

SDS180

1 to 12 sectional directional control valve



- Fitted with a main pressure relief valve and a load check valve on every working section.
- Available with parallel and series-parallel (tandem) circuit.
- Optional carry-over port.
- A wide variety of port valves.
- Available manual, pneumatic, hydraulic, electro-hydraulic, and remote with flexible cables spool control kits.

NEW PRODUCT

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WORKING CONDITION

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

Nominal flow rating		160 l/min	42 US gpm
Operating pressure (max.)		315 bar	4600 psi
Back pressure (max.)	outlet port T	25 bar	360 psi
Internal leakage (max.) A(B)⇒T	$\Delta p = 100 \text{ bar} - 1450 \text{ psi}$ fluid and valve at 40°C - 104°F	3 cm ³ /min	0.18 in ³ /min
Fluid		Mineral based oil	
Fluid temperature	with NBR (BUNA-N) seals	from -20°C to 80°C	from -4°F to 176°F
	with FPM (VITON) seals	from -20°C to 100°C	from -4°F to 212°F
Viscosity	operating range	from 15 to 75 mm ² /s	from 15 to 75 cSt
	min.	12 mm ² /s	12 cSt
	max.	400 mm ² /s	400 cSt
Max contamination level		-/19/16 - ISO 4406	NAS 1638 - class 10
Ambient temperature for working conditions	with mechanical devices	from -40°C to 60°C	from -40°F to 140°F
	with pneumatic and hydraulic devices	from -30°C to 60°C	from -22°F to 140°F
	with electric devices	from -20°C to 50°C	from -4°F to 122°F

NOTE - for different conditions please contact Sales Dpt.

STANDARD THREADS

Reference standard

		BSP	UN-UNF	NPTF
THREAD ACCORDING TO		ISO 228/1	ISO 263	ANSI B1.20.3
		BS 2779	ANSI B1.1 unified	
CAVITY DIMENSION ACCORDING TO	ISO	1179		
	SAE			J476a
	DIN	3852-2 shape X or Y		

Ports

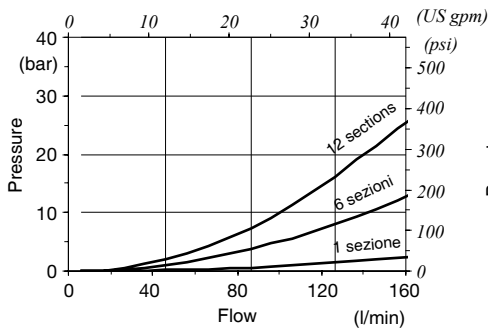
	BSP	UN-UNF
Inlet P	G 3/4	1 5/16-12 (SAE16)
Ports A and B	G 3/4	1 1/16-12 (SAE12)
Outlet T and carry-over C	G 1	1 5/16-12 (SAE16)
Hydraulic pilots	G 1/4	9/16-18 (SAE6)
Pneumatic pilots	NPTF 1/8-27	

NOTE - for different port size contact Sales Dpt.

