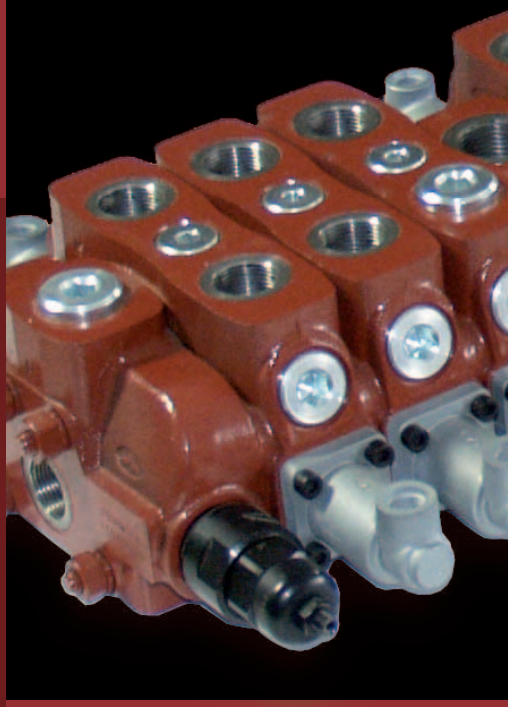
CATALOGUE



SDS180
DLS180

Sectional directional control valve

walvoil
FLUID POWER E|MOTION

Features

Simple, compact and heavy duty designed sectional valve from 1 to 12 sections for open and closed centre hydraulic systems.

- Fitted with a main pressure relief valve and a load check valve on every working section
- Available with parallel, tandem or series circuit.
- Optional carry-over port.
- A wide range of antishock+anticavitation port valves.
- Intermediate sections for several types of circuit.
- Available manual, pneumatic, electrohydraulic, proportional hydraulic, spool control kits.
- Diameter 20 mm (*0.79 in*) interchangeable spools.

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.

6th edition July 2013

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SDS180

DLS180

Working conditions

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*
	for series circuit	140 l/min	*37 US gpm*
Max pressure (1)		315 bar	*4600 psi*
	for series circuit	250 bar	*3600 psi*
Back pressure (max.)	outlet port T	25 bar	*360 psi*
Internal leakage (standard) A(B)⇒T	Δp = 100 bar - *1450 psi*	5 cm³/min	*0.30 in³/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 mm²/s	*from 15 to 75 cSt*
	min.	12 mm² /s	*12 cSt*
	max.	400 mm²/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 80°C	*from -22°F to 140°F*
	with electric devices	from -20°C to 50°C	*from -4°F to 122°F*

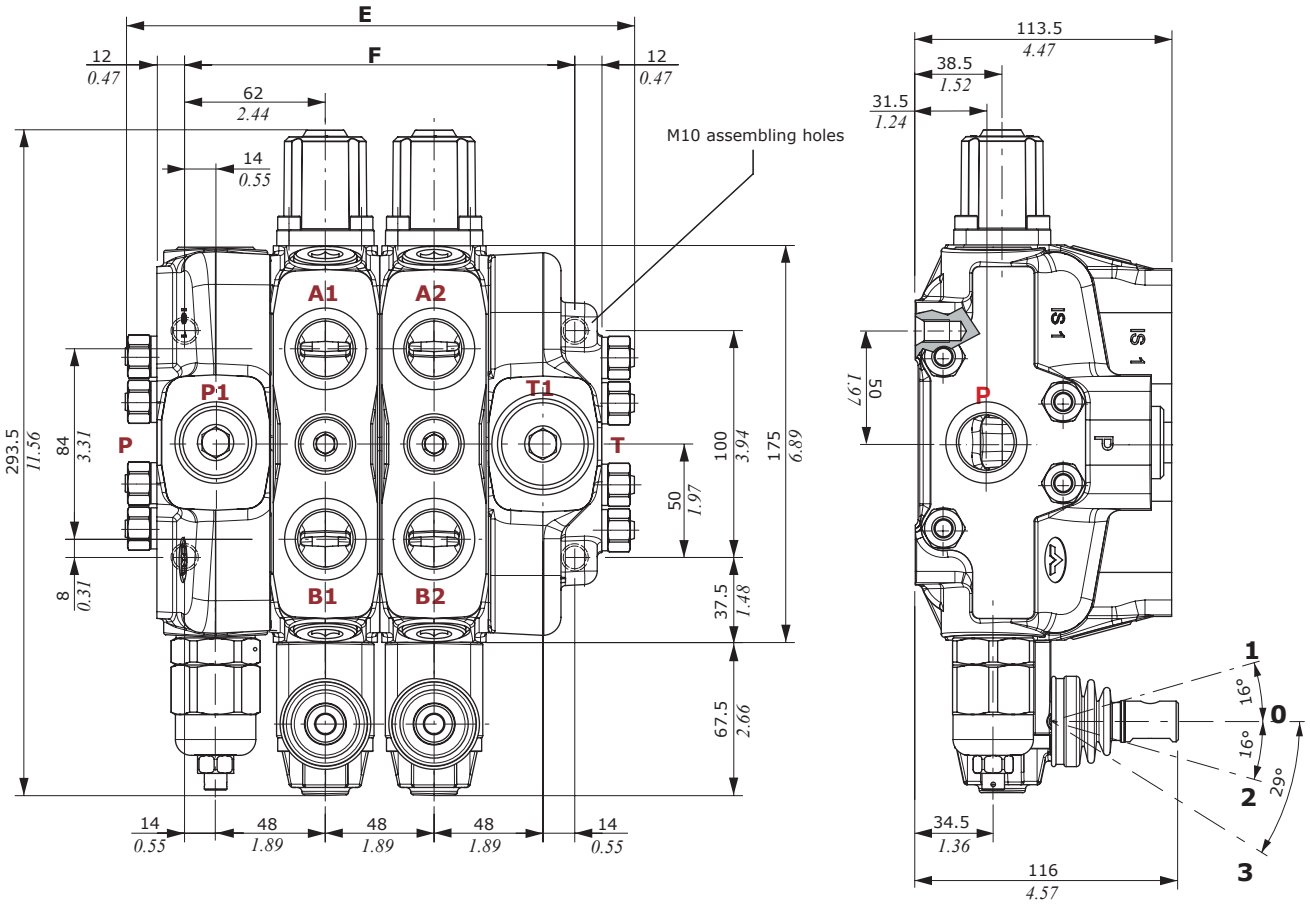
NOTE - *(1) Intermittent pressure at max. 250,000 cycles with specific internal testing.*

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	1179-1	11926-1	
	SAE		J1926-1	J476a
	DIN	3852-2 shape X or Y		

PORTS THREADING		
MAIN PORTS	**BSP**	**UN-UNF**
Inlet **P**	G 3/4	1 5/16-12 (SAE 16)
Ports **A** and **B**	G 3/4	1 1/16-12 (SAE 12)
Outlet **T** and carry-over **C**	G 1	1 5/16-12 (SAE 16)
PILOT PORTS		
Hydraulic	G 1/4	9/16-18 (SAE 6)
Pneumatic	NPTF 1/8-27	NPTF 1/8-27

Dimensional data



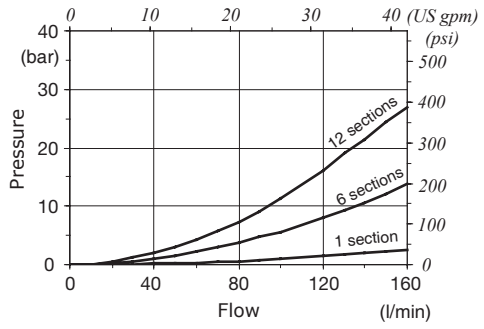
NOTE: *Drawings and dimensions are referred to BSP thread configuration.*

TYPE	E		F		Weight	
	mm	*in*	mm	*in*	Kg	*lb*
SDS180/1	176	*6.93*	124	*4.88*	13.8	*30.42*
SDS180/2	224	*8.82*	172	*6.77*	19.2	*42.33*
SDS180/3	272	*10.71*	220	*8.66*	24.6	*54.23*
SDS180/4	320	*12.60*	268	*10.55*	30	*66.14*
SDS180/5	368	*14.49*	316	*12.44*	35.4	*78.04*
SDS180/6	416	*16.38*	364	*14.33*	40.8	*89.95*

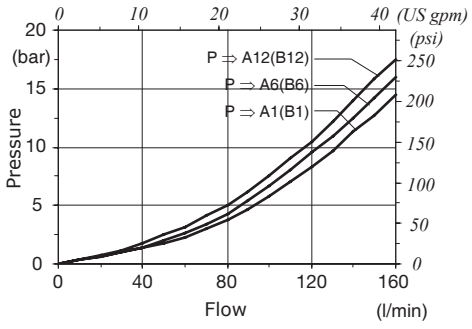
TYPE	E		F		Weight	
	mm	*in*	mm	*in*	Kg	*lb*
SDS180/7	464	*18.27*	412	*16.22*	46.2	*101.85*
SDS180/8	512	*20.16*	460	*18.11*	51.6	*113.76*
SDS180/9	560	*22.05*	508	*20.00*	57	*125.66*
SDS180/10	608	*23.94*	556	*21.89*	62.4	*137.57*
SDS180/11	656	*25.83*	604	*23.78*	67.8	*149.47*
SDS180/12	704	*27.72*	652	*25.67*	73.2	*161.38*

Performance data

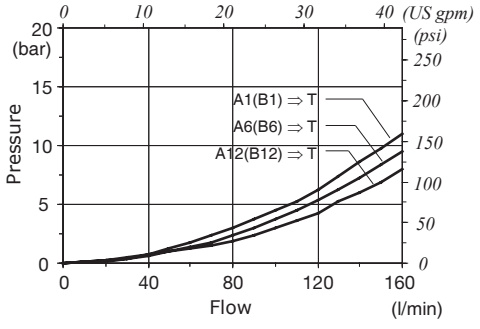
P ⇒ T pressure drop



P ⇒ A(B) pressure drop



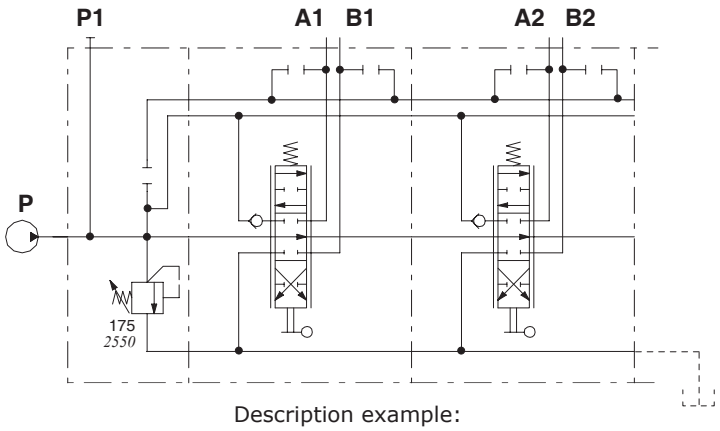
A(B) ⇒ T pressure drop



Hydraulic circuit

Parallel circuit

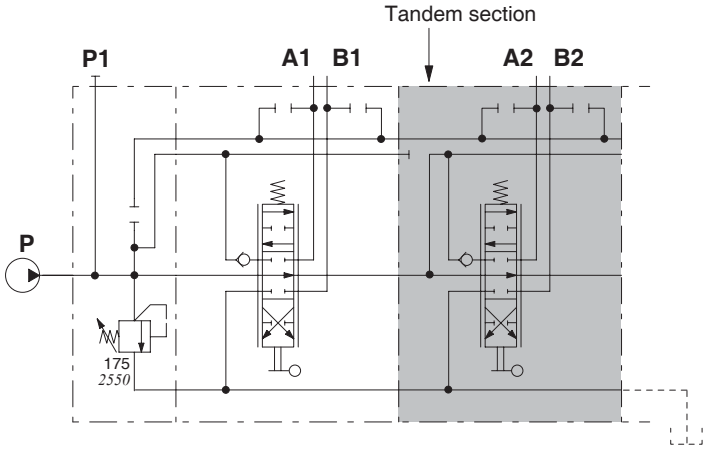
Standard configuration with open centre and side inlet and outlet.



Description example:
SDS180/2/AC(YG3–120)/18L.UT3/18L.UT3/.....

Series-parallel (tandem) circuit

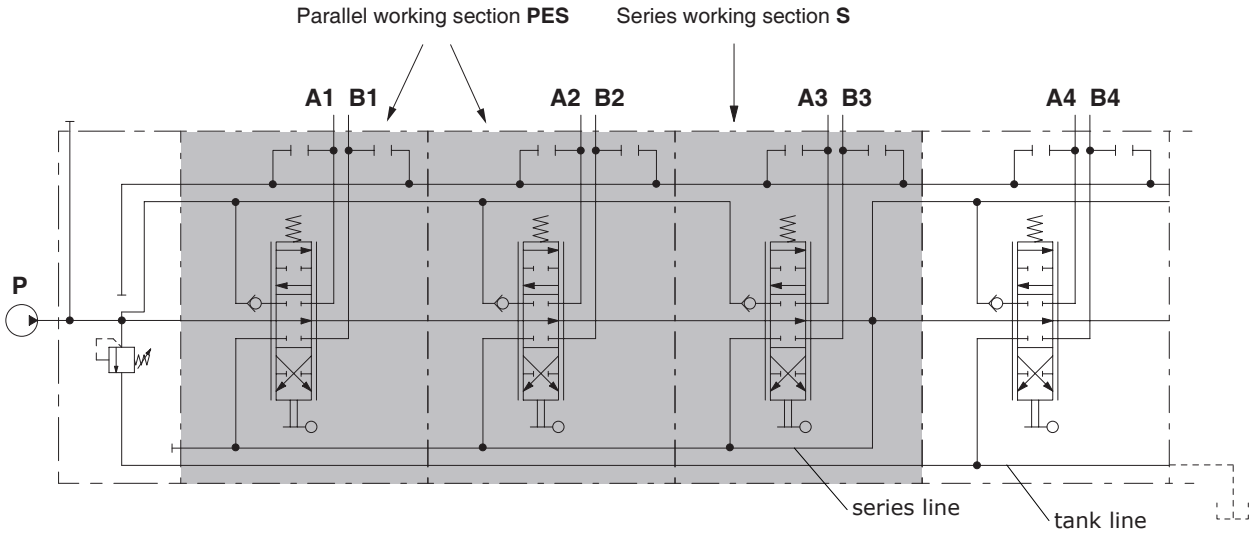
It needs a special working section kit.
Tandem section is fed from the free flow pressure line; it's excluded when an up strem section is operated.



Description example:
SDS180/2/AC(YG3–120)/18L.UT3/**SP**-18L.UT3/.....

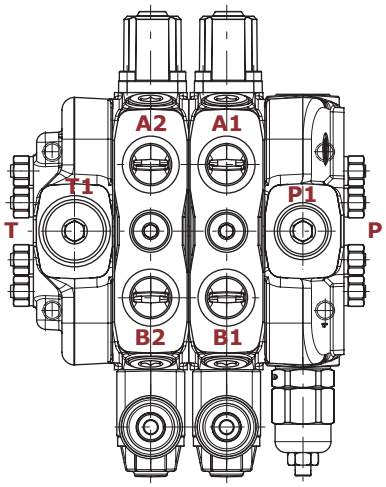
Hydraulic circuit

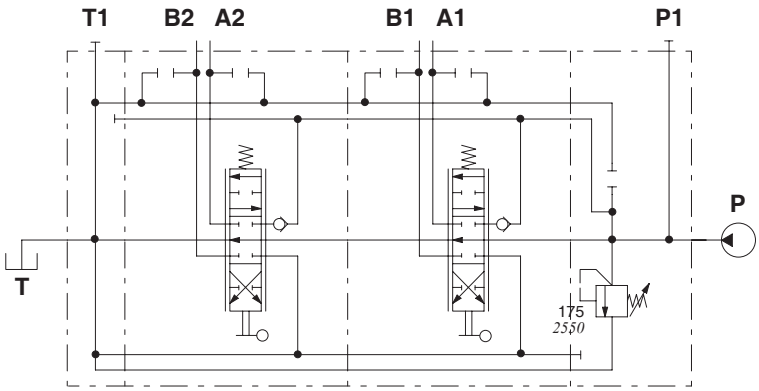
Series circuit



Description example:
SDS180/4/AC(YG3–120)/**PES**-18L.UT3/**PES**-18L.UT3/**S**-18L.UT3/18L.UT3/.....

Right inlet directional valve





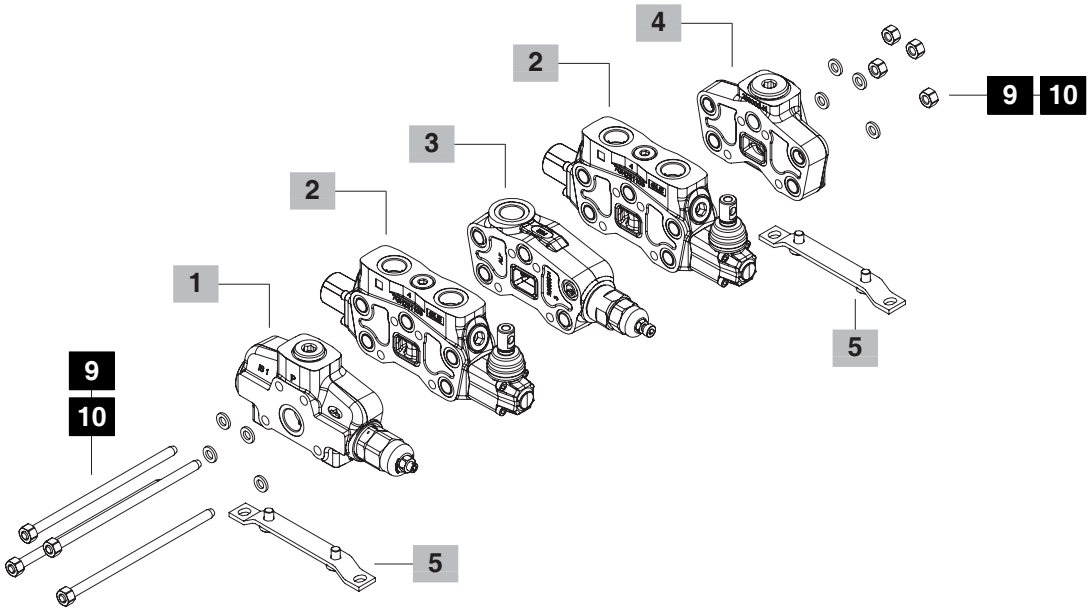
Description example:
SDS180/2/**BC**(YG3–120)/18L.UT3/18L.UT3/RC

Complete sections ordering codes

Standard configuration with side inlet and outlet

SDS180 / 2 / AC(YG3-120) / 18L.UT3 / EI1(YG3-180) / 18L.UT3 / RC - STAF

Nr. of working sections — 1 — 2 — 3 — 4 — 5



1 Inlet section * page 11

TYPE	CODE	DESCRIPTION
AC(YG3-120)	618201005	With direct pressure relief valve
AC(XG-120)	618201004	With pilot pressure relief valve
AC(SV)	618201006	Without pressure relief valve
AC(YG3-120)R2	618201007	With direct pressure relief valve and rotary commutator
AC(YG3-120)R2E	618201008	With direct pressure relief valve and electric commutator 12VDC
M(LSW-120)ELNW(NC)	618201009	With flow cut-out and LS pressure relief valve
ACD/VPD	618201018	With double stage pressure relief valve and priority valve
BCHW	618201029	With unloader operation spool type and LS press. relief valve 12VDC

2 Working section * page 26

TYPE	CODE	DESCRIPTION
P-18L	618101003	Parallel circuit, prearranged for port valves, double acting spool with spring return, lever control
SP-18L	618105005	As previous with series-parallel (tandem) circuit
P-1IM8IM	618101004	Parallel circuit, proportional hydraulic control
S-18L	615111001	Series circuit, lever control
PES-18L	618101031	Parallel circuit, lever control

3 Intermediate sections * page 53

TYPE	CODE	DESCRIPTION
EI1(YG3)	618401001	With direct pressure relief valve

4 Outlet section * page 54

TYPE	CODE	DESCRIPTION
RC	618301003	Side outlet
RD	618301002	Upper outlet
RE	618301001	Upper outlet with side carry-over sleeve
RK	618301004	Upper outlet with closed center
RV	618301009	With backpressure valve

