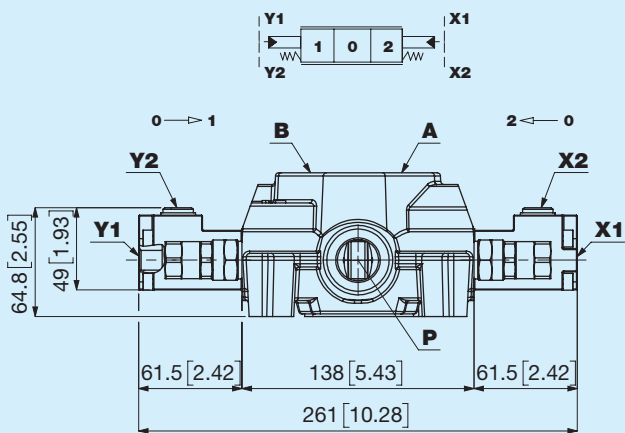


Joystick functions

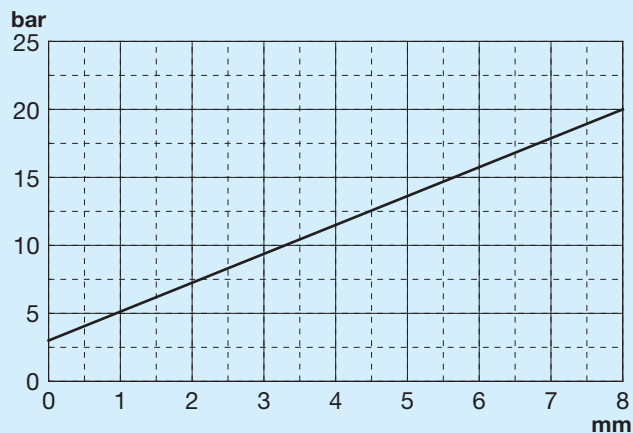


Also available in other configurations.

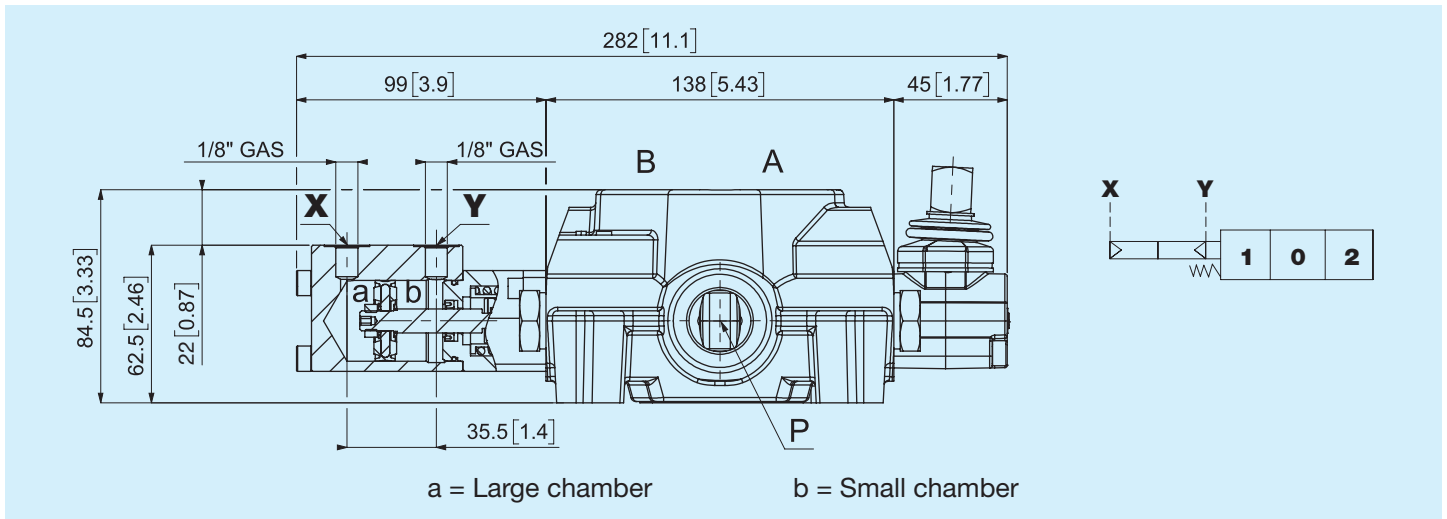
K Hydraulic control



Hydraulic control

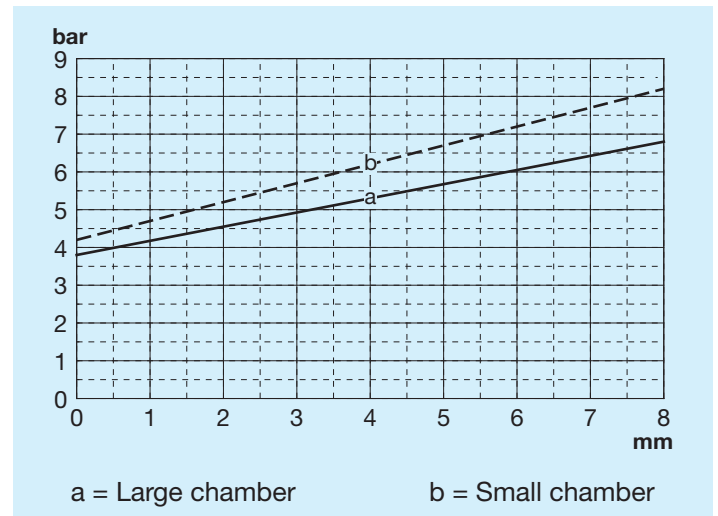


P Pneumatic

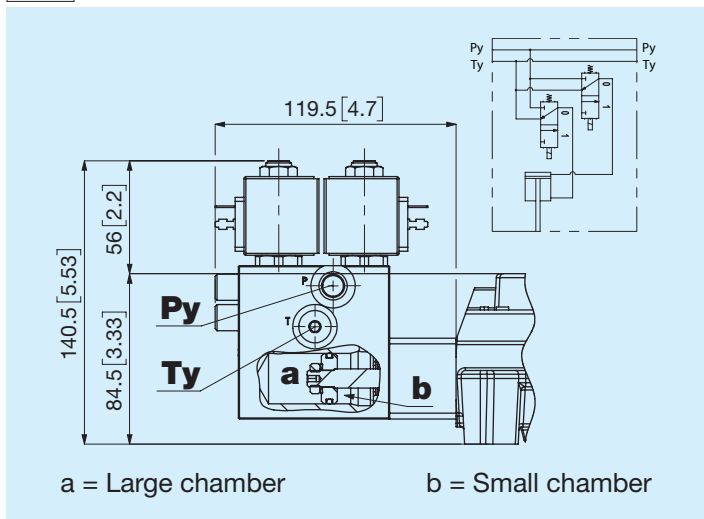


The pneumatic actuator is located on the side where the spool control is normally placed and is the main actuator. The directional control valve will also be supplied as standard with the lever holder on the opposite side.

