

# Operating Manual

## 2Ton & 3Ton Carrier

Serial No. :



ISO9001



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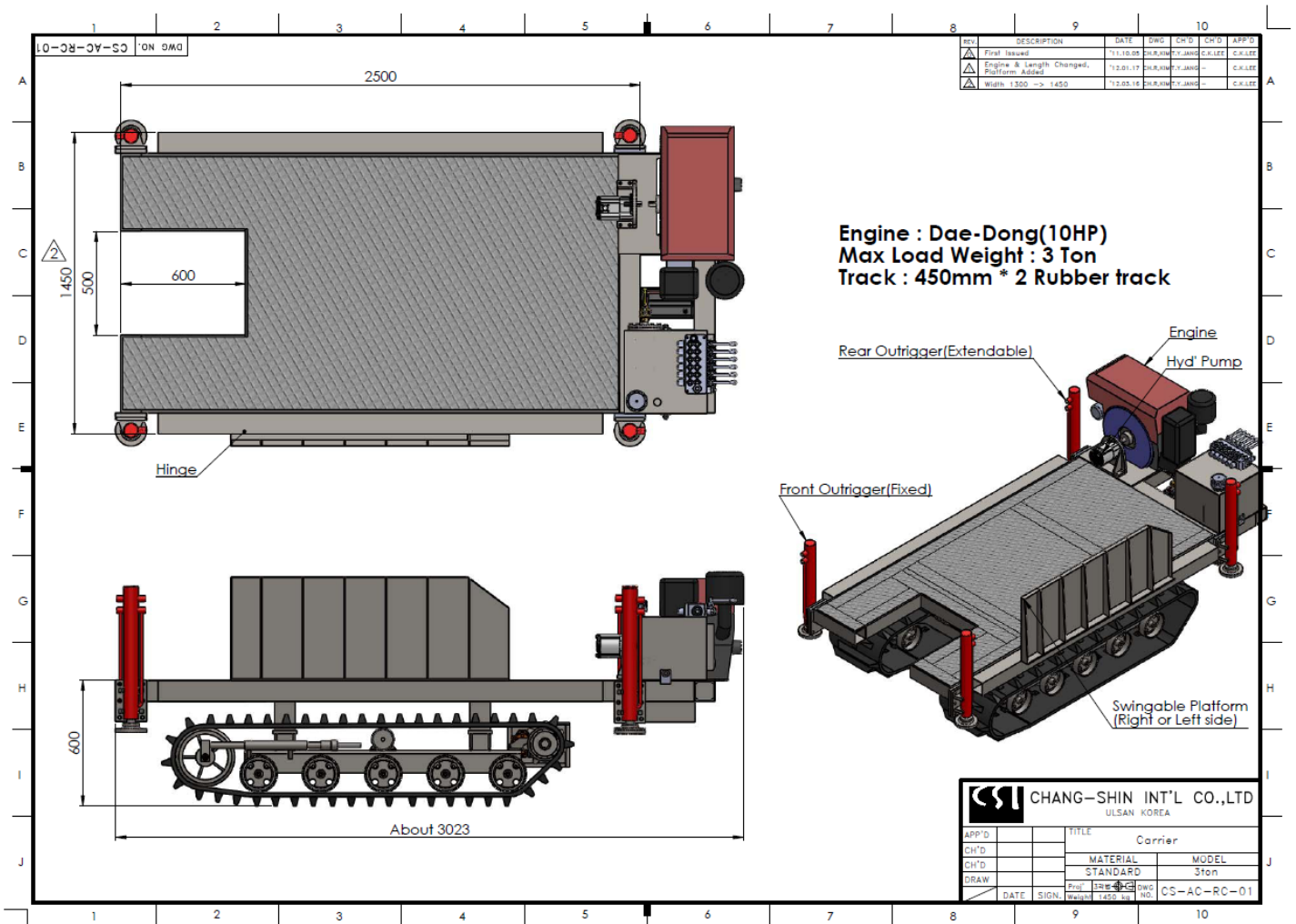
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# 1. TECHNICAL SPECIFICATION

## 1-1. OVERALL DIMENSIONS(MM)

	Length	Width	Height	Weight
3TON	3,050	1,550	1,100	1,550 kg
2TON	2,800	1,450		1,500 kg

