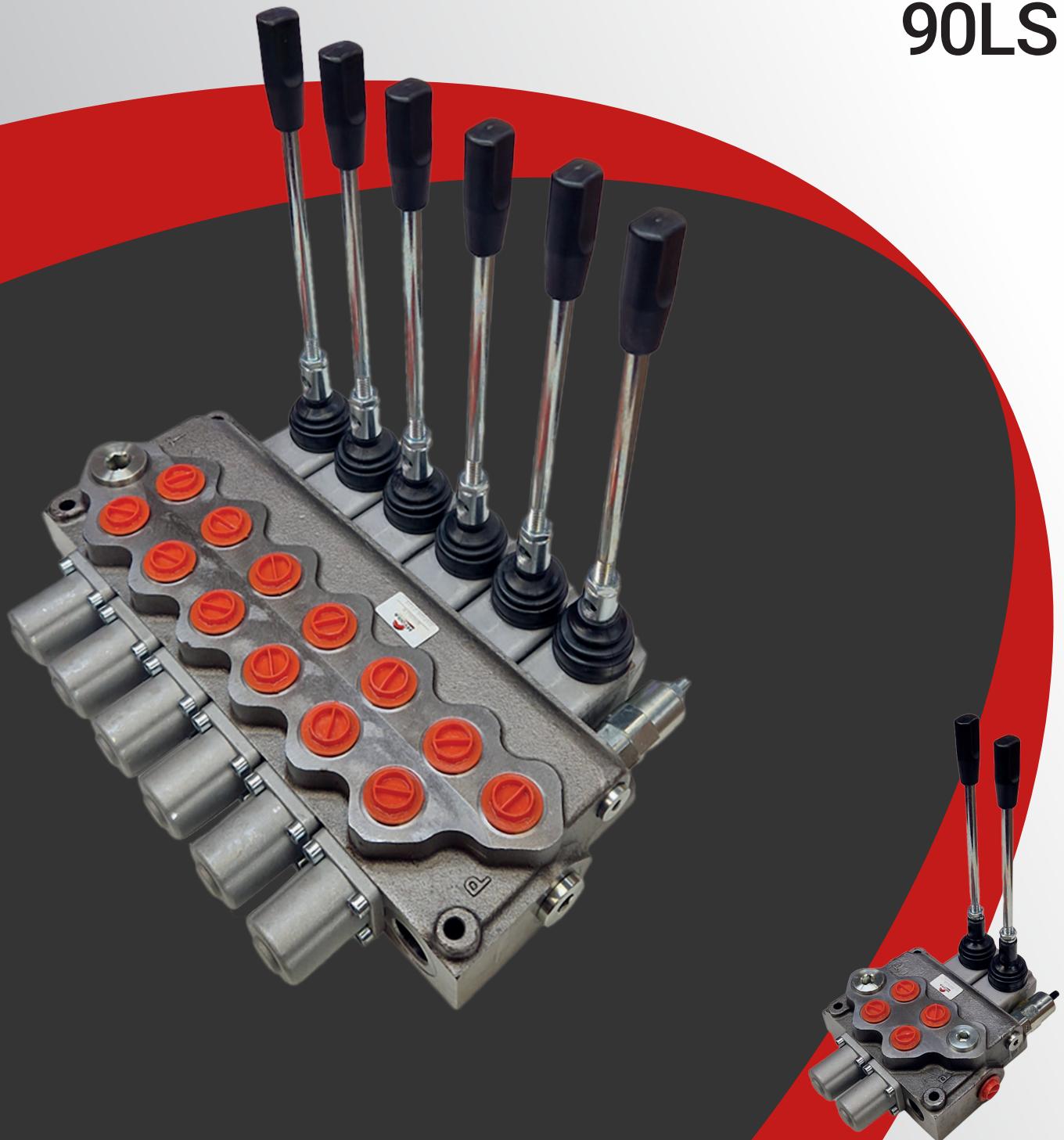




MONOBLOCK VALVES

90LS



Features

HYDRA Part compact and heavy duty designed Monoblock valves from 1 to 6 sections for open and closed centre hydraulic systems.

- Fitted with a main pressure relief valve and a load check valve.
- Available with parallel, series or tandem circuit.
- Optional carry-over port (only for parallel or tandem circuit).
- Diameter 20 mm -- 0.79 in interchangeable spools.
- Actuation is manual, pneumatic, electro-pneumatic, hydraulic, electro-hydraulic, with solenoid and remote with flexible cables spool control kits.

Additional information

This catalogue shows the product in the most standard configurations.

Please contact Sales Dpt. for more detailed information or special request

All specifications of this catalogue refer to the standard product at this date.

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Working Conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46 mm²/s (46cSt) viscosity at 40°C (104°F) temperature.