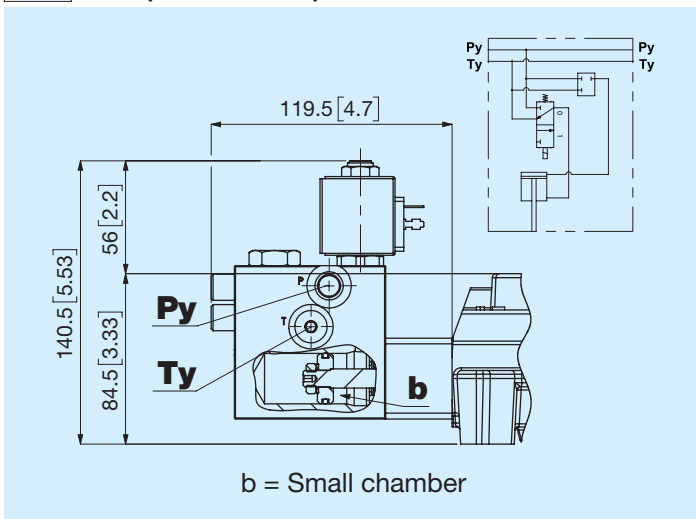
Pneumatic control



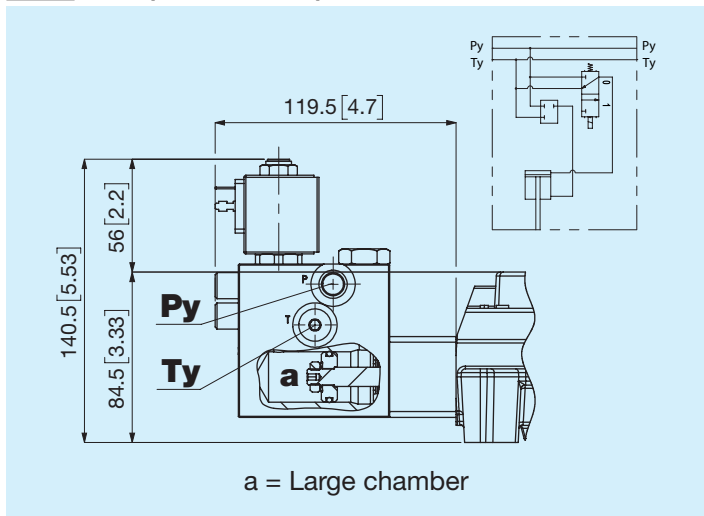
H Dual effect



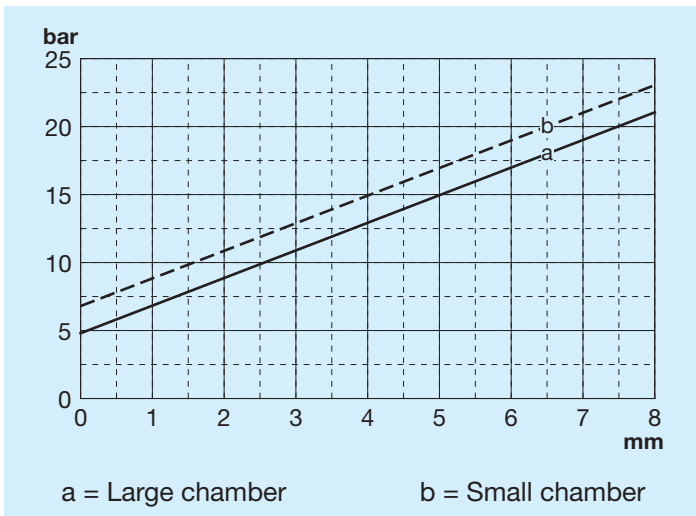
S Simple effect port A



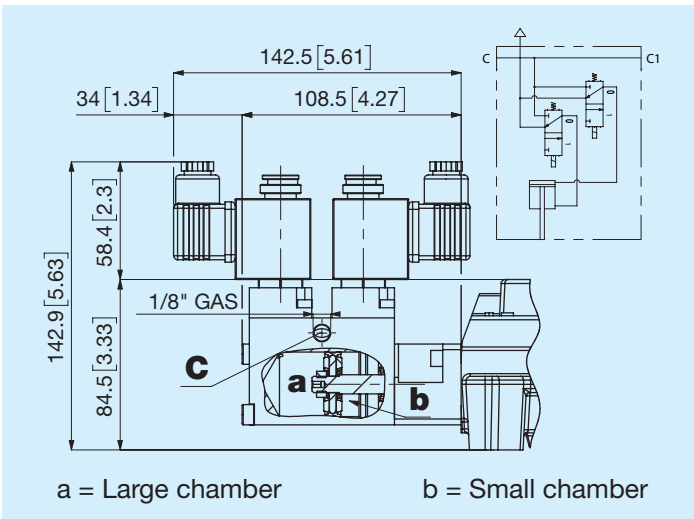
X Simple effect port B



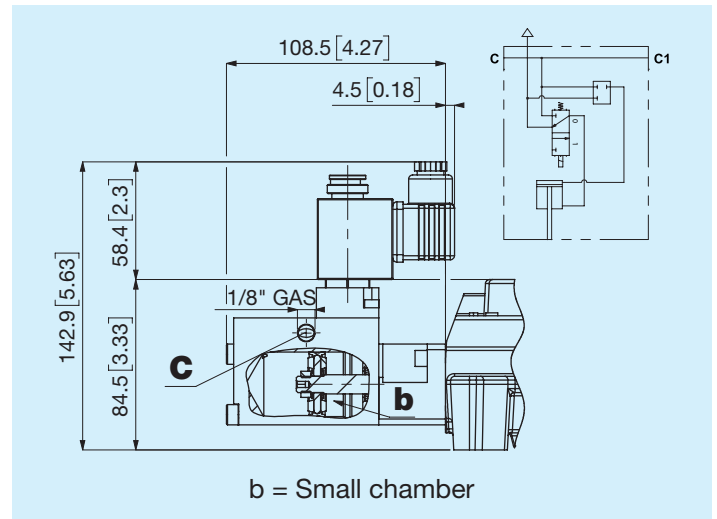
Electro-hydraulic control



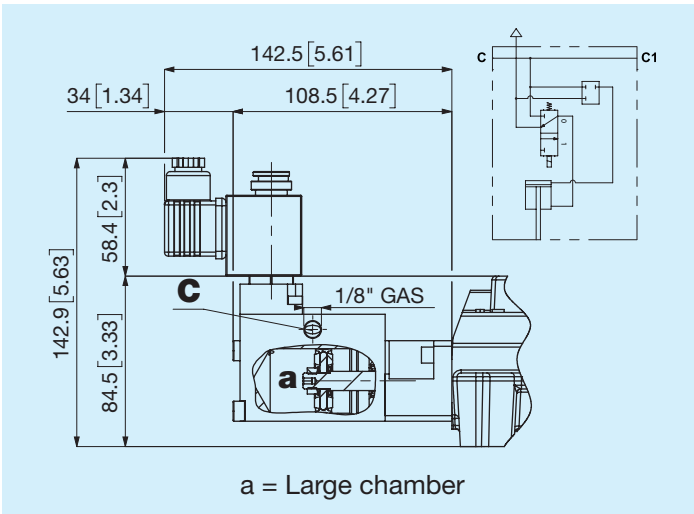
U Dual effect



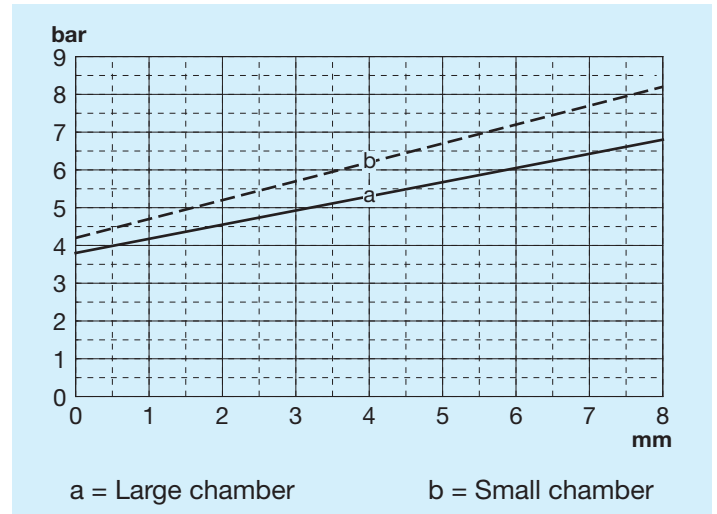
I Simple effect port A



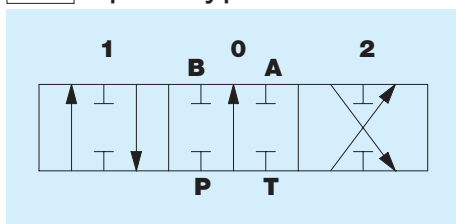
W Simple effect port B



Electro-pneumatic control



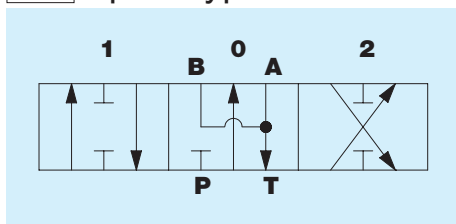
01 Spool type



Positions

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

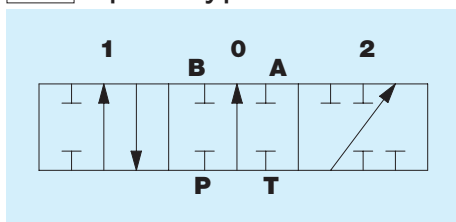
03 Spool type



Positions