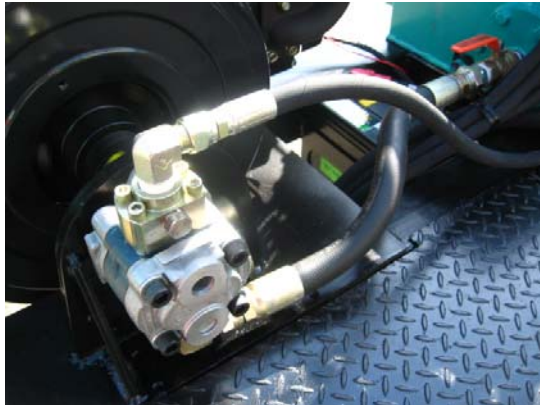


## 1-2. Max. Load Capacity

- 3Ton Carrier : 3Ton
- 2Ton Carrier : 2Ton

## 1-3. Part Description

### 1-3-1. Hydraulic pump.



19cc Gear Pump (PHB19R21)

### 1-3-2. Controller & Hydraulic Tank



WALVOIL SD5-6P

Lever 1 ~ 4 : Leveling Jack

Lever 5, 6 : Travel R / L

Tank Capacity : 40Litter

1" Ball valve

### 1-3-3. Battery

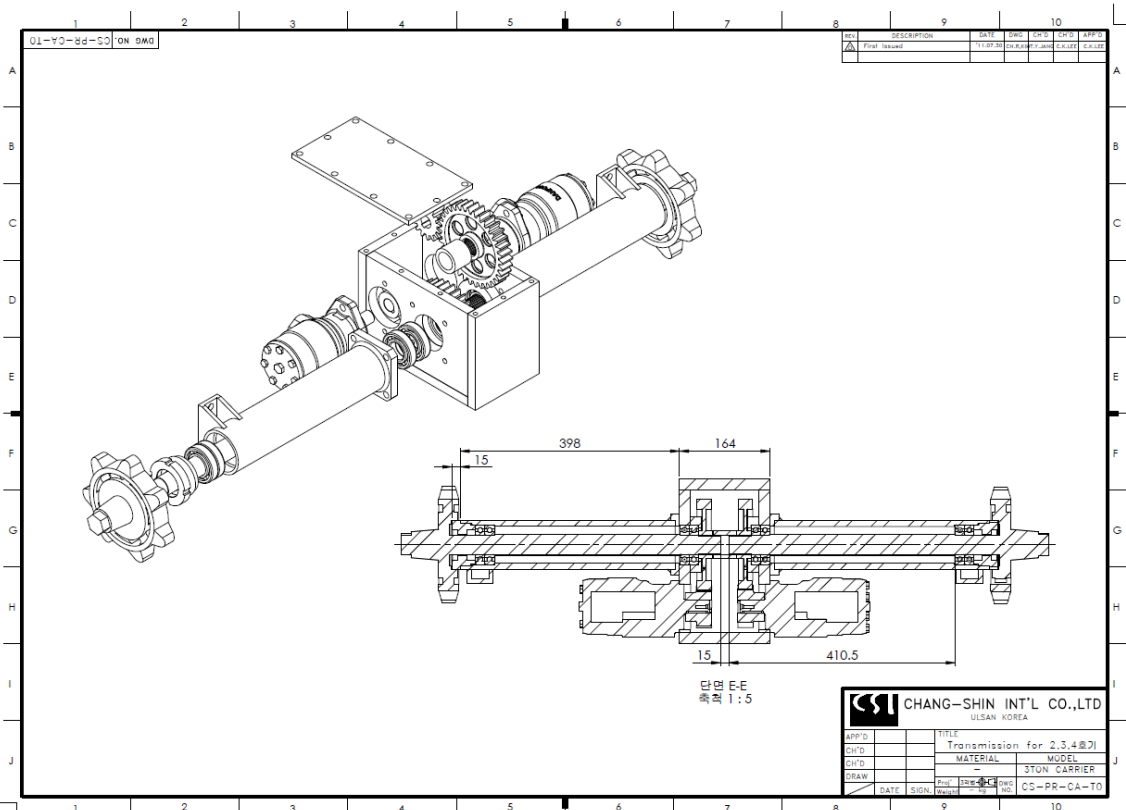


DC 12V / 45A

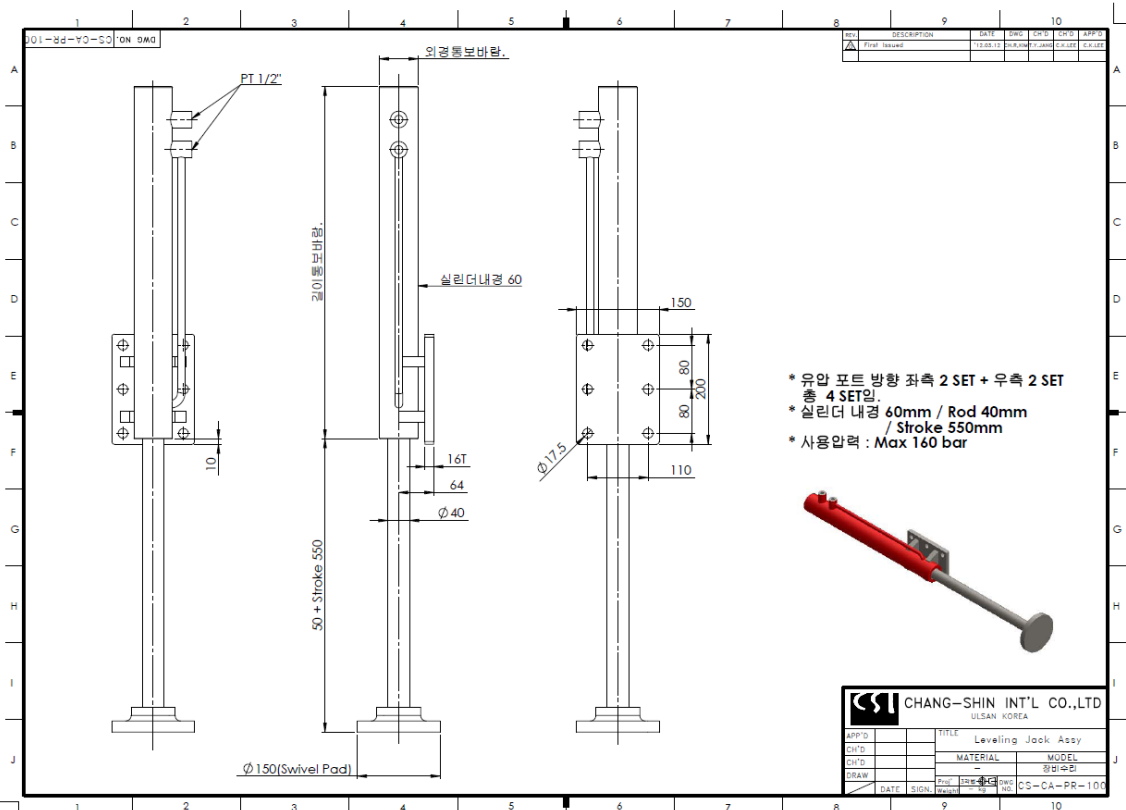
(ATLAS BX AX45L)