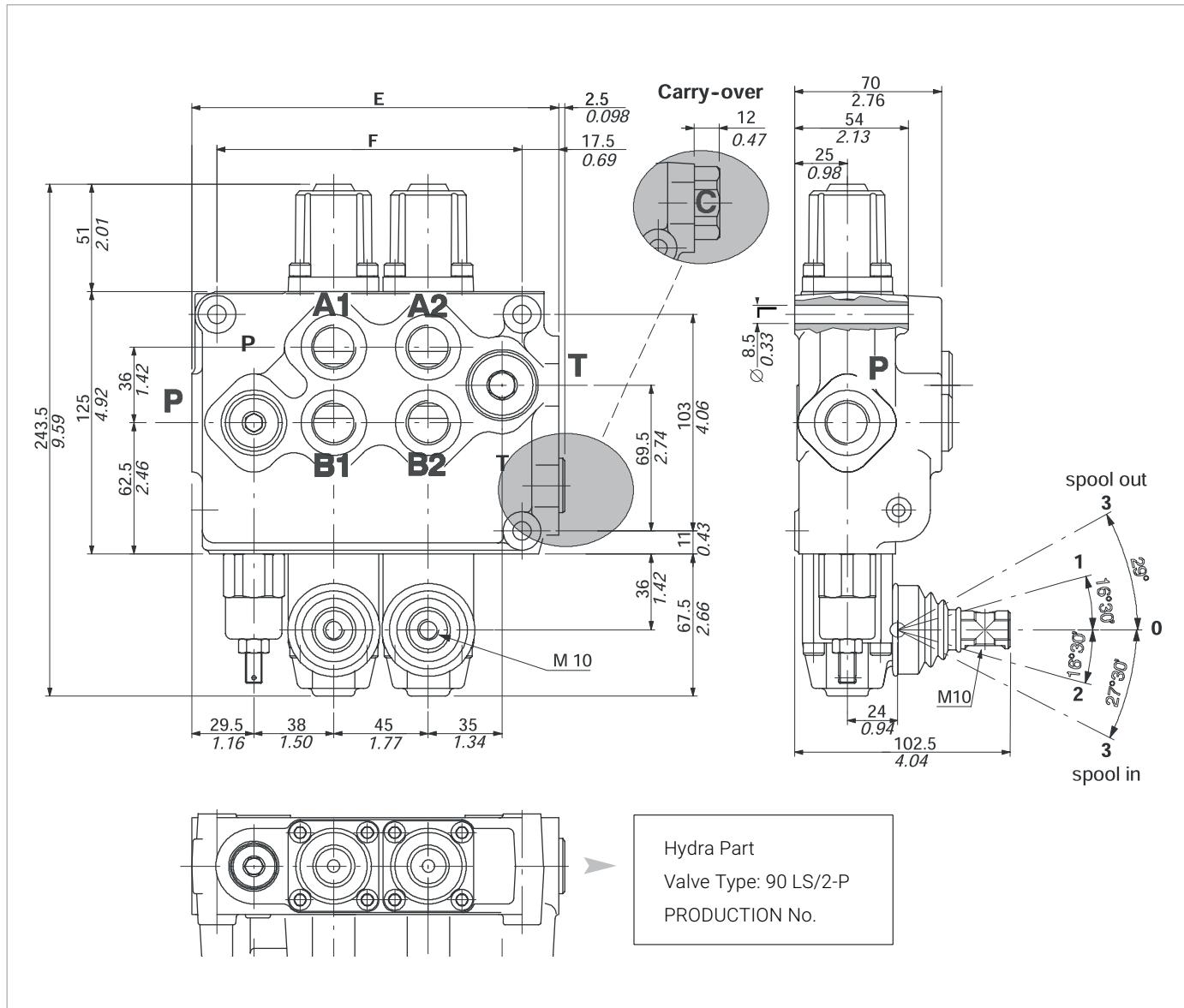
Nominal flow rating		90 l/min	24 USgpm
Max. flow		100 l	26 USgpm
Operating pressure (max.)		315 bar	4600 psi
Back pressure (max.)	T outlet port	20 bar	290 psi
Internal leakage (standard) A(B) T	p= 100 bar (1450 psi)	3 cm ³ /min	0.18 in ³ /min
Hydraulic fluid		Mineral base oil	
Fluid temperature	with NBR seals	from - 20° to 80°C	from -4°F to 176°F
	with FPM (VITON) seals	from - 20° to 100° c	from -4°F to 212°F
Viscosity	operating range	from 15 to 75 mm ² /s	from 15 to 75 cSt
	minimum	12 mm ² /s	12 cSt
	maximum	400 mm ² /s	400 cSt
Max. level of contamination		-/19/16 - ISO 4406	NAS 1638 - class 10
Ambient temperature for working conditions	with mechanical devices	from -40° to 60°C	from -40°F to 140°F
	with pneumatic and hydraulic devices	from -30°C to 80°C	from -22°F to 140°F
	with electric devices	from -20°C to 50°C	from -4°F to 122°F

Standard threads

Reference Standards				
		BSP	UN- UNF	METRIC
Thread according to		ISO 228/1 BS 2779	ISO 263 ANSI B1.1 unified	ISO 262
Cavity dimension according to	ISO	1179	11926	9974-1
	SAE		J1926	J2244
	DIN	3852-2 shape X or Y		3852-1 shape X or Y

Ports Threading				
Main ports	BSP	Optional	UN- UNF	METRICA
P Inlet and C carry-over	G 1/2	G 3/4	7/8-14 (SAE 10)	M18x1.5
A and B Ports	G 1/2	G 3/4	3/4-16 (SAE 8)	M18x1.5
T Outlet	G 3/4	G 3/4	7/8-14 (SAE 10)	M22x1.5
Pilot ports				
Hydraulics	G 1/4	-	-	-
Pneumatics	G 1/8	-	-	-