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

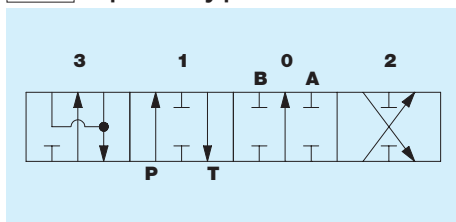
04 Spool type



Positions

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

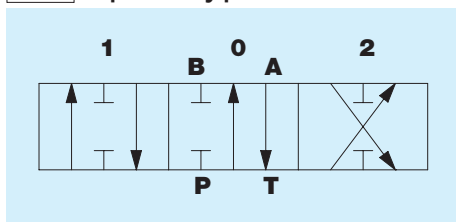
07 Spool type



Positions

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

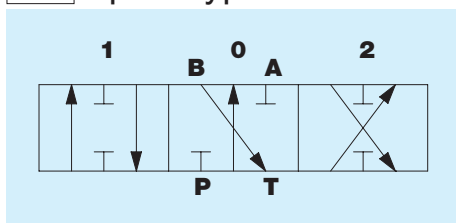
08 Spool type



Positions

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

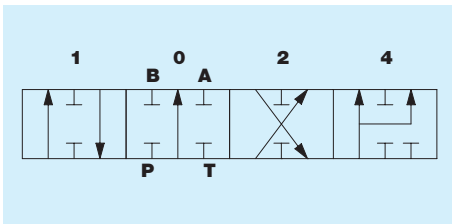
10 Spool type



Positions

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

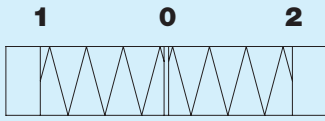
71 Spool type



Positions

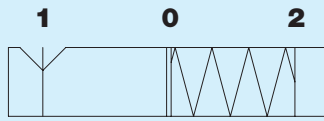
3	1	0	2	4
	P → B	P, T —	P → A	P → A, B
	A → T	A, B —	B → T	T —
	BP —	BP →	BP —	BP —