5 Fixing bracket page 73

TYPE	CODE	DESCRIPTION
STAF	5STA125220	Brackets with fixing screws

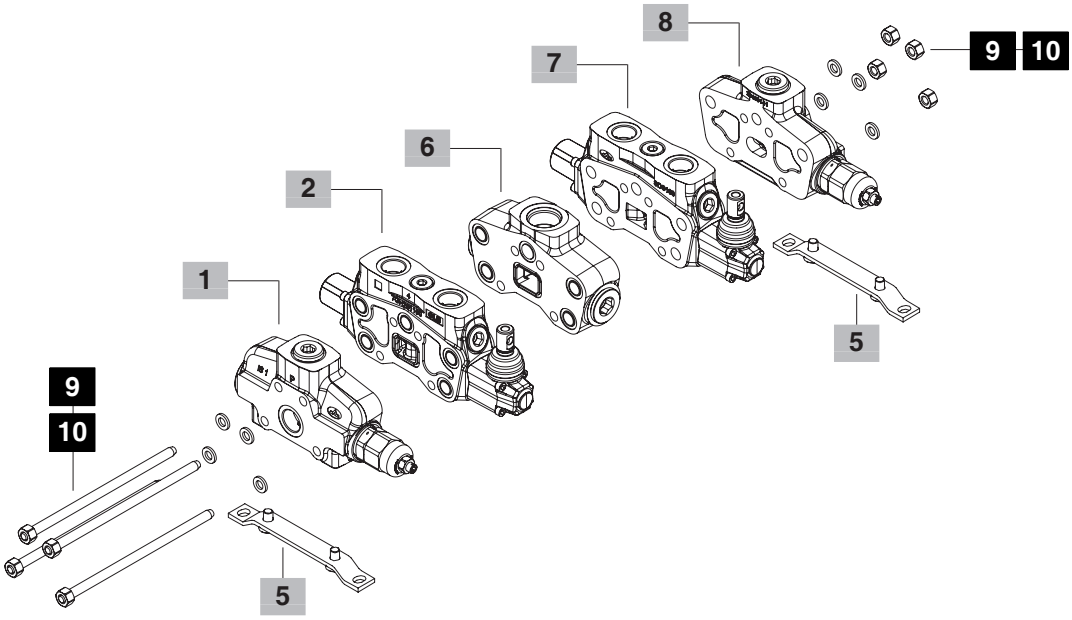
NOTE (*) – *Codes are referred to **BSP** thread.*

Complete sections ordering codes

Configuration with 2 side inlets and mid return manifold

SDS180 / 2 / AC(YG3-120) / 18L.UT3 / CS1 / ED-18L.UT3 / BC(YG3-120) - STAF

Nr. of working sections: 1 | 2 | 6 | 7 | 8 | 5



6 Return manifold * page 51

TYPE	CODE	DESCRIPTION
CS1	615401010	Mid return manifold

7 Right inlet working section *

TYPE	CODE	DESCRIPTION
ED-P-18L	618101041	Parallel circuit, prearranged for port valves, double acting spool with spring return, lever control
ED-SP-18L	618101043	As previous with series-parallel (tandem) circuit

8 Right inlet section *

TYPE	CODE	DESCRIPTION
BC(YG3-120)	618201025	Side inlet with direct press. relief valve
BC(XG-120)	618201026	Side inlet with pilot pressure relief valve
BC(SV)	618201027	Side inlet without pressure reliaf valve
BD(YG3-120)	618201028	Upper inlet with direct pressure relief valve

9 Assemb. kit without intermediate section

CODE	DESCRIPTION
5TIR110170	Tie rod kit for 1 working section directional valve
5TIR110218	Tie rod kit for 2 working sections directional valve
5TIR110266	Tie rod kit for 3 working sections directional valve
5TIR110316	Tie rod kit for 4 working sections directional valve
5TIR110368	Tie rod kit for 5 working sections directional valve
5TIR110410	Tie rod kit for 6 working sections directional valve
5TIR110458	Tie rod kit for 7 working sections directional valve
5TIR110506	Tie rod kit for 8 working sections directional valve
5TIR110554	Tie rod kit for 9 working sections directional valve
5TIR110602	Tie rod kit for 10 working sections directional valve
5TIR110650	Tie rod kit for 11 working sections directional valve
5TIR110698	Tie rod kit for 12 working sections directional valve

10 Assemb. kit with intermediate section

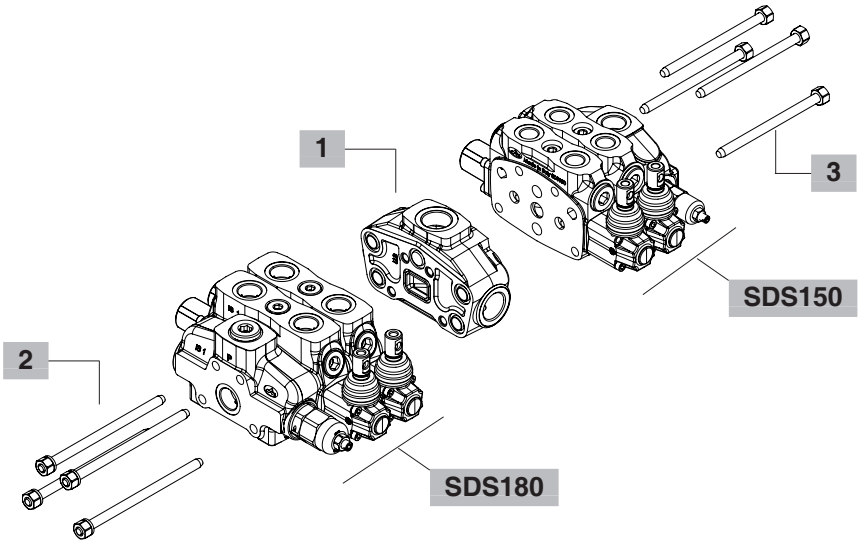
CODE	DESCRIPTION
5TIR110266	Tie rod kit for 2 working sections directional valve
5TIR110316	Tie rod kit for 3 working sections directional valve
5TIR110368	Tie rod kit for 4 working sections directional valve
5TIR110410	Tie rod kit for 5 working sections directional valve
5TIR110458	Tie rod kit for 6 working sections directional valve
5TIR110506	Tie rod kit for 7 working sections directional valve
5TIR110554	Tie rod kit for 8 working sections directional valve
5TIR110602	Tie rod kit for 9 working sections directional valve
5TIR110650	Tie rod kit for 10 working sections directional valve
5TIR110698	Tie rod kit for 11 working sections directional valve
5TIR110746	Tie rod kit for 12 working sections directional valve

NOTE (*) – *Codes are referred to **BSP** thread.*

Configuration with SDS180 and SDS150 valves coupling together ordering codes

SDS180/2/AC(YG3-120)/18L.UT3/18L.UT3 / CS3 / 18L.UT3/18L.UT3/BC(YG3-120)/SDS150/2

1



1 Return manifold *

TYPE	CODE	DESCRIPTION
CS3	615441010	Mid return manifold

2 Assembling kit for SDS180 valve side

CODE	DESCRIPTION
5TIR4161	Tie rod kit for 1 working section directional valve
5TIR4162	Tie rod kit for 2 working sections directional valve
5TIR4163	Tie rod kit for 3 working sections directional valve
5TIR4164	Tie rod kit for 4 working sections directional valve
5TIR4165	Tie rod kit for 5 working sections directional valve
5TIR4166	Tie rod kit for 6 working sections directional valve
5TIR4167	Tie rod kit for 7 working sections directional valve
5TIR4168	Tie rod kit for 8 working sections directional valve
5TIR4169	Tie rod kit for 9 working sections directional valve
5TIR416A	Tie rod kit for 10 working sections directional valve

3 Assembling kit for SDS150 valve side

CODE	DESCRIPTION
5TIR41501	Tie rod kit for 1 working section directional valve
5TIR41502	Tie rod kit for 2 working sections directional valve
5TIR41503	Tie rod kit for 3 working sections directional valve
5TIR41504	Tie rod kit for 4 working sections directional valve

NOTE (*) – *Codes are referred to **BSP** thread.*

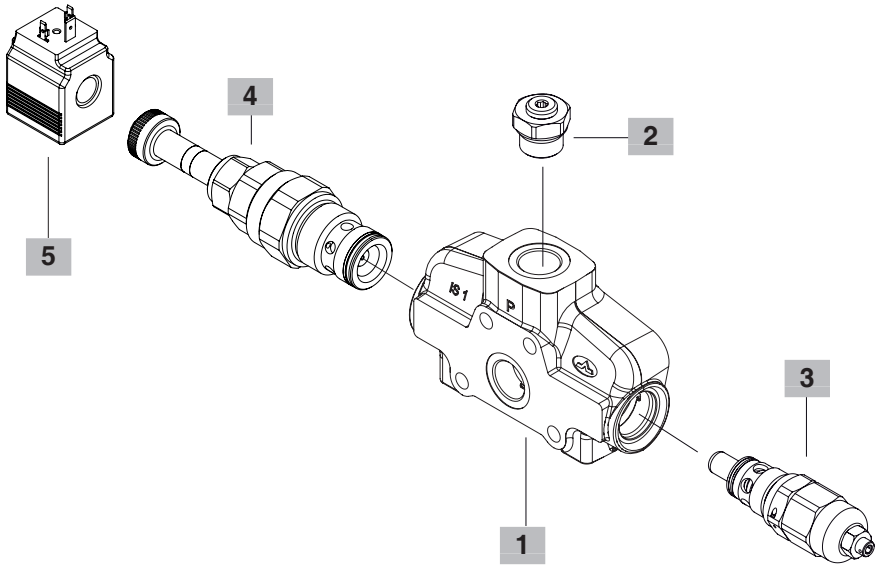
Parts ordering codes

FE SDS180 / AC (YG3 - 120) ELN - MAN 14 - 12VDC

1 3 4 2 5

Pressure relief valve setting (bar)

Available configurations
AC: with side inlet, for left inlet (standard) directional valve
AD: with upper inlet, for left inlet (standard) directional valve
BC: with side inlet, for right inlet directional valve
BD: with upper inlet, for right inlet directional valve



1 Inlet cover body * page 12

CODE: 3FIA118301-H
DESCRIPTION: Standard body

2 Parts *

TYPE	CODE	DESCRIPTION
-	3XTAP732200	G3/4 plug (omit in description)
MAN18	5MAN632230	G1/8 Pressure gauge arrangement
MAN14	5MAN632231	G1/4 Pressure gauge arrangement

3 Inlet relief valve options page 13

Standard setting is referred to 10 l/min - *2.6 US gpm* flow.

TYPE	CODE	DESCRIPTION
SV	3XTAP535410	Relief valve blanking plug
VMP20/1 pilot operated pressure relief valve type X		
(XG-120)	X007211120	Range 60-250 bar / *870-3600 psi* standard setting 120 bar / *1750 psi*
(XGN-120)	XCAR120313	As previous without filter
VMD20/1 direct pressure relief valve type Y (standard)		
(YG2-80)	3XCAR120212	Range 63-125 bar / *900-1800 psi* standard setting 80 bar / *1150 psi*
(YG3-120)	3XCAR120213	Range 100-200 bar / *1450-2900 psi* standard setting 175 bar / *2500 psi*
(YG4-250)	3XCAR120214	Range 160-320 bar / *2300-4650 psi* standard setting 250 bar / *3600 psi*
Double stage relief valve (pilot port SAE 8)		
(XGD)	1130040408	Setting 207 and 235 bar / *3000 and 3400 psi*

4 Inlet valve options page 15

TYPE	CODE	DESCRIPTION
-	3XTAP535410	Relief valve blanking plug (omit in description)
F	5KIT420200	Inlet anti-cavitation valve
L	3XCAR420300	Hydraulic operated
Solenoid operated unloader valve		
ELN	YEF08002000	Without emergency
ELP	YEF08002002	Push-button emergency
ELV	YEF08002003	Screw type emergency
ELT	YEF08002004	Push and twist type with detent emergency

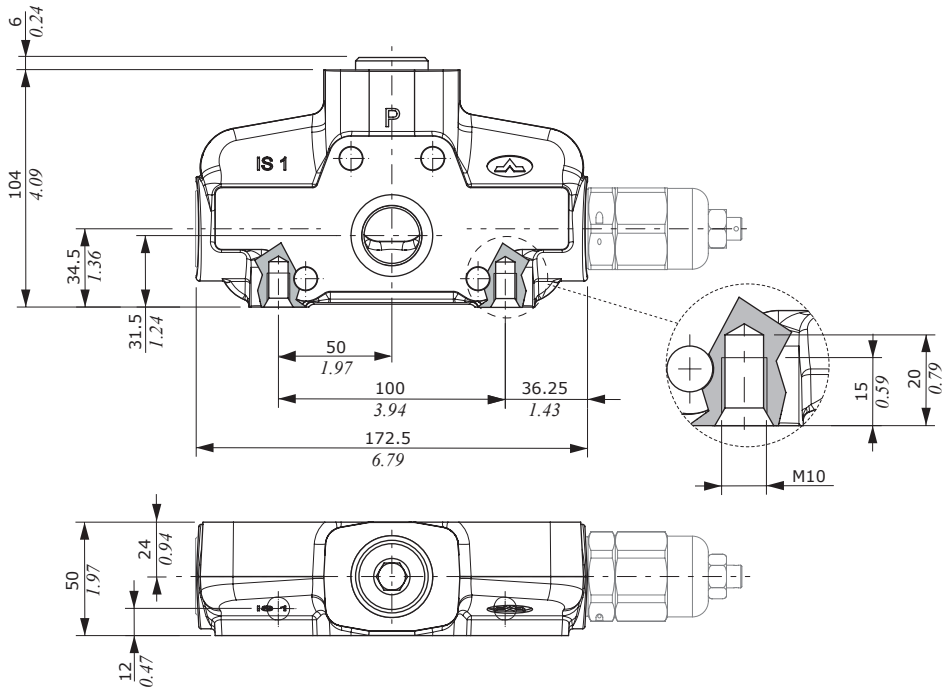
5 Coils page 70

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200	Coil type **BER**, ISO4400 integrated type 12 VDC

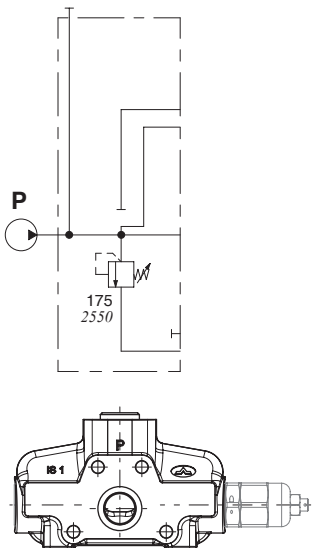
For complete available coils list see page 70

NOTE (*) – *Codes are referred to **BSP** thread.*

Dimensional data and hydraulic circuit

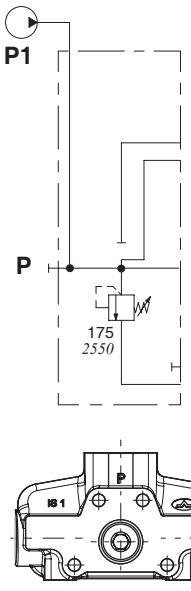


For left inlet directional valve, side port



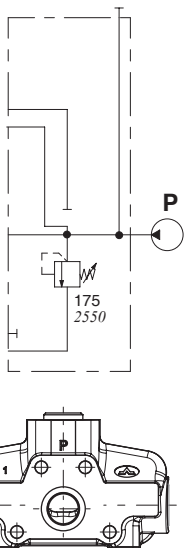
Description example:
AC(YG3–175)

For left inlet directional valve, upper port



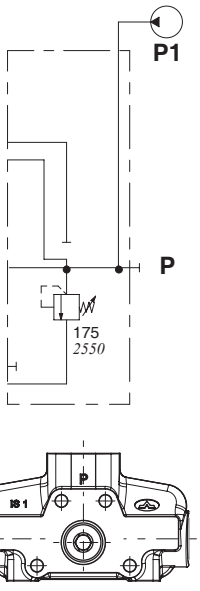
Description example:
AD(YG3–175)

For right inlet directional valve, side port



Description example:
BC(YG3–175)

For right inlet directional valve, upper port



Description example:
BD(YG3–175)

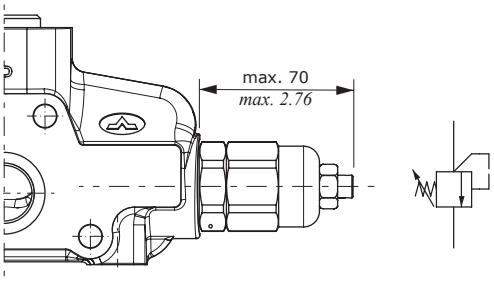
Inlet relief options

Direct overpressure relief valve

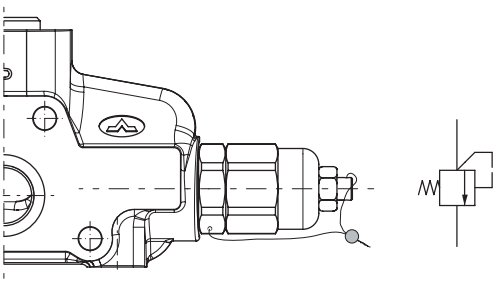
Description example: **Y G 3 - 120**

- Configuration
- Spring type
- Valve setting (bar)

Configuration type **G:** adjustable with screw



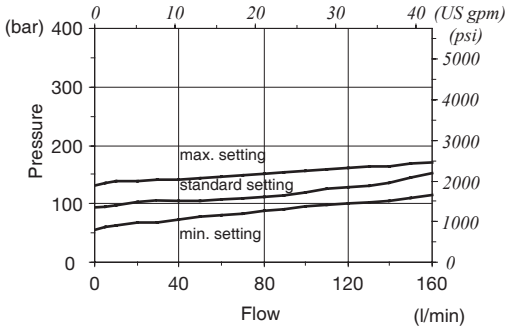
Configuration type **H:** valve set and locked



YG2 valve setting range

(green band)

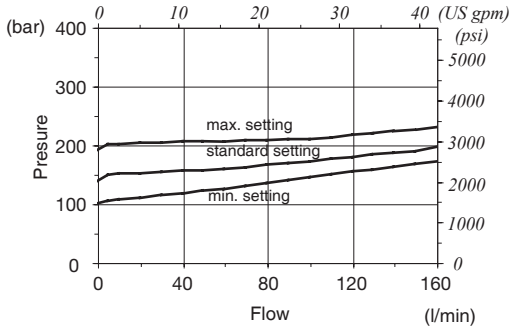
From 63 to 125 bar / *from 900 to 1800 psi*



YG3 valve setting range

(blue band)

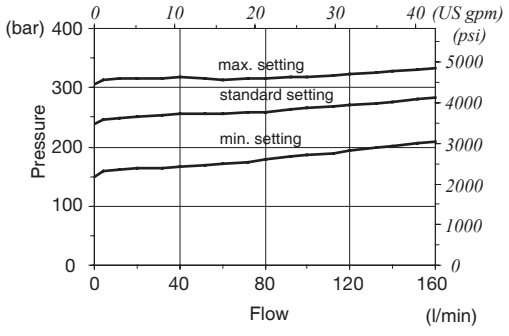
From 100 to 200 bar / *from 1450 to 2900 psi*



YG4 valve setting range

(red band)

From 160 to 320 bar / *from 2300 to 4650 psi*



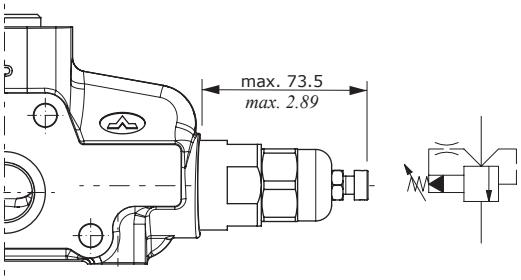
Inlet relief options

Pilot operated overpressure relief valve

Description example: **X G N - 120**

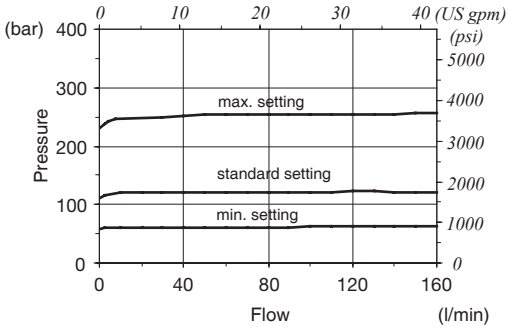
- **X G N** — Configuration
- **120** — Valve setting (bar)
- **N** — Without filter

Configuration type **G:** adjustable with screw

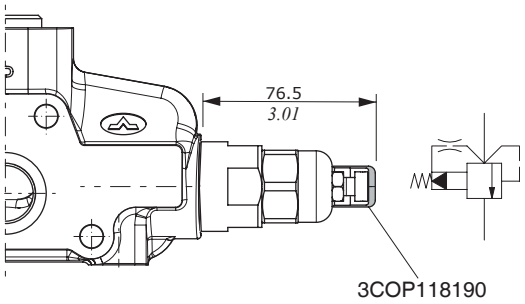


XG valve setting range

From 60 to 250 bar / *from 870 to 3600 psi*



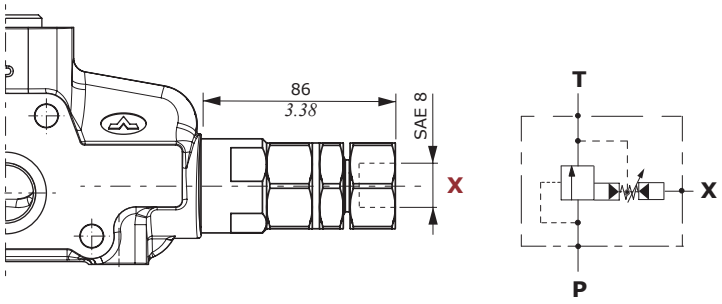
Configuration type **Z:** valve set and locked with cap



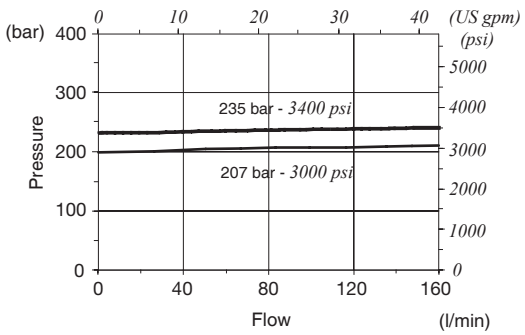
Double stage relief valve

Description example: **X G D 3 - 120**

- **X G D 3** — Spring type
- **120** — Valve setting (bar)



XGD valve setting range



Note: valve available with SAE pilot; for executions with different thread contact the Sales Dpt.