Dimensional Data

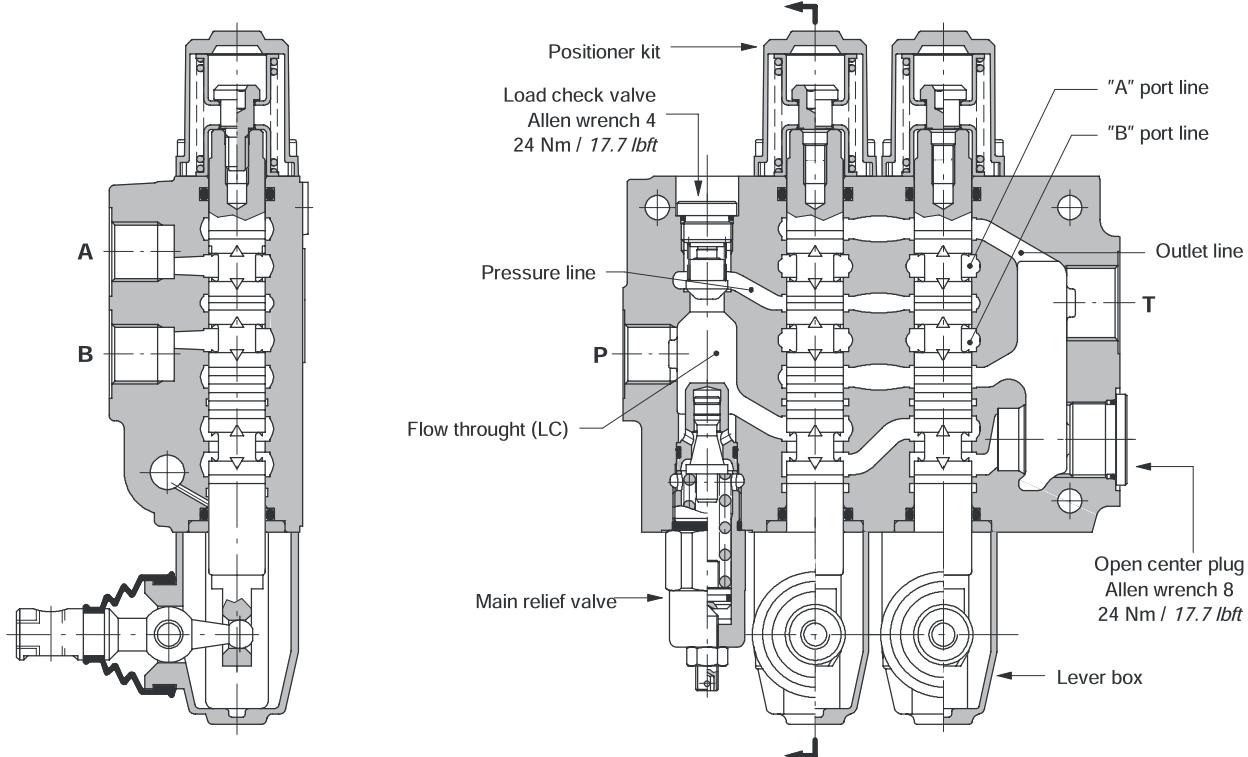


Type	E		F		Weight	
	mm	in	mm	in	kg	lb
90LS/1-P	130	5.12	100	3.94	6.1	13.4
90LS/2-P	174.5	6.87	145	5.71	8.8	19.4
90LS/3-P	219.5	8.64	190	7.48	11.4	25.1

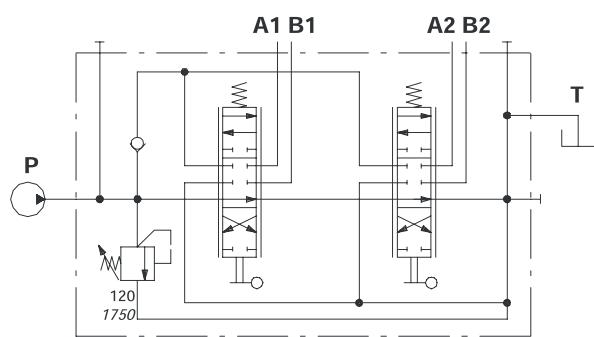
Type	E		F		Weight	
	mm	in	mm	in	kg	lb
90LS/4-P	264.5	10.41	235	9.25	14.2	31.3
90LS/5-P	309.5	12.19	280	11.02	16.7	36.8
90LS/6-P	354.5	13.96	325	12.80	19.4	42.8

Parallel Circuit

Standard configuration with side inlet and open center circuit (AET configuration).

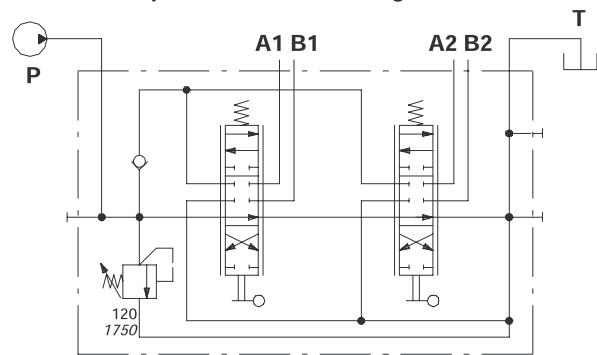


Standard configuration



Description example:
90LS/2-P(YG3--120)/18L/18L/AET

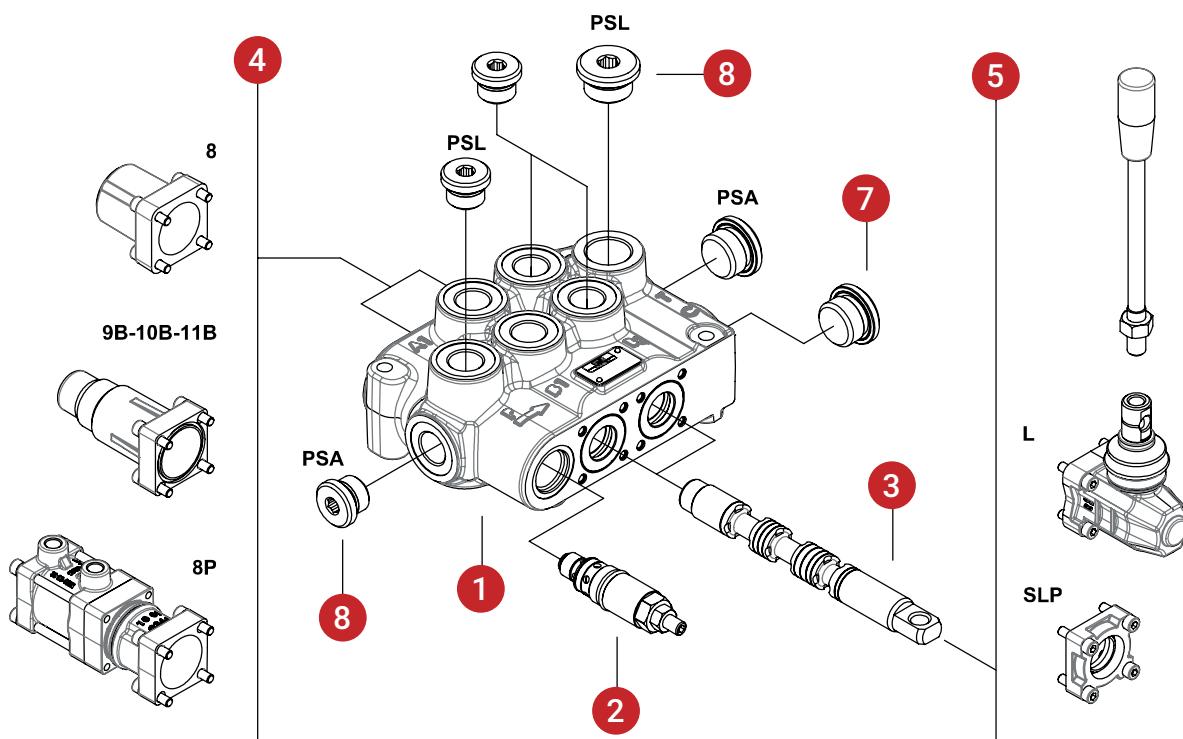
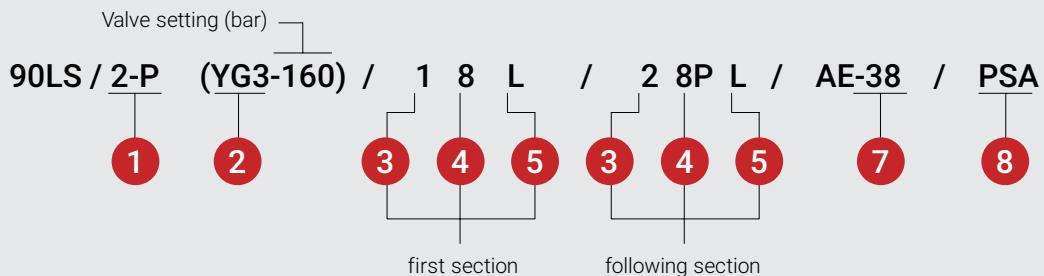
Top inlet and outlet configuration