1-3-4. Mission and Motor

Travel Motor : EPRM315C

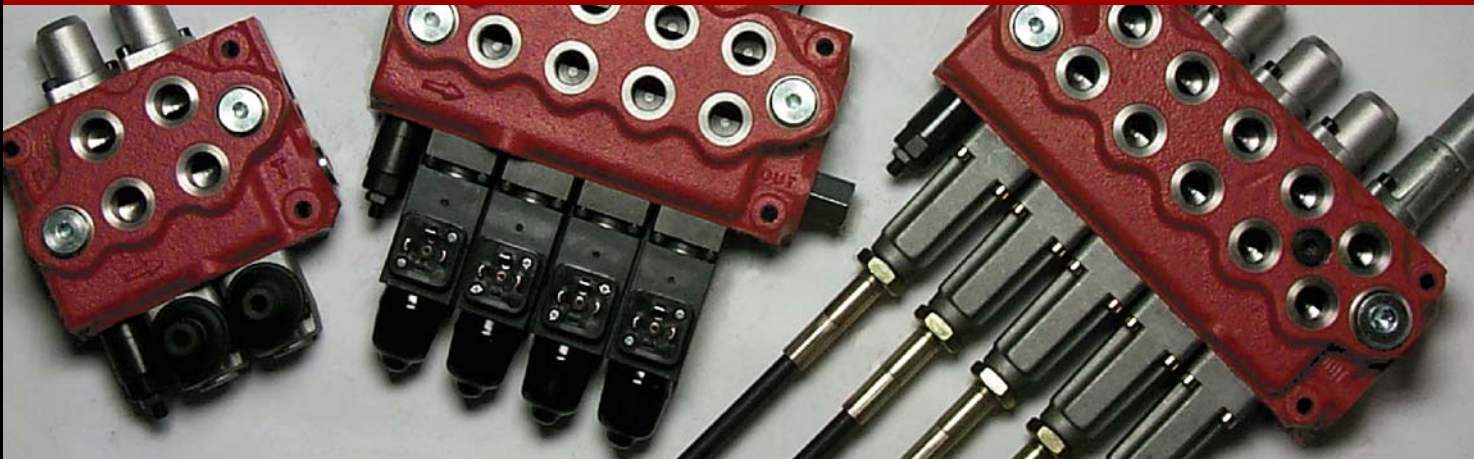


1-3-5. Leveling Jack



## 2. CONTROLLER MANUAL





MONOBLOCK DIRECTIONAL  
CONTROL VALVE

SD5



 **walvoil**  
HYDRAULIC CONTROL SYSTEMS

## Features

Simple, compact and heavy duty designed monoblock valves from 1 to 7 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 16 mm - 0.63 in interchangeable spools.
- A wide variety of service port valve options.
- 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.

### WARNING!

All specifications of this catalogue refer to the standard product at this date.  
Walvoil, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications, without notice.

WALVOIL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN  
INCORRECT USE OF THE PRODUCT.

1<sup>st</sup> edition April 2005



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## Working conditions

This catalogue shows technical specifications and diagrams measured with mineral oil of 46 mm<sup>2</sup>/s - 46 cSt viscosity at 40°C temperature.

Nominal flow rating		45 l/min	
Operating pressure (max.)	<i>parallel pr tandem circuit</i>	315 bar	4600 psi
	<i>series circuit</i>	250 bar	3600 psi
Max. back pressure	<i>on outlet port T</i>	25 bar	360 psi
Internal leakage A(B)→T	$\Delta p=100 \text{ bar} - 1450 \text{ psi}$ with fluid and valve at 40°C	3 cm <sup>3</sup> /min	0.18 in <sup>3</sup> /min
Hydraulic fluid		Mineral base oil	
Fluid temperature	<i>with NBR seals</i>	from -20° to 80°C	
	<i>with FPM seals</i>	from -20° to 100°C	
Viscosity	<i>operating range</i>	from 15 to 75 mm <sup>2</sup> /s	<i>from 15 to 75 cSt</i>
	<i>minimum</i>	12 mm <sup>2</sup> /s	12 cSt
	<i>maximum</i>	400 mm <sup>2</sup> /s	400 cSt
Max. level of contamination		19/16 - ISO 4406	
Ambient temperature	<i>with mechanical, pneumatic and hydraulic devices</i>	from -40° to 60°C	
	<i>with electric devices</i>	from -20° to 60°C	

NOTE - For different conditions please contact Sales Dept.

## Standard threads

### REFERENCE STANDARDS

		BSP	UN-UNF	METRIC	NPTF
THREAD ACCORDING TO		ISO 228/1	ISO 263	ISO 262	ANSI B1.20.3
		BS 2779	ANSI B1.1 unified		
CAVITY ACCORDING TO	ISO	1179	11926	9974-1	
	SAE		J1926	J2244	J476a
	DIN	3852-2 shape X o Y		3852-1 shape X o Y	