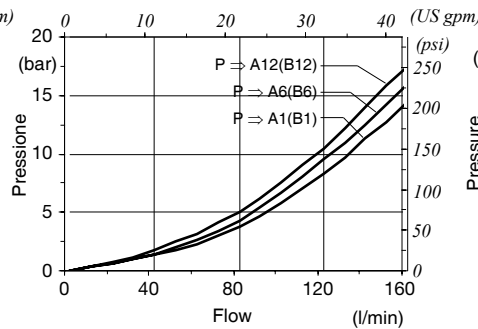
PERFORMANCE DATA

General

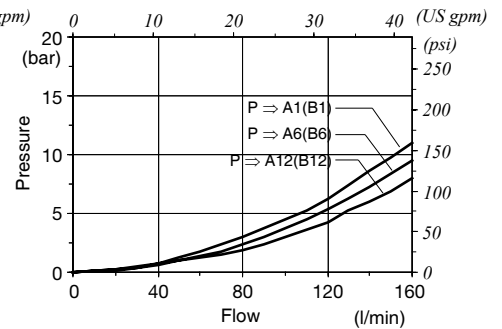
P ⇒ T pressure drop



P ⇒ A(B) pressure drop

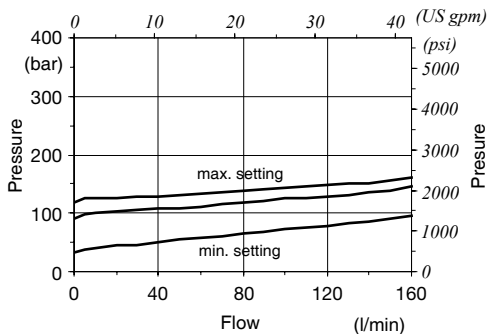


A(B) ⇒ T pressure drop

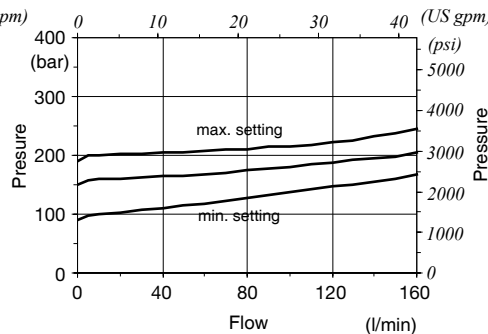


Main pressure relief valve

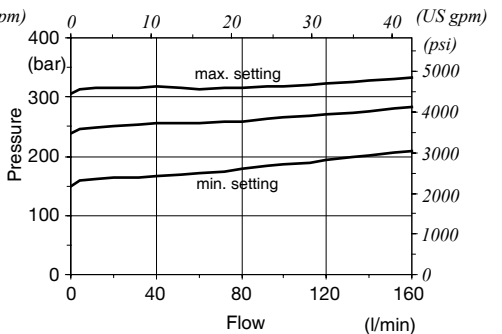
YG2 valve setting range (green band)



YG3 valve setting range (blue band)

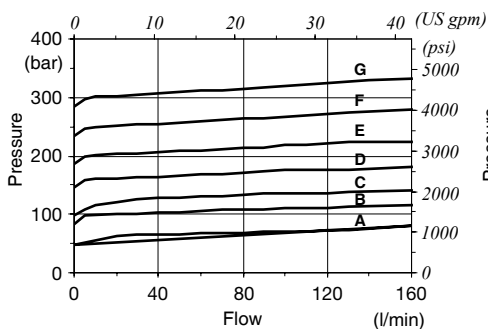


YG4 valve setting range (red band)

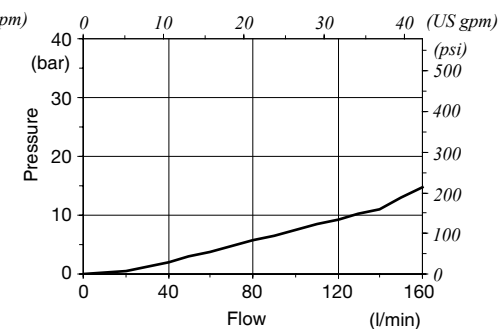


Auxiliary valves

Type UX variable setting valves
Setting example (10 l/min - 2.6 US gpm)



Type UX valves pressure drop (in anticavitation)