Unloader valves

Description example: AC (YG3 - 120) **ELT - 12VDC**

Hydraulic operated valve: **L**

Solenoid operated valve: **ELN** **ELP** **ELV** **ELT**

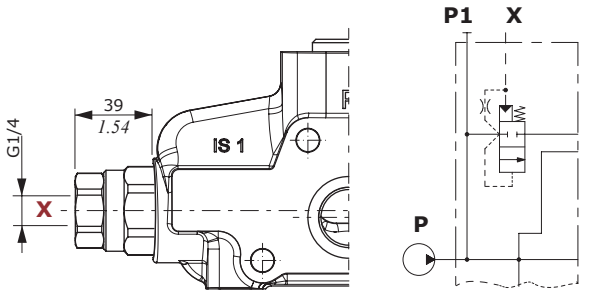
Feeding voltage: for solenoid operated

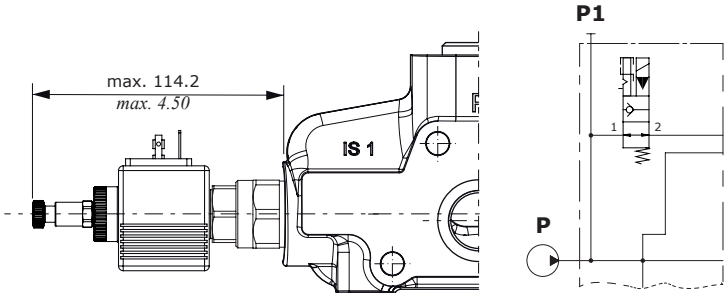
Solenoid operated

Emergency with push button and spring return; for detent position turn the button after press it.

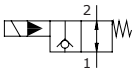
WARNING: the manual override option is intended for emergency use, not for continuous duty operation.

Hydraulic operated

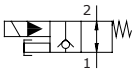




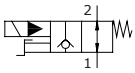
ELN: without emergency



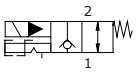
ELP: push button type



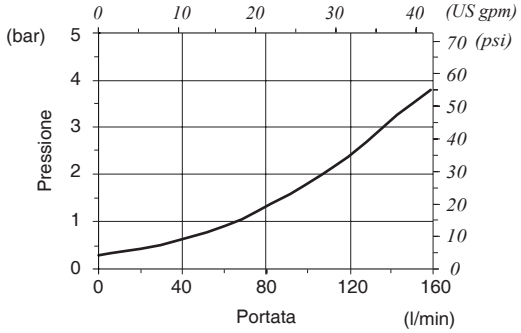
ELV: screw type



ELT: "push & twist" type



Pressure drop valve type L on SDS180/2

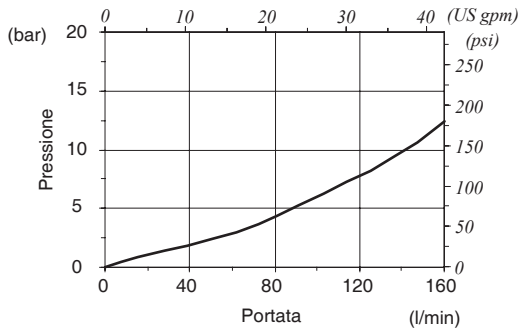


Features

Max. flow . . . . . : 120 l/min - *31.7 US gpm*

Internal leakage . . . . . : 10 cm³/min @ 100 bar
0.61 in³/min @ 1450 psi

Pressure drop EL valve on SDS180/2



Features

Max. flow . . . . . : 40 l/min - *10.6 US gpm*

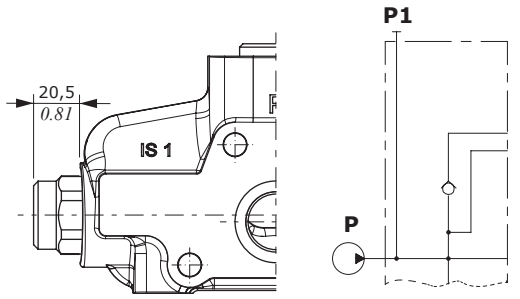
Max. pressure. . . . . : 350 bar - *5100 psi*

Internal leakage . . . . . : 50 cm³/min @ 210 bar
3.05 in³/min @ 3050 psi

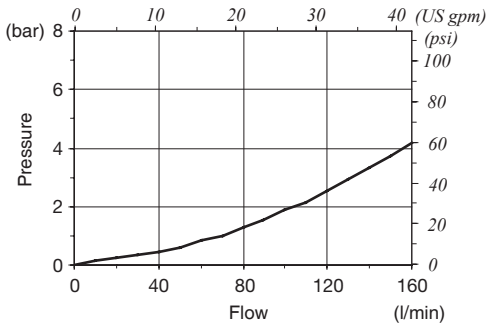
For coil **BER** see page 71

Anti-cavitation valve

Description example: AC (YG3 - 120) **F**



Pressure drop

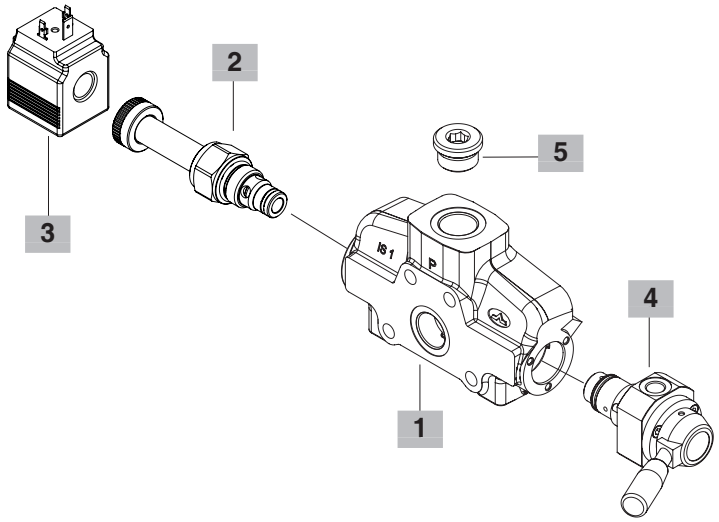


Configuration with rotary commutator

FE SDS180 / AC ELN - 12VDC - R2

1 2 3 4

Available configurations
AC: with side inlet, for left inlet (standard) directional valve
AD: with upper inlet, for left inlet (standard) directional valve
BC: with side inlet, for right inlet directional valve
BD: with upper inlet, for right inlet directional valve



1 Inlet cover body * page 17

CODE: 3FIA118311-H
DESCRIPTION: Standard body for left inlet

2 Inlet valve options page 13

Standard setting is referred to 10 l/min - *2.6 US gpm* flow.

INLET RELIEF OPTIONS

TYPE	CODE	DESCRIPTION
SV	3XTAP535410	Relief valve blanking plug

VMP20/1 pilot operated pressure relief valve type X

(XG-120)	X007211120	Range 60-250 bar / *900-3600 psi* standard setting 120 bar / *1750 psi*
(XGN-120)	XCAR120313	As previous without filter

VMD20/1 direct pressure relief valve type Y (standard)

(YG2-80)	3XCAR120212	Range 63-125 bar / *900-1800 psi* standard setting 80 bar / *1150 psi*
(YG3-120)	3XCAR120213	Range 100-200 bar / *1450-2900 psi* standard setting 175 bar / *2500 psi*
(YG4-250)	3XCAR120214	Range 160-320 bar / *2300-4650 psi* standard setting 250 bar / *3600 psi*

Double stage relief valve (pilot port SAE 8)

(XGD)	1130040408	Setting 207 and 235 bar / *3000 and 3400 psi*

INLET VALVE OPTIONS

TYPE	CODE	DESCRIPTION
F	5KIT420200	Inlet anti-cavitation valve
L	3XCAR420300	Hydraulic operated unloader valve

Solenoid operated unloader valve

ELN	YEF08002000	Without emergency
ELP	YEF08002002	Push-button emergency
ELV	YEF08002003	Screw type emergency
ELT	YEF08002004	Push and twist type with detent emergency

3 Coils page 70

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200	Type **BER**, ISO4400 integrated type 12 VDC

For complete available coils list see page 70

4 Commutator *

TYPE	CODE	DESCRIPTION
R2	5COM416203	Rotary commutator

5 Parts *

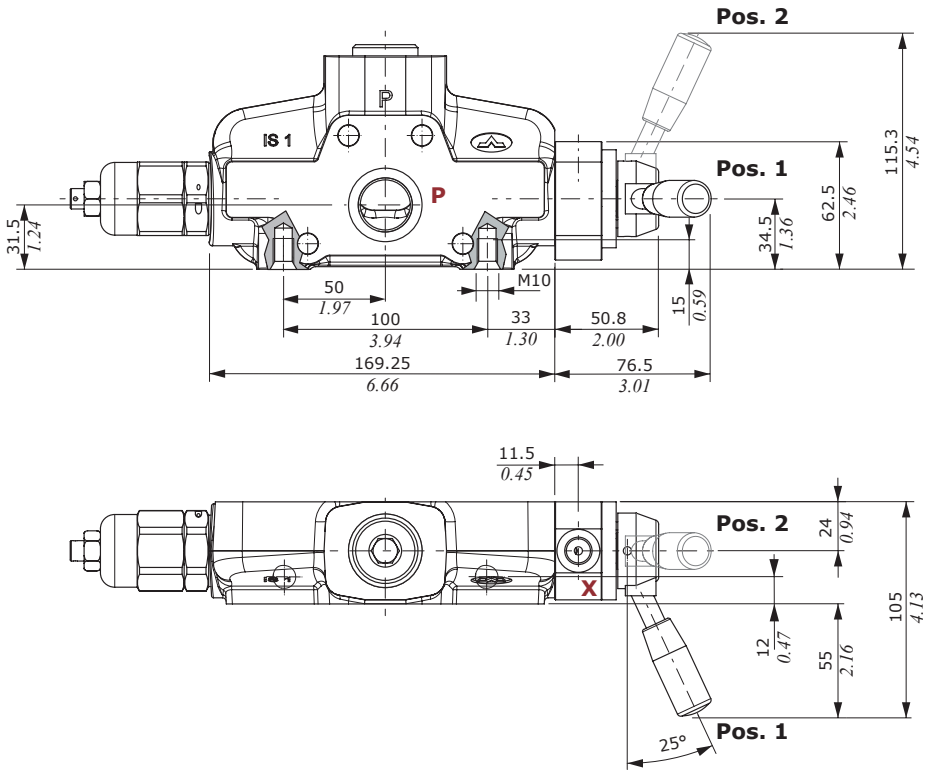
CODE	DESCRIPTION
3XTAP732200	G3/4 Plug

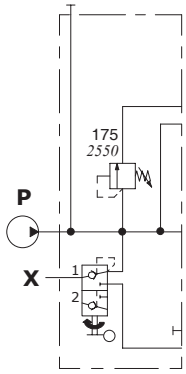
NOTE (*) – *Codes are referred to* **BSP** *thread.*

Configuration with rotary commutator

Dimensional data and hydraulic circuit

Drawing and circuit are referred to left inlet directional valve.





Features

Max. pressure. . . . . : 210 bar - *3050 psi*

Internal leakage . . . . . : 0.30 cm³/min @ 210 bar

0.018 in³/min @ 3050 psi

Configuration with electric commutator

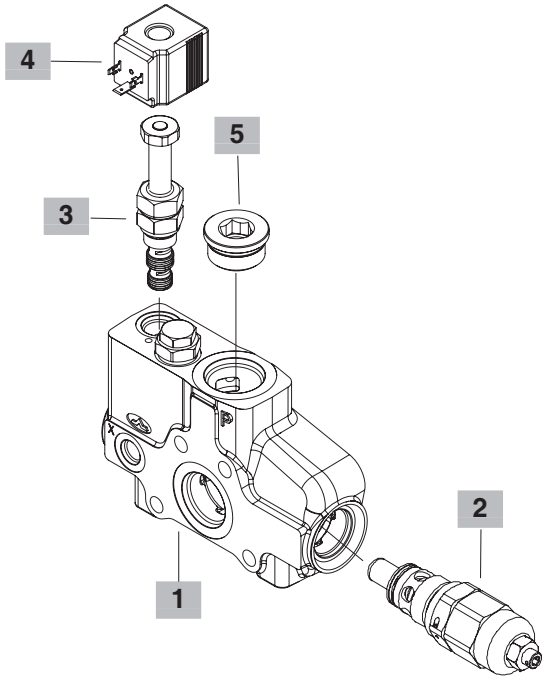
FE SDS180 / AC (YG3 - 120) R2E - 12VDC

1 2 3 4

Pressure relief valve setting (bar)

Available configurations

AC: with side inlet, for left inlet (standard) directional valve
AD: with upper inlet, for left inlet (standard) directional valve
BC: with side inlet, for right inlet directional valve
BD: with upper inlet, for right inlet directional valve



1 Inlet cover body * page 19

CODE: 5FIA118361
DESCRIPTION: Standard body

2 Inlet valve options page 13

Standard setting is referred to 10 l/min - *2.6 US gpm* flow.

TYPE	CODE	DESCRIPTION
SV	3XTAP535410	Relief valve blanking plug
F	5KIT420200	Inlet anti-cavitation valve
L	3XCAR420300	Hydraulic operated unloader valve
VMP20/1 pilot operated pressure relief valve type X		
(XG-120)	X007211120	Range 60-250 bar / *900-3600 psi* standard setting 120 bar / *1750 psi*
(XGN-120)	XCAR120313	As previous without filter
VMD20/1 direct pressure relief valve type Y (standard)		
(YG2-80)	3XCAR120212	Range 63-125 bar / *900-1800 psi* standard setting 80 bar / *1150 psi*
(YG3-120)	3XCAR120213	Range 100-200 bar / *1450-2900 psi* standard setting 175 bar / *2500 psi*
(YG4-250)	3XCAR120214	Range 160-320 bar / *2300-4650 psi* standard setting 250 bar / *3600 psi*
Double stage relief valve (pilot port SAE 8)		
(XGD)	1130040408	Setting 207 and 235 bar / *3000 and 3400 psi*

2 Inlet valve options (continued) page 13

Solenoid operated unloader valve

TYPE	CODE	DESCRIPTION
ELN	YEF08002000	Without emergency
ELP	YEF08002002	Push-button emergency
ELV	YEF08002003	Screw type emergency
ELT	YEF08002004	Push and twist type with detent emerg.

3 Electric commutator *

TYPE	CODE	DESCRIPTION
R2E	0EJ08002048	Electric commutator, ISO4400 connector

For complete available coils list see page 71

4 Coils Page 70

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200	Coil **BER** 12VDC-ISO4400

For complete available coils list see page 70

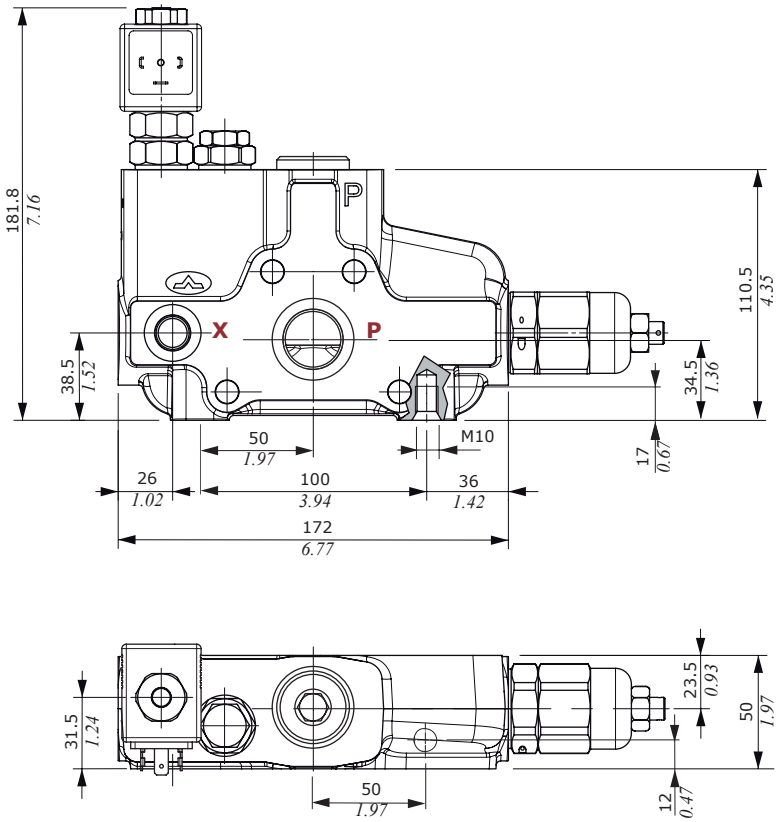
5 Parts *

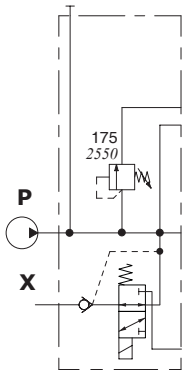
CODE	DESCRIPTION
3XTAP732200	G3/4 Plug

NOTE (*) – *Codes are referred to **BSP** thread.*

Configuration with electric commutator

Dimensional data and hydraulic circuit





Features

Max. pressure. . . . . : 350 bar - *5100 psi*
Max. flow . . . . . : 40 l/min - *10.6 US gpm*
Internal leakage . . . . . : 0.25 cm³/min @ 210 bar
0.015 in³/min @ 3050 psi

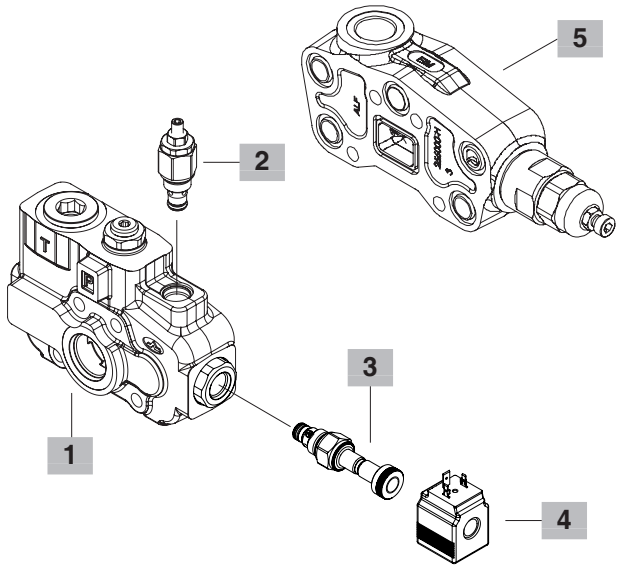
For coil **BER** see page 71

Configuration with flow cut-out

SDS180 / M (LSW - 120) ELNW(NC) - MAN 14 - 12VDC

1 2 3 1 4

Pressure relief valve setting (bar)



1 Inlet cover body * page 21

CODE: 5FIA118372
DESCRIPTION: with flow cut-out

2 Inlet valve options page 21

Standard setting is referred to 10 l/min - *2.6 US gpm* flow.