0A



Neutral position in 0

0B



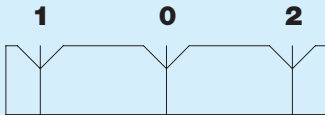
Neutral position in 0,
detent in 1

0C



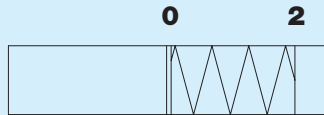
Neutral position in 0,
detent in 2

0D



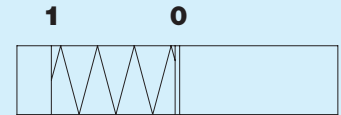
Detent in 0, 1, 2

0E



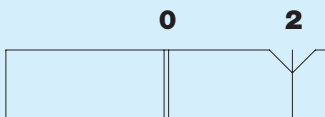
Neutral position in 0

0F



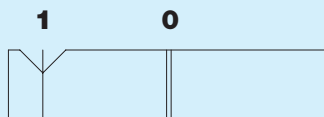
Neutral position in 0

0H



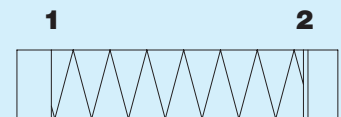
Detent in 2

0L



Detent in 1

0R



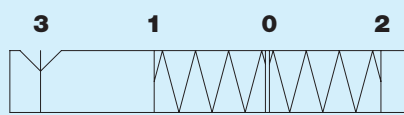
Neutral position in 2

0S



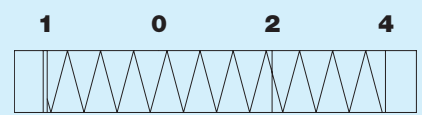
Neutral position in 1

NS



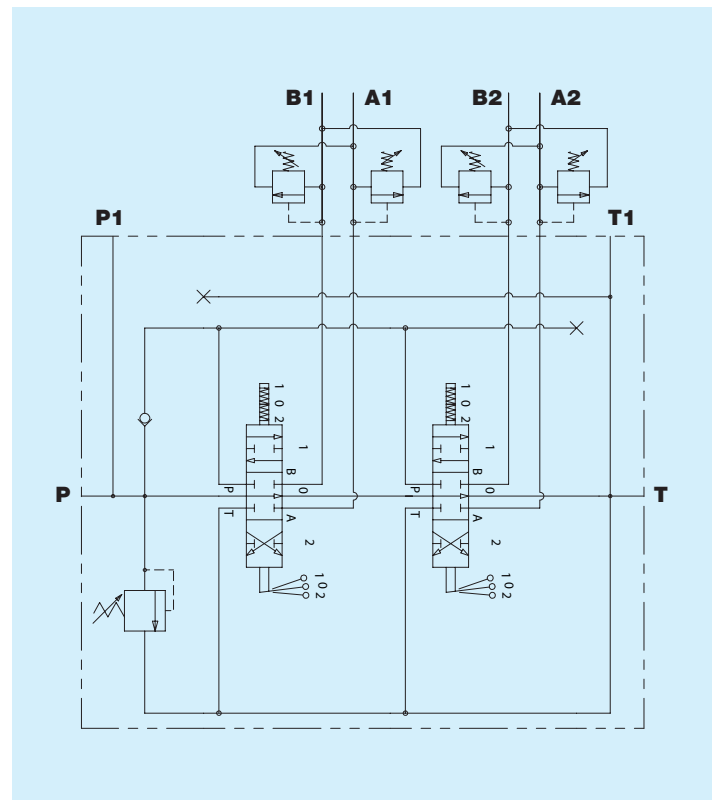
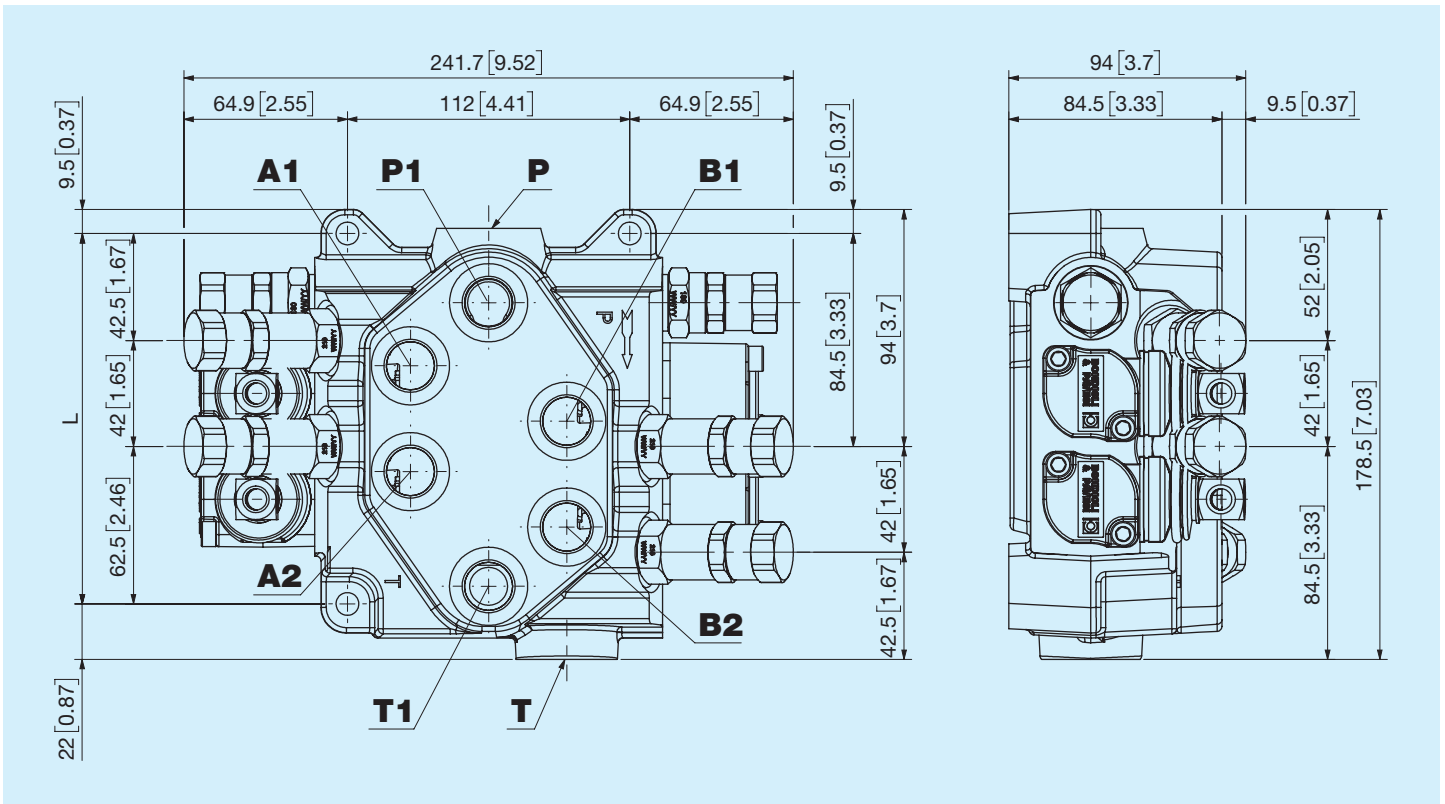
Neutral position in 0, detent in 3