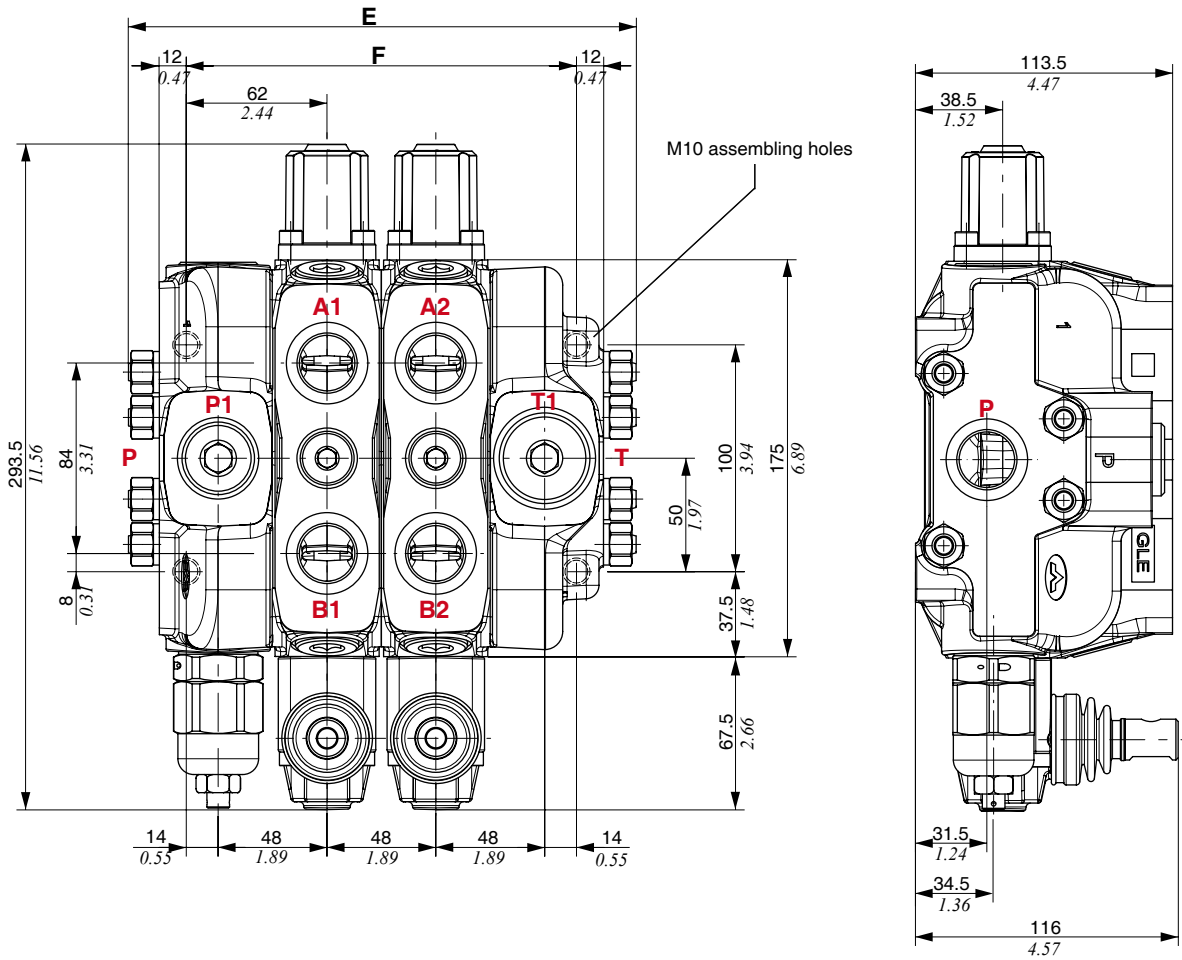


- A = 63 bar - 900 psi • B = 100 bar - 1450 psi
- C = 125 bar - 1800 psi • D = 160 bar - 2300 psi
- E = 200 bar - 2900 psi • F = 250 bar - 3600 psi
- G = 300 bar - 4350 psi

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DIMENSIONAL DATA



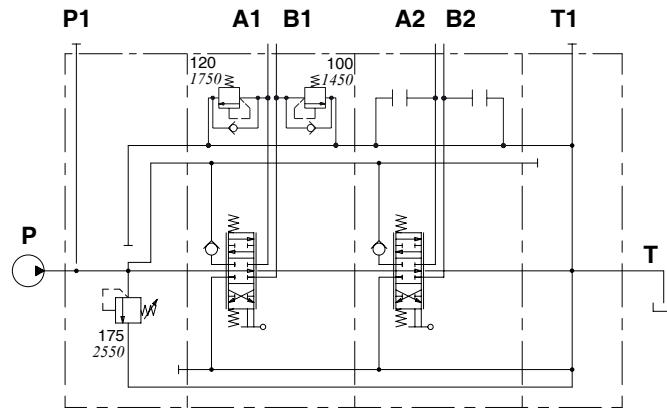
NOTE: Drawings and dimensions are referred to BSP thread configuration.

TYPE	E		F	
	mm	in	mm	in
SDS180/1	176	6.93	124	4.88
SDS180/2	224	8.82	172	6.77
SDS180/3	272	10.71	220	8.66
SDS180/4	320	12.60	268	10.55
SDS180/5	368	14.49	316	12.44
SDS180/6	416	16.38	364	14.33