### PORTS THREAD

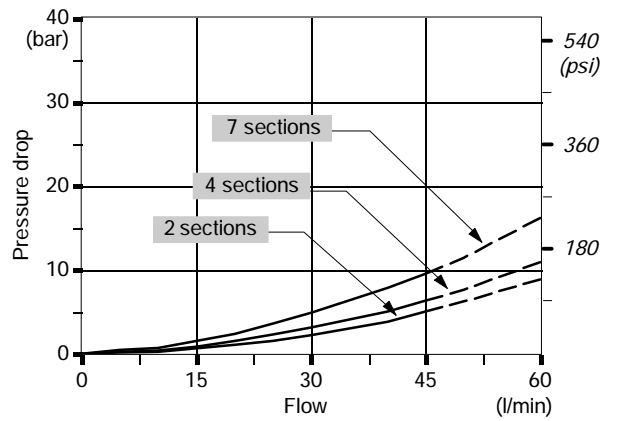
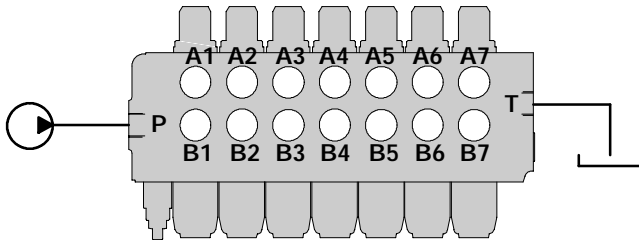
MAIN PORTS	BSP	UN-UNF	METRICA
Inlet P and carry-over C	G 3/8	3/4-16 (SAE 8)	M18x1,5
Ports A and B	G 3/8	9/16-18 (SAE 6)	M18x1,5
Outlet T	G 3/8	3/4-16 (SAE 8)	M18x1,5
	G 1/2 *		M22x1,5 *
CONTROL PILOT PORTS			
Pneumatics	NPTF 1/8-27	NPTF 1/8-27	NPTF 1/8-27
Hydraulics	G 1/4	9/16-18 (SAE 6)	G 1/4

(\*) - Only for series circuit..

Performance data (pressure drop vs. flow)

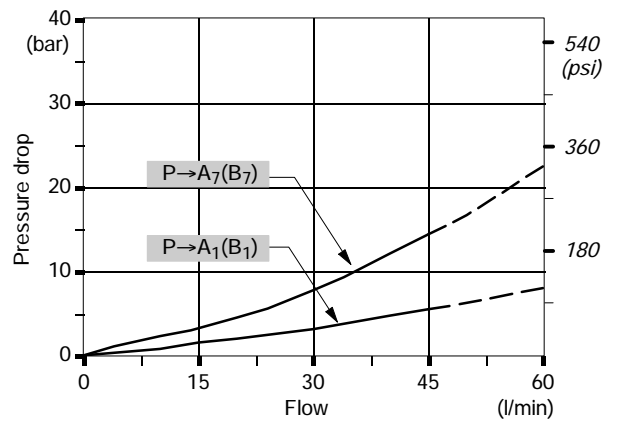
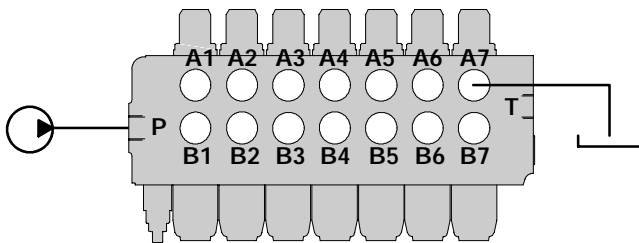
Open centre

From side inlet to side outlet.



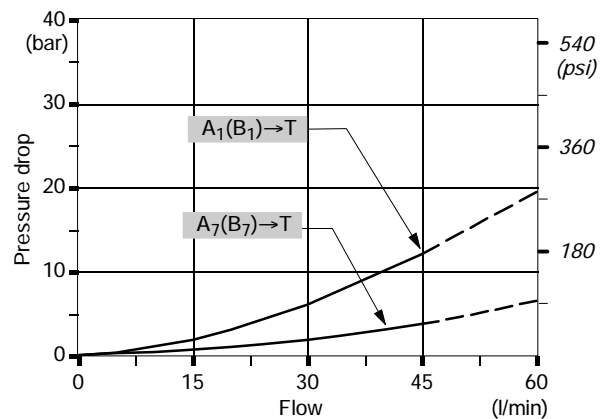
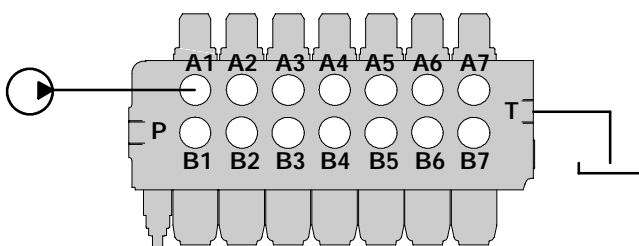
Inlet to work port

From side inlet to A port (spool in position 1) or B port (spool in position 2).



Work port to outlet

From A port (spool in position 2) or B port (spool in position 1) to side outlet.