Description example:
90LS /2--P(YG3--120)/18L/18L/AET-PSA

90LS Monoblock Control Valves Coding

Description example:



1 Body kits - Ordering codes	
Type	Description
1-P	Parallel, 1 section
2-P	Parallel, 2 sections
3-P	Parallel, 3 sections
4-P	Parallel, 4 sections
5-P	Parallel, 5 sections
6-P	Parallel, 6 sections

2 Inlet relief options	
Type	Description
YG2	Range 40 – 80 Bar / 580 to 1160 Bar
YG3	Range 63 – 200 Bar / 915 to 2900 Bar
YG4	Range 160 to 315 bar / 2300 to 4600 psi
SV	Relief valve blanking plug

90LS Monoblock Control Valves Coding (continued)

③ Spools		
Type	Code	Description
1	P0101011634	90LS - Double acting, 3 positions, with A and B closed in neutral position Type 1
1A	**	90SL - Double acting, 3 positions, with A open to Tank in neutral position.
1B	**	90SL - Double acting, 3 positions, with B open to Tank in neutral position.
2	P0101011320	90LS - Motor spool D/Acting, 3 positions, with A and B open to tank in neutral position Type 2
3	P0101011319	90LS - Single acting on A, 3 positions, B plugged requires G1/2 plug Type 3
4	P0101011321	90LS - Single acting on B, 3 positions, A plugged requires G1/2 plug Type 4
5	**	90SL - Double acting, 4 positions, floating circuit in 4th position with spool in.
5VR	**	90SL - Double acting, 4 positions, floating circuit in 4th position with spool out, with check valve
7	P0101011734	90LS - Single acting on A open to Tank in neutral position, 3 positions, B plugged. Type 7
9	**	90SL - Double acting, 3 positions, with P T A B close in neutral position. (Closed centre)

④ Spool 'A' Side Positioners		
Type	Code	Description
8	P0101011636	90LS- 120LS - 3 Position Spring kit type 8
8D	P0101011724	90LS - 120LS spring return in neutral position and pin with M6 female thread for dual control 8D
8D2	**	90LS - 120LS Control Valve Dual control connector Kit with 8mm Male Kit 8D2
19	**	90LS - 120LS 2 positions, with spring return in neutral position from position 1
20	**	90LS - 120LS 2 positions, with spring return in neutral position from position 2
11	P0101011589	90LS -120LS - 3 position detent in Position Neutral - 1 and 2 - Kit type 11
12	**	90LS - 120LS Detent in positions 1 and 2
15	P0101011679	90LS -120LS - 2 positions, detent in positions 1 and neutral Kit type 15
16	P0101011678	90LS - 120LS - 2 positions, detent in positions 2 and neutral Kit type 16
9B	P0101011632	90LS - 120LS detent in position 1 and spring return in neutral position - Kit type 9B
10B	P0101011633	90LS - 120LS - detent in position 2 and spring return in neutral position - Kit type 10B
11B	P0101011723	90LS - 120LS - Detent in positions 1 and 2 and spring return in neutral position Kit type 11B
8P	P0101011677	90LS - 120LS - ON/OFF pneumatic kit 8P
8EP3(12V)	P0101011722	90LS - 120LS -ON/OFF 12 VDC electro--pneumatic kit 12VDC 8EP3
8EP4(24V)	P0101011315	90LS - 120LS -ON/OFF 12 VDC electro--pneumatic kit 24VDC 8EP4
8ED3	**	90LS- 120LS - ON/OFF 12 VDC electro--hydraulic kit 12V
8ED4	**	90LS- 120LS - ON/OFF 24 VDC electro--hydraulic kit 24V
13B	**	4 pos. with spring return in neutral pos. and detent in 4th pos.: for spool 5
13C	**	4 pos. with spring return in neutral pos. and detent in 4th pos.: for spool 5VR 4

90LS Monoblock Control Valves Coding (continued)

5 'B' Side Positioners Options

Type	Code	Description
L	P0101011713	90LS - 120LS - Standard lever box (L)
R	P0101011713	90LS - 120LS - Standard lever box (L) 180 degrees
SL	**	Without any cover
SLP	P0101011712	90LS - 120LS Without lever, with dust proof plate (SLP)
LR	P0101011711	90LS - Rotary Lever Kit (LR)
TQ	P0101011745	90LS - 120LS - Cable connection kit (TQ)
LCB	P0101011744	90LS - Joystick control kit (LCB)

6 Complete controls

Type	Code	Description
8IM	P0101011630	90LS- 120LS - Propotional hydraulic control 8IM

7 Outlet Port Options

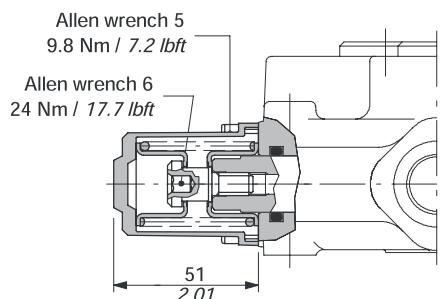
Type	Code	Description
AET	P0101011701	Open centre plug
AEK	P0101011700	90LS - Closed centre plug
AE	**	Carry over plug 1/2"
AE	P0101011635	90LS - Carry over plug 3/4" (AE)

8 Inlet & Outlet Selection

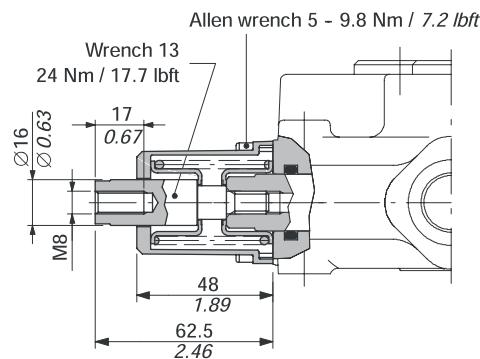
Type	Description
PSL	Upper ports need 1 x G 1/2" and 1 x G3/4" (Standard configuration)
PSA	Side ports need 1 x G 1/2" and 1 x G3/4"