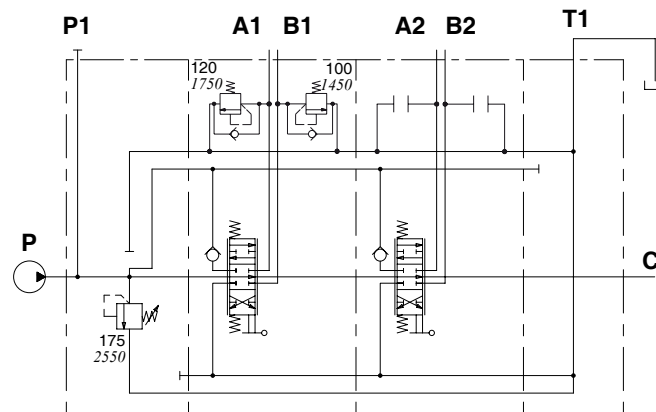
TYPE	E		F	
	mm	in	mm	in
SDS180/7	464	18.27	412	16.22
SDS180/8	512	20.16	460	18.11
SDS180/9	560	22.05	508	20.00
SDS180/10	608	23.94	556	21.89
SDS180/11	656	25.83	604	23.78
SDS180/12	704	27.72	652	25.67

HYDRAULIC CIRCUIT

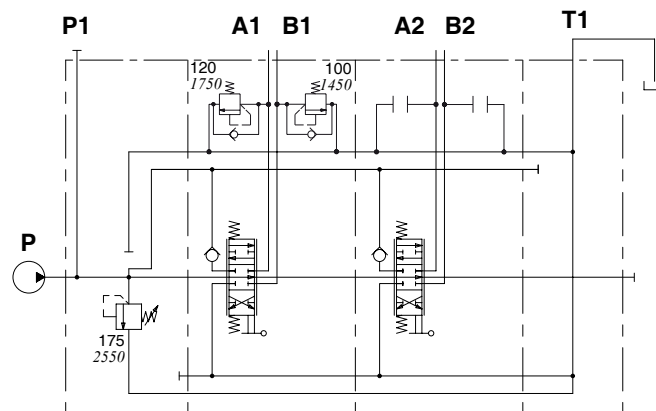
Open centre configuration



Carry-Over configuration



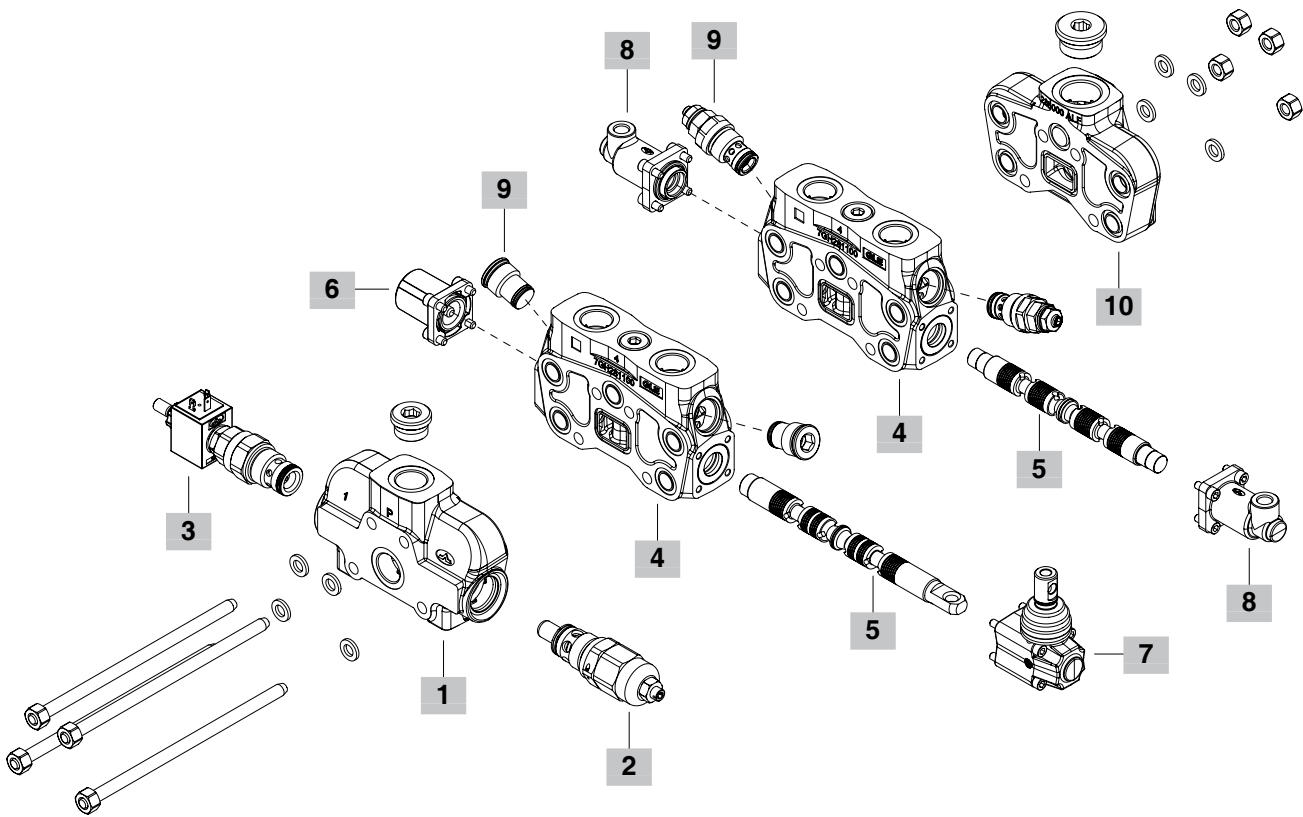
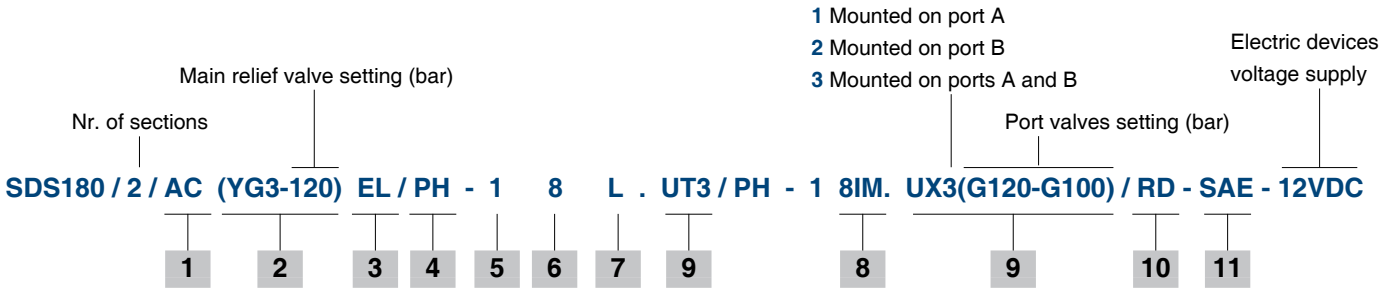
Closed centre configuration