TR

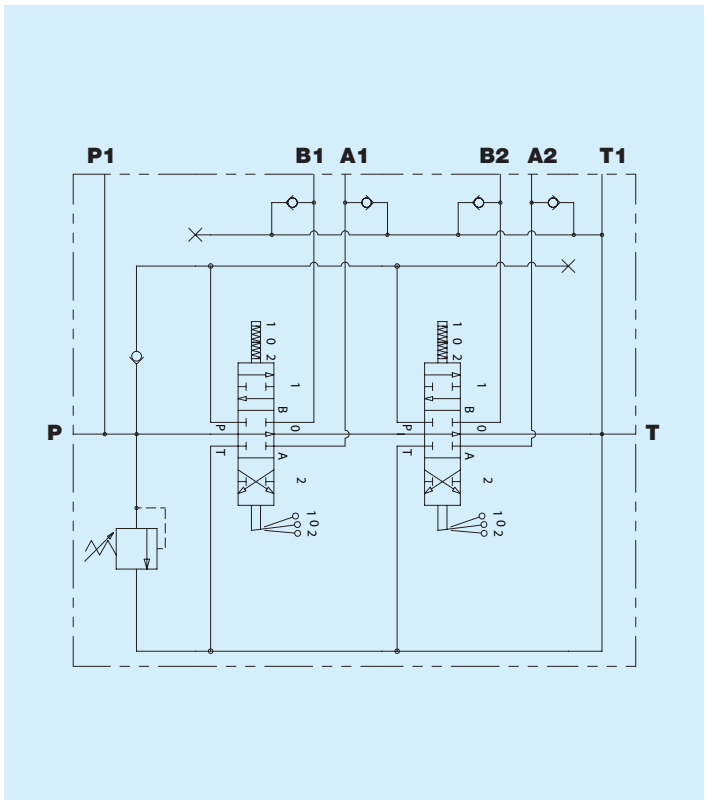
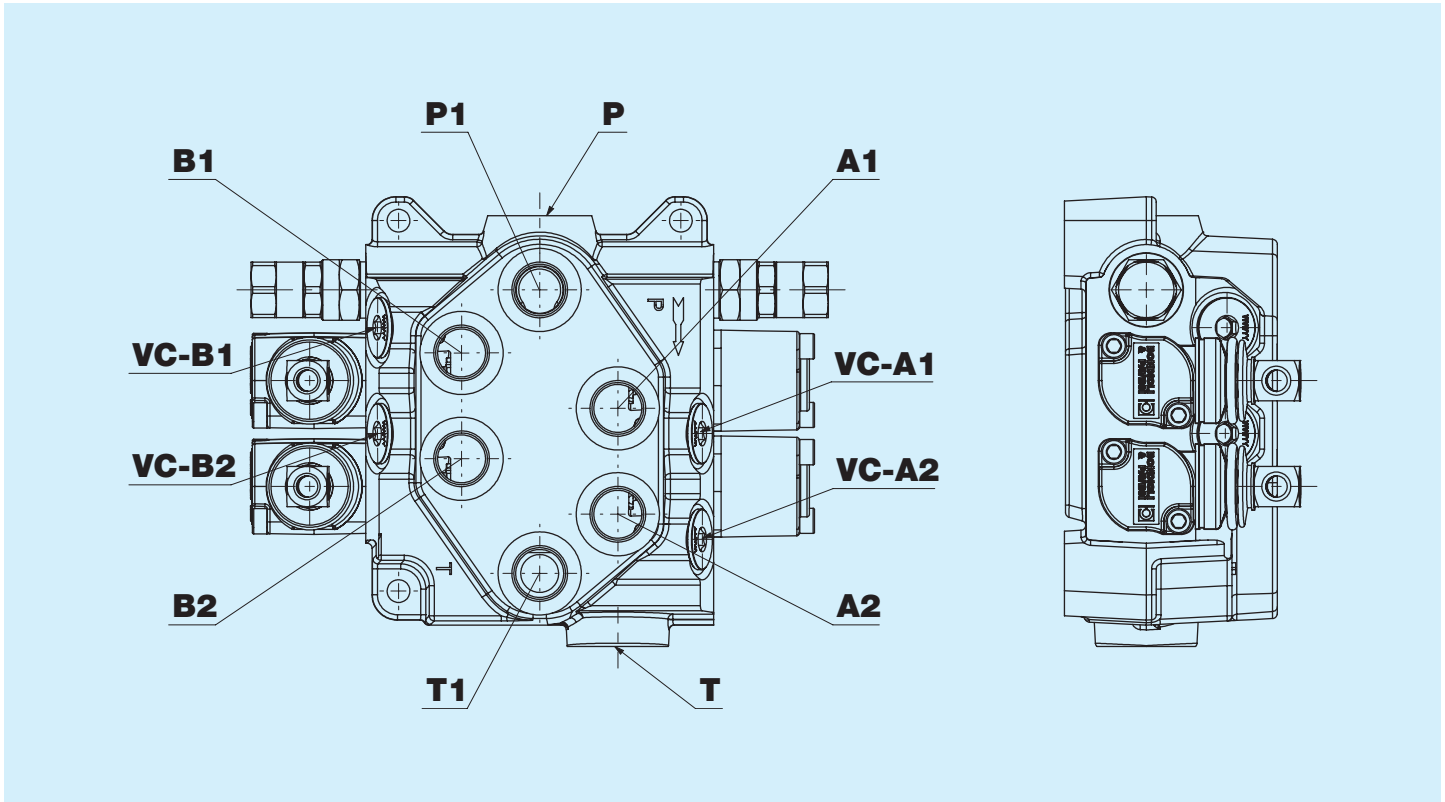


Neutral position in 1

VL Pressure limiter device valve port A and B

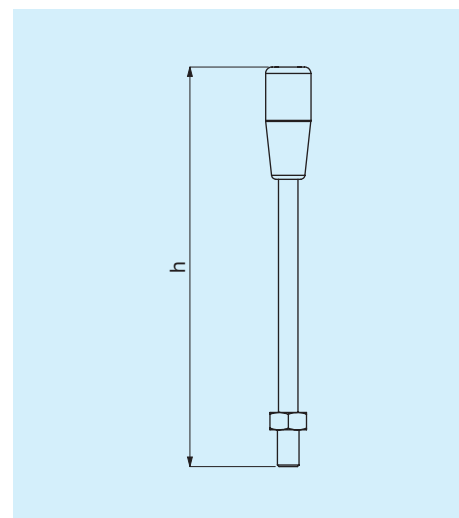


VC Anticavitation valve



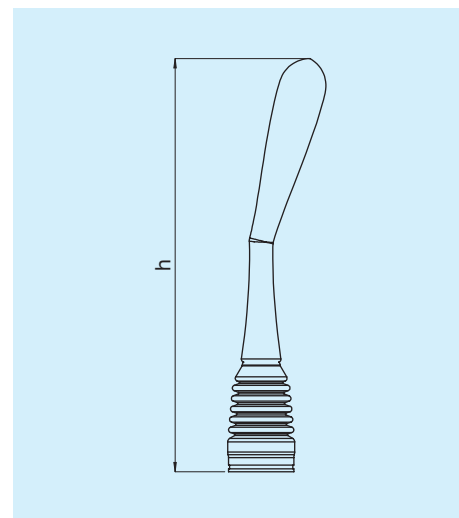
Straight standard knob

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

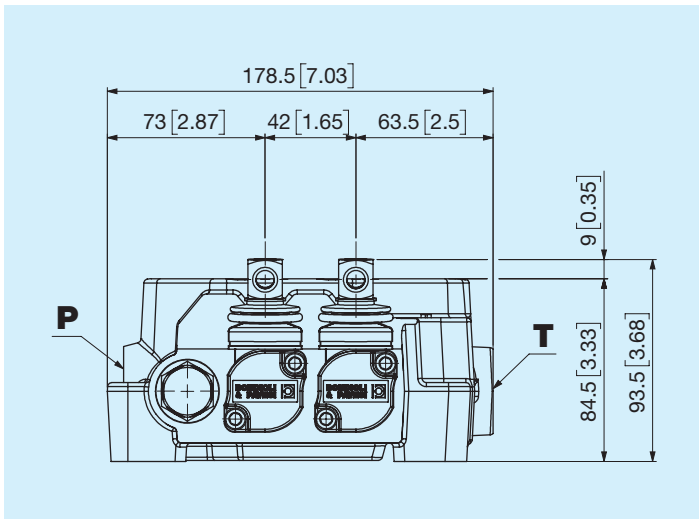


Ergonomic lever

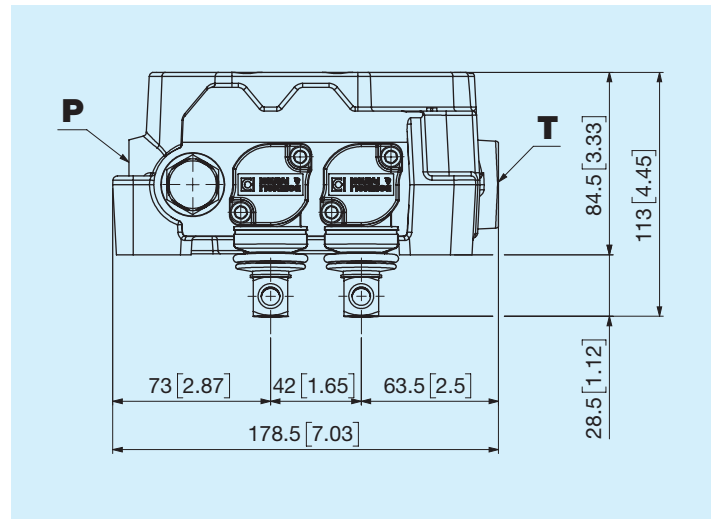
Code	Description	h [mm]	h [in]
L	Straight vertical	180	7.09
O	Bent 15° vertical	180	7.09
R	Bent 30° vertical	180	7.09
M	Straight horizontal	180	7.09
Y	Bent 15° horizontal	180	7.09
Q	Bent 30° horizontal	180	7.09



