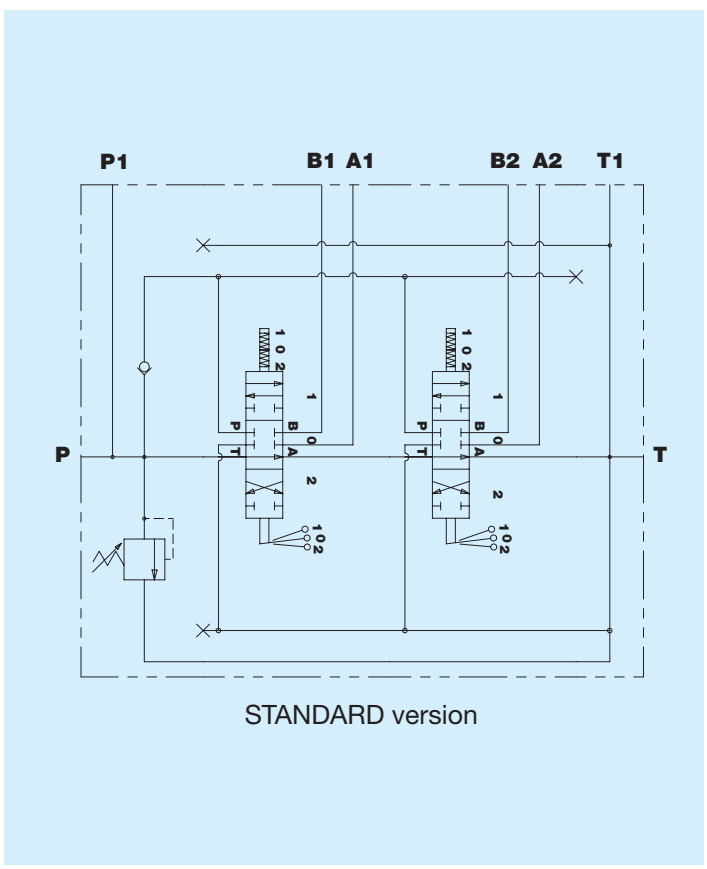


DN - Directional control valve

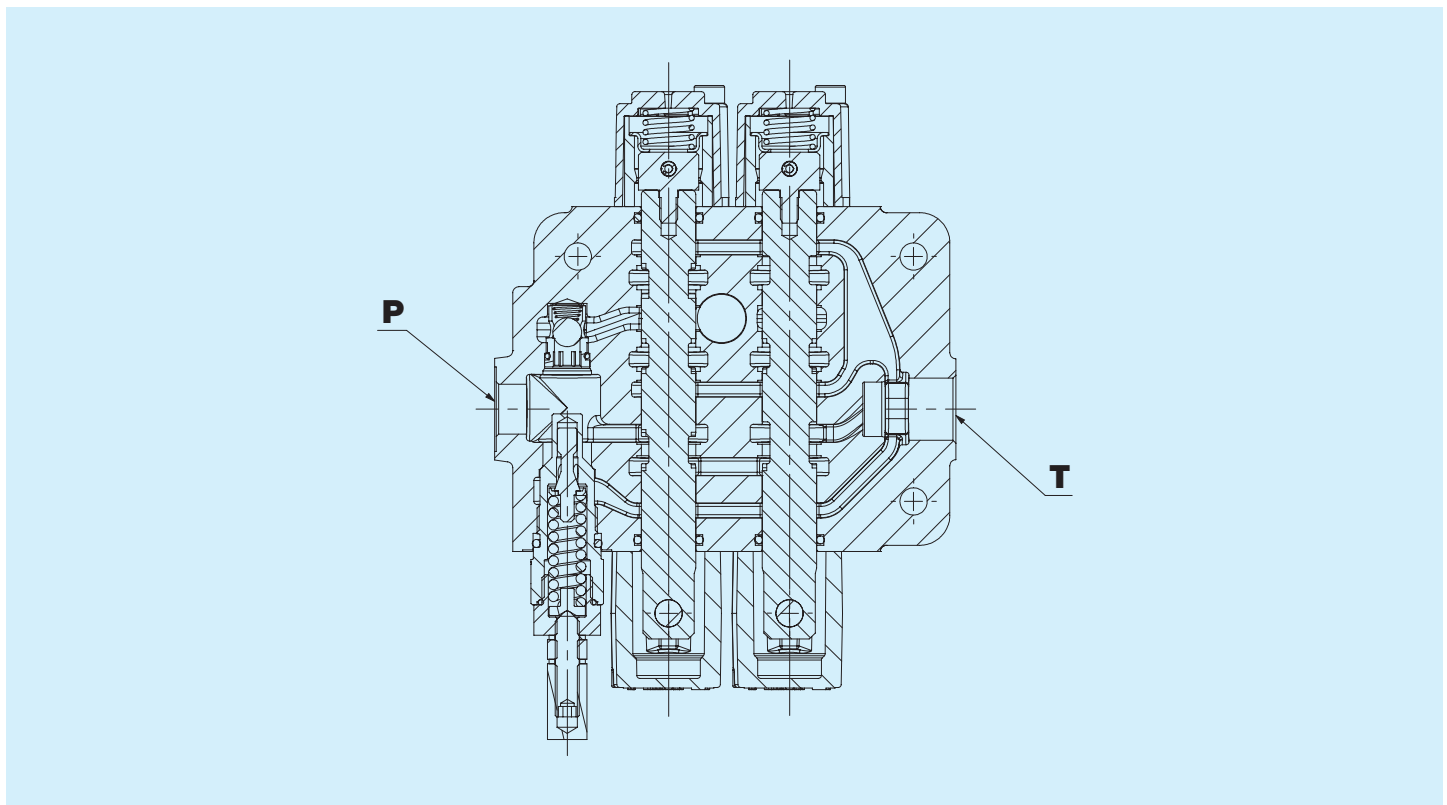


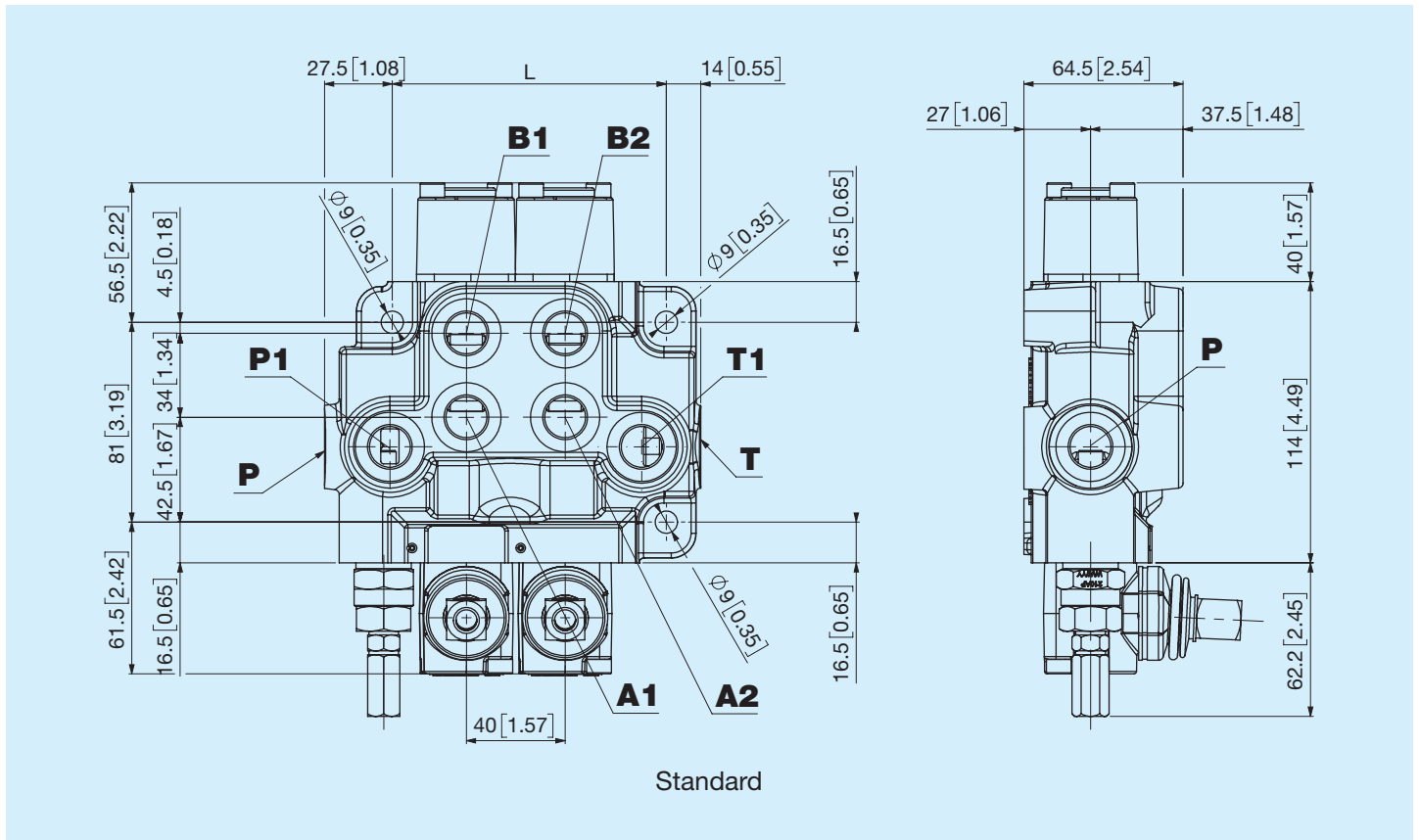
Before use, carefully read the GENERAL INSTRUCTIONS FOR USE OF DIRECTIONAL CONTROL VALVES

Nominal flow	45 l/min 11.9 US gpm
Nominal pressure	300 bar 4350 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



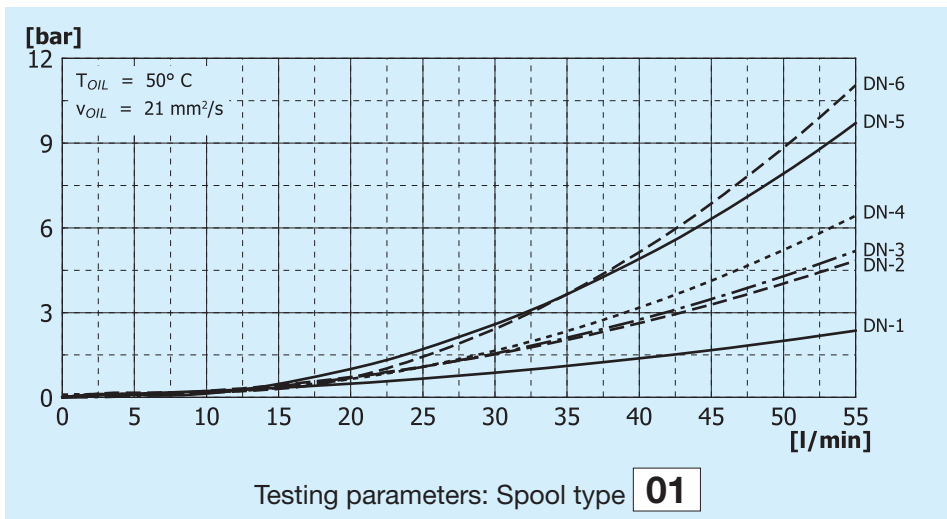
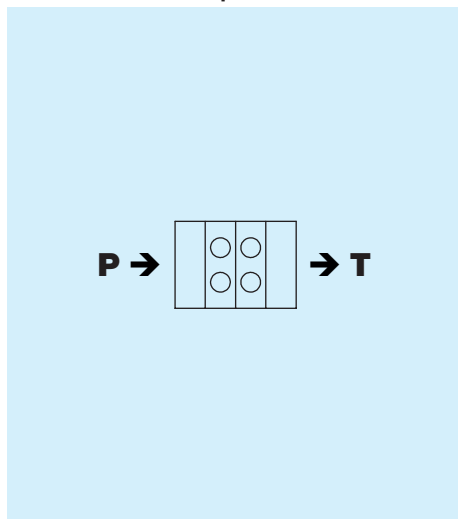