TYPE	CODE	DESCRIPTION
SV	XTAP525320	Relief valve blanking plug
Main relief valve		
LSW(G2)	5KIT118110	Range 5-50 bar / *72-720 psi* standard setting 30 bar / *400 psi*
LSW(G3)	5KIT118111	Range 50-200 bar / *720-2900 psi* standard setting 150 bar / *2150 psi*
LSW(G4)	5KIT118112	Range 180-315 bar / *2600-4550 psi* standard setting 250 bar / *3600 psi*

3 Unloader valve options page 21

TYPE	CODE	DESCRIPTION
ELNW(NO)	0EF08002000	Without manual emergency, NO circuit
ELNW(NC)	0EF08002001	Without manual emergency, NC circuit
ELTW(NO)	0EF08002004	"Push&twist" manual emergency, NO circuit
ELPW(NO)	0EF08002002	Push-button manual emergency, NO circuit
ELVW(NO)	0EF08002003	Screw type manual emergency, NO circuit

4 Coils page 70

TYPE	CODE	DESCRIPTION
12VDC	4SL2000121	Coil **BER** 12VDC-ISO4400

For complete available coils list see page 70

5 Intermediate section * page 53

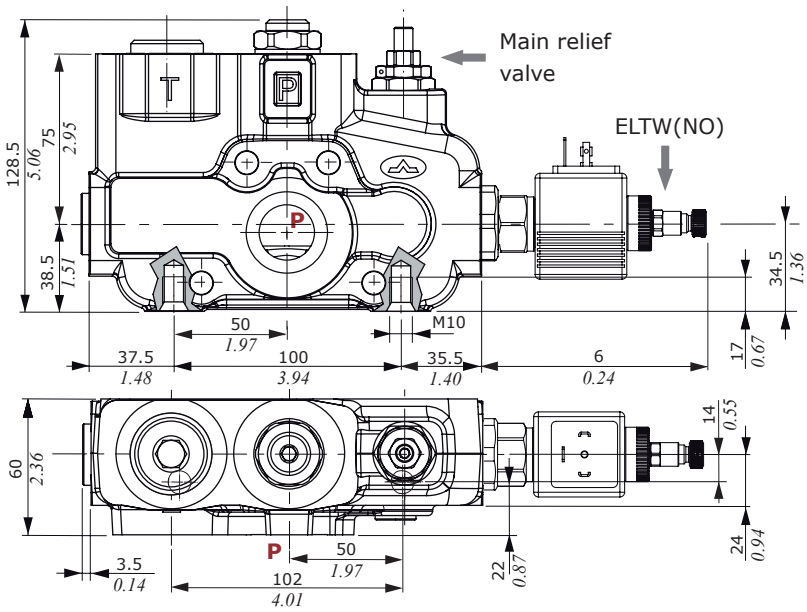
TYPE	CODE	DESCRIPTION
EIM(XG-220)	618421001	intermediate section with pressure relief valve

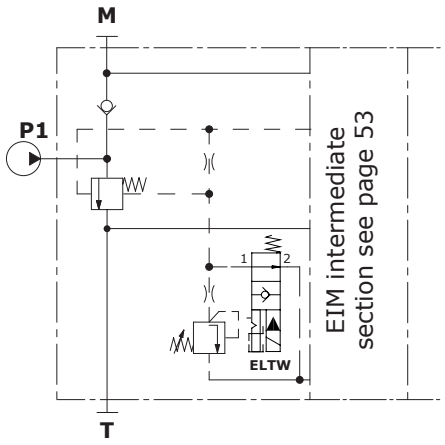
NOTE: *inlet cover with flow cut-out must be **always** assembled with EIM intermediate section.*

NOTE (*) – *Codes are referred to **BSP** thread.*

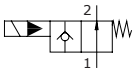
Configuration with flow cut-out

Dimensional data and hydraulic circuit

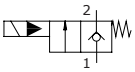




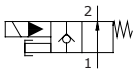
ELNW(NO): without emergency



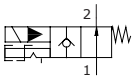
ELNW(NC): without emergency



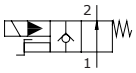
ELPW(NO): push button type



ELTW(NO): "push & twist" type



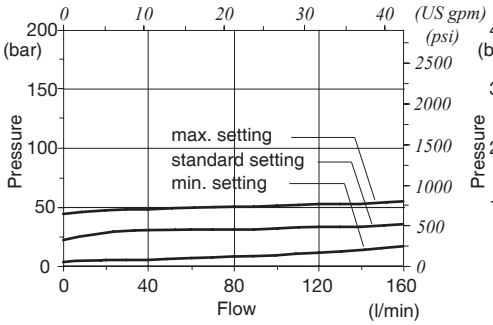
ELVW(NO): screw type



Main relief valve diagrams

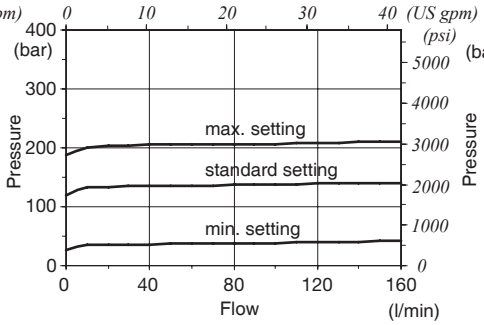
Type (G2) setting range

From 5 to 50 bar / *from 72 to 720 psi*



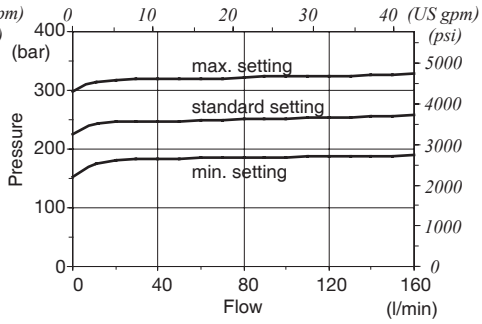
Type (G3) setting range

From 50 to 200 bar / *from 720 to 2900 psi*

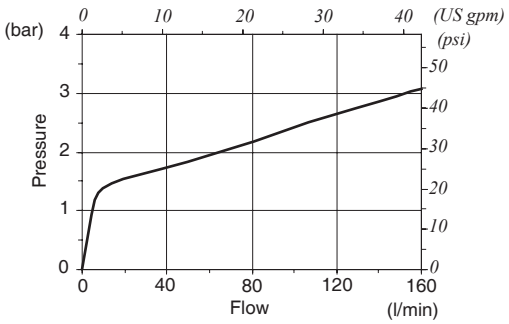


Type (G4) setting range

From 180 to 315 bar / *from 2600 to 4550 psi*



Pressure drop P ⇒ T on flow cut-out

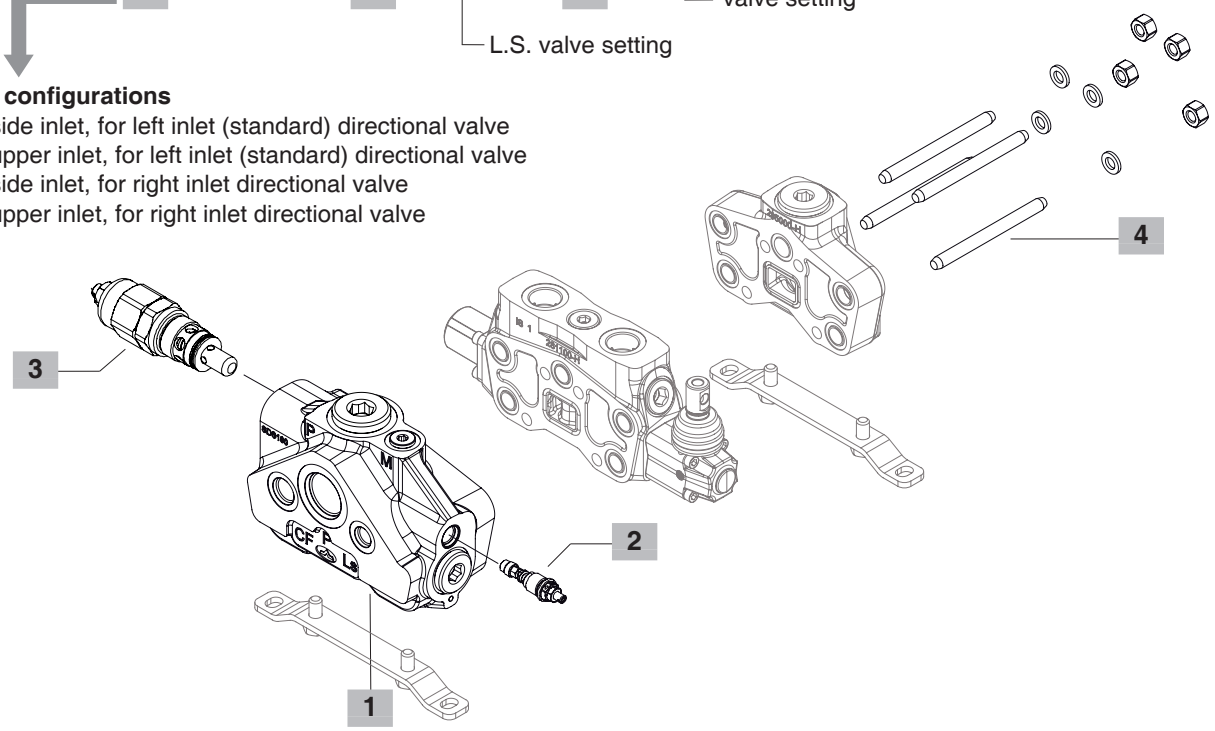


Configuration with priority valve

FE SDS180 / ACD / VPD (LSZ - 230 \ YG3 - 120) - SAE

1 = Available configurations
2 = L.S. valve setting
3 = valve setting

Available configurations
AC: with side inlet, for left inlet (standard) directional valve
AD: with upper inlet, for left inlet (standard) directional valve
BC: with side inlet, for right inlet directional valve
BD: with upper inlet, for right inlet directional valve



1 Inlet cover body * page 23

CODE: 5FIA118320
DESCRIPTION: Standard body

2 L.S. relief valve options page 23

Standard setting is referred to 10 l/min - *2.6 US gpm* flow.

TYPE	CODE	DESCRIPTION
LS	XCAR126212	Range 40-180 bar / *580-2600 psi* standard setting 90 bar / *1300 psi*
	XCAR126214	Range 180-350 bar / *2600-5000 psi* standard setting 180 bar / *2600 psi*
LSD	XCAR126215	Range 40-180 bar / *580-2600 psi* standard setting 90 bar / *1300 psi*
	XCAR126213	Range 180-350 bar / *2600-5000 psi* standard setting 180 bar / *2600 psi*
LSH	XCAR126216	Range 40-180 bar / *580-2600 psi* standard setting 90 bar / *1300 psi*
	XCAR126217	Range 180-350 bar / *2600-5000 psi* standard setting 180 bar / *2600 psi*
LSZ	5CAR126218	Range 6-115 bar / *90-1650 psi* standard setting 90 bar / *1300 psi*
	5CAR126219	Range 130-350 bar / *1900-5000 psi* standard setting 180 bar / *2600 psi*
ST	5KIT126210	Relief valve blanking plug

3 Inlet relief valve options page 13

Standard setting is referred to 10 l/min - *2.6 US gpm* flow.

TYPE	CODE	DESCRIPTION
SV	3XTAP535410	Relief valve blanking plug
VMP20/1 pilot operated pressure relief valve type X		
(XG-120)	X007211120	Range 60-250 bar / *900-3600 psi* standard setting 120 bar / *1750 psi*
(XGN-120)	XCAR120313	As previous without filter
VMD20/1 direct pressure relief valve type Y (standard)		
(YG2-80)	3XCAR120212	Range 63-125 bar / *900-1800 psi* standard setting 80 bar / *1150 psi*
(YG3-120)	3XCAR120213	Range 100-200 bar / *1450-2900 psi* standard setting 175 bar / *2500 psi*
(YG4-250)	3XCAR120214	Range 160-320 bar / *2300-4650 psi* standard setting 250 bar / *3600 psi*
Double stage relief valve (pilot port SAE 8)		
(XGD)	1130040408	Setting 207 and 235 bar / *3000 and 3400 psi*

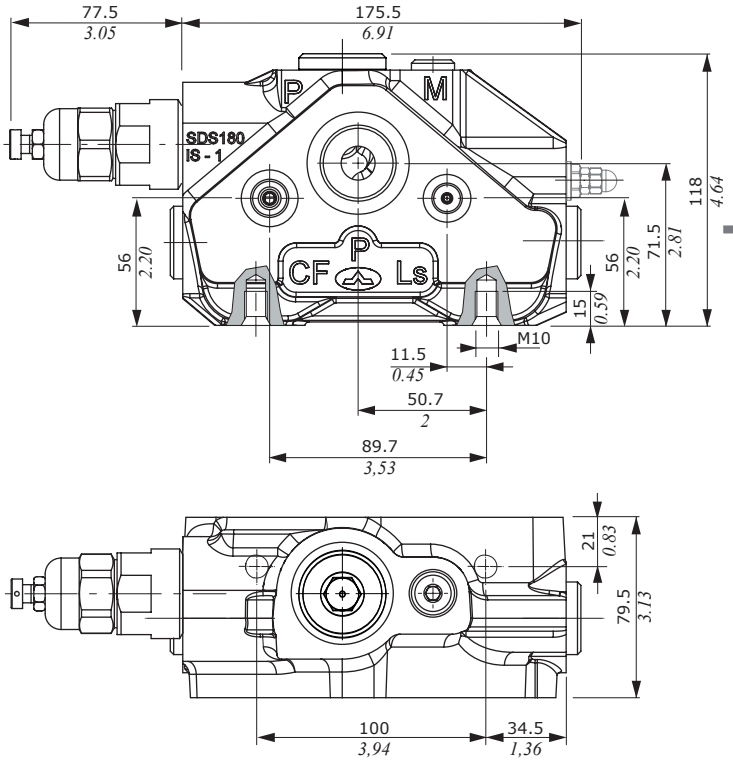
4 Assembling kit

CODE	DESCRIPTION
5TIR4161	Tie rod kit for 1 working sectional valve
5TIR4162	Tie rod kit for 2 working sectional valve
5TIR4163	Tie rod kit for 3 working sectional valve
5TIR4164	Tie rod kit for 4 working sectional valve
5TIR4165	Tie rod kit for 5 working sectional valve
5TIR4166	Tie rod kit for 6 working sectional valve
5TIR4167	Tie rod kit for 7 working sectional valve
5TIR4168	Tie rod kit for 8 working sectional valve
5TIR4169	Tie rod kit for 9 working sectional valve
5TIR416A	Tie rod kit for 10 working sectional valve

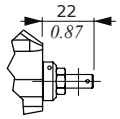
NOTE (*) – *Codes are referred to **BSP** thread.*

Configuration with priority valve

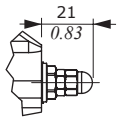
Dimensional data and hydraulic circuit



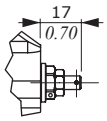
Load Sensing pressure relief valves



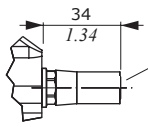
LS



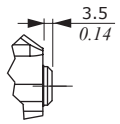
LSD: with blind nut



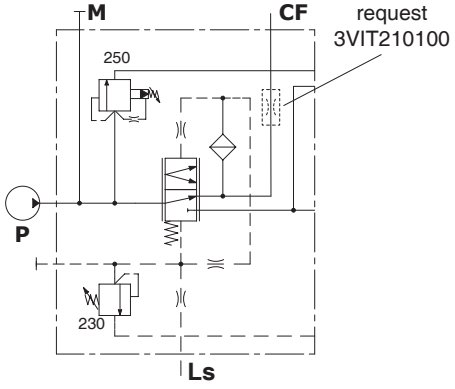
LSH: arranged for lead sealing



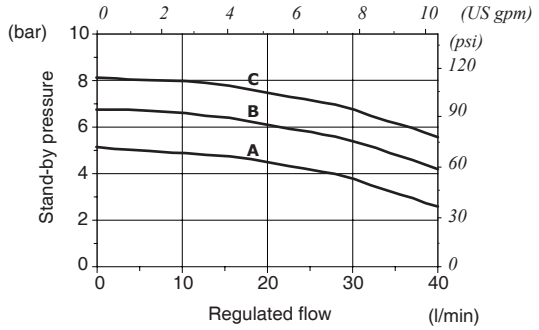
LSZ: with tamper proof cap



ST: valve blanking plug



Stand-by pressure vs. regulated flow for various values of inlet flow



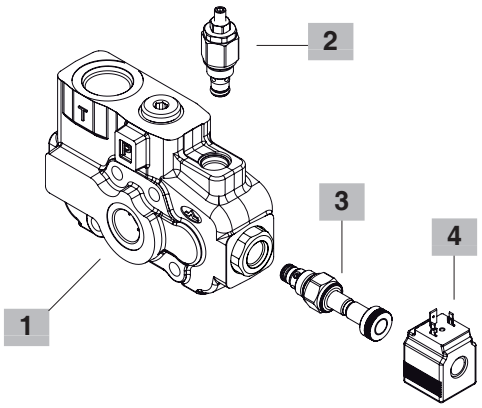
A = Qin- 50 l/min / *13.21 US gpm*
B = Qin- 100 l/min / *26.42 US gpm*
C = Qin- 150 l/min / *39.62 US gpm*

Configuration with unloader operation spool type

SDS180 / BCHW (LSW - 250) ELNW(NO) - 12VDC

1 2 3 4

Pressure relief valve setting (bar)



1 Inlet cover body * page 25

CODE: 5FIA118373
DESCRIPTION: with flow cut-out

2 Inlet relief valve options page 21

Standard setting is referred to 10 l/min - *2.6 US gpm* flow.

TYPE	CODE	DESCRIPTION
SV	XTAP525320	Relief valve blanking plug
Main relief valve		
LSW(G2)FC07	5KIT118120	Range 5-50 bar / *72-720 psi* standard setting 30 bar / *400 psi*
LSW(G3)FC07	5KIT118121	Range 50-200 bar / *720-3200 psi* standard setting 150 bar / *2150 psi*
LSW(G4)FC07	5KIT118122	Range 180-315 bar / *2600-4550 psi* standard setting 250 bar / *3600 psi*

3 Pilot solenoid valve options page 21

TYPE	CODE	DESCRIPTION
ELNW(NO)	0EF08002000	Without manual emergency, NO circuit
ELNW(NC)	0EF08002001	Without manual emergency, NC circuit
ELTW(NO)	0EF08002004	"Push&twist" manual emergency, NO circuit
ELPW(NO)	0EF08002002	Push-button manual emergency, NO circuit
ELVW(NO)	0EF08002003	Screw type manual emergency, NO circuit

4 Coils page 70

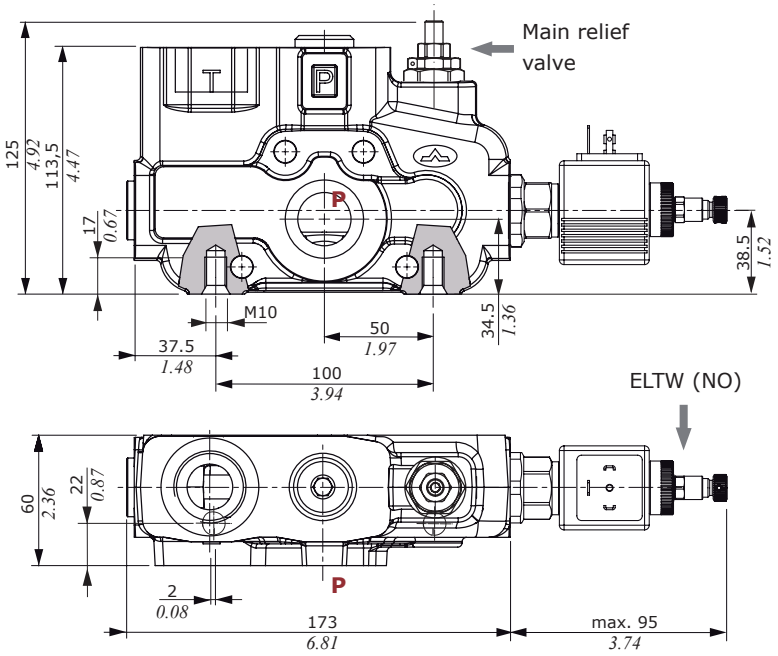
TYPE	CODE	DESCRIPTION
12VDC	4SLE001200	Coil **BER** 12VDC-ISO4400

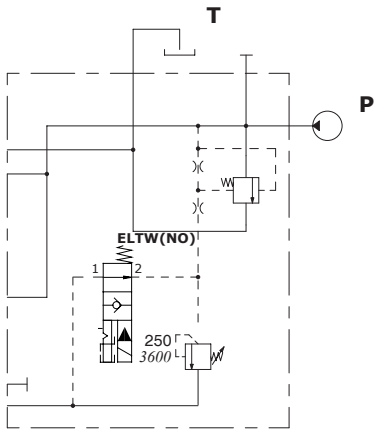
For complete available coils list see page 70

NOTE (*) – *Codes are referred to **BSP** thread.*

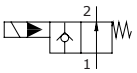
Configuration with unloader operation spool type