NOTE - Measured with spool type 1.

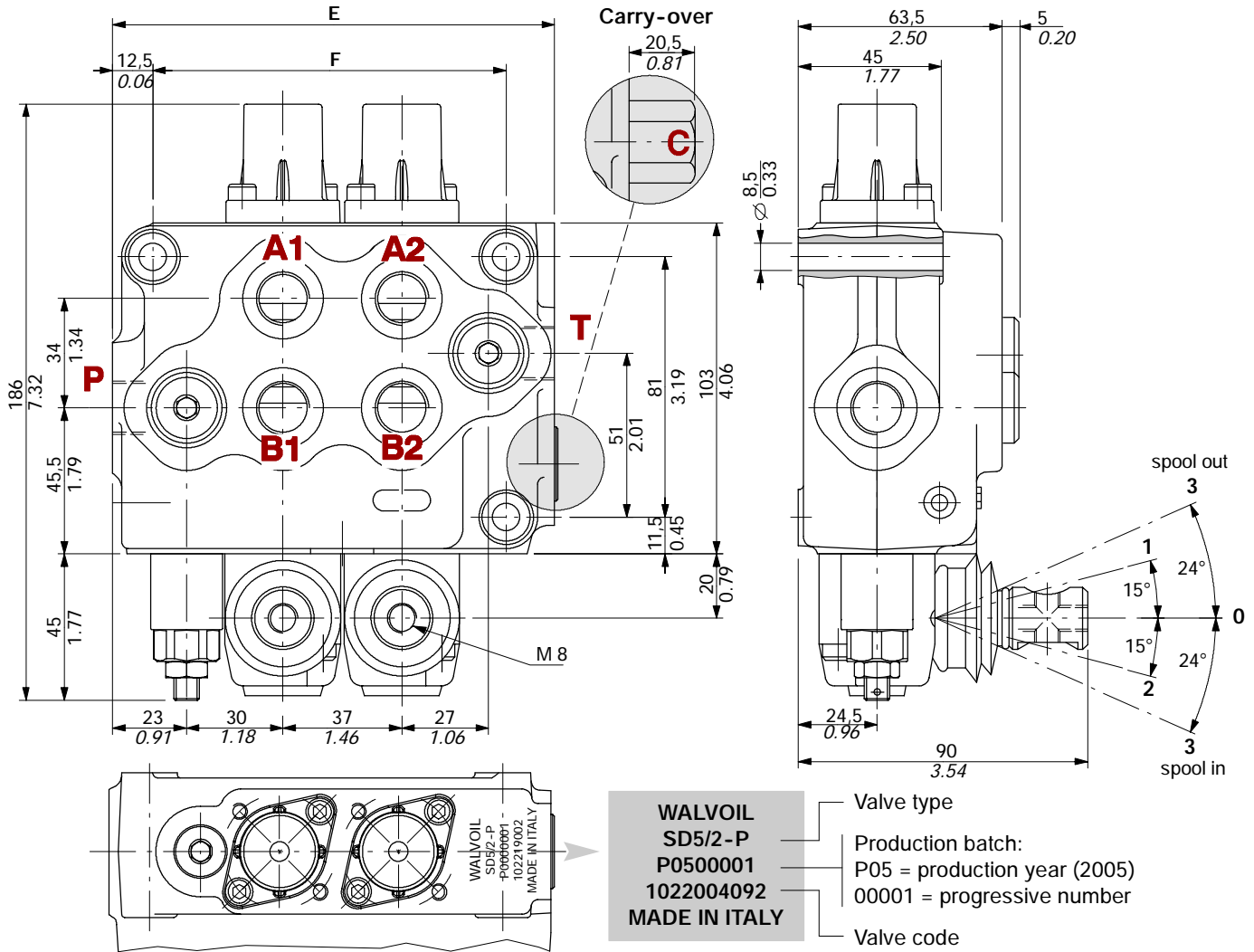




## Directional valve with parallel circuit

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Dimensional data (parallel circuit)