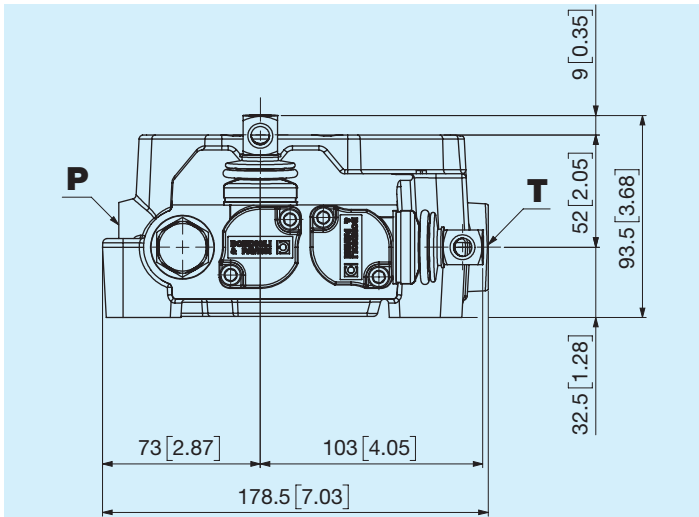
A Straight



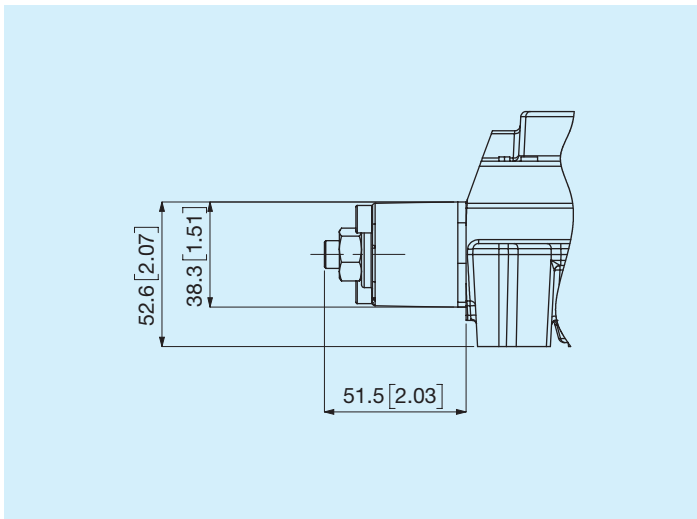
C Rotated 180°



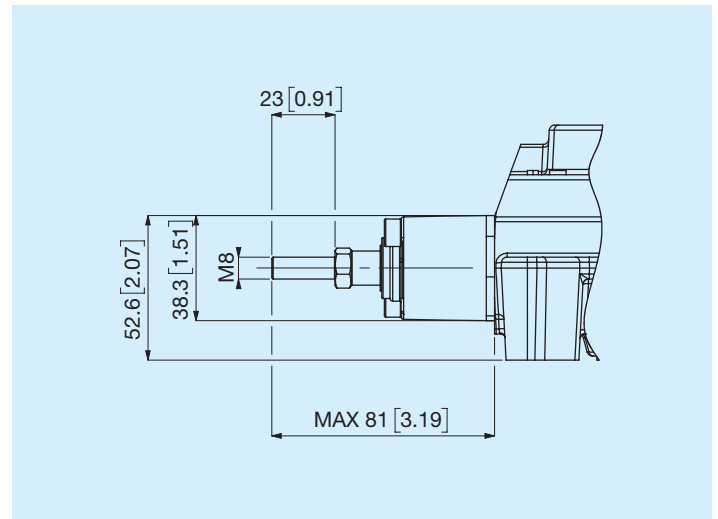
D Rotated 90° towards T



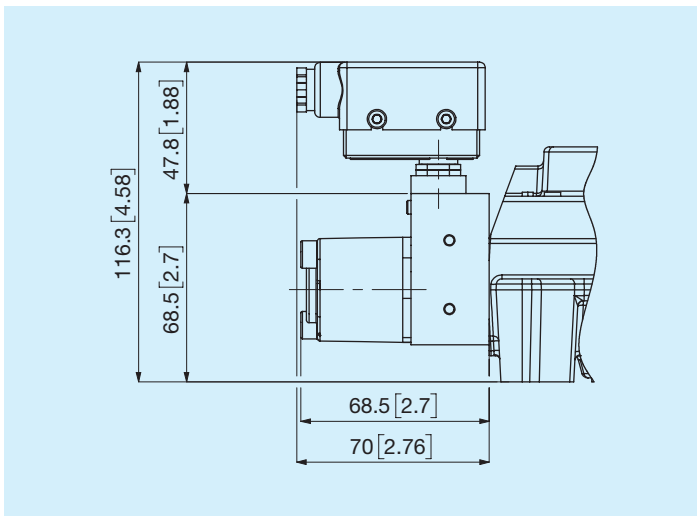
C Stroke limiter



M Male dual control



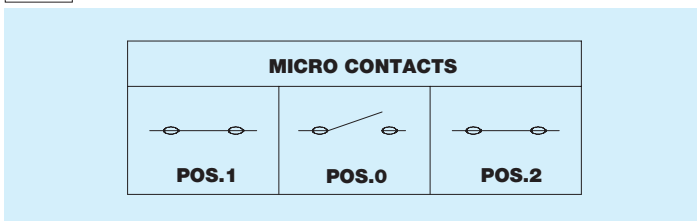
Microswitch



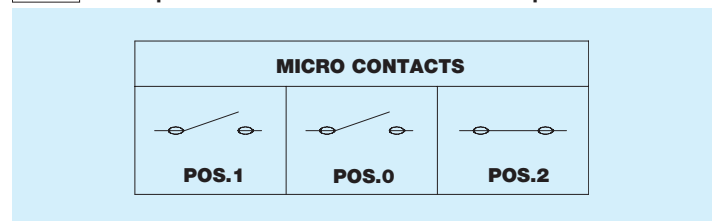
Characteristics of microswitch positioner