Standard

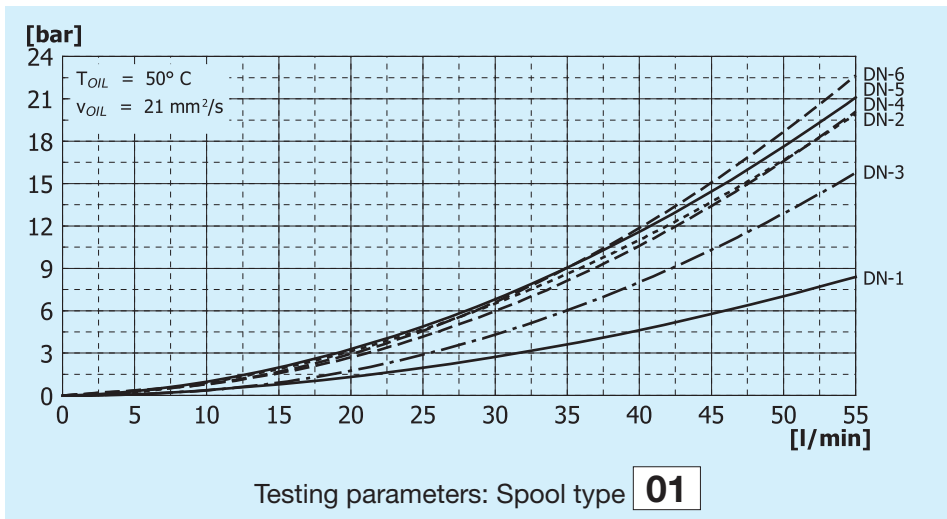
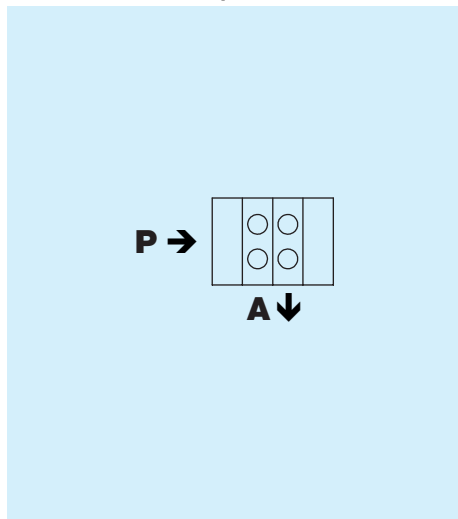
Dimensions per number of sections

Code	N° of	L		Weight	
		mm	in	kg	lb
1	1	71	2,8	3,0	6,6
2	2	111	4,37	5,0	11,0
3	3	151	5,94	7,3	16
4	4	191	7,52	9,4	20,7
5	5	231	9,1	11,5	25,3
6	6	271	10,67	13,6	30

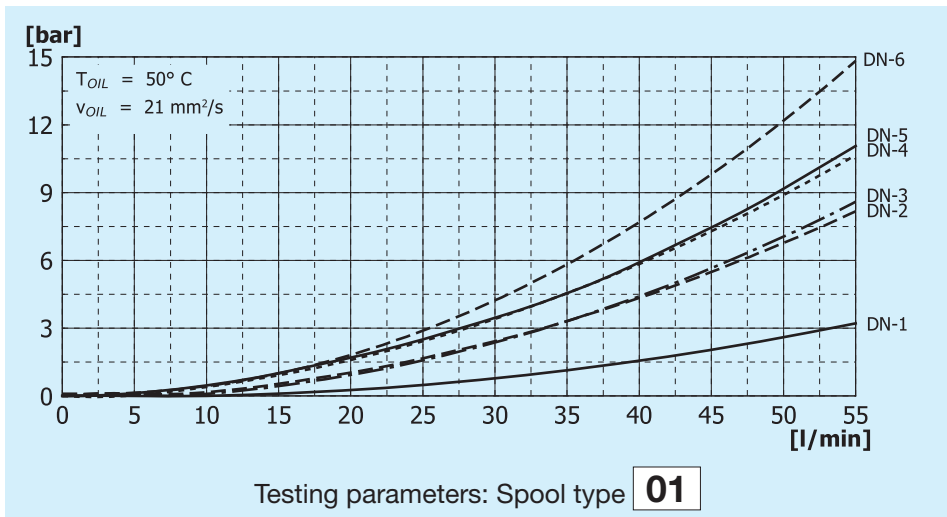
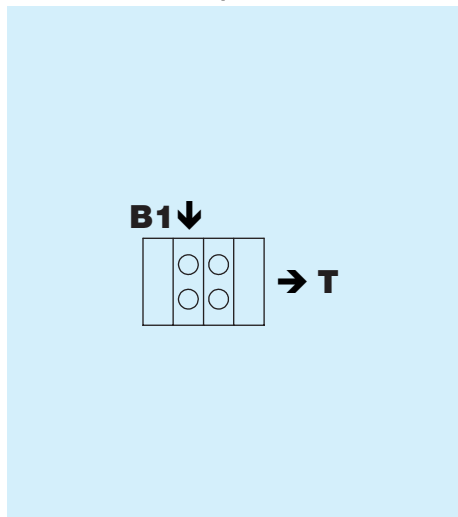
Pressure drops P-T