'A' Side Spool Positioners

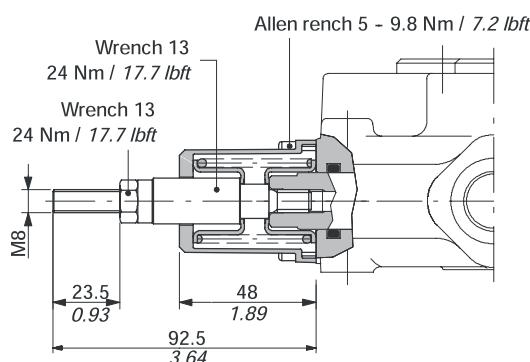
8 Kit



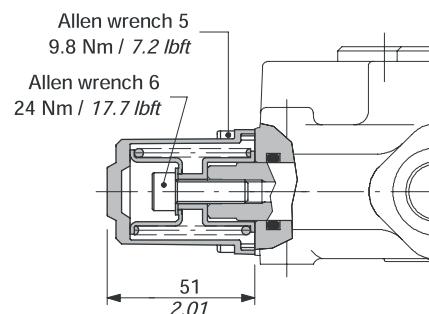
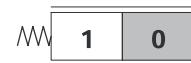
8D Kit



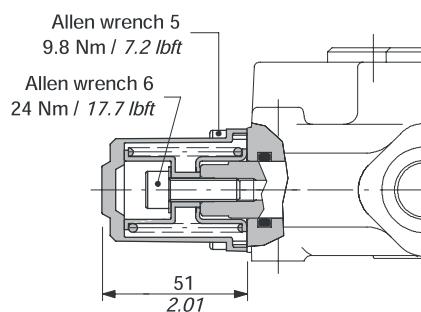
8D2 Kit



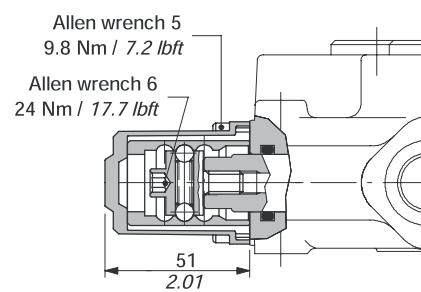
19 Kit



20 Kit

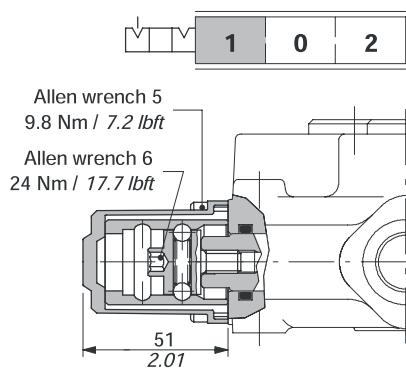


11 Kit

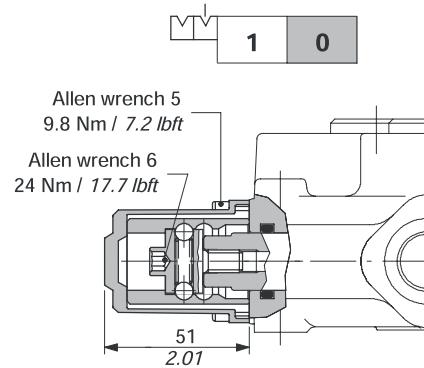


'A' Side Spool Positioners (continued)

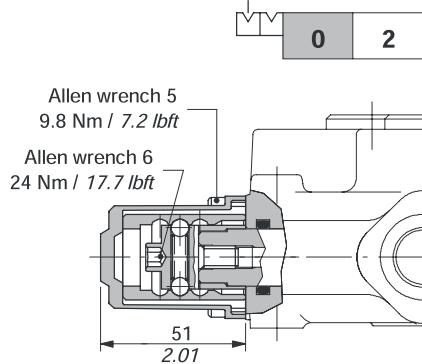
12 Kit



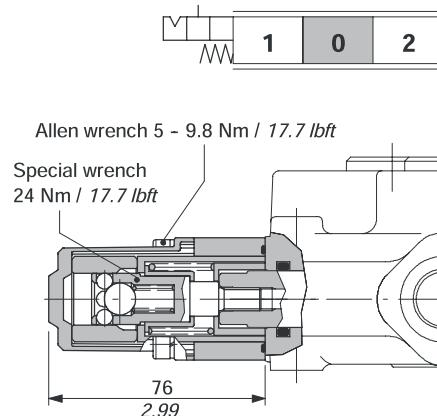
15 Kit



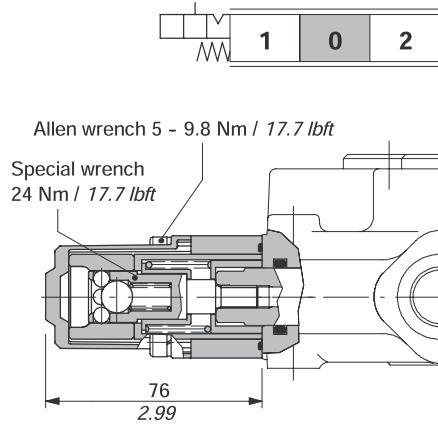
16 Kit



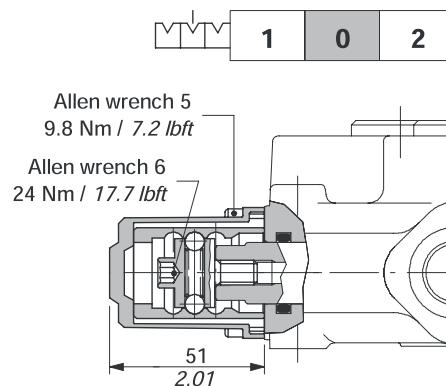
9B Kit



10B Kit

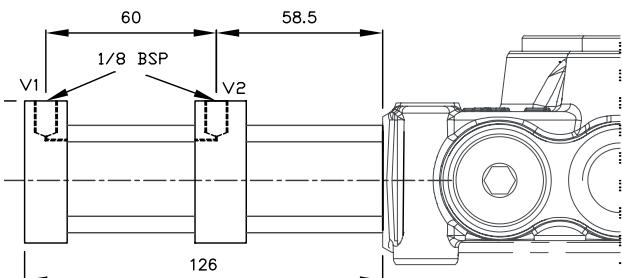


11B Kit

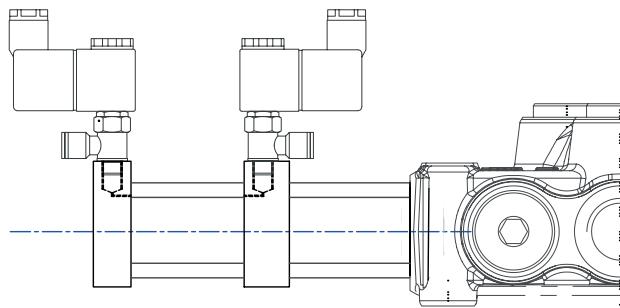


'A' Side Spool Positioners (continued)