Dimensional data and hydraulic circuit

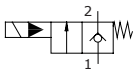




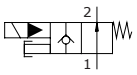
ELNW(NO): without emergency



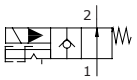
ELNW(NC): without emergency



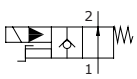
ELPW(NO): push button type



ELTW(NO): "push & twist" type



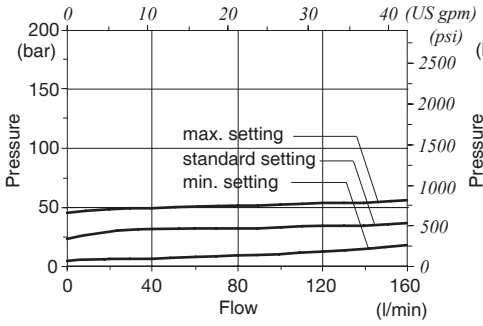
ELVW(NO): screw type



Main relief valve diagrams

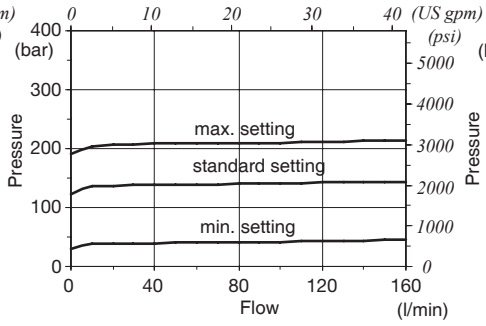
Type (G2) setting range

From 5 to 50 bar / *from 72 to 720 psi*



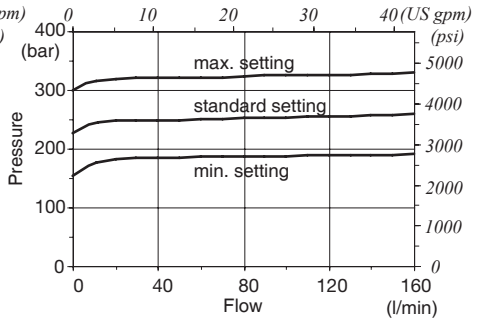
Type (G3) setting range

From 50 to 200 bar / *from 720 to 2900 psi*

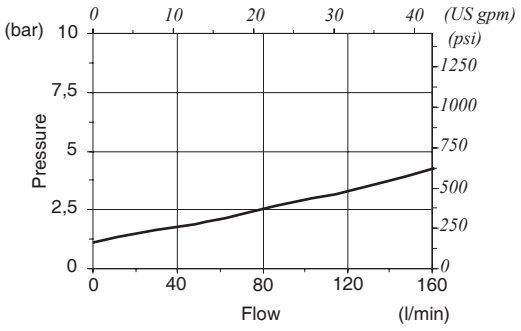


Type (G4) setting range

From 180 to 315 bar / *from 2600 to 4550 psi*



Pressure drop P ⇒ T on SDS 180/4

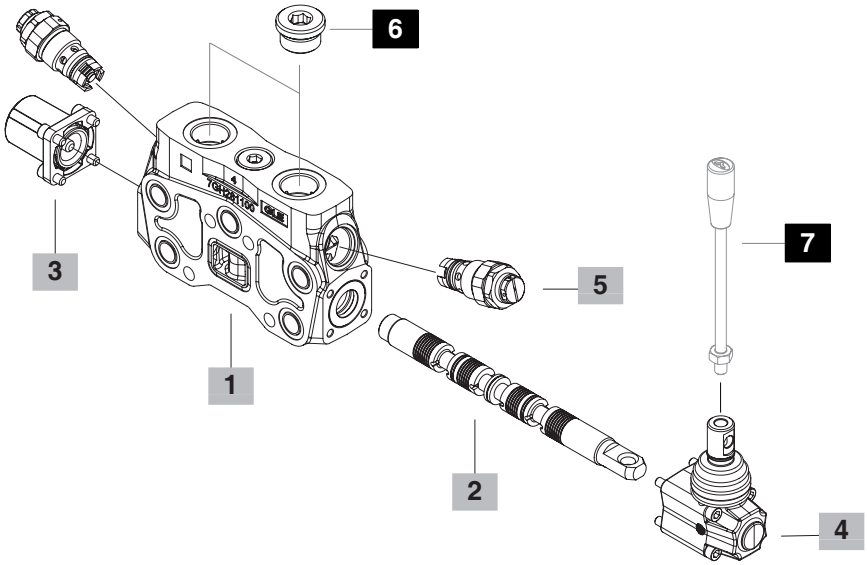


Parts ordering codes (mechanical control)

EL SDS180 / P - 1 8 L . P1 (G3 - 100)

1 2 3 4 5

Pressure relief valve setting (bar)



1 Working section kit * page 29

TYPE	CODE	DESCRIPTION
P	5EL1183000	Per circuito parallelo
	5EL1183000C	For parallel circuit, for automatic release positioner (11A)
SP	5EL3183001	For tandem circuit
S	5EL2163000	For series circuit
P5	5EL1183201	For parallel circuit and floating circuit
PES	5EL1163000	For parallel circuit, for valve with series circuit (page 8)
PHT	5EL1183080	**Need spools 1TX and 1TYD**
PHD	5EL1183020	**Need spools 1CSG and 1CSGH**

2 Spools** page 30

TYPE	CODE	DESCRIPTION
1	3CU2510100	Double acting, 3 positions, with A and B closed in neutral position
1(11A)	3CU2510321	As previous, **for automatic release positioner type 11A**
1CS	3CU2510200	As type 1, sensitive type
1CSG	3CU2510250	Double acting with A and B closed in neutral position, B partially connect to tank in pos.1, A partially connect to tank in pos.2 **for section kit PHD**
1CSGH	3CU2510251	As previous, sensitive type **for section kit PHD**
1A	3CU2521100	Double acting, 3 positions, with A open to tank in neutral position
1B	3CU2522100	Double acting, 3 positions, with B open to tank in neutral position

2 Spools (continued)** page 30

TYPE	CODE	DESCRIPTION
1D	3CU2510210	As type 1, sensitive type for flow up to 100 l/min - *26,42 USgpm*
1TX	3CU2510601	Double acting with A and B closed in neutral pos. with restricted connection to tank **for section kit PHT**
1TYD	3CU2510603	As previous, B with restricted connection to tank **for section kit PHT**
2	3CU2525100	Double acting, 3 positions, with A and B open to tank in neutral position
2H	3CU2525225	Double acting 3 positions, with A and B partially open to tank in neutral position
3	3CU2531100	Single acting on A, 3 positions, B plugged; requires G3/4 plug
4	3CU2535100	Single acting on B, 3 positions, A plugged; requires G3/4 plug
5	3CU2541200	Double acting spool with A and B closed in neutral position, 4 positions, with spool in, floating 4th position: **need dedicated positioner kit type 13MD**
5B	3CU2541203-H	Double acting spool with A and B closed in neutral position, 4 positions, with spool out, floating 4th position: **need dedicated positioner kit type 13C**
8PF	3CU2561210	Double acting 3 positions, regenerative circuit in 3rd position with spool in: **need dedicated positioner kit**
8PFG	3CU2561215	Double acting 3 positions, regenerative circuit in 3rd position with spool out: **need dedicated positioner kit**

NOTE (*) – *Codes are referred to **BSP** thread.*
(**) *For special features of the various spools please contact Sales Dpt.*

Parts ordering codes (mechanical control)

3 "A" side spool positioners page 32

TYPE	CODE	DESCRIPTION
8	5V08110000	With spring return in neutral position
8TL	5V08110310	As type 8, for flexible cable control
8F2	5V08110101	As type 8 with adjustable stroke limiter
11	5V11110000	Detent in positions neutral, 1 and 2
12	5V12110000	Detent in positions 1 and 2
15	5V15110000	2 positions, detent in pos. 1 and neutral
16	5V16110000	2 positions, detent in pos. 2 and neutral
9BZ	5V09110030	With detent in position 1 and spring return in neutral position
10BZ	5V10110030	With detent in position 2 and spring return in neutral position
11BZ	5V11110030	Detent in positions 1 and 2 and spring return in neutral position
8MG3	5V08110050	As type 8, operation with microswitch (NO) in positions 1 and 2
8MG19/ 29(NO)	5V08110080	As type 8, operation with 2 microswitch (NC) in positions 1 and 2
8RMN2	5V08416030	12 VDC with electromagnetic detent
	5V08416040	24 VDC with electromagnetic detent
8K	5V08710112	As type 8 and 12 VDC solenoid lock device
	5V08710124	As previous, 24 VDC
8PDG	5V08110710	ON/OFF pneumatic waterproof kit
8PG	5V08110708	ON/OFF pneumatic kit
8EPDG3	5V08110740	12 VDC ON/OFF pneumatic waterproof kit
	5V08110738	24 VDC ON/OFF pneumatic waterproof kit
8EPG3	5V08110725	12 VDC ON/OFF electro-pneumatic kit
	5V08110726	24 VDC ON/OFF electro-pneumatic kit
8EI3	5V08110320	12 VDC ON/OFF electro-hydraulic kit
	5V08110321	24 VDC ON/OFF electro-hydraulic kit
11A	5V11510110	With detent in pos. 1 and 2, automatic release in neutral position: **need dedicated spool 3CU2510321**
13MD	5V13416010	4 pos. Detent in 4th position with spring return in neutral position with detent pull type. **Needs spool type 5**
13C	5V13116005	4 pos. Detent in 4th position with spring return in neutral position with detent push type. **Needs spool type 5B**

Positioner kit for **8PF** and **8PFG** regenerative spools:
Overall dimensions are the same ones as those of standard controls listed above.

8CR	5V08110020	With spring return in neutral position
9BCR	5V09110020	With detent in position 1 and spring return in neutral position
8PGCR	5V08110706	ON/OFF pneumatic kit
8EPG3CR	5V08110727	12 VDC electro-pneumatic kit ON/OFF
	5V08110728	24 VDC electro-pneumatic kit ON/OFF
8EI3CR	5V08110357	12 VDC electro-hydraulic kit ON/OFF
	5V08110353	24 VDC electro-hydraulic kit ON/OFF

4 "B" side options page 40

TYPE	CODE	DESCRIPTION
L	5LEV110000	Standard lever box
LF1	5LEV110101	Lever box with spool stroke limiter in position 1
LB	5LEV310000	Steel lever
LCB	5CLO216100	Joystick lever for 2 sections operation
LCE	5CLO216050	As previous with bronze support
SL	--	Without lever box
SLP	5COP110000	Without lever box, with dust-proof plate
TQ	5TEL110110	Flexible cable connection; for CD cables

5 Port relief valves page 46

Valves standard setting is referred to 10 l/min - *2.64 USgpm* flow.

TYPE	CODE	DESCRIPTION
P3T	XTAP530361	A and B ports valve blanking plugs
C	3XCAR416100	Anti-cavitation valve
Anti-shock valve		
P(G2)	XCAR216115	Range 50-120 bar / *725-1750 psi* standard setting 63 bar / *900 psi*
P(G3)	XCAR216116	Range 100-250 bar / *1450-3600 psi* standard setting 100 bar / *1450 psi*
P(G4)	XCAR216117	Range 160-315 bar / *2300-4600 psi* standard setting 200 bar / *2900 psi*
Pilot hydraulic unloader valve		
PX	XCAR416301	Pilot hydraulic unloader valve
Anti-shock and anti-cavitation valve		
U(G2)	X011411099	Range 35-90 bar / *510 -1300 psi* standard setting 60 bar / *870 psi*
U(G3)	X011411100	Range 100-250 bar / *1450-3600 psi* standard setting 100 bar / *1800 psi*
U(G4)	X011411101	Range 180-350 bar / *2600-5100 psi* standard setting 200 bar / *2900 psi*
Pilot operated anti-shock and anti-cavitation valve		
UXW(G)	X01141B160	Range 63-315 bar / *900-4600 psi* standard setting 160 bar / *2300 psi*

6 Port plugs *

CODE	DESCRIPTION
3XTAP732200	G3/4 Plug

7 Optional handlevers

TYPE	CODE	DESCRIPTION
AL01/M10x200	170012020	For L lever box L= 200 mm / *7.87 in*
AL08/M12x250	170013125	For LCB joystick L= 250 mm / *9.84 in*

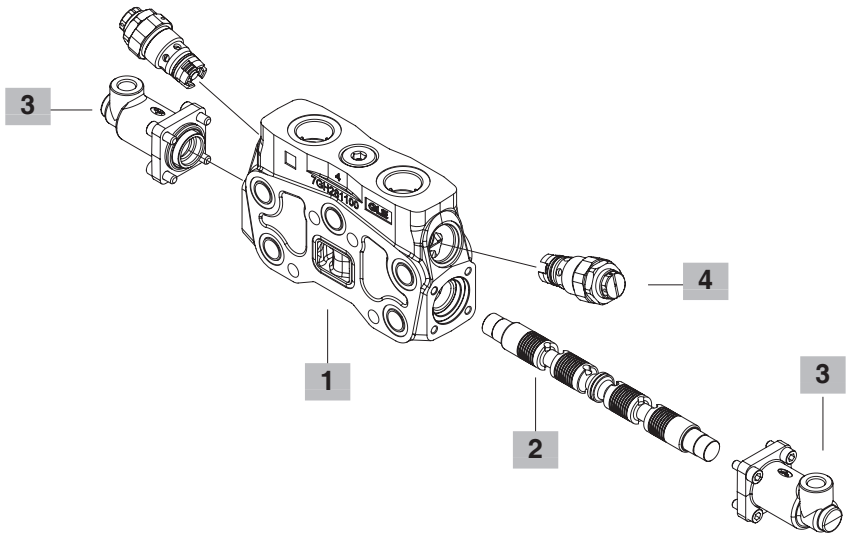
NOTE (*) – *Codes are referred to **BSP** thread.*

Parts ordering codes (proportional hydraulic control)

EL SDS180 / P - 1IM 8IM . U1 (G3 - 100)

1 2 3 4

Pressure relief valve setting (bar)



1 Working section kit * page 29

TYPE	CODE	DESCRIPTION
P/IM	5EL1183000A	With parallel circuit
P5/IMP	5EL1183205A	As previuos for floating circuit: **need spool type 5IMP and complete controls 13IMP**
SP/IM	5EL3183001B	With tandem circuit
SP5/IM	5EL3183202	As previuos for floating circuit
PHD/IM	5EL1183020A	**Need spool 1IMDA**

2 Spools page 30

TYPE	CODE	DESCRIPTION
1IM	3CU2510420	Double acting with A and B closed in neutral position
1IMDA	3CU2510490	Descent control and load check valve without power supply on port "A": **need working section PHD/IM and control type 8IMD**
1AIM	3CU2522420	Double acting with A open to tank in neutral position
1BIM	3CU2522420	Double acting with B open to tank in neutral position
2H	3CU2525425	As type 2 with A and B partially connect to tank in neutral position
2IM	3CU2525420	Double acting with A and B connect to tank in neutral position
3IM	3CU2535420	Single acting on A, B plugged
4IM	3CU2535420	Single acting on B; A plugged
5IMP	3CU2542430	Double acting spool with A and B closed in neutral position, spool out floating 4th position: **need working section P5/IMP and control type 13 IMP**
1IM (8IMSP)	3CU2510491	As type 1M: **need control type 8IMSPSL4P**

3 Complete controls * page 43

TYPE	CODE	DESCRIPTION
8IM	5IDR216300	Zama control kit for special spools and body kit without seals and ring. Range 5.8-19 bar / *84-270 psi*
8IMD	5IDR218300	Control kit with floating circuit and PHD section. Range 5.8-19 bar *84-270 psi:* **need working section PHD/IM and spool type 1IMDA**
8IMF3	5IDR216303	Zama control kit with screws spool stroke adjusting. Range 5.8-19 bar *84-270 psi*
8IMSPSL4P	5IDR218012	Zama control kit with spool position sensor. Range 0.8-4.2 bar / *11-60 psi:* **need spool type 1IM(8IMSP)**
8IMOH	5IDR216000-H	Steel control kit. Range 5.8-19 bar *84-270 psi*
13IMP	5IDR216014	Control kit for floating circuit. Range 5.8-14 bar / *84-270 psi*: **need working section P5/IMP spool type 5IMP**

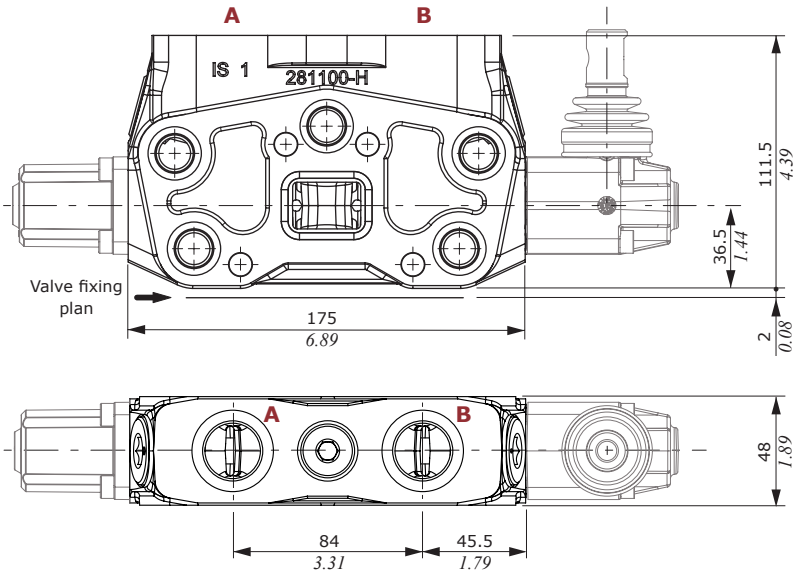
4 Port valves page 46

See page 27.

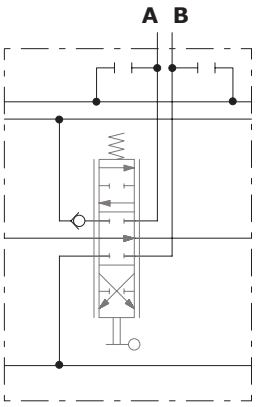
NOTE (*) – *Codes are referred to **BSP** thread.*

Dimensional data and hydraulic circuit

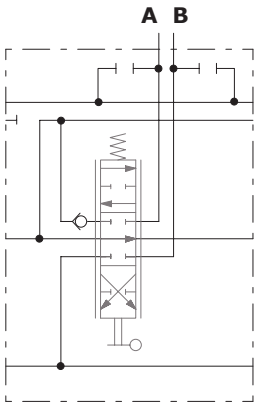
P/P5/SP/PES/PHT/PHD type



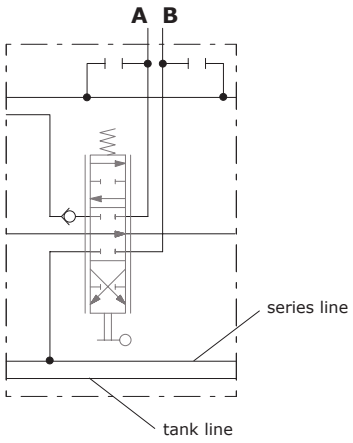
P/P5/PHT/PHD type



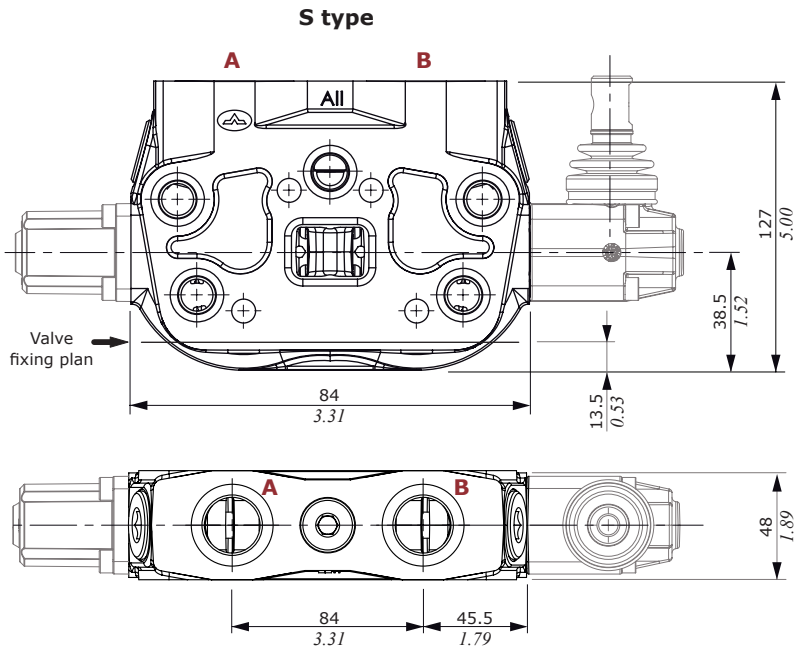
SP type



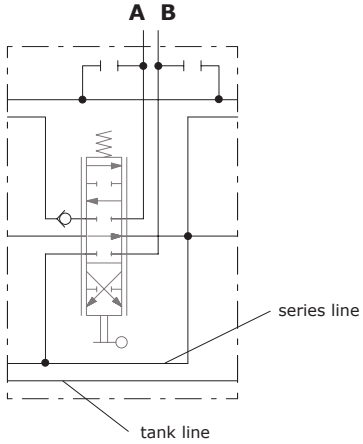
PES type



S type

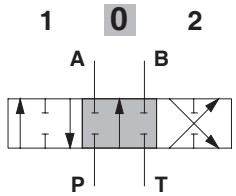


S type



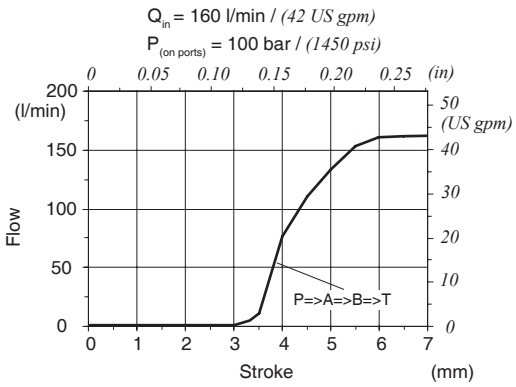
Spools

Spool type 1 (1D/1CS/1[11A]/1IM)
Double acting, 3 positions, with A and B closed in neutral position