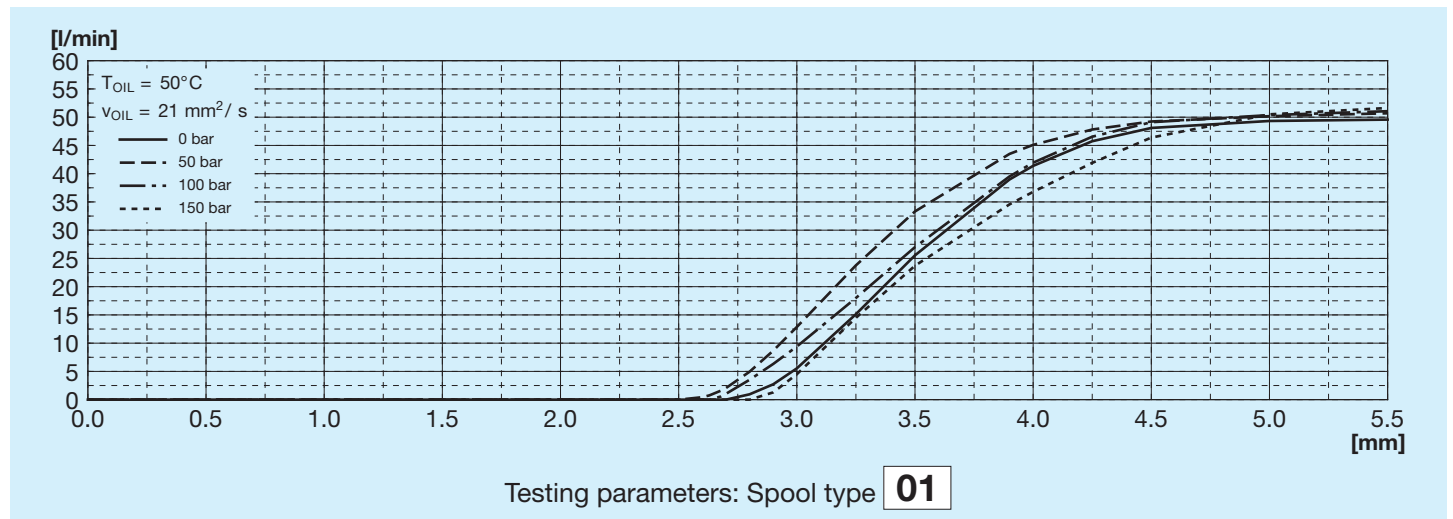
Pressure drops P-A



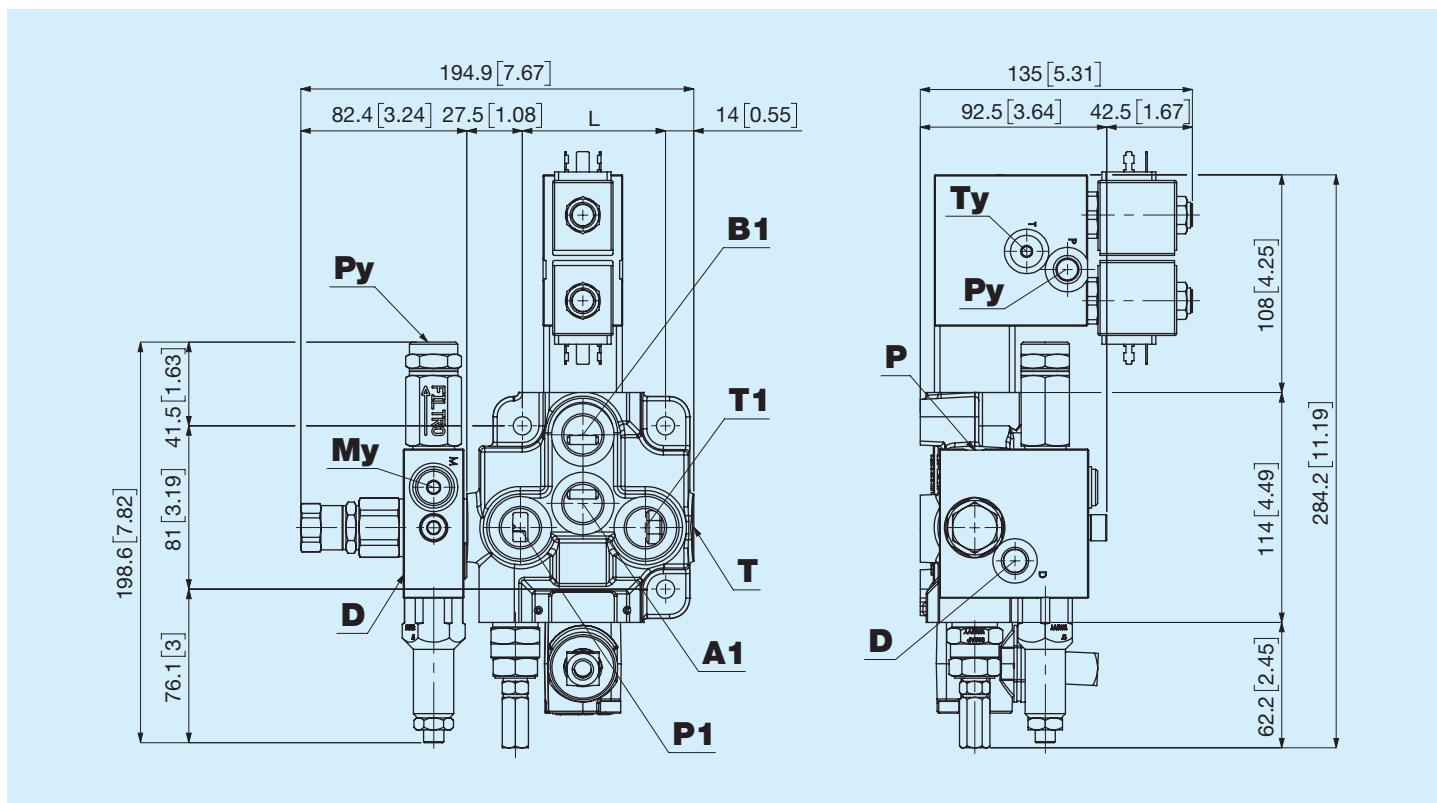
Pressure drops B1-T



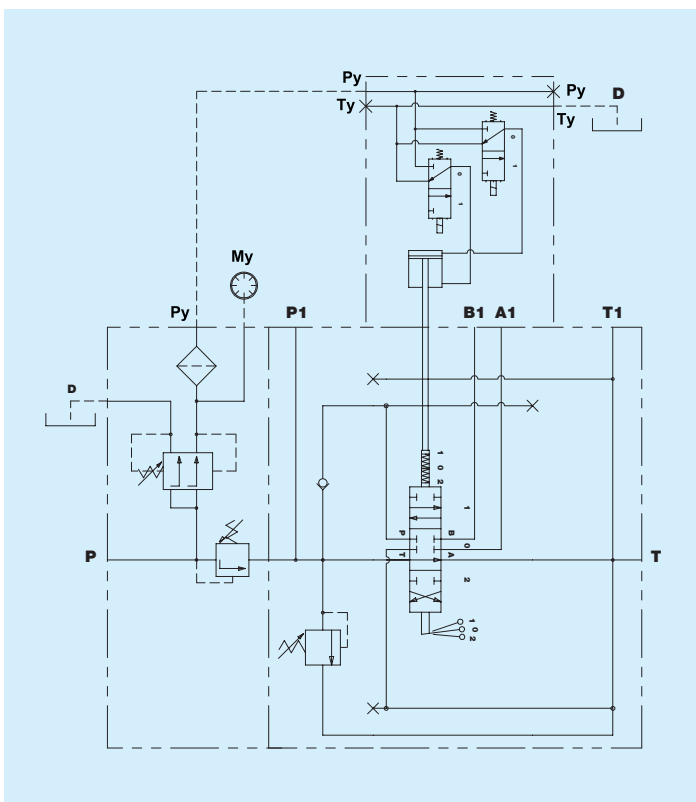
Metering

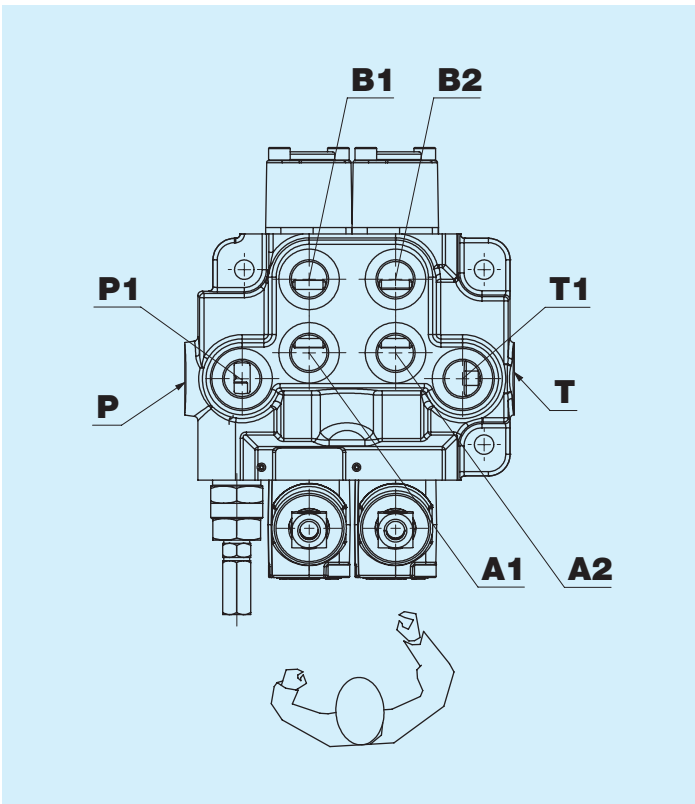
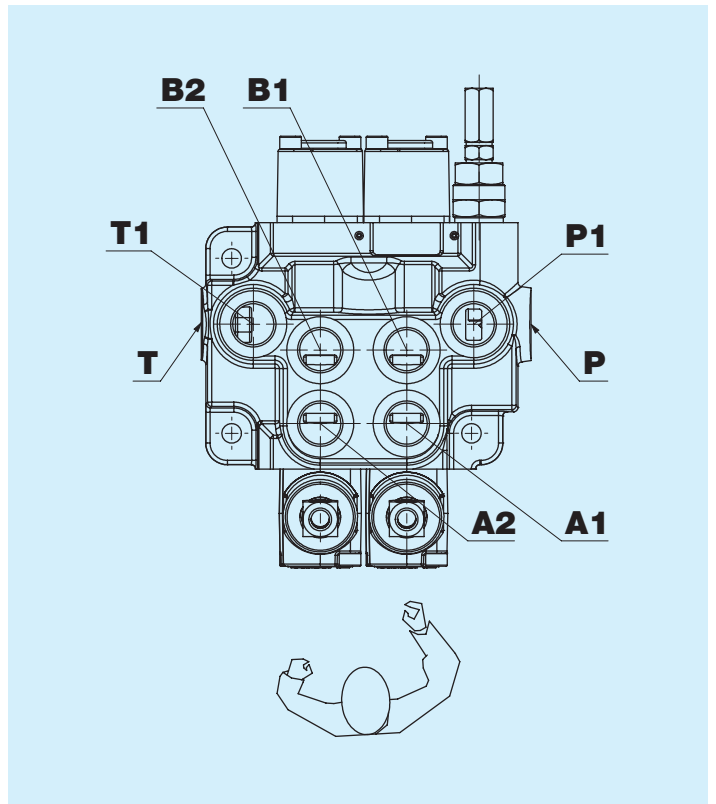


A Power unit



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 ports P - P1

Code	Type	Torque Nm
O	Not processed	
L	1/4" GAS ISO 1179	28
A	3/8" GAS ISO 1179	40
B	1/2" GAS ISO 1179	65
3	M14x1.5 ISO 9974	10
T	M16x1.5 ISO 9974	28
C	M18x1.5 ISO 9974	42
I	M16x1.5 ISO 6149	28
W	M18x1.5 ISO 6149	28
P	9/16" - 18 SAE ISO 11926	28
E	3/4" - 16 SAE ISO 11926	42

Thread ports A - B

Code	Type	Torque Nm
L	1/4" GAS ISO 1179	28
A	3/8" GAS ISO 1179	40
B	1/2" GAS ISO 1179	65
T	M16x1.5 ISO 9974	28
C	M18x1.5 ISO 9974	42
I	M16x1.5 ISO 6149	28
W	M18x1.5 ISO 6149	28
P	9/16" - 18 SAE ISO 11926	28
E	3/4" - 16 SAE ISO 11926	42

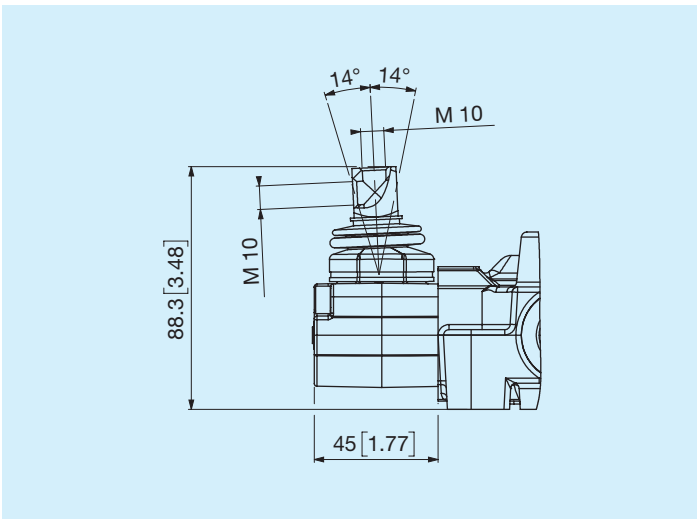
Thread port T

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

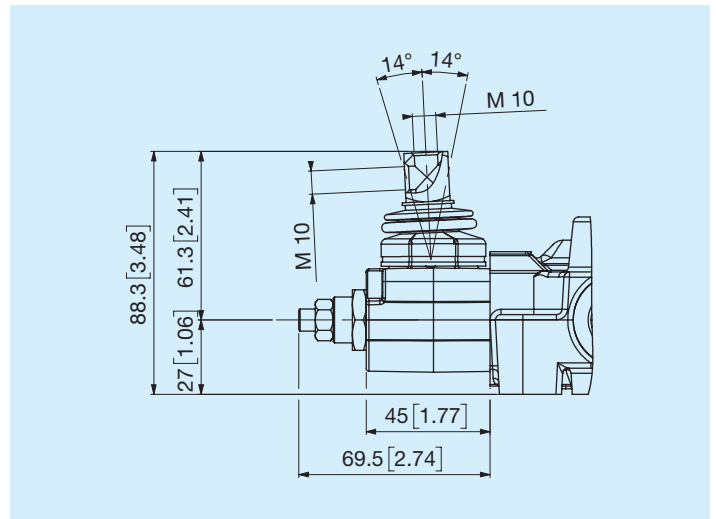
Thread port T1

Code	Type	Torque Nm
O	Not processed	
L	1/4" GAS ISO 1179	28
A	3/8" GAS ISO 1179	40
B	1/2" GAS ISO 1179	65
3	M14x1.5 ISO 9974	10
T	M16x1.5 ISO 9974	28
C	M18x1.5 ISO 9974	42
I	M16x1.5 ISO 6149	28
W	M18x1.5 ISO 6149	28
P	9/16" - 18 SAE ISO 11926	28
E	3/4" - 16 SAE ISO 11926	42

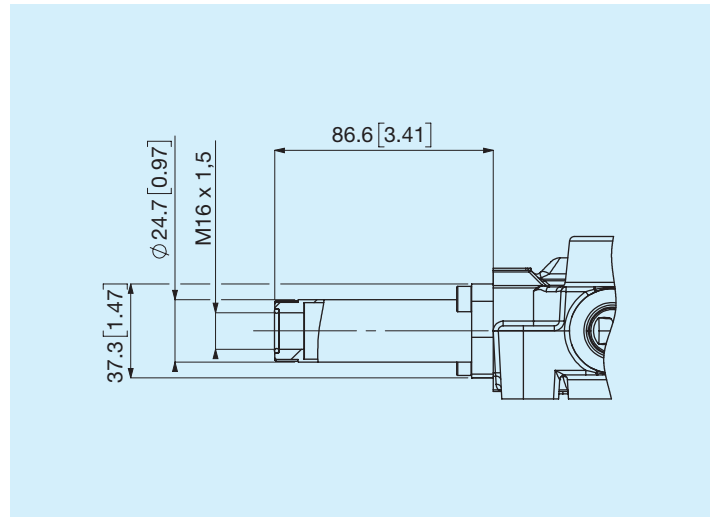
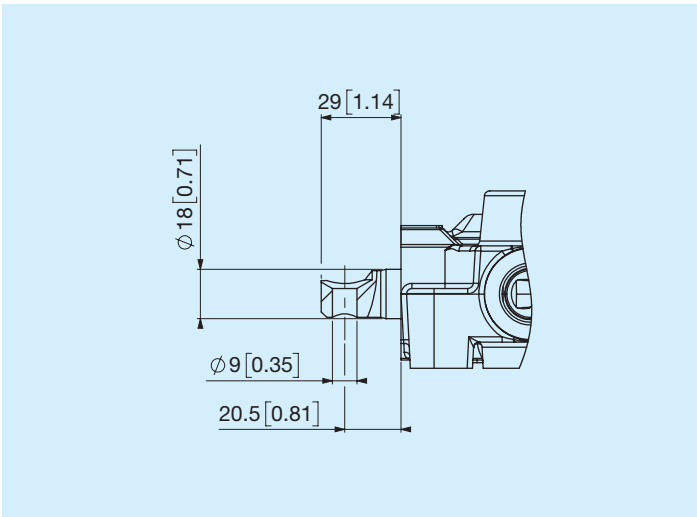
L Standard kit for lever holder



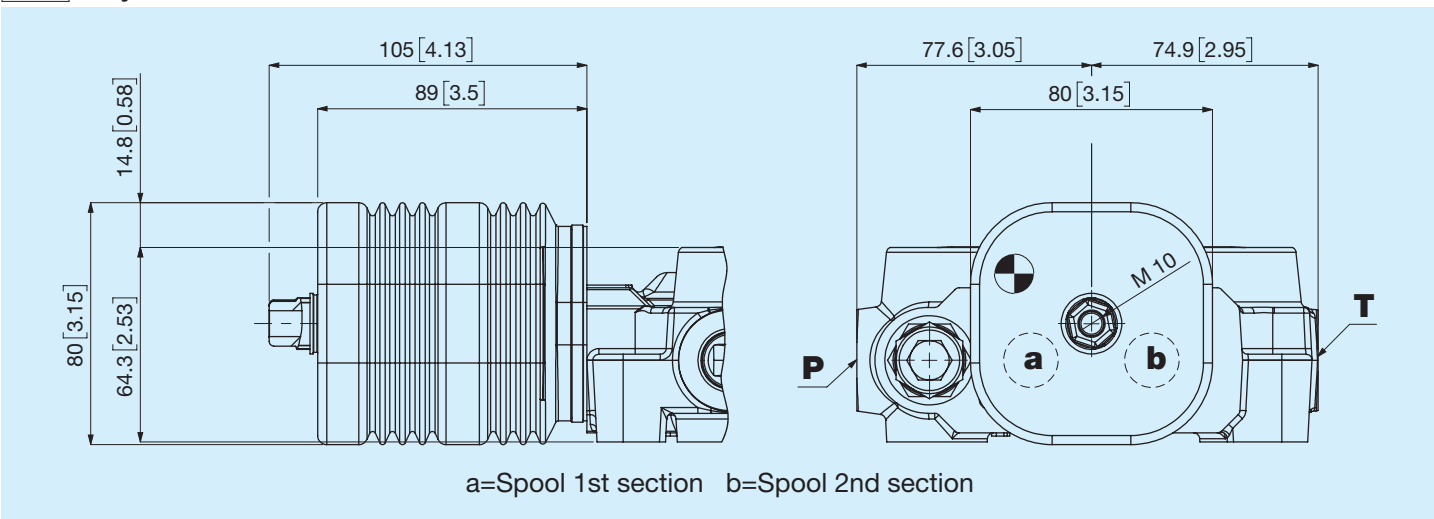
Z Lever holder with stroke limiter



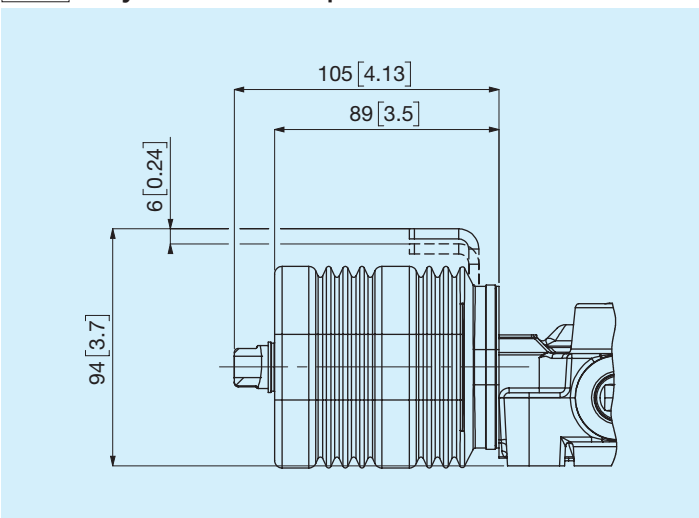
A Without lever holder, standard appendix **T** Cable setting