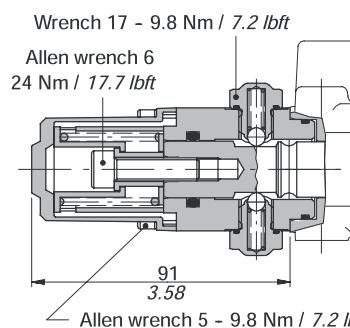
8P



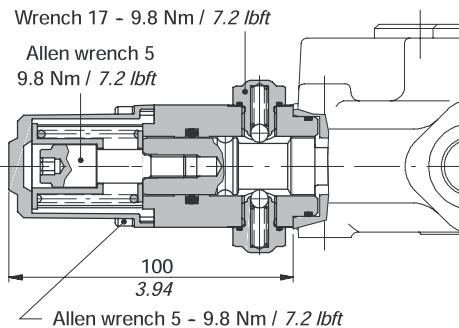
8EP3



13B

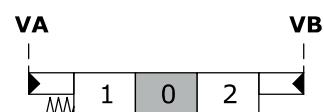
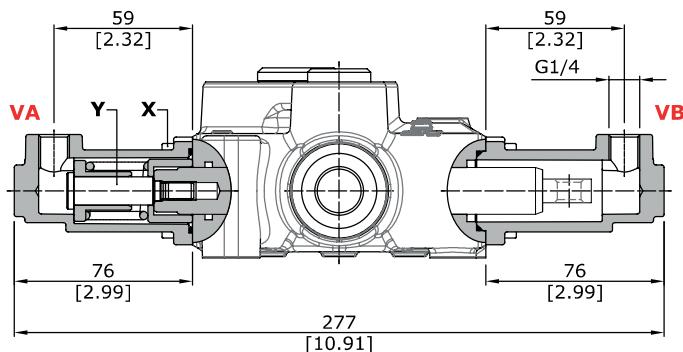


13C



6. Complete Controls

8IM Kit



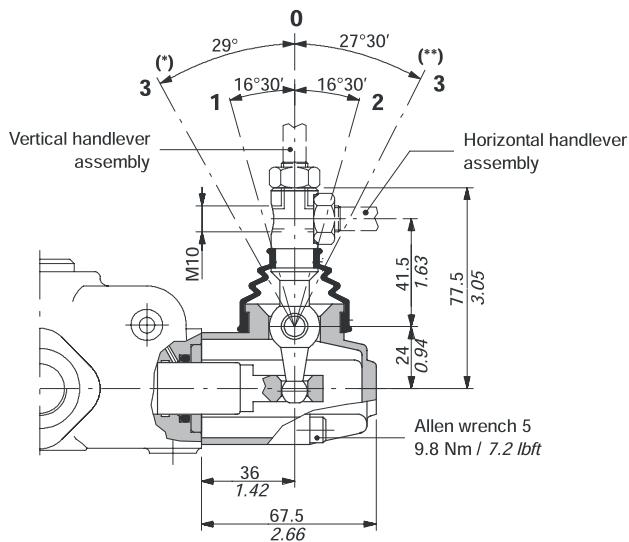
Wrenches and tightening torques
X = allen wrench 4 - 6 Nm (4.4 lbft)
Y = allen wrench 6 - 9 Nm (6.6 lbft)

Operating features

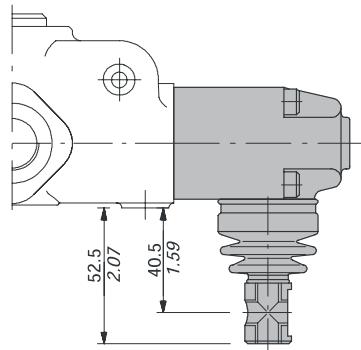
Pilot pressure : max. 50 bar (725 psi)
Internal leakage A(B) \rightarrow T ($\Delta = 100$ bar - (1450 psi)
/ T = 40°C) : max. 6cm³/min - 0.37 in³/min

'B' Side Positioners Options

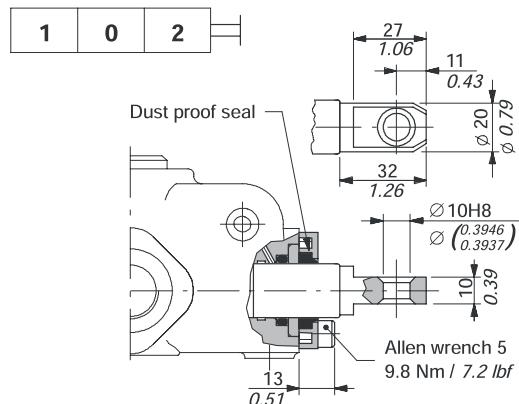
Type L Standard Lever Box



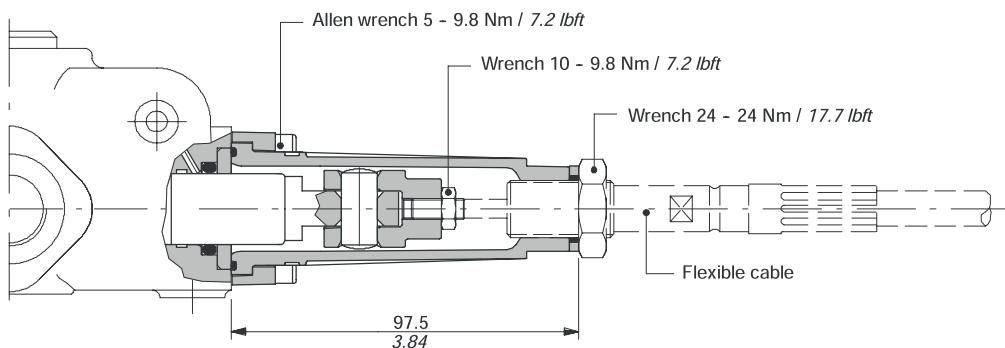
Type R = 180 degrees inverted



Type SLP (Mec control with dust proof plate)