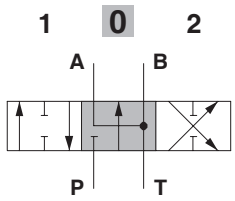


Spool stroke
position 1: + 7 mm *(+ 0.28 in)*
position 2: - 7 mm *(- 0.28 in)*

Spool metering type 1

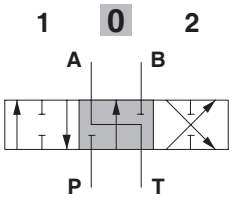


Spool type 2 (2IM)
Double acting, 3 positions, with A and B open to tank in neutral position



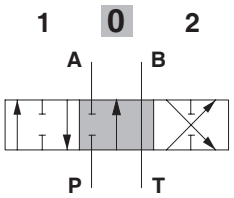
Spool stroke
position 1: + 7 mm *(+ 0.28 in)*
position 2: - 7 mm *(- 0.28 in)*

Spool type 1A (1AIM)
Double acting, 3 positions, with A open to tank in neutral position



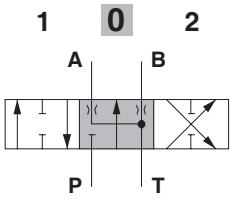
Spool stroke
position 1: + 7 mm *(+ 0.28 in)*
position 2: - 7 mm *(- 0.28 in)*

Spool type 1B (1BIM)
Double acting, 3 positions, with B open to tank in neutral position



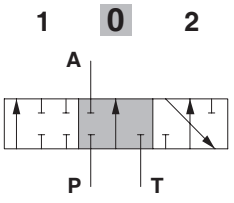
Spool stroke
position 1: + 7 mm *(+ 0.28 in)*
position 2: - 7 mm *(- 0.28 in)*

Spool type 2H
Double acting, 3 positions, with A and B partially open to tank in neutral position



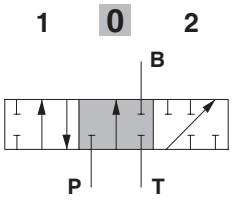
Spool stroke
position 1: + 7 mm *(+ 0.28 in)*
position 2: - 7 mm *(- 0.28 in)*

Spool type 3 (3IM)
Single acting on A, 3 positions, B plugged; requires G3/4 plug



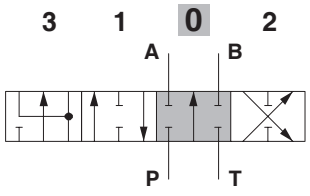
Spool stroke
position 1: + 7 mm *(+ 0.28 in)*
position 2: - 7 mm *(- 0.28 in)*

Spool type 4 (4IM)
Single acting on B, 3 positions, plugged; requires G3/4 plug



Spool stroke
position 1: + 7 mm *(+ 0.28 in)*
position 2: - 7 mm *(- 0.28 in)*

Spool type 5B
Double acting spool with A and B closed in neutral position, 4 positions, with spool out, floating 4th position

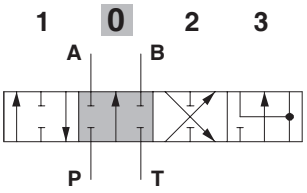


Spool stroke
position 1: + 6 mm
position 2: - 6 mm
position 3: + 12 mm

Spools

Spool type 5 (5IMP)

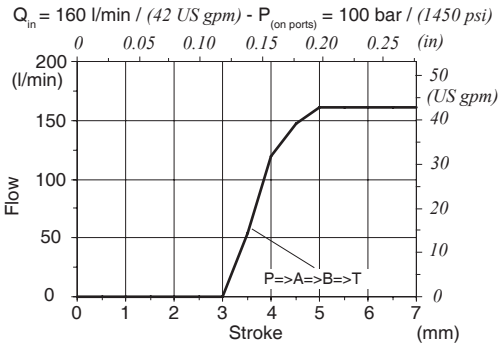
Double acting spool with A and B closed in neutral position, 4 positions, with spool in, floating 4th position



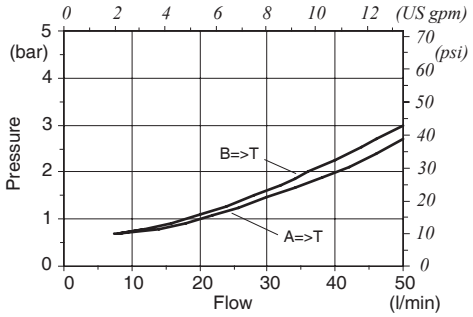
Spool stroke

position 1: + 6 mm *(+ 0.24 in)*
position 2: - 6 mm *(- 0.24 in)*
position 3: - 12 mm *(- 0.47 in)*

Spool metering

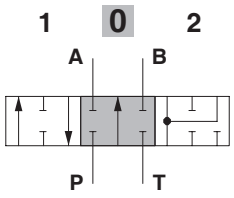


Pressure drop in position 3



Spool type 8PF

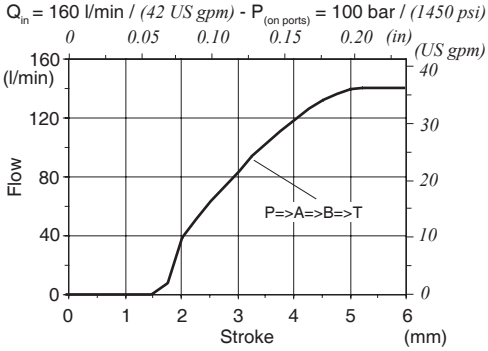
Double acting, 3 positions, regenerative circuit in 3rd position with spool in



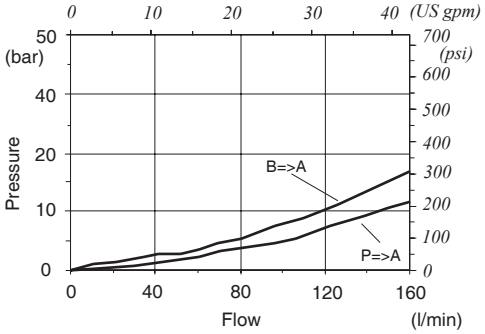
Spool stroke

position 1: + 5.7 mm *(+ 0.22 in)*
position 2: - 5.7 mm *(- 0.22 in)*

Spool metering

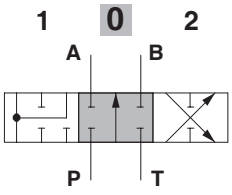


Pressure drop



Spool type 8PFG

Double acting, 3 positions, regenerative circuit in 3rd position with spool out



Spool stroke

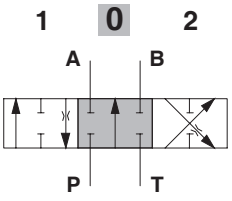
position 1: + 5.7 mm *(+ 0.22 in)*
position 2: - 5.7 mm *(- 0.22 in)*

Spool type 1CSG (1CSGH)

Double acting with A and B closed in neutral position, B partially connect to tank in pos. 1, A partially connect to tank in pos. 2

Spool type 1TX (1TYD)

Double acting with A and B closed in neutral position with restricted connection to tank

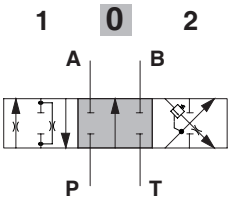


Spool stroke

position 1: + 7 mm *(+ 0.28 in)*
position 2: - 7 mm *(- 0.28 in)*

Spool type 1IMDA

Descent control and load check valve without power supply on port "A"



Spool stroke

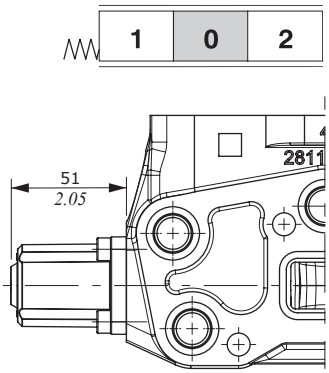
position 1: + 7 mm *(+ 0.28 in)*
position 2: - 7 mm *(- 0.28 in)*

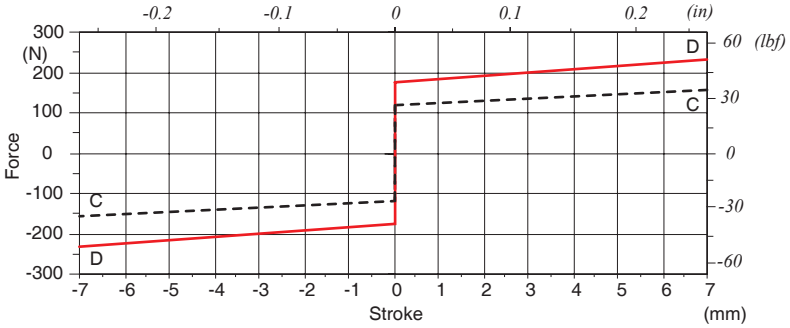
"A" side spool positioners

With spring return

Type 8

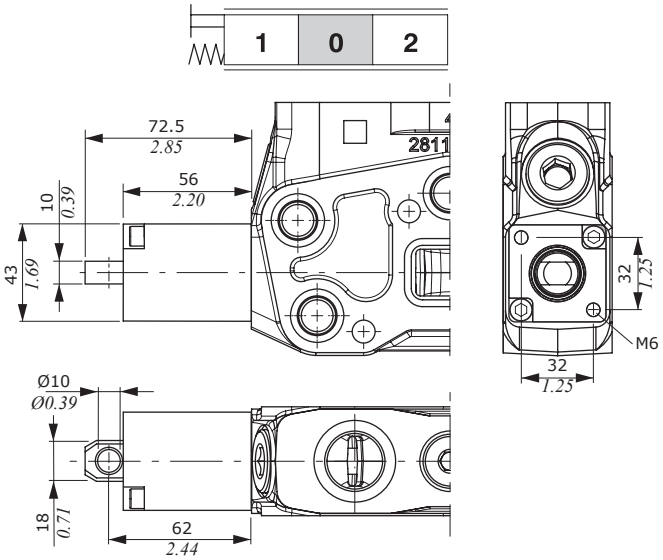
It's supplied with standard spring type D (see force-stroke diagram) and available with lighter spring type C (**8MC** code: **5V08210000**).





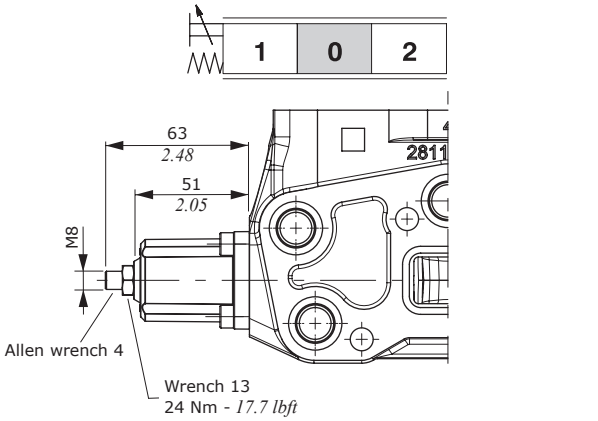
Type 8TL

As type 8, for flexible cable control.

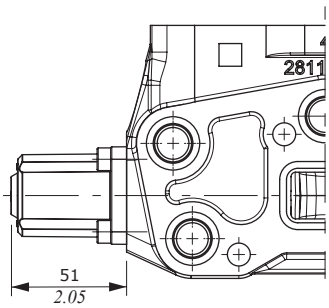


Type 8F2

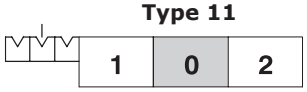
With spool stroke adjustment in position 2 (P ⇒ B).



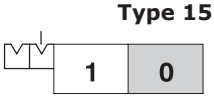
With detent



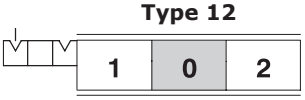
Type 11



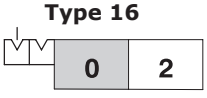
Type 15



Type 12



Type 16



Features

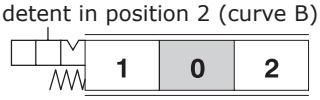
Detent and release force .....: 280 N / *63 lbf* ±10%

"A" side spool positioners

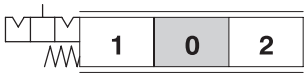
With detent and spring return to neutral position from either directions

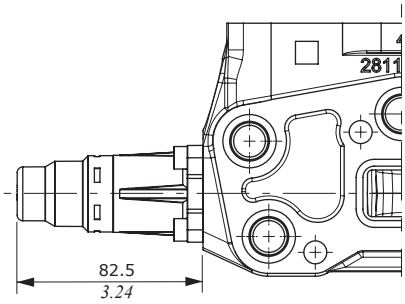
Type 9BZ
detent in position 1 (curve A)

Type 10BZ
detent in position 2 (curve B)

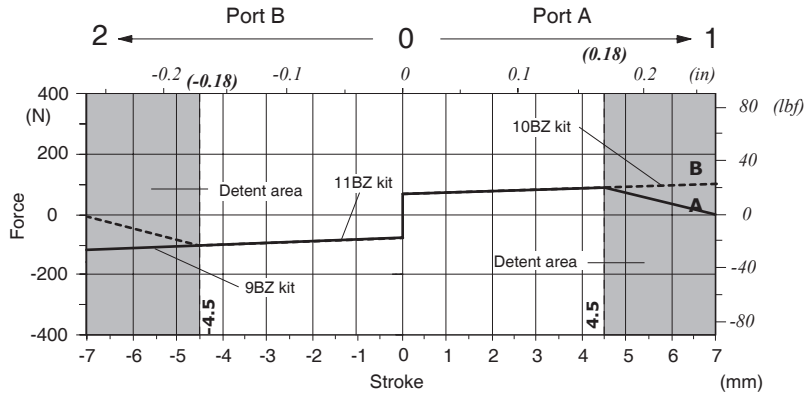


Type 11BZ
detent in position 1 and 2 (curves A and B)





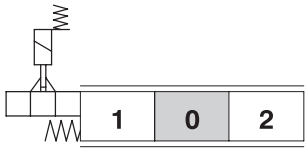
Detent force-stroke

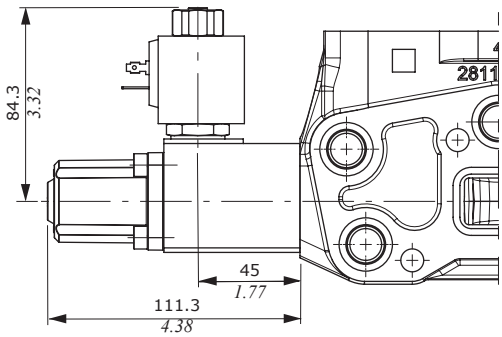


Position 1 - Detent force: 130 N / *29.2 lbf* ± 10% / Release force: 215 N / *48.3 lbf* ± 10%
Position 2 - Detent force: 145 N / *32.6 lbf* ± 10% / Release force: 300 N / *67.4 lbf* ± 10%

Solenoid lock device type 8K

With spring return and spool electromechanical lock in neutral position; when coil is feeded the spool can be moved. it's possible to obtain further configurations with several "A" side spool positioners: contact Sales Dept.





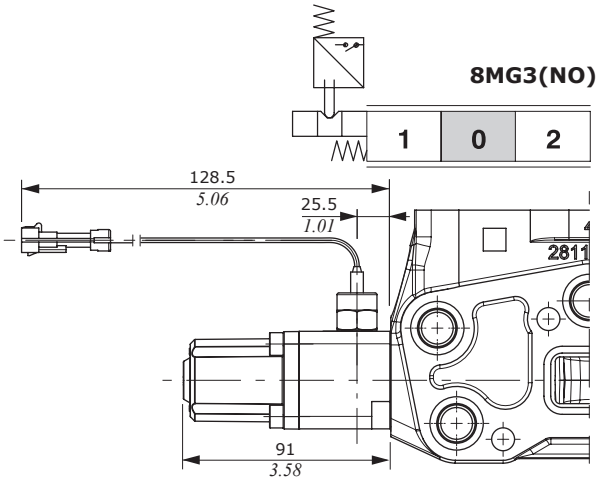
For coil **BE** and mating connectors see page 70

"A" side spool positioners

With microswitch

Type 8MG3

With spring return in neutral position and microswitch operated in both directions. Also available **8MG1** (microswitch operated in position 1) and **8MG2** (microswitch operated in position 2) configurations; dimension are the same of **8MG3** configuration.
Note: this control is not compatible with valves on port "A".

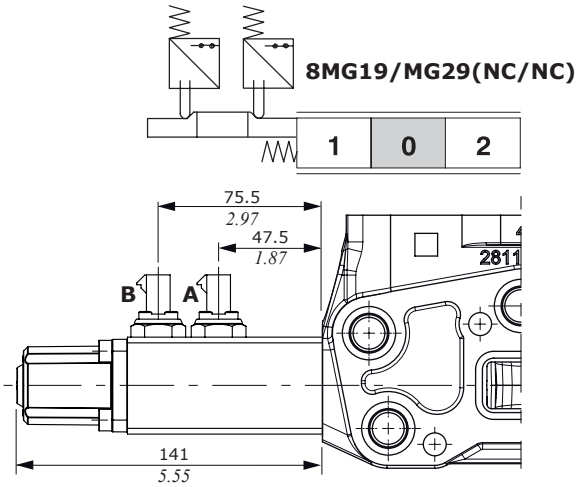


Complete controls			
	Microswitch operation		
Circuit	position 1 **8MG1**	position 2 **8MG2**	positions 1, 2 **8MG3**
(NO)	5V08110060	5V08110070	5V08110050
(NC)	/	/	5V08110053

Features
MICROSWITCH
Mechanical life .....: 5x10^5 operations
Electrical life (resistive load) ..: 10^5 oper. – 7A / 13.5VDC
: 5x10^4 oper. – 10A / 12VDC
: 5x10^4 oper. – 3A / 28VDC
Connector .....: Packard Weather-pack
Mating connector cod. 5CON001 not included

Type 8MG19/MG29

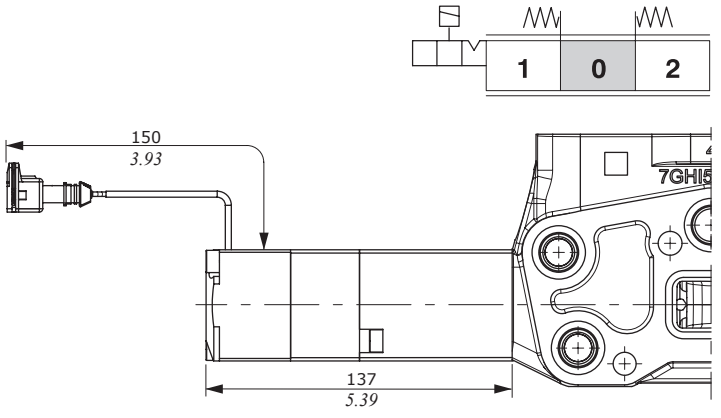
With double microswitch in position 1 and 2.



Positions	A	B
1	•⁄•	•—•
0	•—•	•—•
2	•—•	•⁄•

Features
MICROSWITCH
Mechanical life .....: 5X10^5 operations
Electrical life (resistive load) ..: 10^5 oper. – 7A / 13.5VDC
: 5x10^4 oper. – 10A / 12VDC
: 5x10^4 oper. – 3A / 28VDC
Connector .....: Packard Weather-pack
Mating connector cod. 5CON140047 not included

Electromagnetic detent type 8RMN2

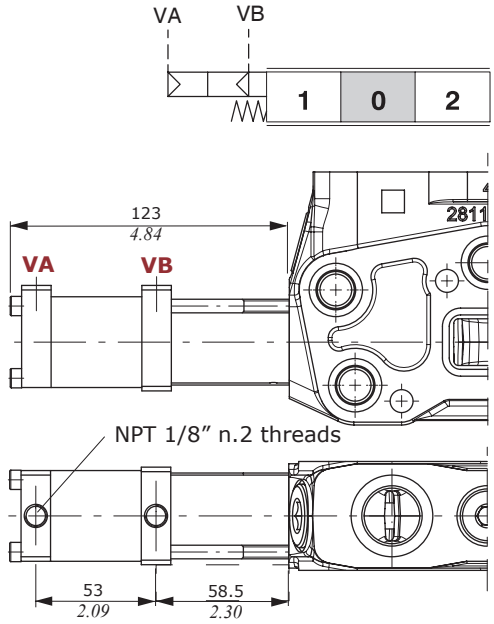


Features
Nominal voltage .....: 12-24 VDC (± 10%)
Power rating .....: 5 W
Resitance .....: 26-29.8 Ω - 12VDC
102-118 Ω - 24VDC
Duty cycle .....: 100%
Connector .....: AMP JPT 2P
Unlocking force (12 VDC) .....: 380N - *85.4 lbf*
Mating connector cod. W0251001 not included

"A" side spool positioners

ON/OFF pneumatic kit type 8PG

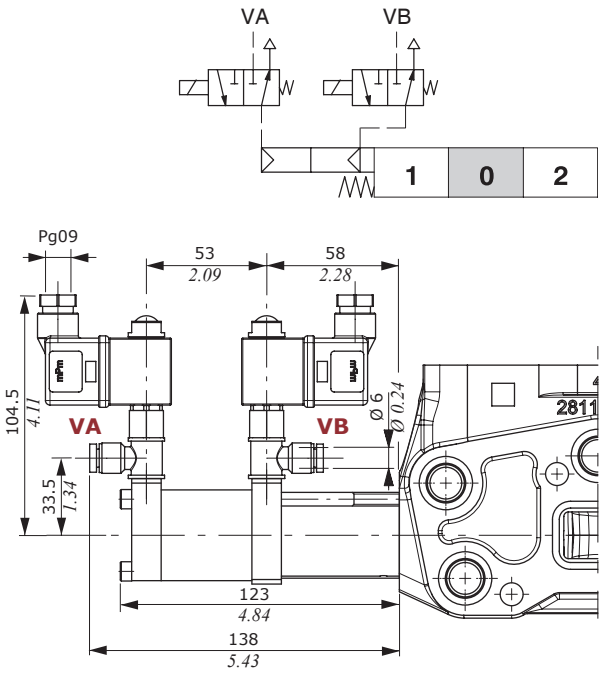
With spring return to neutral position.