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DESCRIPTION COMPOSITION



1 Inlet section

AC: Inlet section with side port
AD: Inlet section with upper port

3 Inlet valve options

F: Inlet anticavitation valve
L: Hydraulic pilot unloader valve
EL: Solenoid operated unloader valve
SV: Valve blanking plug (omit in description)

2 Pressure relief valve

SV: Valve blanking plug

Direct type Y

(YG2-80): Setting range from 63 to 125 bar / 900 to 1800 psi, standard setting 80 bar / 1160 psi
(YG3-175): Setting range from 100 to 200 bar / 1450 to 2900 psi, standard setting 175 bar / 2550 psi
(YG4-220): Setting range from 160 to 15 bar / 2300 to 4600 psi, standard setting 220 bar / 3200 psi

Pilote operated type X

(XG-120): Setting range from 25 to 315 bar / 360 to 4600 psi, standard setting 120 bar / 1750 psi

DESCRIPTION COMPOSITION

4 Spools

- 1:** Double acting, 3 positions, with A and B closed in neutral position
- 1CS:** Double acting, 3 positions, with A and B closed in neutral position, metering type
- 1A:** Double acting, 3 positions, with A open to tank in neutral position
- 1B:** Double acting, 3 positions, with A open to tank in neutral position
- 2:** Double acting, 3 positions, with A and B open to tank in neutral position
- 3:** Single acting on A, 3 positions, B plugged
- 4:** Single acting on B, 3 positions, A plugged
- 5:** Double acting, 4 positions, floating in 4th position with spool in: for "A" side positioners type 13. Need special body, contact Sales Department
- 8PF:** Double acting, 3 positions, regenerative in 3rd position with spool in, for "A" side positioner type 8CR.