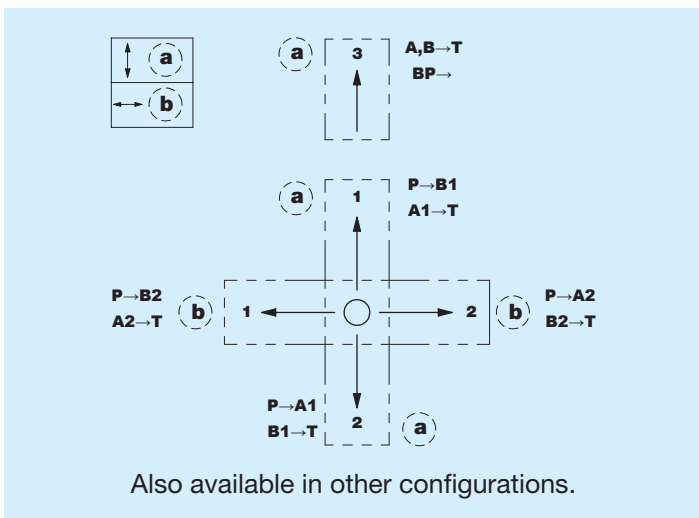
M Joystick



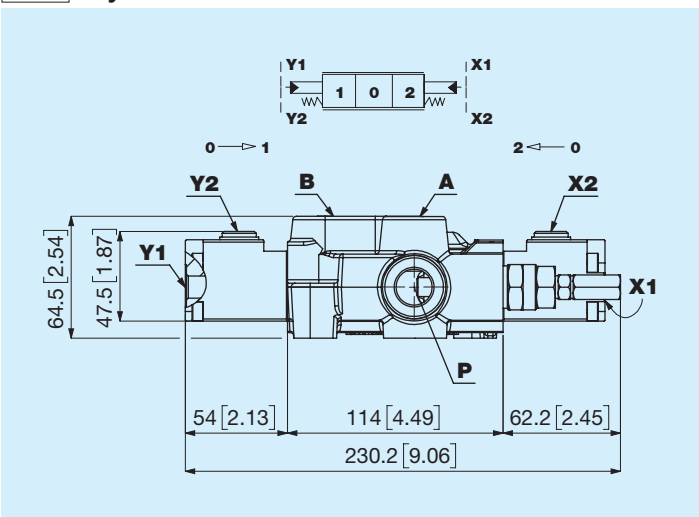
G Joystick with spool lock



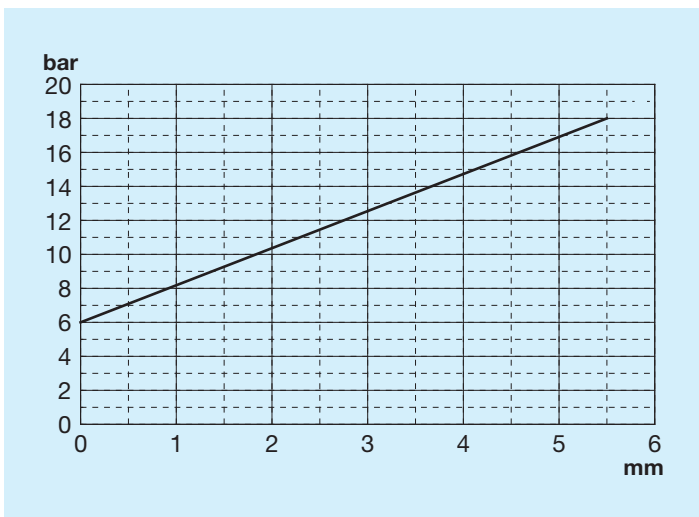
Joystick functions



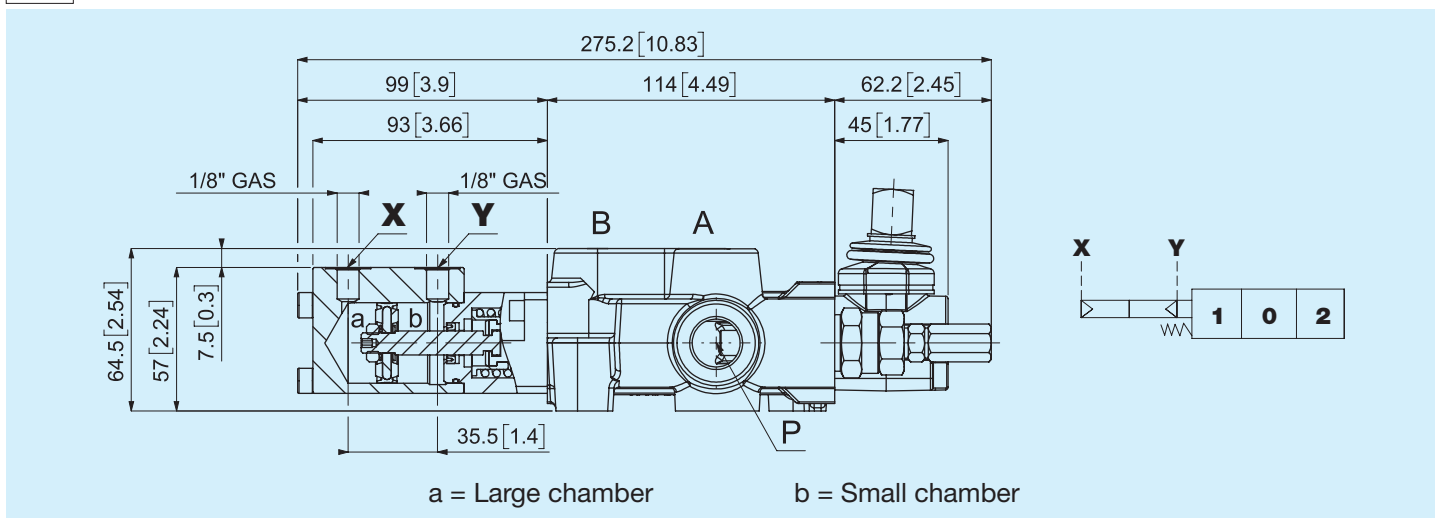
K Hydraulic control



Hydraulic control

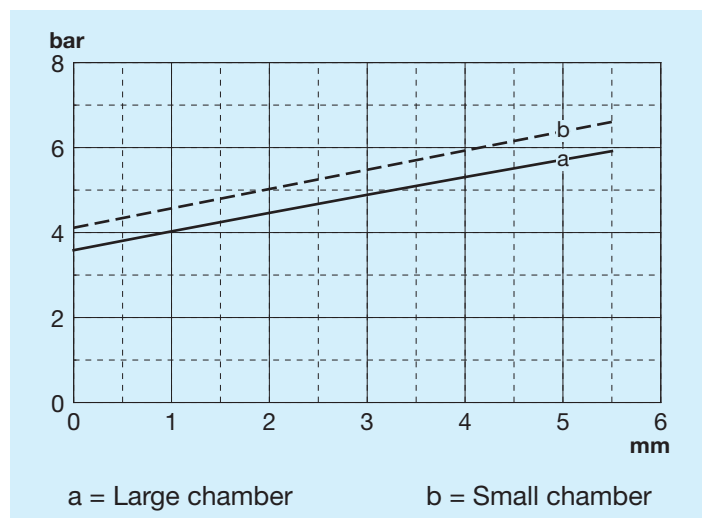


P Pneumatic

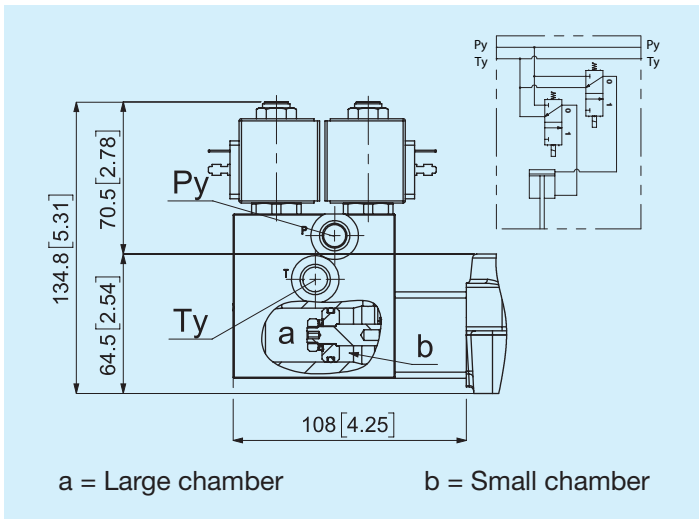


The pneumatic actuator is located on the side where the spool control is normally placed and is the main actuator. The directional control valve will also be supplied as standard with the lever holder on the opposite side.