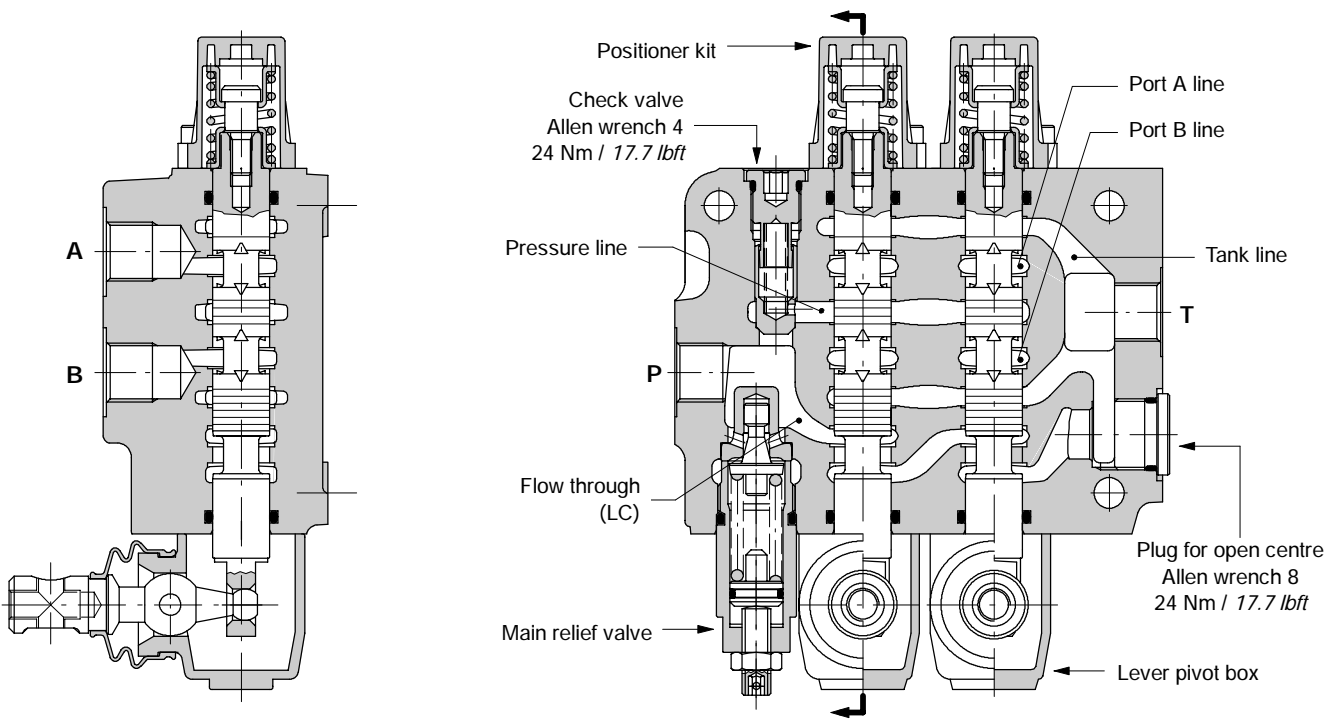
TYPE	E		F		Weight	
	mm	in	mm	in	kg	lb
SD5/1-P	100.5	3.96	73	2.87	3.5	7.7
SD5/2-P	137.5	5.41	110	4.33	5.2	11.5
SD5/3-P	174.5	6.87	147	5.79	6.9	15.2
SD5/4-P	211.5	8.33	184	7.24	8.1	17.9

TYPE	E		F		Weight	
	mm	in	mm	in	kg	lb
SD5/5-P	248.5	9.78	221	8.70	10.1	22.3
SD5/6-P	285.5	11.24	258	10.16	11.7	25.8
SD5/7-P	322.5	12.70	295	11.61	13.2	29.1

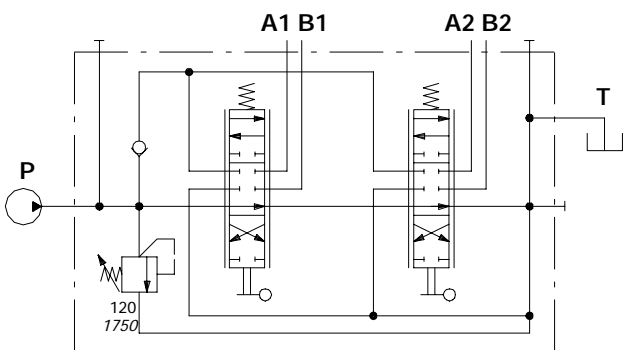


Parallel

Standard configuration with side inlet and outlet and open centre (AET execution).