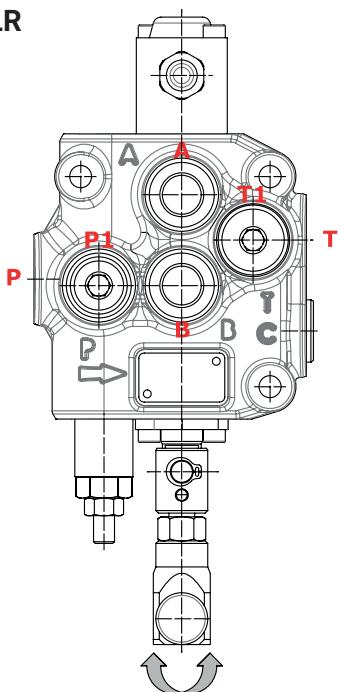


Type TQ



'B' Side Positioners Options (continued)

Type LR



Angle rotation $\pm 90^\circ$

Wrenches and tightening torques
 X = allen wrench 4 - 6 Nm (4.4 lbf)
 Y = wrench 19 - 9.8 Nm (7.23 lbf)
 W = wrench 17 - 9.8 Nm (7.23 lbf)

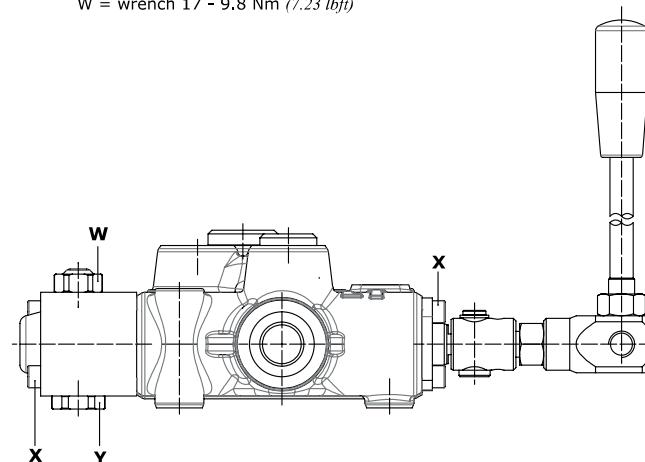
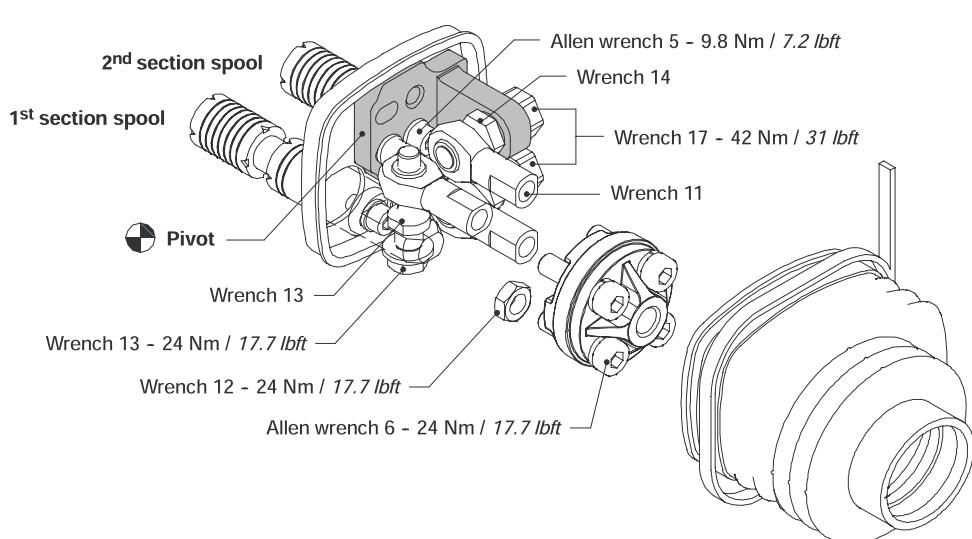


Image for illustrative purposes only. Actual part may differ.

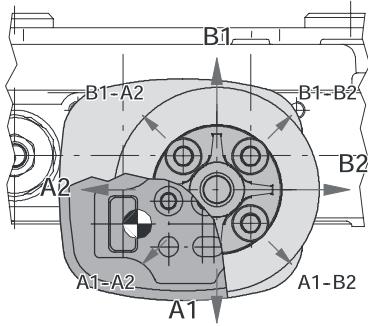
Type LCB (2 Axis Joystick control)



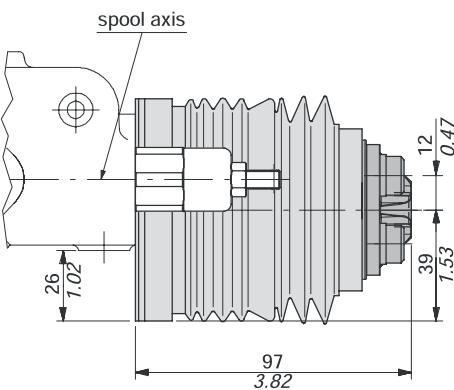
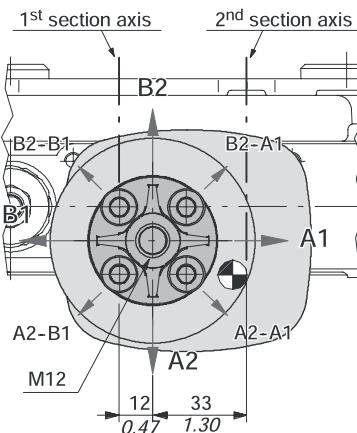
Configuration LCB4

Joystick Configuration Options

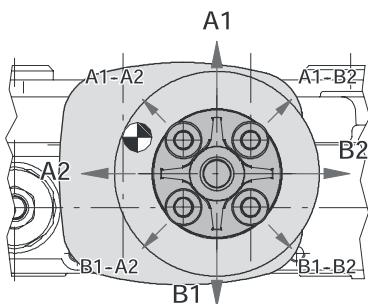
Configuration LCB1
pivot placed down on the left