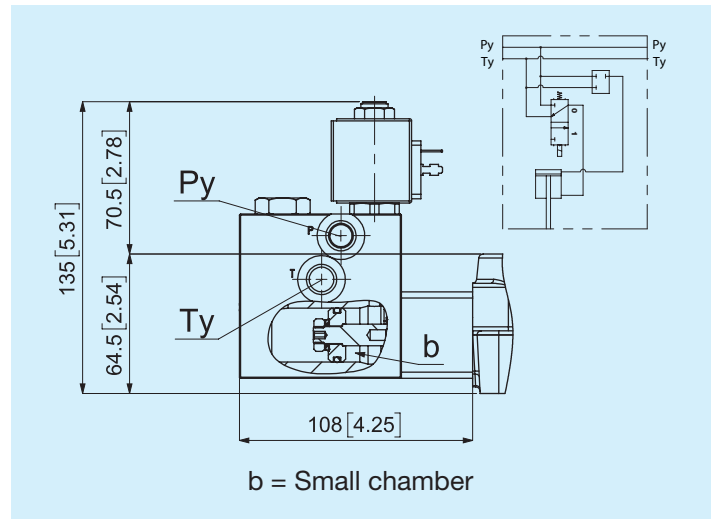
Pneumatic control



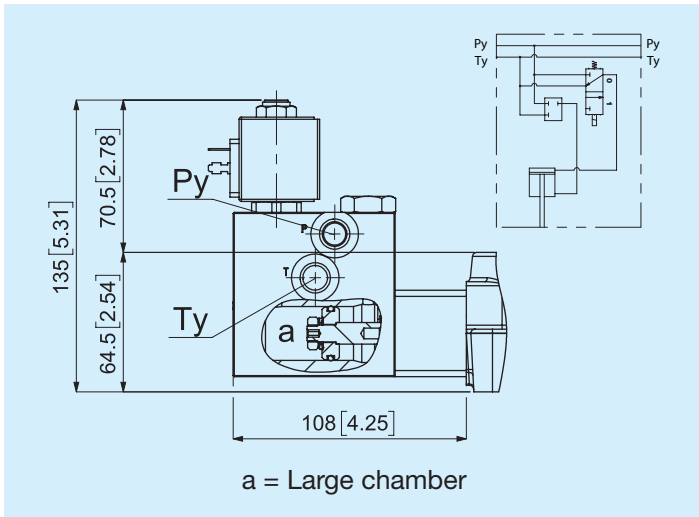
H Dual effect



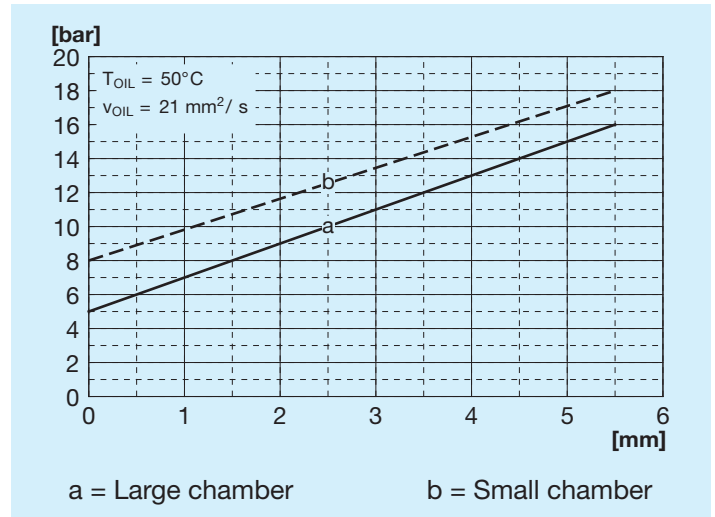
S Simple effect port A



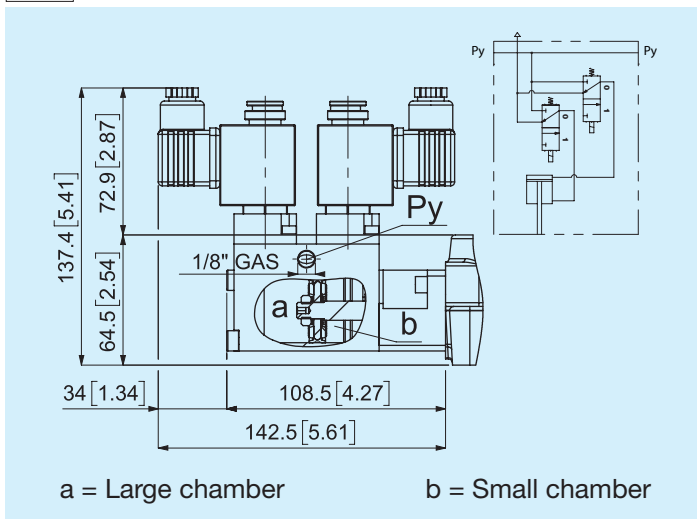
X Simple effect port B



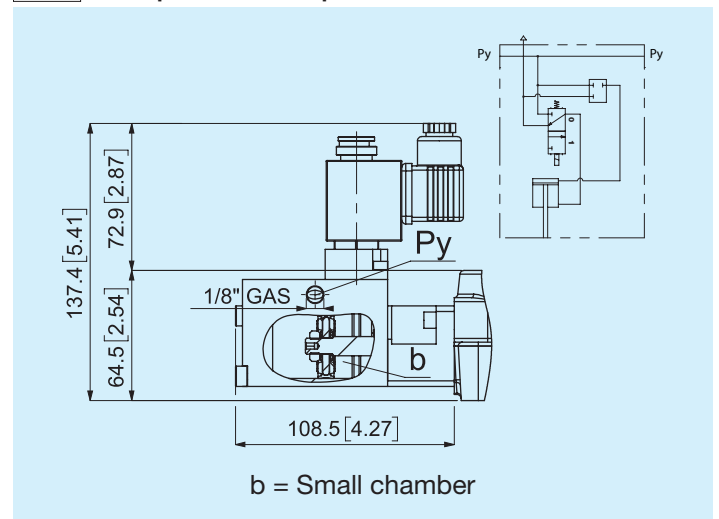
Electro-hydraulic control



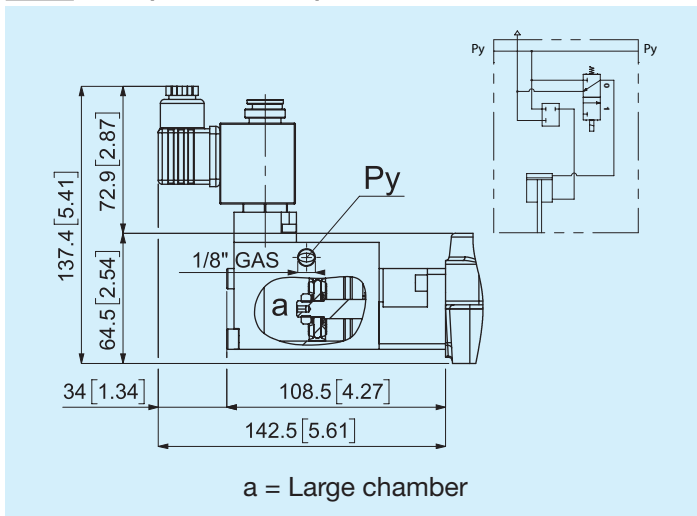
U Dual effect



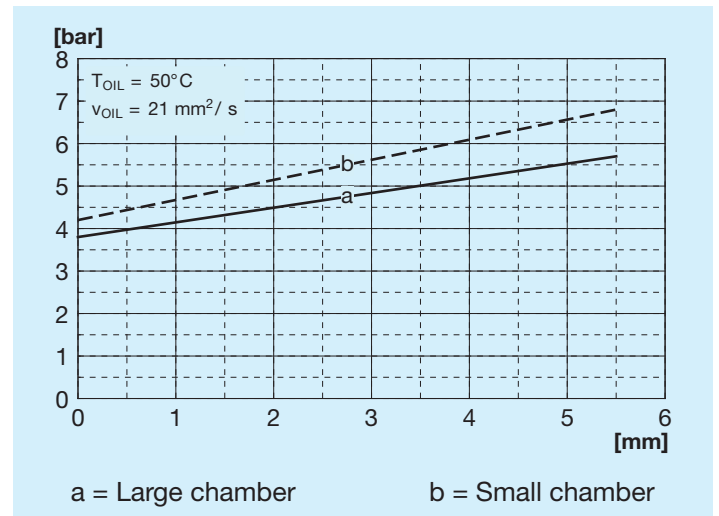
I Simple effect port A



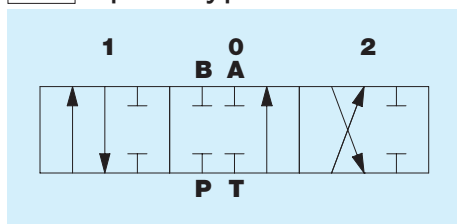
W Simple effect port B



Electro-pneumatic control



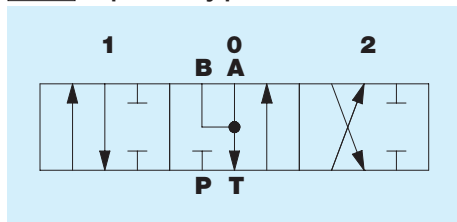
01 Spool type



Positions

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

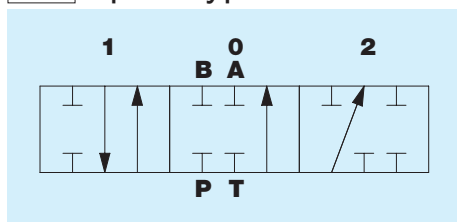
03 Spool type



Positions

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

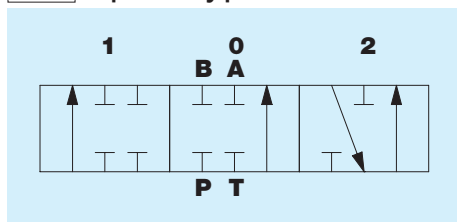
04 Spool type



Positions

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

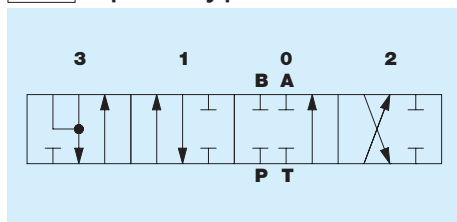
05 Spool type



Positions

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

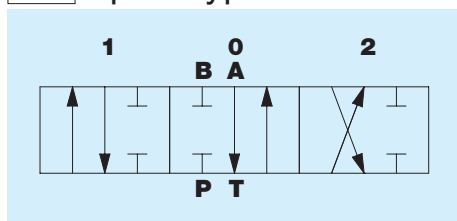
07 Spool type



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 —	

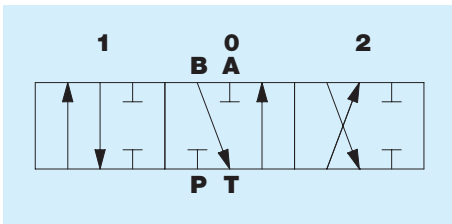
08 Spool type



Positions

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

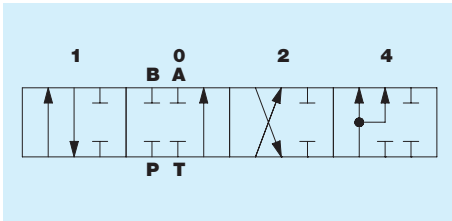
10 Spool type



Positions

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

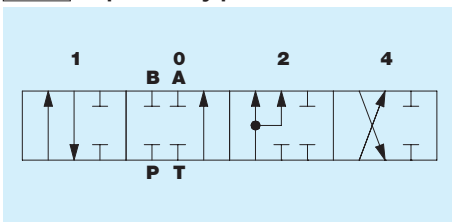
17 Spool type



Positions

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

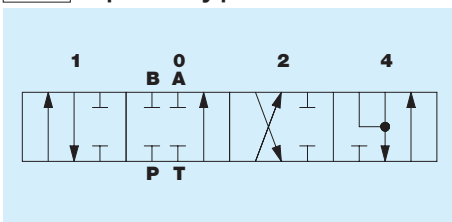
23 Spool type



Positions

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

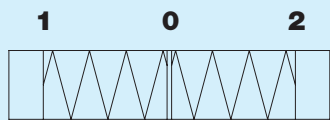
70 Spool type



Positions

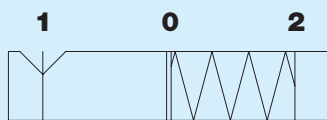
3	1	0	2	4
	P → B A → T BP —	P, T — A, B — BP →	P → A B → T BP —	A, B → T P — BP →