5 Working section

- PH:** Parallel circuit with port valves arrangement
- SPH:** Series-parallel circuit with port valves arrangement

6 "A" side spool positioners

- 7FC :** With friction and neutral position sensor
- 8:** With spring return in neutral position
- 8D:** With spring return in neutral position and pin with M6 female thread for dual control
- 8D1:** With spring return in neutral position and pin with $\varnothing 8 \text{ mm} / 0.32$ in radial hole
- 8D2 :** With spring return in neutral position and pin with M8 male thread for dual control
- 8TL:** As type 8, for flexible cable control
- 8F2 :** Ad type 8, with adjustable stroke limiter
- 8CR:** As type 8 with reduced stroke: only for spool type 8PF
- 19 :** 2 positions, with spring return in neutral position from position 1
- 20 :** 2 positions, with spring return in neutral position from position 2
- 11 :** Detent in positions neutral, 1 and 2
- 12 :** Detent in positions 1 and 2
- 15 :** 2 positions, detent in positions 1 and neutral
- 16 :** 2 positions, detent in positions 2 and neutral
- 21:** 2 positions, detent in positions 2 and spring return to neutral
- 9B:** With detent in position 1 and spring return in neutral position
- 10B:** With detent in position 2 and spring return in neutral position
- 11B:** Detent in positions 1 and 2 and spring return in neutral position
- 8MG3:** As type 8 and microswitch in positions 1 and 2
- 8K:** As type 8 and solenoid lock device
- 8P:** ON/OFF pneumatic kit
- 8PG:** Proportional pneumatic kit
- 8EPG3:** ON/OFF electropneumatic kit
- 8ID3:** Proportional hydraulic kit
- 8EI3 :** Electrohydraulic kit
- 13:** 4 positions with spring return in neutral position and detent in 4th position: only for spool type 5

7 "B" side options

- L:** Standard lever box
- LF1:** Lever box with adjustable flow limiter
- LS:** Waterproof lever box
- LB:** Steel lever
- LEB:** Safety lever box
- SLP:** Without lever box, with dust-proof plate
- TQ:** CD flexible cable connection
- LCB:** Joystick lever for 2 sections operation

8 Complete controls

- They need special spools and particular bodies: contact Sales Dtp.
- 8IM:** Double side proportional hydraulic control with spring return to neutral
- 13IM:** Double side proportional hydraulic control with spring return to neutral; for floating circuit spool

9 Auxiliary valves

- SV:** Valve blanking plug
- C:** Anticavitation valve
- Antishock valve**
- P(G2-63):** Setting range from 63 to 125 bar / 900 to 1800 psi, standard setting 63 bar / 900 psi
- P(G3-100):** Setting range from 100 to 250 bar / 1450 to 3600 psi, standard setting 100 bar / 1450 psi
- P(G4-200):** Swetting range from 200 to 315 bar / 2900 to 4600 psi, standard setting 200 bar / 2900 psi
- Antishock and anticavitation valve**
- U(G2-63):** Setting range from 63 to 125 bar / 900 to 1800 psi, standard setting 63 bar / 900 psi
- U(G3-100):** Setting range from 100 to 250 bar / 1450 to 3600 psi, standard setting 100 bar / 1450 psi
- U(G4-200):** Setting range from 200 to 315 bar / 2900 to 4600 psi, standard setting 200 bar / 2900 psi
- Antishock pilot operated valve**
- PX(G-175):** Setting range from 63 to 300 bar / 900 to 4350 psi, standard setting 175 bar / 2550 psi
- Antishock and anticavitation pilot operated valve**
- UX(G-175):** Setting range from 63 to 300 bar / 900 to 4350 psi, standard setting 175 bar / 2550 psi

10 Outlet section

- RC:** With side outlet
- RD:** With upper outlet
- RE:** With side carry-over sleeve
- RK:** With closed centre
- RV:** With backpressure valve and carry-over

11 Threading specification

Specify thread type only if is different from BSP standard: see page 2

OTHER OPTIONS

Intermediate sections

Following intermediate sections are available: for assembling on SDS180 directional valve contact Sales Department.

- **CS1**: Mid return manifolds for directional valve with left and right inlet both; they allow 2 independent circuits with common outlet.
- **DFG**: The flow on the downstream sections can be adjusted from 0 to 160 l/min / 0 to 42 US gpm by means of graduated hand-wheel; flow exceeding setting goes to tank.
- **EI1**: The operation of upstream section exclude the EI downstream section; the pressure of the downstream sections should be adjusted at least 20 bar / 290 psi below the relief valve setting.

The relief cavity is the same of the one in the inlet cover; it allows to use direct operated (type Y) as well as pilot operated (type X) relief valves.