Features

Pilot pressure..... : min. 6 bar / *87 psi*
: max. 12 bar / *174 psi*

ON/OFF electro-pneumatic kit type 8EPG3



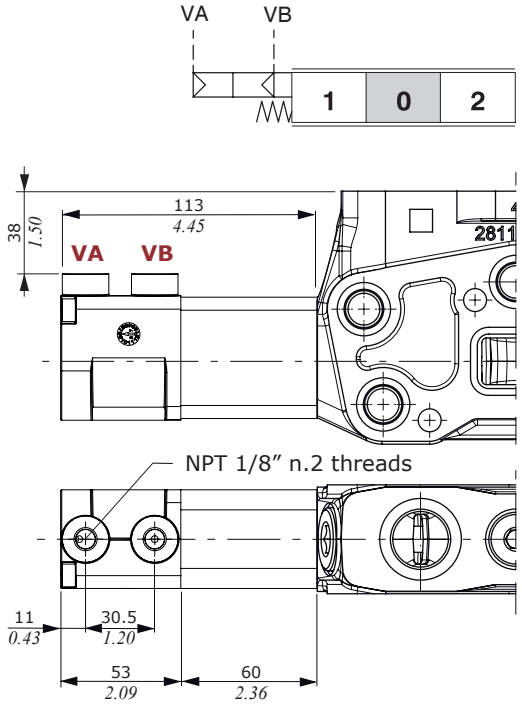
Features

Pilot pressure..... : min. 6 bar / *85 psi*
: max. 15 bar / *215 psi*

For coil **BPV** see page 72

"A" side spool positioners

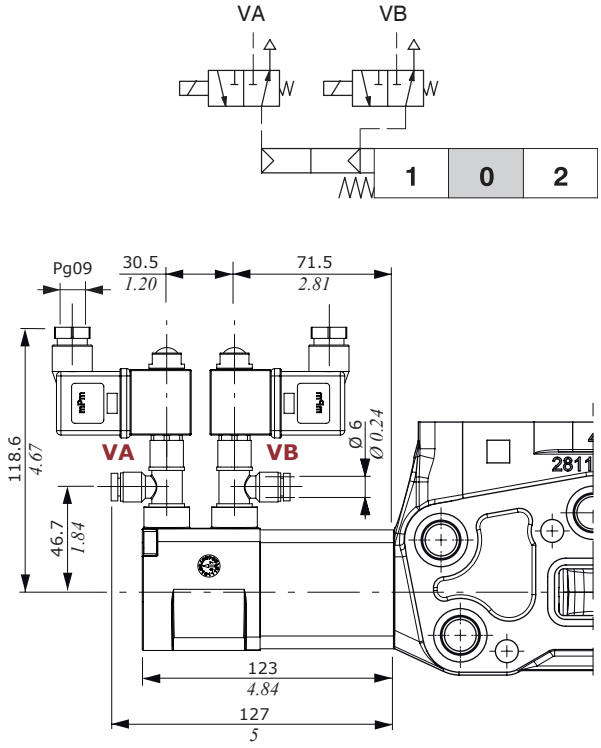
ON/OFF pneumatic waterproof kit type 8PDG



Features

Pilot pressure..... : min. 6.5 bar / *90 psi*
: max. 15 bar / *200 psi*

ON/OFF electro-pneumatic waterproof kit type 8EPDG3

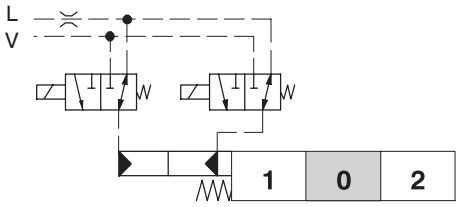


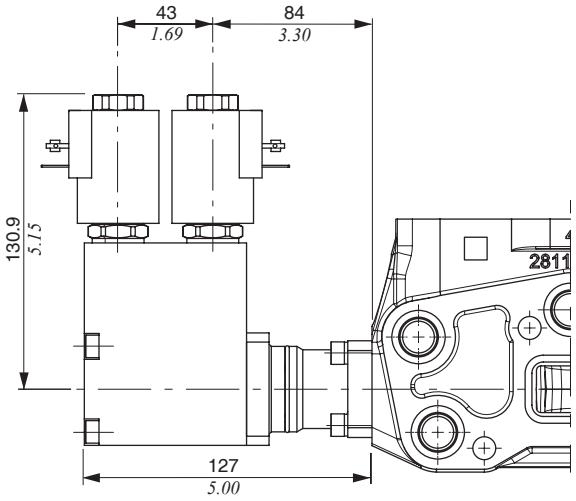
Features

Pilot pressure..... : min. 10 bar / *145 psi*
..... : max. 50 bar / *725 psi*
Max backpressure on drain L.. : 25 bar / *360 psi*
For coil **BPV** see page 72

"A" side spool positioners

ON/OFF electro-hydraulic control 8EI3

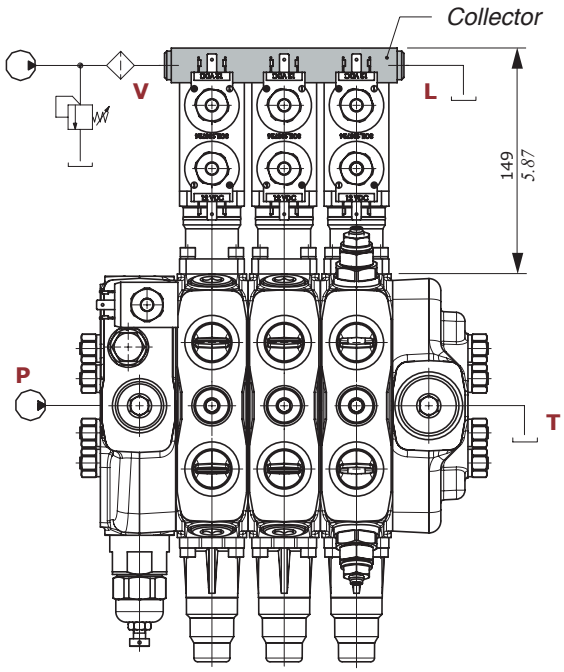


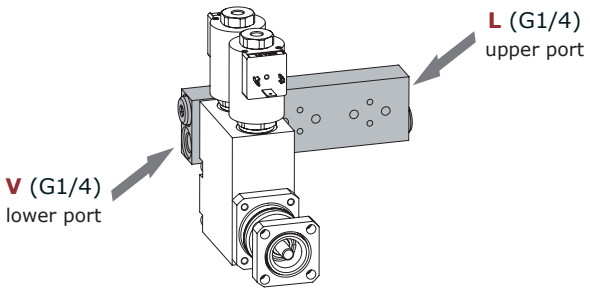


Features

Pilot pressure..... : min. 10 bar / *145 psi*
: max. 50 bar / *725 psi*
Max backpressure on drain L.. : 25 bar / *360 psi*
For coil **BT** and mating connectors see page 71

Collector kit for external pilot and drain





COLLECTOR KIT CODES		
Type	**Code ***	**Description**
KE1S0	5KE1S00030	Kit for one section
KE2S0	5KE2S01530	Kit for 2 sections
KE3S0	5KE3S01530	Kit for 3 sections
KE4S0	5KE4S01530	Kit for 4 sections
KE5S0	5KE5S01530	Kit for 5 sections
KE6S0	5KE6S01530	Kit for 6 sections
KE7S0	5KE7S01530	Kit for 7 sections

(*) codes are referred to BSP thread

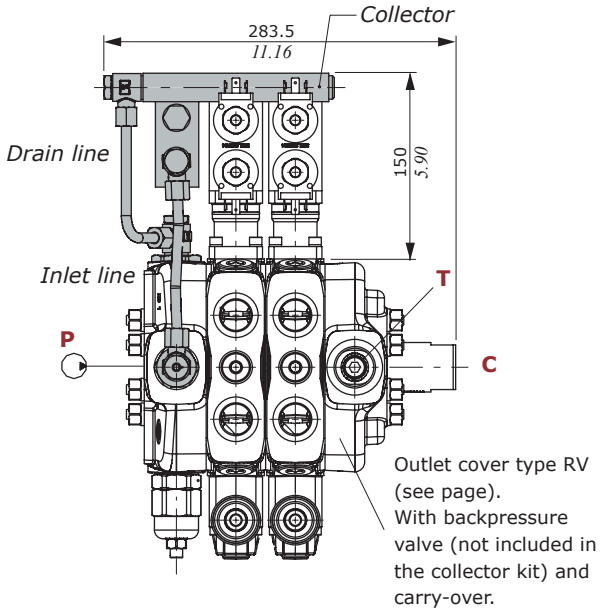
Description example:
SDS180/3/AC(XG-210)R2E/1**8EI3LCZ**/1**8EI3LCZ**/
18EI3LCZ.UX3(G-230)/RC-**KE3S0–12VDC**

"A" side spool positioners

ON/OFF electro-hydraulic kit type 8EI3

Collector kit for internal pilot and drain

The kit include collecctor, VRP pressure reducing valve and pipes.



COLLECTOR KIT CODES		
Type	**Code ***	**Description**
KE1R3	5KE1R31530	Kit for one section
KE2R3	5KE2R31530	Kit for 2 sections
KE3R3	5KE3R31530	Kit for 3 sections
KE4R3	5KE4R31530	Kit for 4 sections
KE5R3	5KE5R31530	Kit for 5 sections
KE6R3	5KE6R31530	Kit for 6 sections
KE7R3	5KE7R31530	Kit for 7 sections

(*) codes are referred to BSP thread

Description example:
SDS180/2/AC(YG3–120)/1CS**8EI3**L/1CS**8EI3**L/
RV–KE2R3–24VDC

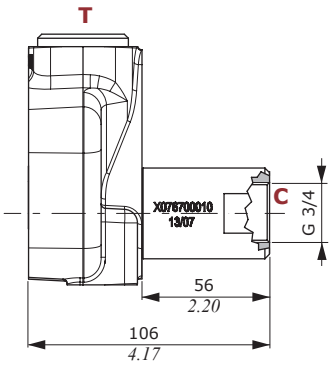
Features

VRP VALVE

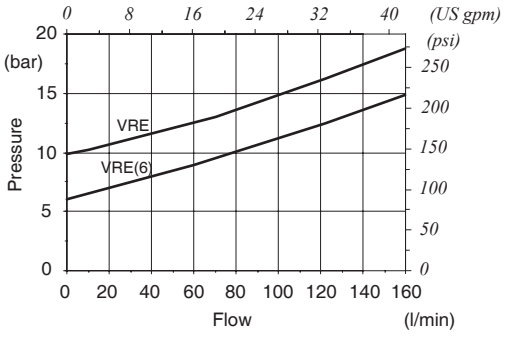
Output pressure . . . . . : 20 bar / *290 psi*
Max flow . . . . . : 8 l/min / *2.1 US gpm*
Filtering . . . . . : 80 µ

VRE backpressure valve

Valve assembled on flow through passage to provide pilot pressure to the actuator.
It's available as **VRE** (code X076700010) or **VRE(6)** (code X076710006): see diagram.



Pressure drop P → C

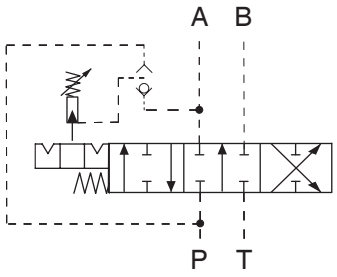


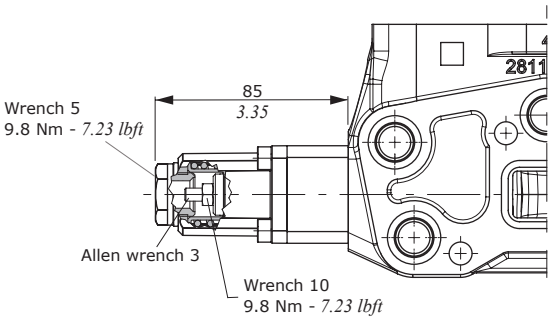
"A" side spool positioners

Particular positioner kits for special spools

11A

With detent in position 1 and 2, and automatic release in neutral position.
Need special body kit and dedicated spool 3CU2510321.





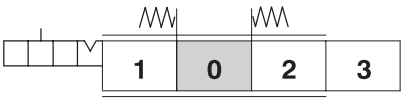
Special working section kit
5EL1183000C

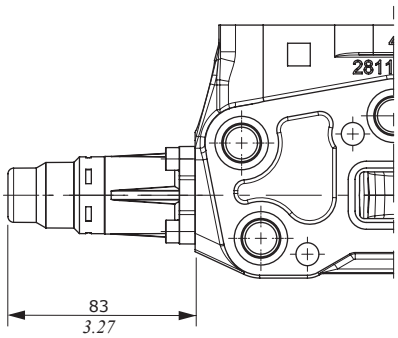
Features

Release pressure . . . . . : from 20 to 180 bar
from 290 to 2600 psi

13MD

Detent in 4th position with spring return in neutral position with detent pull type. Needs spool type **5**.

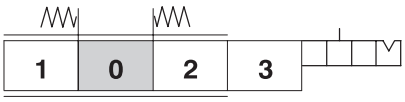


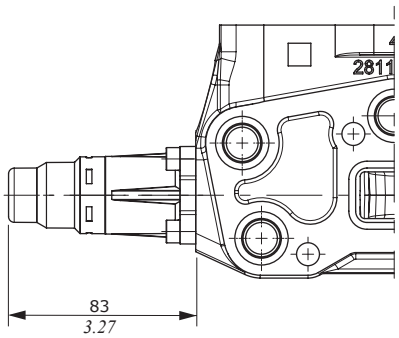


Special working section
5EL1183201 (left inlet)
5EL1183260 (right inlet)

13C

Detent in 4th position with spring return in neutral position with detent push type. Needs spool type **5B**.





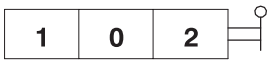
Special working section
5EL1183260 (left inlet)
5EL1183201 (right inlet)

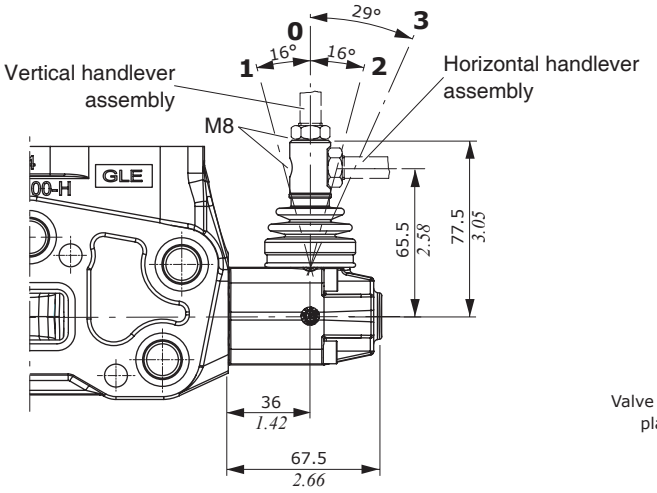
"B" side options

Lever control

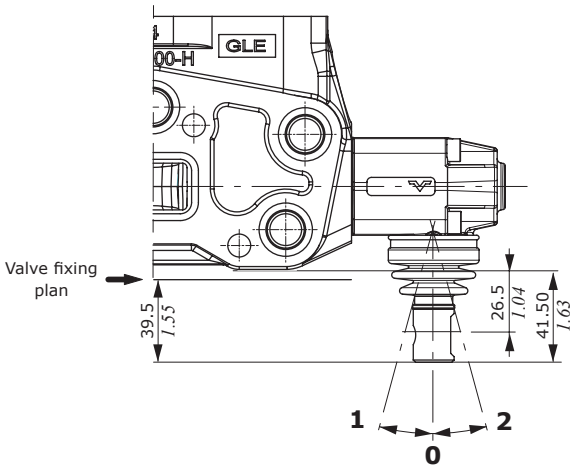
L Type

Alluminium lever pivot box with protective rubber bellow; it can be roated 180° (configuration **L180**).



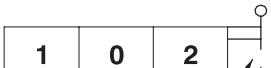


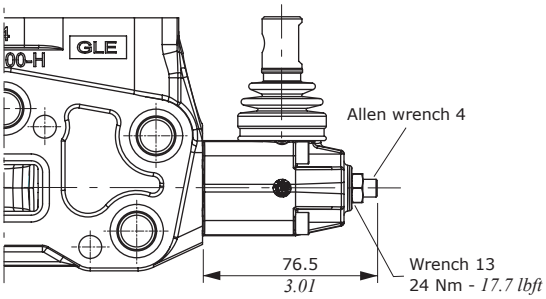
configuration L180



LF1 Type

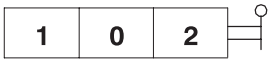
With spool stroke adjustment in position 12 (P→A).
It can be roated 180° (configuration **LF1180**).

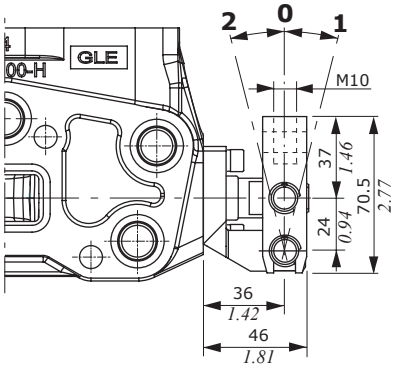




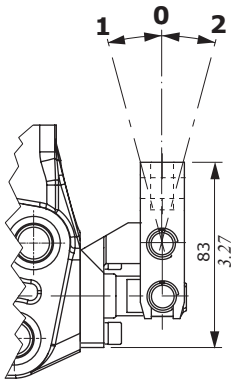
LB Type

Steel construction, with pivot placed down.
Assembling with 5B and 5BY type spool is not possible.