0A



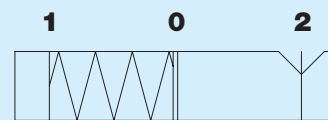
Neutral position in 0

0B



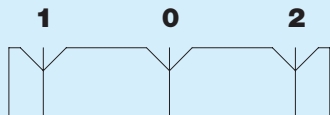
Neutral position in 0,
detent in 1

0C



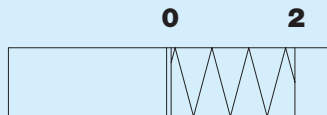
Neutral position in 0,
detent in 2

0D



Detent in 0, 1, 2

0E



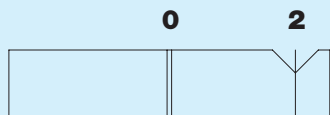
Neutral position in 0

0F



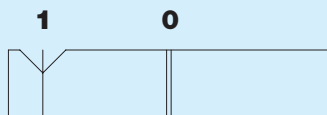
Neutral position in 0

0H



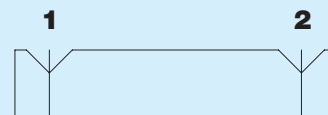
Detent in 2

0L



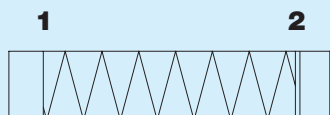
Detent in 1

0Q



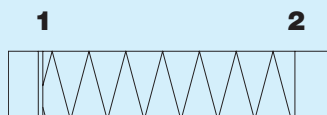
Detent in 1, 2

0R



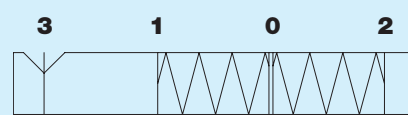
Neutral position in 2

0S



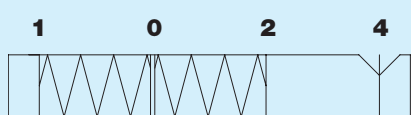
Neutral position in 1

NS



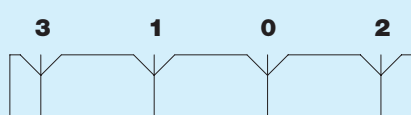
Neutral position in 0, detent in 3

NT



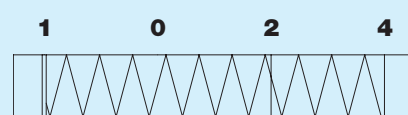
Neutral position in 0, detent in 4

PS



Detent in 3, 1, 0, 2

TR

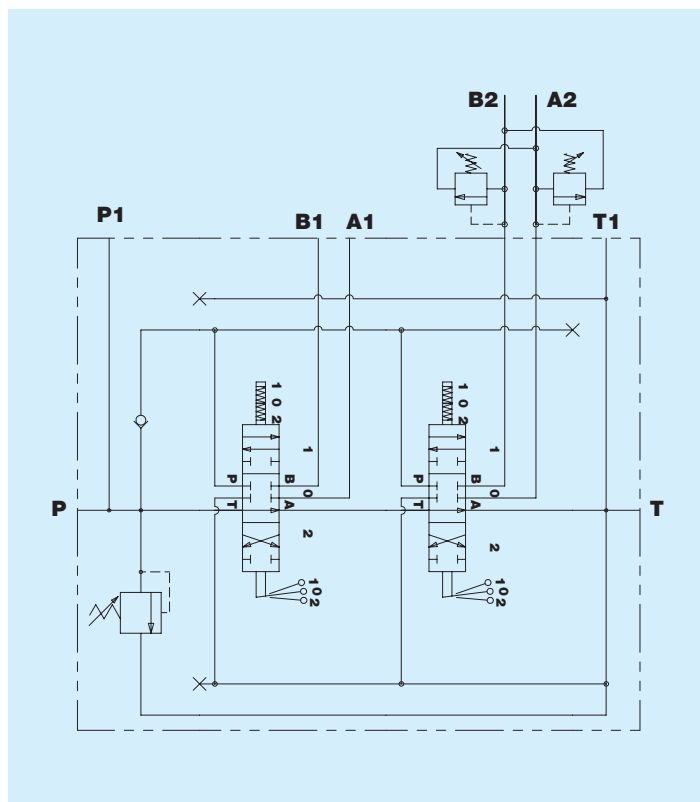
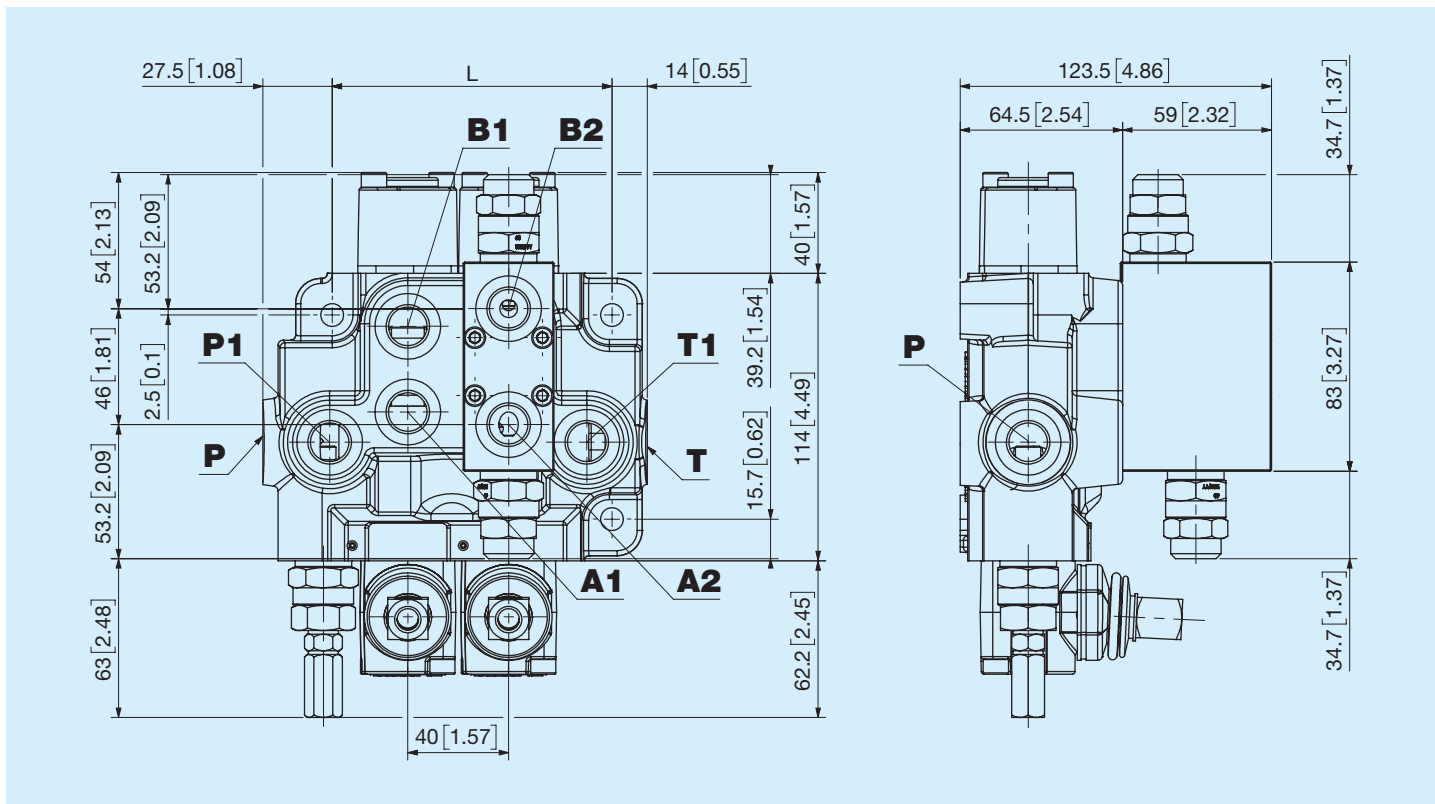


Neutral position in 1

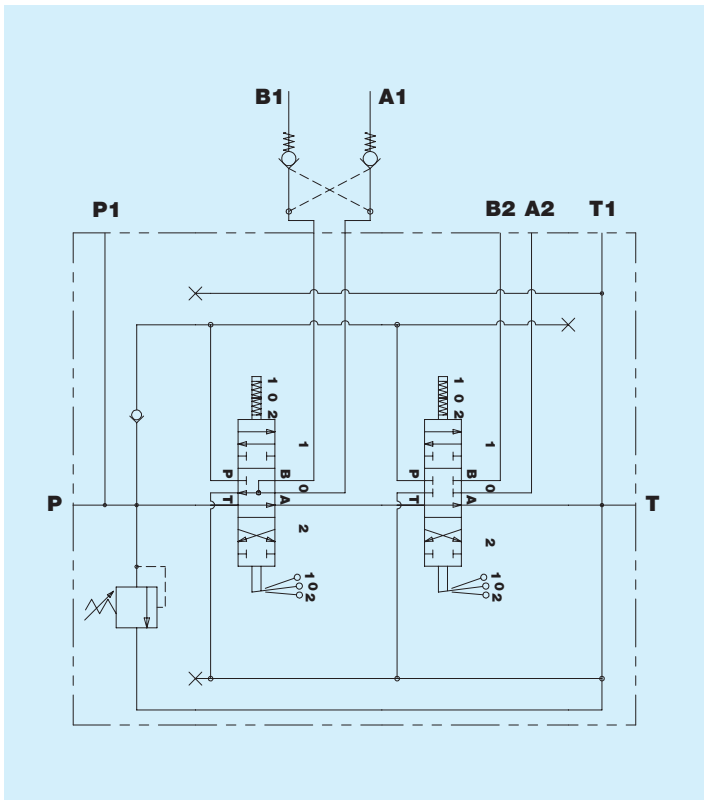
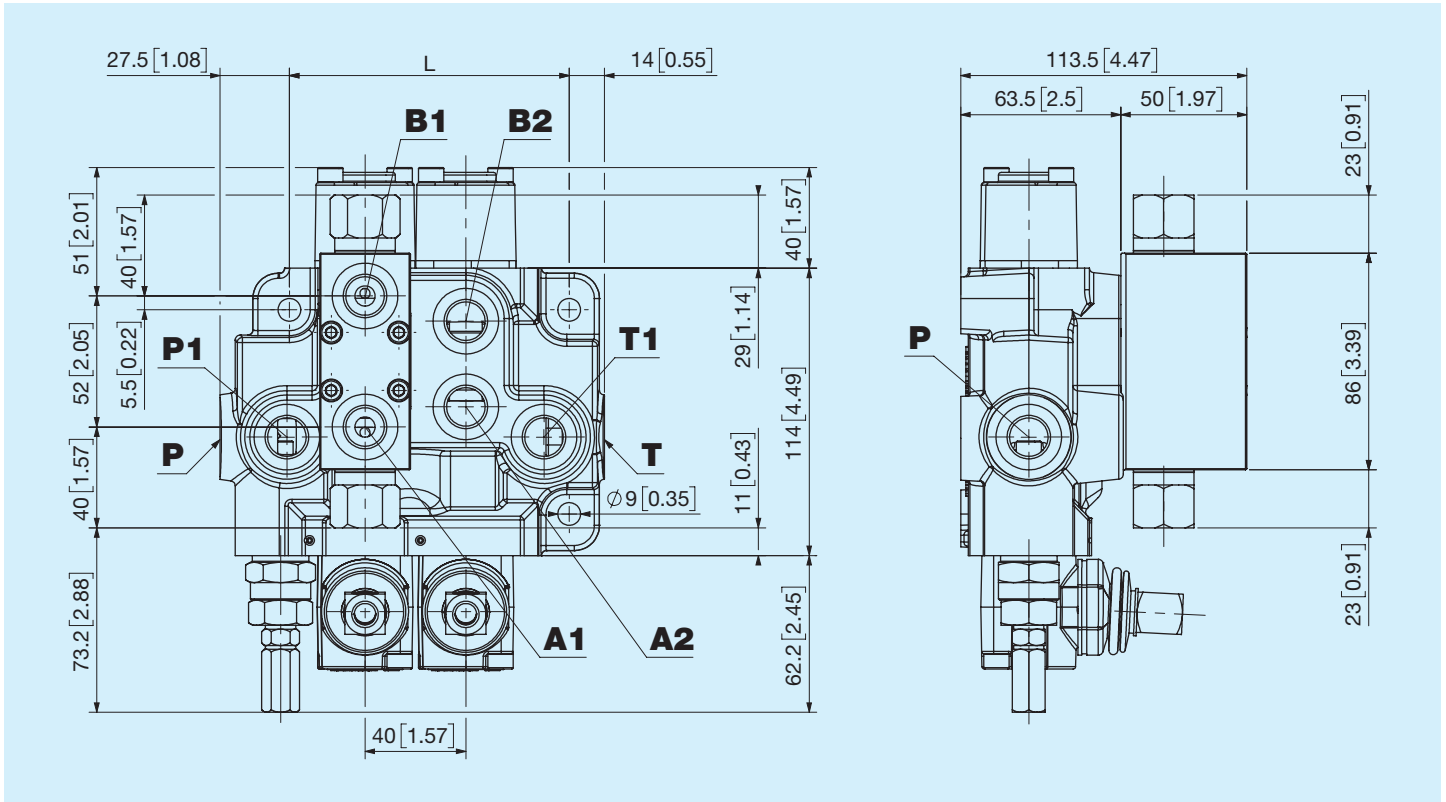
Valve type port A - B