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

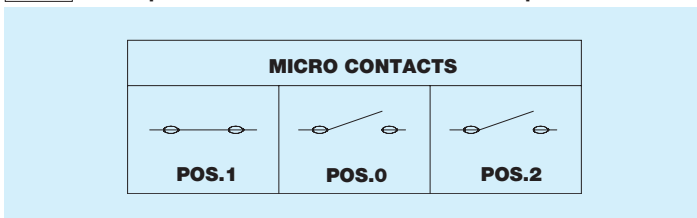
Y Dual effect microswitch



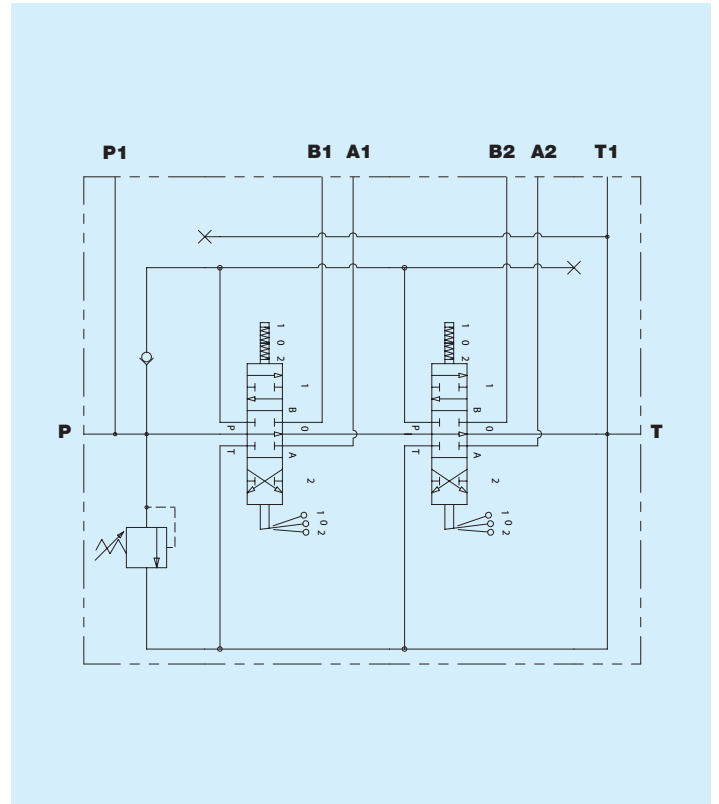
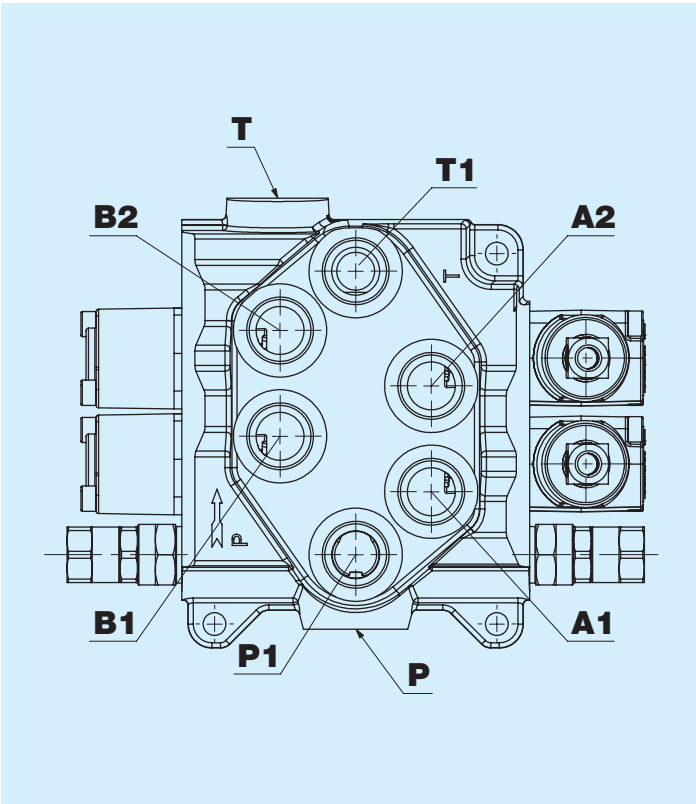
P Simple effect microswitch port A



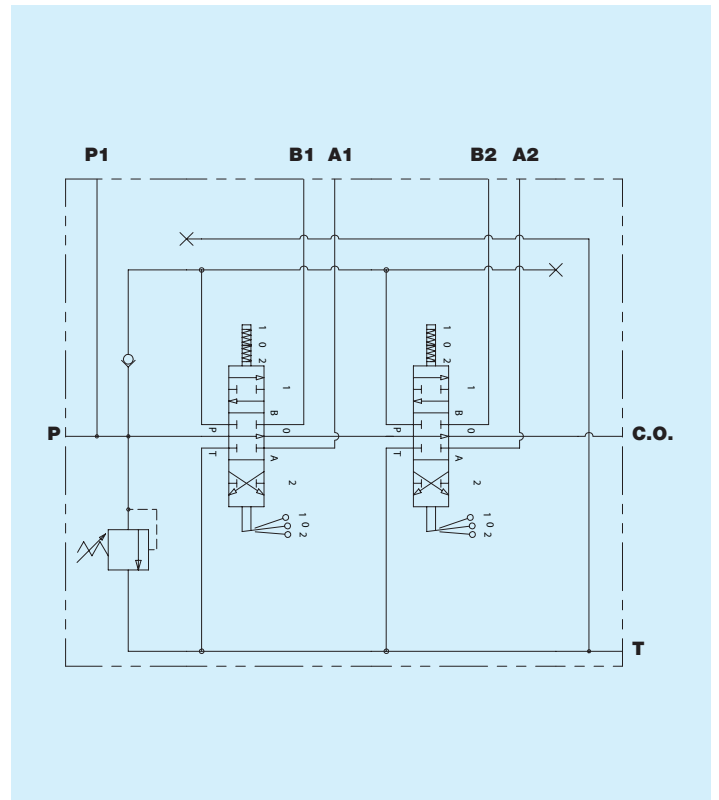
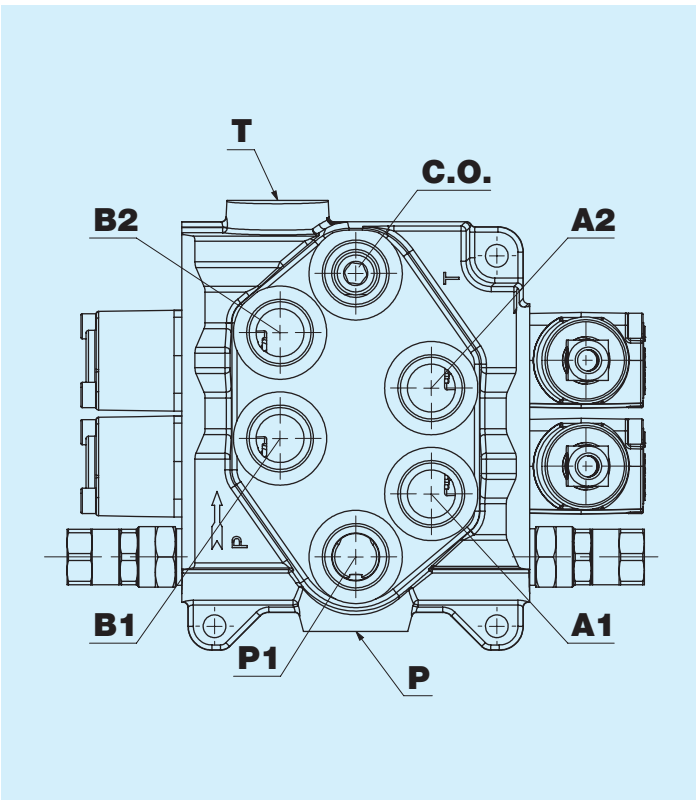
O Simple effect microswitch port B