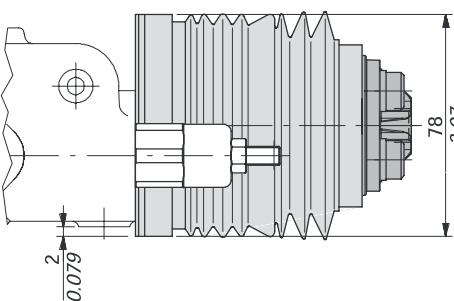
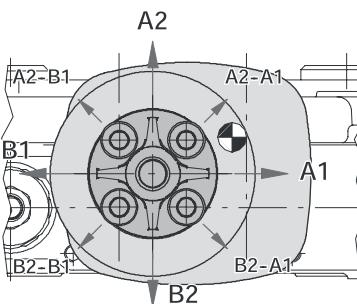
Configuration LCB2
pivot placed down on the right



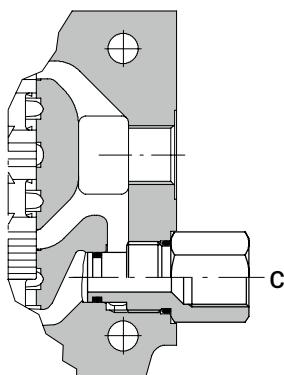
Configuration LCB3
pivot placed above on the left



Configuration LCB4
pivot placed above on the right

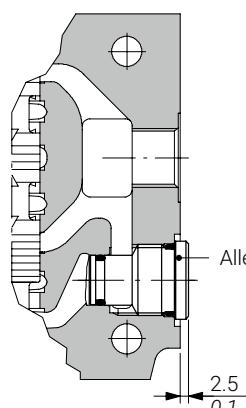


AE: with carry-over



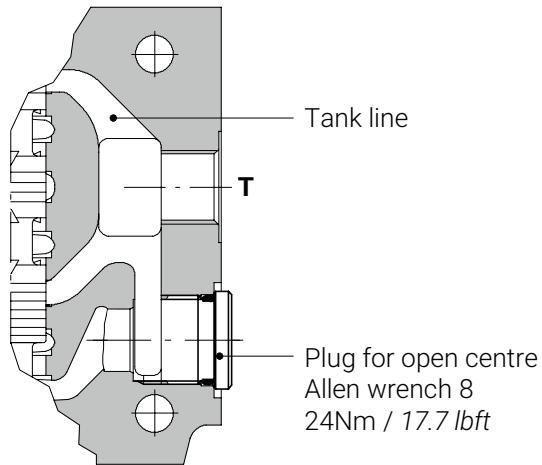
90LS - Carry over plug 3/4" (AE)

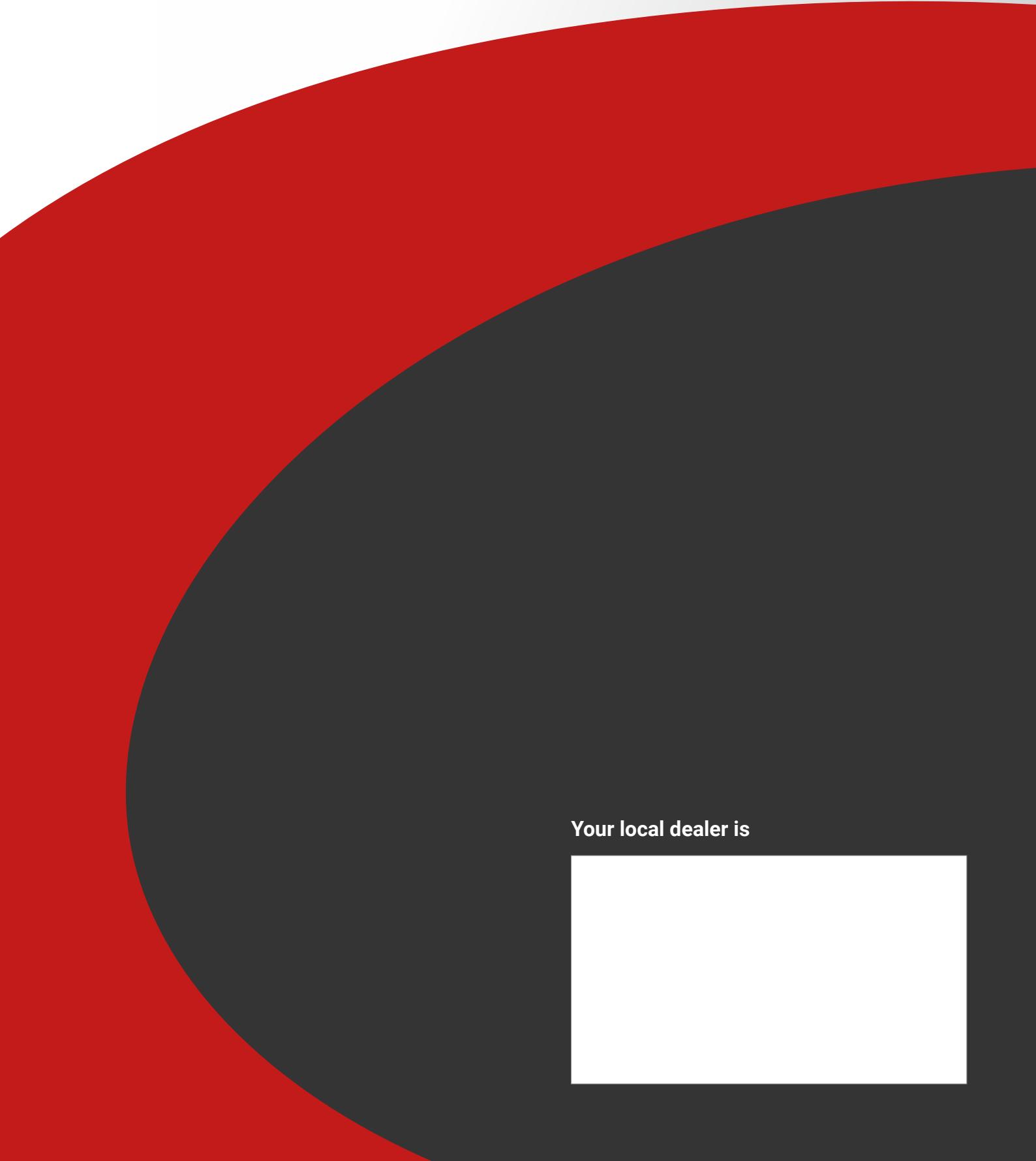
AEK: Closed centre plug



Joystick Configuration Options (continued)

AET Open Centre





A large, stylized graphic element occupies the lower half of the page. It consists of a thick, dark gray circle on the right side, which tapers into a red shape on the left. The red shape is curved and has a slightly irregular, organic form, resembling a stylized flame or a rising sun.

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