DN

VL Pressure relief valve on ports A and B

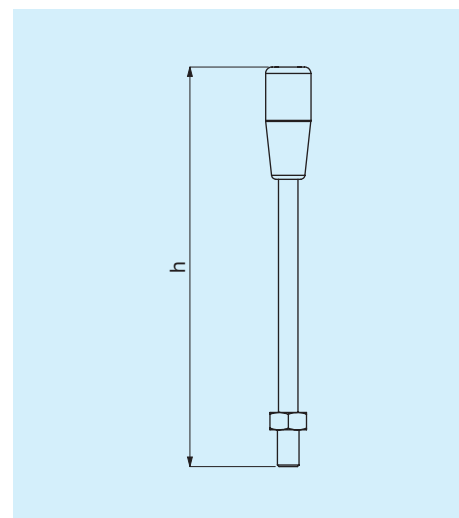


VB Pilot operated check valve on ports A and B



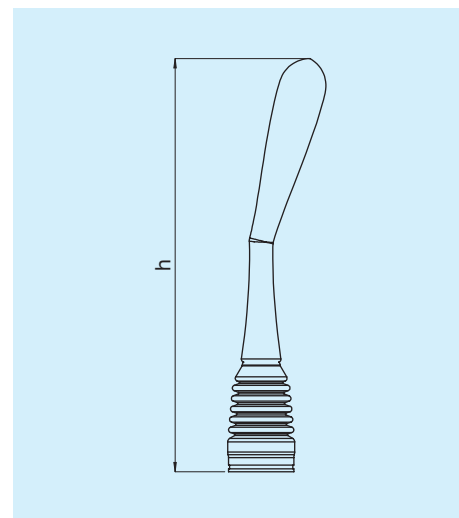
Straight standard knob

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

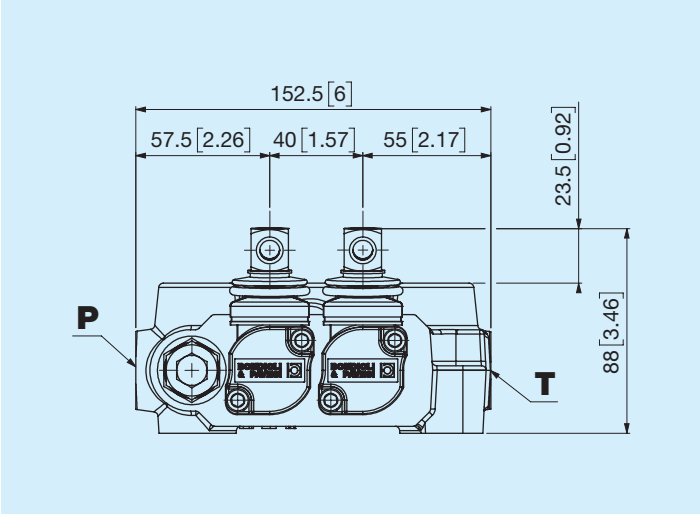


Ergonomic lever

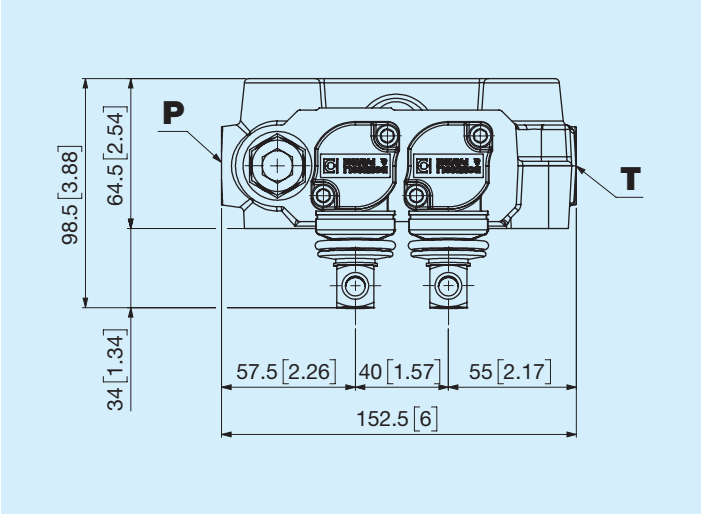
Code	Description	h [mm]	h [in]
L	Straight vertical	180	7.09
O	Bent 15° vertical	180	7.09
R	Bent 30° vertical	180	7.09
M	Straight horizontal	180	7.09
Y	Bent 15° horizontal	180	7.09
Q	Bent 30° horizontal	180	7.09



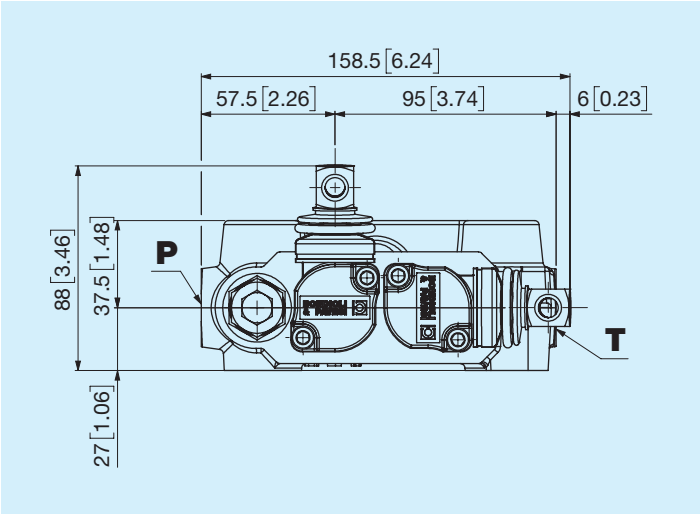
A Straight

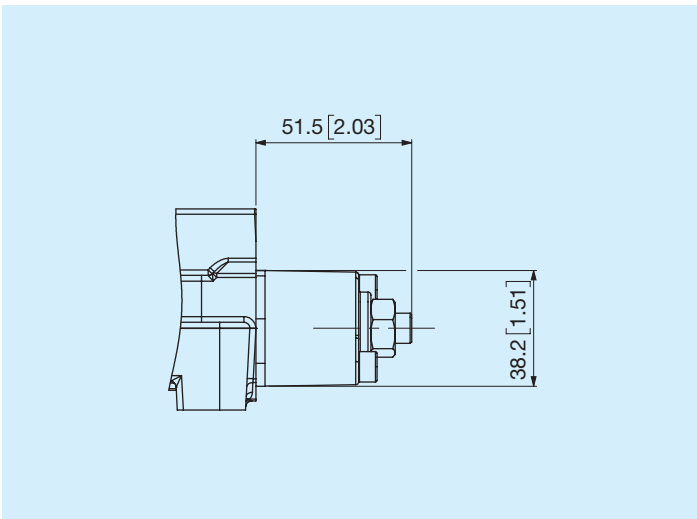
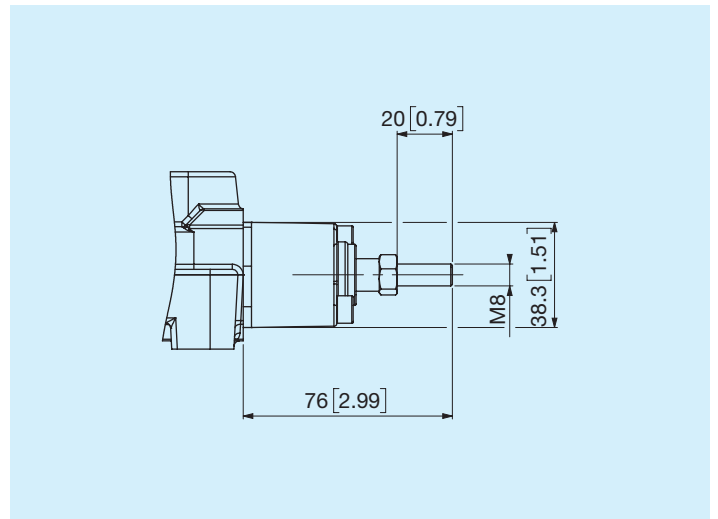
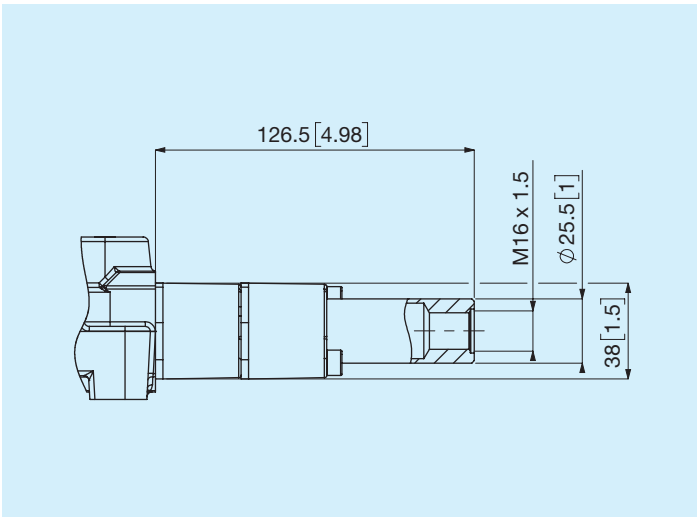


C Rotated 180°

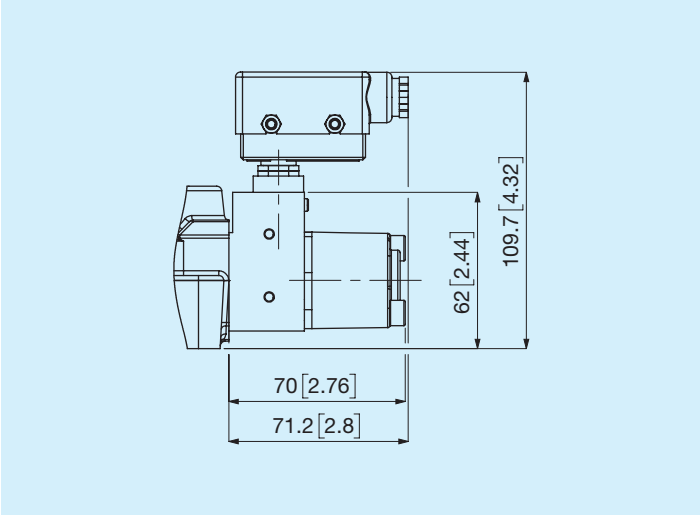


D Rotated 90° towards T



C Stroke limiter**M** Male dual control**T** Cable setting

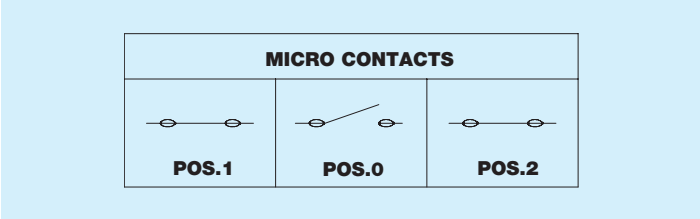
Microswitch



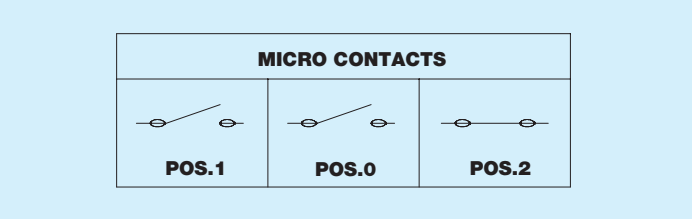
Characteristics of microswitch positioner