A Carry-over option

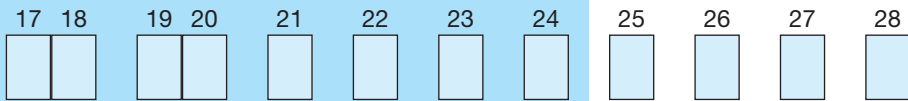


B With carry-over port T



Repeat for each section of the distributor

DN85	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Spool types															
	1 Sections				3 Sections				5 Sections							
	2 Sections				4 Sections				6 Sections							
2	External treatment															
	N None				Z Galvanising				B Black painted power supply							
	V Black paint				A Power unit				E Galvanised power supply							
3	Element type															
	S Left (standard)				D Right											
4	Thread Port P															
	B 1/2" GAS ISO 1179				N M22x1.5 ISO 9974				R 7/8" - 14 SAE ISO 11926							
	F 3/4" GAS ISO 1179				J M22x1.5 ISO 6149				V 1" 1/16 - 12 SAE ISO 11926							
5	Thread Port P															
	0 Not processed				B 1/2" GAS ISO 1179				N M22x1.5 ISO 9974					R 7/8" - 14 SAE ISO 11926		
	L 1/4" GAS ISO 1179				F 3/4" GAS ISO 1179				J M22x1.5 ISO 6149					V 1" 1/16 - 12 SAE ISO 11926		
6	Options on port P-T-LS															
	A P open - P1 open (standard)				B P open - P1 plugged				C P plugged - P1 open					D P open - P1 not processed		
7 8	Maximum pressure valve type															
	00 VMP replacement plug				11 110 bar				17 170 bar					23 230 bar		
	06 60 bar				12 120 bar				18 180 bar					24 240 bar		
	07 70 bar				13 130 bar				19 190 bar					25 250 bar		
	08 80 bar				14 140 bar				20 200 bar							
	09 90 bar				15 150 bar				21 210 bar							
	10 100 bar				16 160 bar				22 220 bar							
9	Type of lead seal															
	G Dowel				C Cap				P Sealed					N None		
10	Thread Port P															
	B 1/2" GAS ISO 1179				N M22x1.5 ISO 9974				R 7/8" - 14 SAE ISO 11926							
	F 3/4" GAS ISO 1179				J M22x1.5 ISO 6149											
11	Actuator															
	L Standard kit for lever holder				Z Lever holder with stroke limiter				K Hydraulic control					X Simple effect electro-hydraulic control port B		
	A Without lever holder, standard appendix				T Cable fitting on actuator side				P Pneumatic control					U Dual effect electro-pneumatic control		
	B Without lever holder, without appendix				M Joystick				H Dual effect electro-hydraulic control					I Simple effect electro-pneumatic control port A		
	C Without lever holder, flat appendix				G Joystick with spool lock				S Simple effect electro-hydraulic control port A					W Simple effect electro-pneumatic control port B		
12 13	Spool types															
	01 Spool type				04 Spool type				08 Spool type					71 Spool type		
	03 Spool type				07 Spool type				10 Spool type							



14	Spool options		
<input type="checkbox"/>	A Standard spool 70-100 l/min B Nickel-plated spool 70-100 l/min	C Standard spool 35-65 l/min D Nickel-plated spool 35-65 l/min	N None

15 16	Positioning device			
<input type="checkbox"/>	NN None	OD Detent in 0, 1, 2	OL Detent in 1	TR Neutral position in 1
<input type="checkbox"/>	OA Neutral position in 0	OE Neutral position in 0	OR Neutral position in 2	...
<input type="checkbox"/>	OB Neutral position in 0, detent in 1	OF Neutral position in 0	OS Neutral position in 1	... For selection, see the relevant chapter
<input type="checkbox"/>	OC Neutral position in 0, detent in 2	OH Detent in 2	NS Neutral position in 0, detent in 3	

17 18	VL Pressure limiting valve below port A			
<input type="checkbox"/>	00 None	09 VL 90 bar	15 VL 150 bar	21 VL 210 bar
<input type="checkbox"/>	TP Processed and plugged	10 VL 100 bar	16 VL 160 bar	22 VL 220 bar
<input type="checkbox"/>	VC Anticavitation valve	11 VL 110 bar	17 VL 170 bar	23 VL 230 bar
<input type="checkbox"/>	06 VL 60 bar	12 VL 120 bar	18 VL 180 bar	24 VL 240 bar
<input type="checkbox"/>	07 VL 70 bar	13 VL 130 bar	19 VL 190 bar	25 VL 250 bar
<input type="checkbox"/>	08 VL 80 bar	14 VL 140 bar	20 VL 200 bar	

19 20	VL Pressure limiting valve below port A			
<input type="checkbox"/>	00 None	09 VL 90 bar	15 VL 150 bar	21 VL 210 bar
<input type="checkbox"/>	TP Processed and plugged	10 VL 100 bar	16 VL 160 bar	22 VL 220 bar
<input type="checkbox"/>	VC Anticavitation valve	11 VL 110 bar	17 VL 170 bar	23 VL 230 bar
<input type="checkbox"/>	06 VL 60 bar	12 VL 120 bar	18 VL 180 bar	24 VL 240 bar
<input type="checkbox"/>	07 VL 70 bar	13 VL 130 bar	19 VL 190 bar	25 VL 250 bar
<input type="checkbox"/>	08 VL 80 bar	14 VL 140 bar	20 VL 200 bar	

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

22	Lever holder position		
<input type="checkbox"/>	A Straight	C Rotated 180°	N None
<input type="checkbox"/>	B Rotated 90° towards P (right inlet)	D Rotated 90° towards T	

23	Actuator		
<input type="checkbox"/>	N None	M Male dual control	P Simple effect microswitch port A
<input type="checkbox"/>	C Stroke limiter	Y Dual effect microswitch	O Simple effect microswitch port B

24	Voltage and connector		
<input type="checkbox"/>	N None	A 12V DIN 43650	B 24V DIN 43650

25	Thread Port P		
<input type="checkbox"/>	B 1/2" GAS ISO 1179	N M22x1.5 ISO 9974	R 7/8" - 14 SAE ISO 11926
<input type="checkbox"/>	F 3/4" GAS ISO 1179	J M22x1.5 ISO 6149	V 1" 1/16 - 12 SAE ISO 11926

26	Thread Port P		
<input type="checkbox"/>	B 1/2" GAS ISO 1179	N M22x1.5 ISO 9974	R 7/8" - 14 SAE ISO 11926
<input type="checkbox"/>	F 3/4" GAS ISO 1179	J M22x1.5 ISO 6149	V 1" 1/16 - 12 SAE ISO 11926

27



Options on port P-T-LS

A T open - T1 open (standard)

B T open - T1 plugged

C T plugged - T1 open

28



Thread ports

A Carry-over option (standard)

B With carry-over port T1