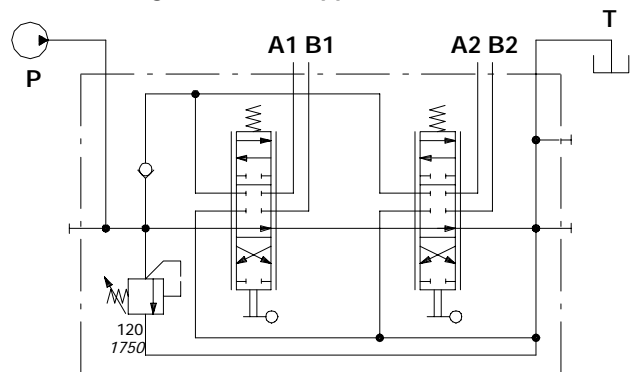


Standard configuration



Description example  
SD5/2-P(JG3-120)/18L/18L/AET

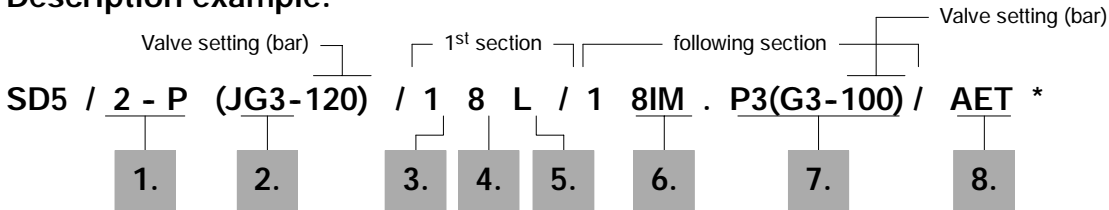
Configuration with upper inlet and outlet



Description example:  
SD5/2-P(JG3-120)/18L/18L/AET-PSA

## Ordering codes

## Description example:



## 1. Body kits \*

TYPE	CODE	DESCRIPTION
1-P	5KC1193000	Parallel, 1 section
2-P	5KC1223000	Parallel, 2 sections
3-P	5KC1243000	Parallel, 3 sections
4-P	5KC1273000	Parallel, 4 sections
5-P	5KC1313000	Parallel, 5 sections
6-P	5KC1353000	Parallel, 6 sections
7-P	5KC13E3000	Parallel, 7 sections

Include boby, seals and load check valve.

2. Inlet relief options page 12

TYPE	CODE	DESCRIPTION
<u>VMD5 direct pressure relief valve type J</u>		
Standard setting is referred to 10 l/min flow.		
(JG2-63)	5KIT105412	Range 40 to 63 bar / 580 to 900 psi standard setting 63 bar / 900 psi
(JG3-120)	5KIT105413	Range 50 to 200 bar / 725 to 2900 psi standard setting 120 bar / 1750 psi
(JG4-220)	5KIT105414	Range 160 to 315 bar / 2300 to 4600 psi standard setting 220 bar / 3200 psi
SV	XTAP623282	Relief valve blanking plug

3. Spool options page 13

TYPE	CODE	DESCRIPTION
1	3CU1210130	Double acting, 3 positions, with A and B closed in neutral position
1A	3CU1221130	Double acting, 3 positions, with A open to tank in neutral position
1B	3CU1222130	Double acting, 3 positions, with B open to tank in neutral position
2	3CU1225130	Double acting, 3 positions, with A and B open to tank in neutral position
2H	3CU1225225	Double acting, 3 positions, with A e B partially open to tank in neutral position
3	3CU1231130	Single acting on A, 3 positions, B plugged requires G3/8 plug (see part I)
<u>Special spools for particular positioner kits</u> ..... page 16		
5DY	3CU1242220	Double acting, 4 positions, floating circuit in 4 <sup>th</sup> position with spool in
5PY	3CU1245620	Double acting, 4 positions, floating circuit in 4 <sup>th</sup> position with spool out, with check valve
8	3CU1262120	Double acting, 4 positions, regenerative circuit in 4 <sup>th</sup> position with spool in
<u>Special spools for standard positioner kits</u> ..... page 19		
8F	3CU1261100	Double acting, 3 positions, regenerative circuit in 2 <sup>nd</sup> position with spool out

NOTE (\*) - Codes are referred to **BSP** threads.

### 3. ENGINE MANUAL