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

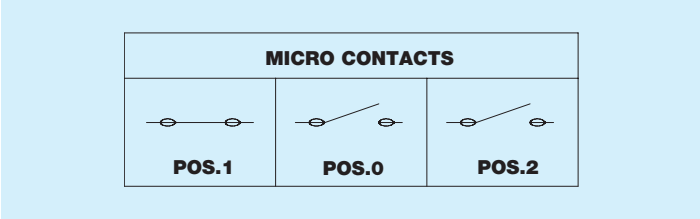
Y Dual effect microswitch



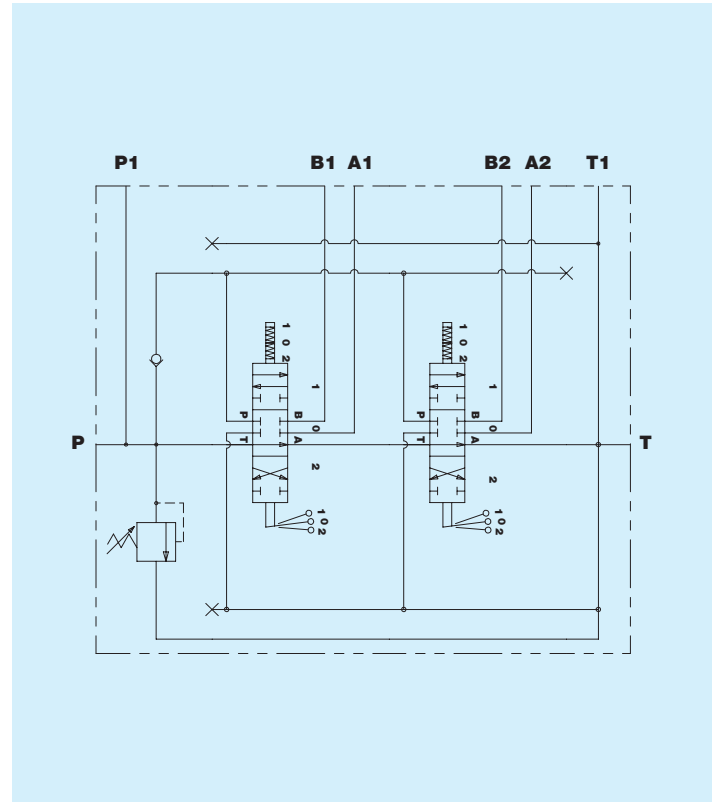
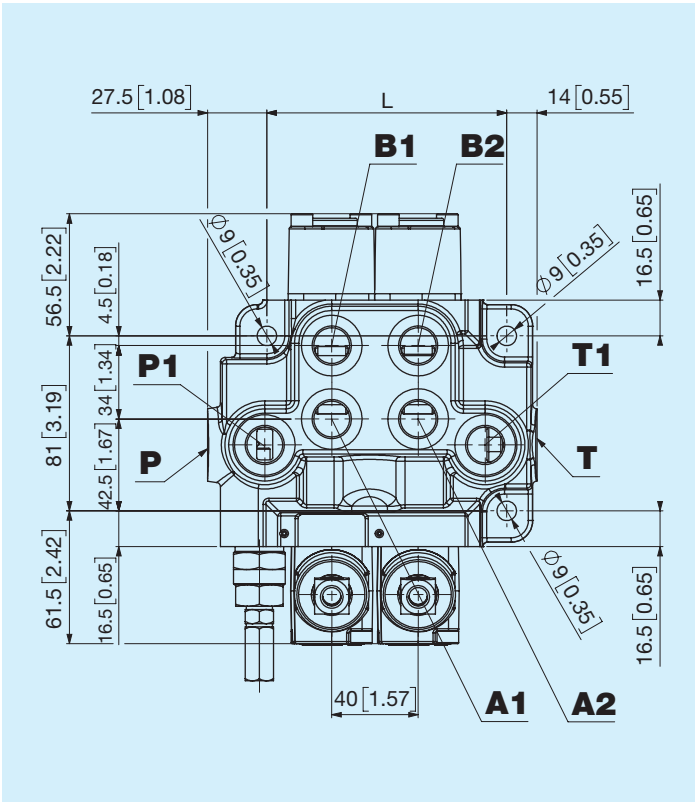
P Simple effect microswitch port A



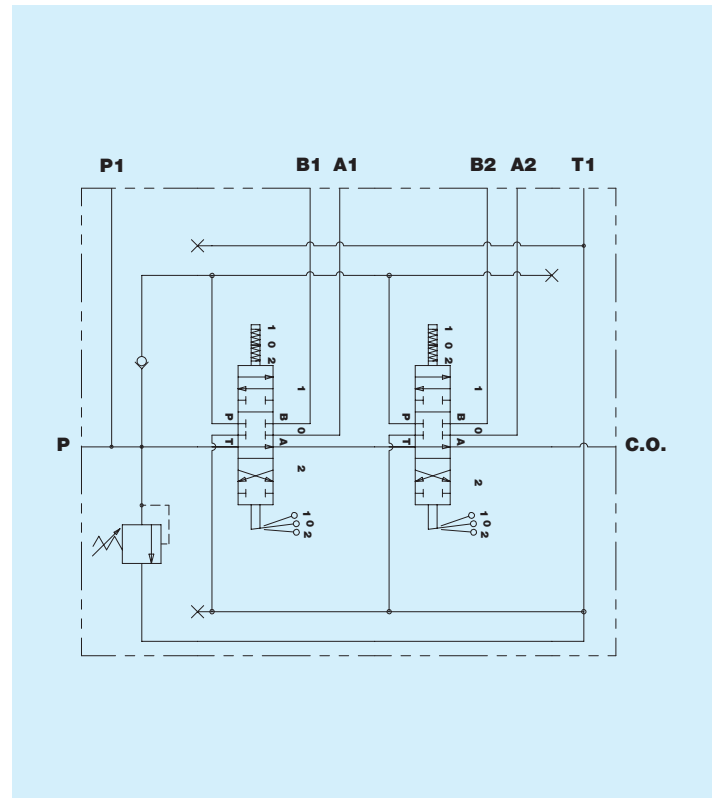
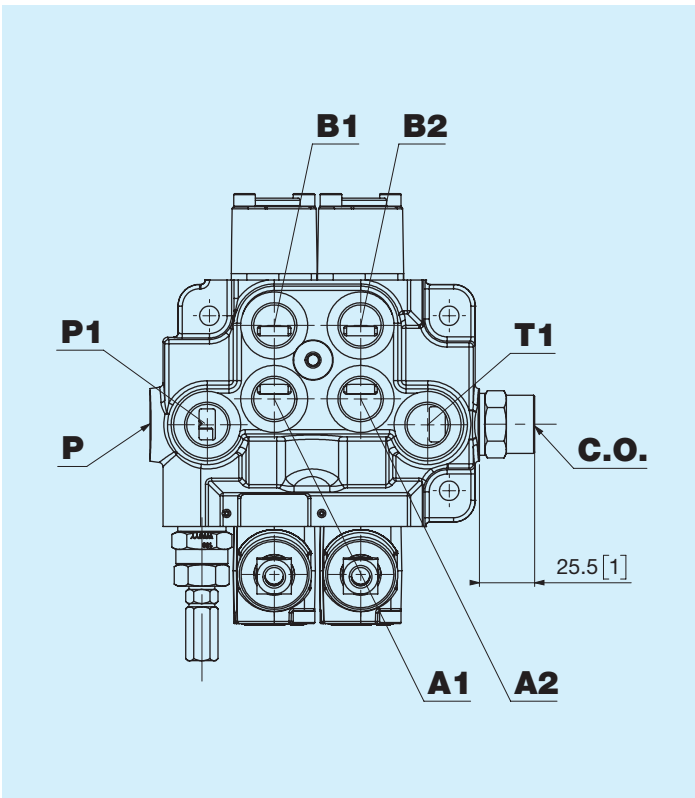
O Simple effect microswitch port B



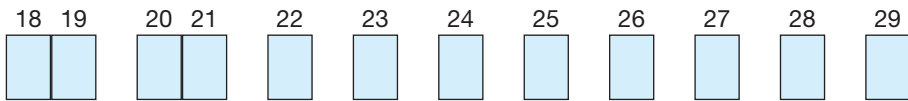
A Carry-over option



B With carry-over port T



DN	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1	Number of sections																
	1 Sections				3 Sections				5 Sections								
	2 Sections				4 Sections				6 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	Type of inlet																
	S Left (standard)				D Right												
4	Thread port P																
	0 Not processed				B 1/2" GAS ISO 1179				C M18x1.5 ISO 9974				P 9/16" - 18 SAE ISO 11926				
	L 1/4" GAS ISO 1179				3 M14x1.5 ISO 9974				I M16x1.5 ISO 6149				E 3/4" - 16 SAE ISO 11926				
	A 3/8" GAS ISO 1179				T M16x1.5 ISO 9974				W M18x1.5 ISO 6149								
5	Thread port P1																
	0 Not processed				B 1/2" GAS ISO 1179				C M18x1.5 ISO 9974				P 9/16" - 18 SAE ISO 11926				
	L 1/4" GAS ISO 1179				3 M14x1.5 ISO 9974				I M16x1.5 ISO 6149				E 3/4" - 16 SAE ISO 11926				
	A 3/8" GAS ISO 1179				T M16x1.5 ISO 9974				W M18x1.5 ISO 6149								
6	Options on port P-P1																
	A P open - P1 open (standard)				C P plugged - P1 open				E P not processed - P1 open								
	B P open - P1 plugged				D P open - P1 not processed												
7 8	Maximum pressure relief valve type																
	00 VMP replacement plug				12 120 bar				19 190 bar				26 260 bar				
	06 60 bar				13 130 bar				20 200 bar				27 270 bar				
	07 70 bar				14 140 bar				21 210 bar				28 280 bar				
	08 80 bar				15 150 bar				22 220 bar				29 290 bar				
	09 90 bar				16 160 bar				23 230 bar				30 300 bar				
	10 100 bar				17 170 bar				24 240 bar								
	11 110 bar				18 180 bar				25 250 bar								
9	Sealing type maximum pressure relief valve																
	G Grub screw				P Sealed				N None								
	C Cap				R Sealing provided												
10	Thread ports A - B																
	L 1/4" GAS ISO 1179				T M16x1.5 ISO 9974				W M18x1.5 ISO 6149				P 9/16" - 18 SAE ISO 11926				
	A 3/8" GAS ISO 1179				C M18x1.5 ISO 9974				I M16x1.5 ISO 6149				E 3/4" - 16 SAE ISO 11926				
	B 1/2" GAS ISO 1179																
11	Type of section																
	A Parallel (standard)																



12	Actuators			
	L Standard kit for lever holder	M Joystick	H Dual effect electro-hydraulic control	I Simple effect electro-pneumatic control port A
	Z Lever holder with stroke limiter	G Joystick with spool lock	S Simple effect electro-hydraulic control port A	W Simple effect electro-pneumatic control port B
	A Without lever holder, standard appendix	K Hydraulic control	X Simple effect electro-hydraulic control port B	
	T Cable setting	P Pneumatic	U Dual effect electro-pneumatic control	
13 14	Spool types			
	01 Spool type	05 Spool type	10 Spool type	70 Spool type
	03 Spool type	07 Spool type	17 Spool type	
	04 Spool type	08 Spool type	23 Spool type	
15	Spool options			
	A Standard spool 25-50 l/min	C Nickel-plated spool 25-50 l/min	N None	
	B Standard spool 10-25 l/min	D Nickel-plated spool 10-25 l/min		
16 17	Spool control			
	NN None	OE Neutral position in 0	OR Neutral position in 2	TR Neutral position in 1
	0A Neutral position in 0	OF Neutral position in 0	OS Neutral position in 1	...
	0B Neutral position in 0, detent in 1	OH Detent in 2	NS Neutral position in 0, detent in 3	... For selection, see the relevant chapter
	0C Neutral position in 0, detent in 2	OL Detent in 1	NT Neutral position in 0, detent in 4	
	0D Detent in 0, 1, 2	OQ Detent in 1, 2	PS Detent in 3, 1, 0, 2	
18 19	Valve type port A			
	00 None	09 VL 90 bar	15 VL 150 bar	21 VL 210 bar
	TP Processed and plugged	10 VL 100 bar	16 VL 160 bar	22 VL 220 bar
	VB Pilot operated check valve	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	
20 21	Valve type port B			
	00 None	09 VL 90 bar	15 VL 150 bar	21 VL 210 bar
	TP Processed and plugged	10 VL 100 bar	16 VL 160 bar	22 VL 220 bar
	VB Pilot operated check valve	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	
22	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	
23	Lever holder position			
	A Straight	C Rotated 180°	N None	
	B Rotated 90° towards P (right inlet)	D Rotated 90° towards T		
24	Options spool control			
	N None	M Male dual control	Y Dual effect microswitch	O Simple effect microswitch port B
	C Stroke limiter	T Cable setting	P Simple effect microswitch port A	

25

Voltage and connector

N None **A** 12V DIN 43650 **B** 24V DIN 43650

26

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

27

Thread Port T1

O Not processed **B** 1/2" GAS ISO 1179 **C** M18x1.5 ISO 9974 **P** 9/16" - 18 SAE ISO 11926
L 1/4" GAS ISO 1179 **3** M14x1.5 ISO 9974 **I** M16x1.5 ISO 6149 **E** 3/4" - 16 SAE ISO 11926
A 3/8" GAS ISO 1179 **T** M16x1.5 ISO 9974 **W** M18x1.5 ISO 6149

28

Options on port T-T1

A T open - T1 open (standard) **B** T open - T1 plugged **C** T plugged - T1 open **D** T open - T1 not processed

29

Discharge options

A Carry-Over option (standard) **B** With Carry-Over port T