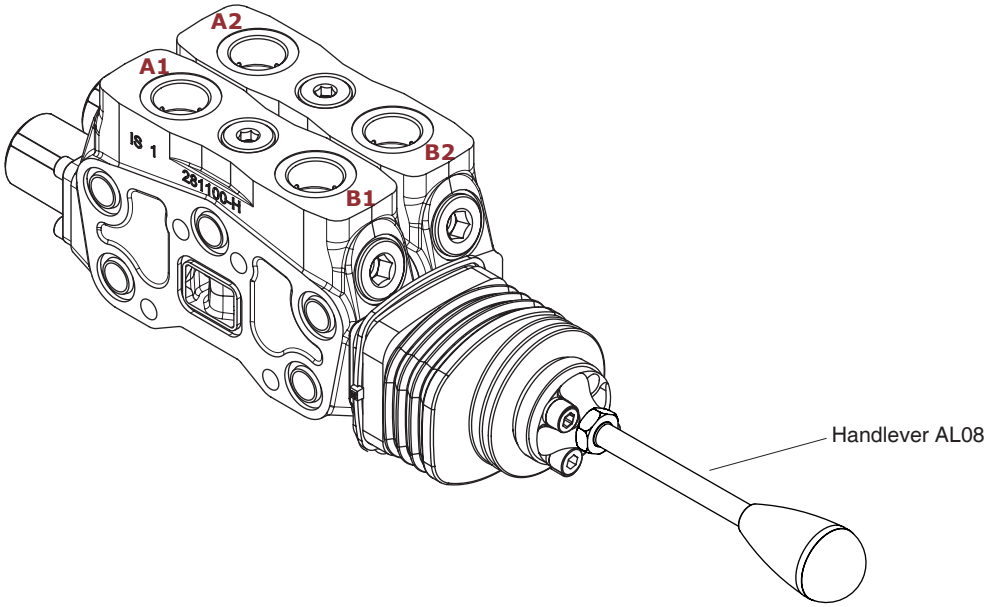
configuration LB1

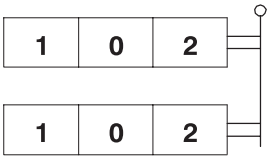


configuration LB3

"B" side options

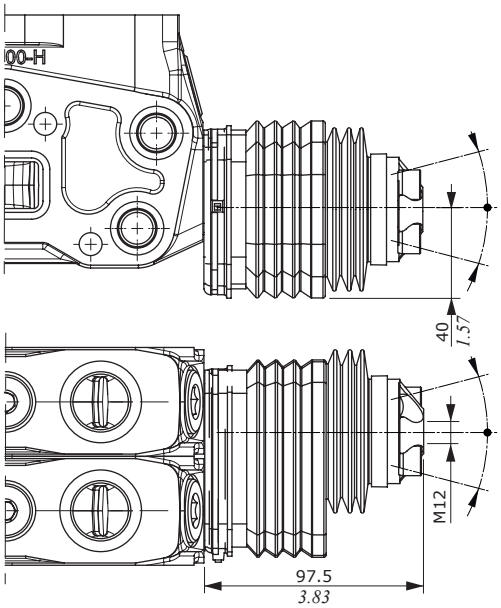
LCB and LCE mechanical joysticks for two sections control





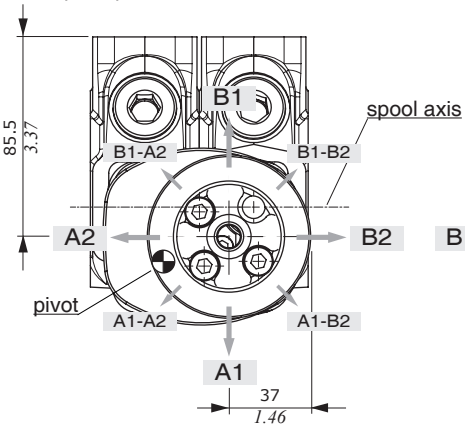
NOTE – *The handlever must be ordered separately (see page 27).*

Dimensions and movement scheme for left inlet directional valve

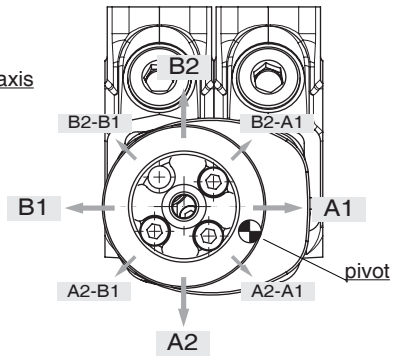


Max. working angles	Horizontal axis	Vertical axis
Single action operation	18°30′	15°30′
Single action operation with floating	not available	not available
Two section operation	18°30′	15°30′
Two section operation with floating	not available	not available

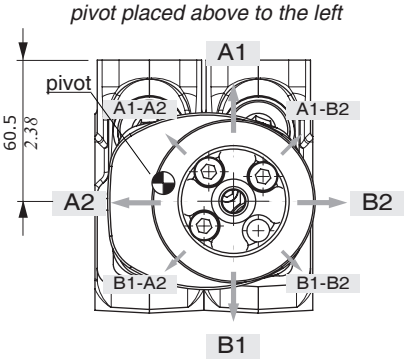
Execution **LCB1**
pivot placed down on the left



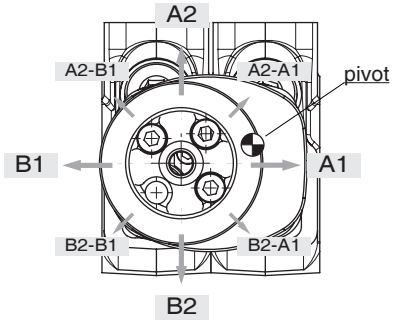
Execution **LCB2**
pivot placed down on the right



Execution **LCB3**
pivot placed above to the left



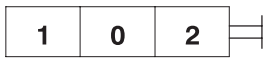
Execution **LCB4**
pivot placed above to the right

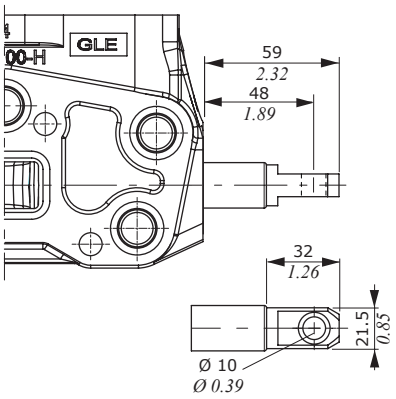


NOTE – Don't use with spool type.

"B" side options

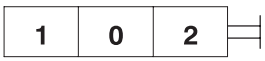
SL type

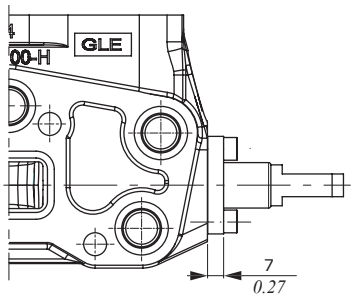




SLP type

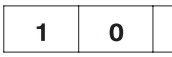
Mechanical control with dust-proof plate kit.

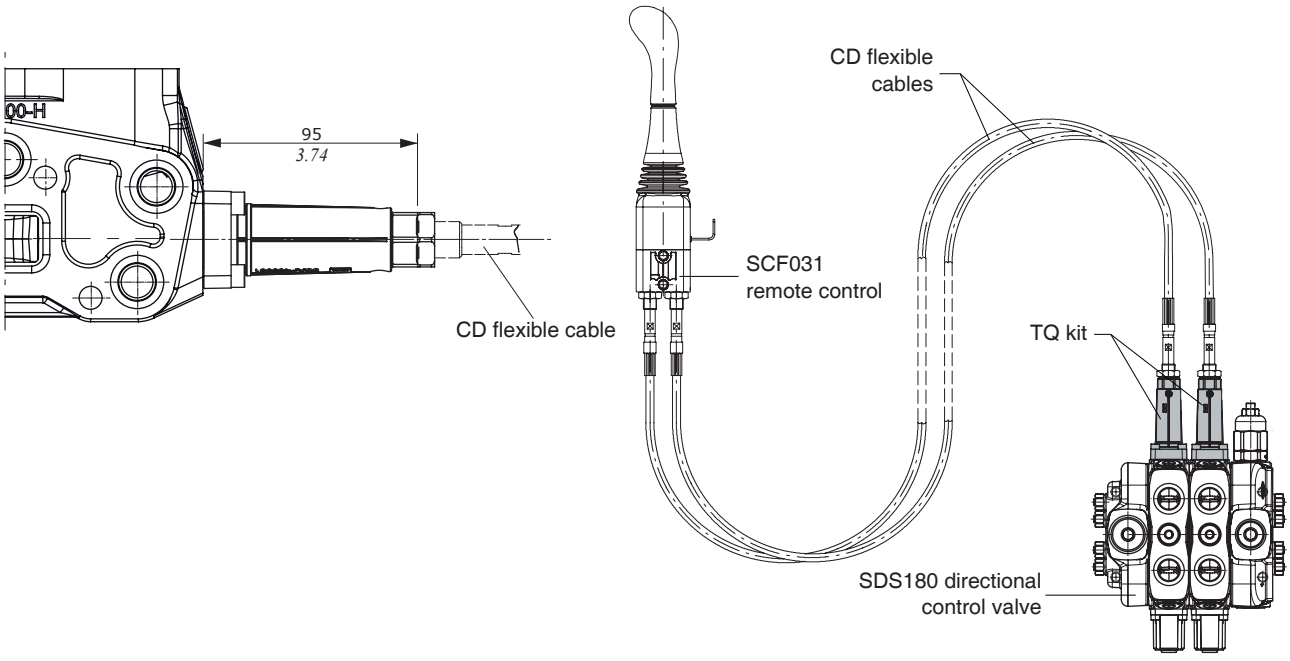




TQ cable remote control kit

Waterproof cap prearranged for remote control with flexible cable.



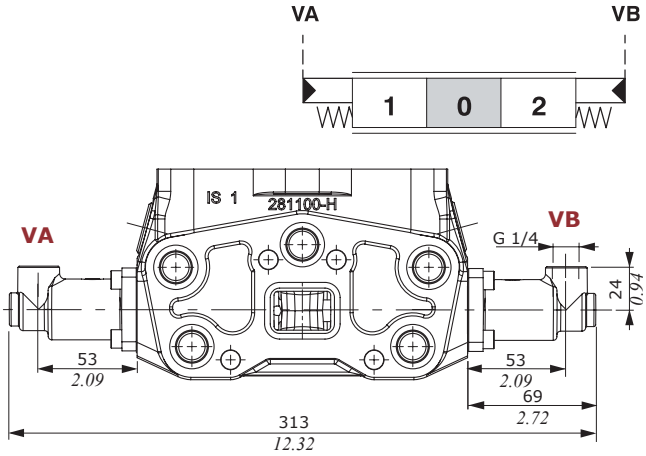


NOTE – *For more information about remote cable control, require appropriate documentation.*

Proportional hydraulic controls

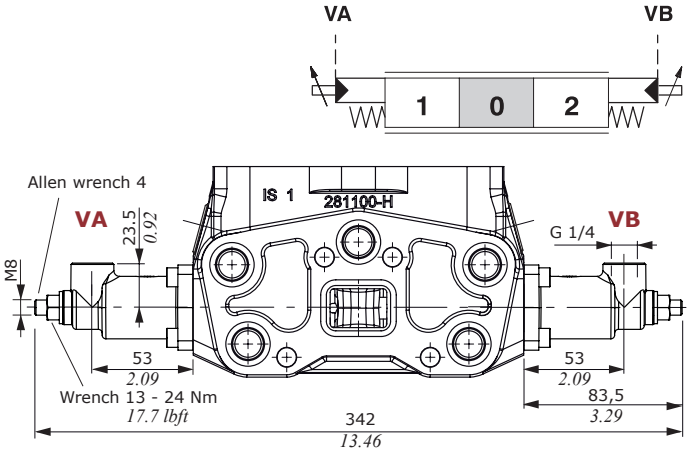
8IM type

It can be used with special spools and body kit without seals and ring on spool (standard body).



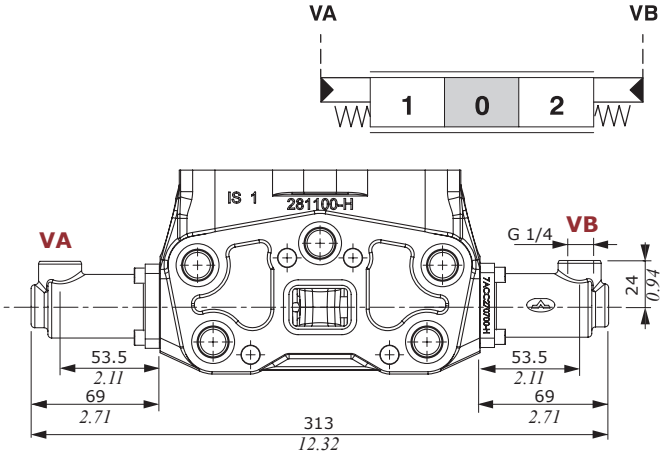
8IMF3 type

Configuration with screws for spool stroke adjustment.

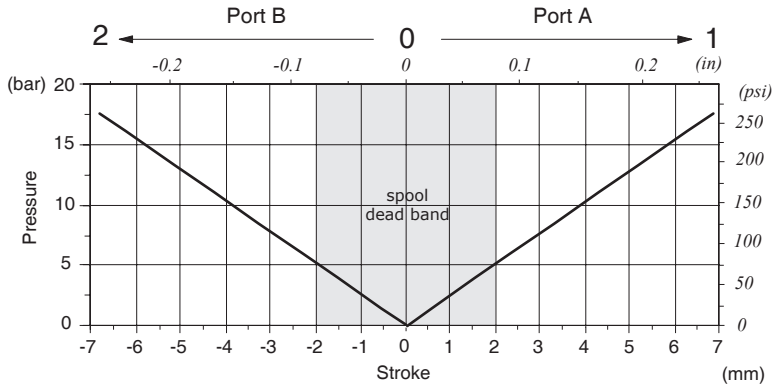


8IMOH type

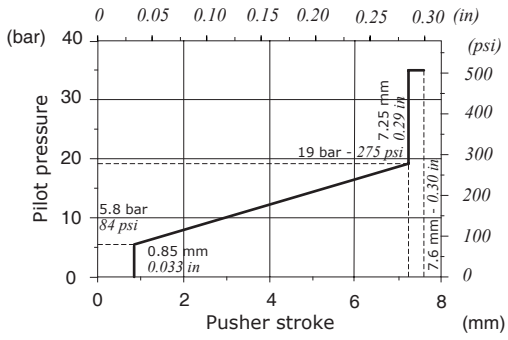
Steel control kit.



Pressure - stroke diagram
(for controls represented)



Pressure control curve on port VA and VB: type 033



Features

Pilot pressure . . . . . : max. 100 bar
1450 psi

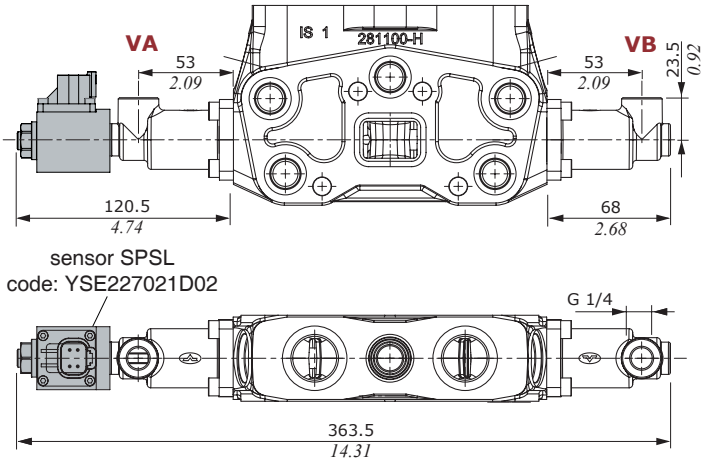
Note: these drawings are not to scale with the others included in the catalog

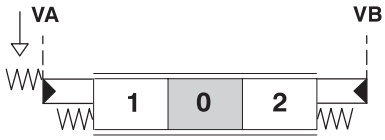
Complete controls

Proportional hydraulic control

8IMSPSL4P proportional hydraulic kit

With spool position sensor.

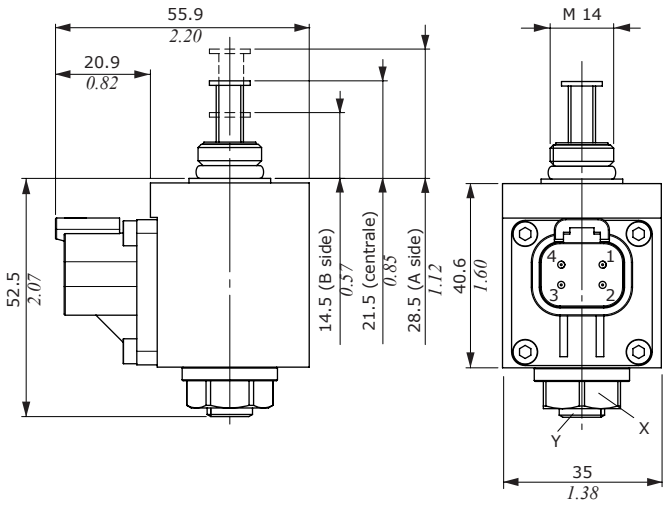




Features

Pilot pressure . . . . . : max. 100 bar / *1450 psi*
Connector . . . . . : Deutsch DT04-4P
Mating connector cod. 5CON140072 not included

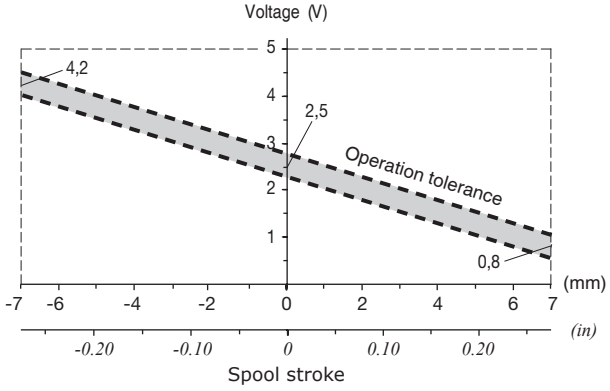
Sensor SPSL



Pin	Signal
1	VCC
2	N.C.
3	GND
4	Out A

	Wrench (mm)	Tightening (Nm)
X	17	9,8
Y	4	9,8

Output Voltage-spool stroke diagram



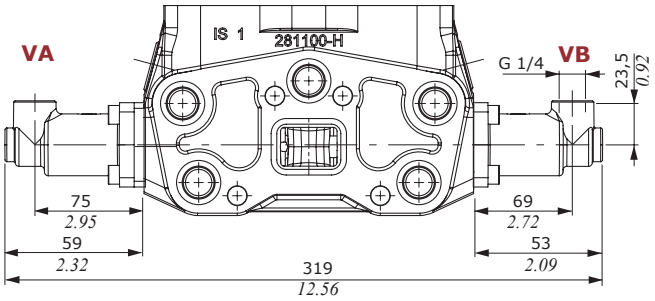
Spool position sensor features	
Stroke mechanical	-10/+10 mm • *-0.393/+0.393 in*
Stroke electrical	-7/+7 mm • *-0.275/+0.275 in*
Signal range	± 0.2 V
Spool in neutral	2.5 ± 0.2 V
Working temperature	-40/+115 °C • *-40/+239 °F*
Voltage supply range	5±2% V
Current absorption	<10 mA
Max. current	1 mA
Minimum load resistance	10 KΩ
Working pressure max.	50 bar • *725 psi*
Protection index	IP 67 - IP 89K
Vibrations, Shock, Bumps	IEC 68-2-6,27,29
EMC	ISO 13766 - ISO 14982

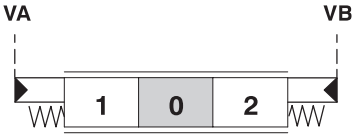
Note: these drawings are not to scale with the others included in the catalog

Proportional hydraulic control

8IMD proportional hydraulic kit

For descent control valve on A. **Need working section kit PHD/IM cod. 5EL1183020A and spool 1IMDA (descent control and load check valve without power supply on port "A") cod. 3CU2510490.**

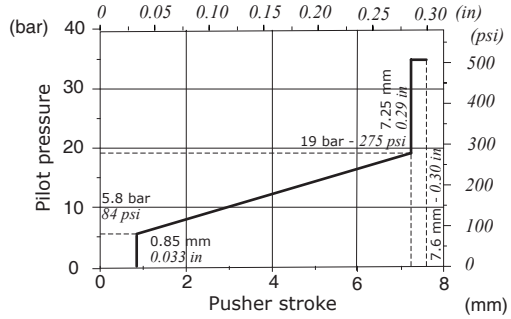




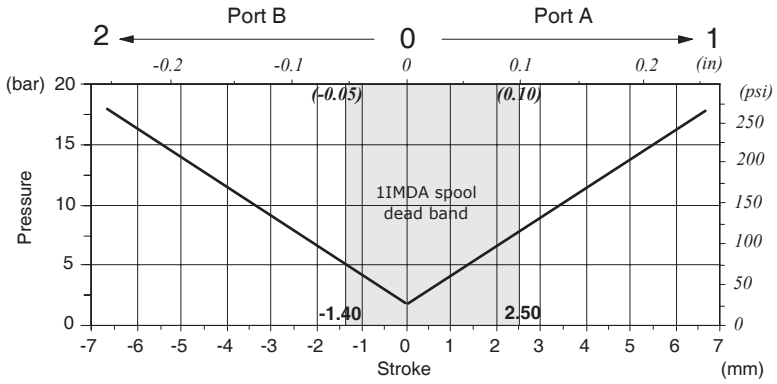
Features

Pilot pressure . . . . . : max. 100 bar / *1450 psi*

Pressure control curve on port VA and VB: type 033



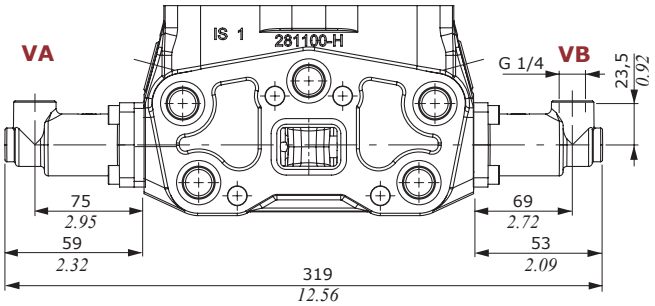
Pressure - stroke diagram

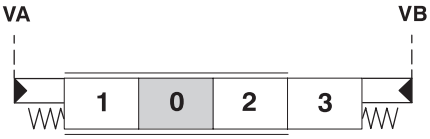


13IMP proportional hydraulic kit

For floating circuit. **Need working section 5IMP cod. 5EL1183205A and spool 5IMP cod. 3CU2542430.**

Note: for dimensions see kit 8IMD

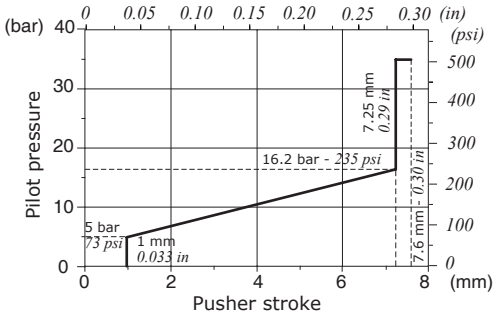




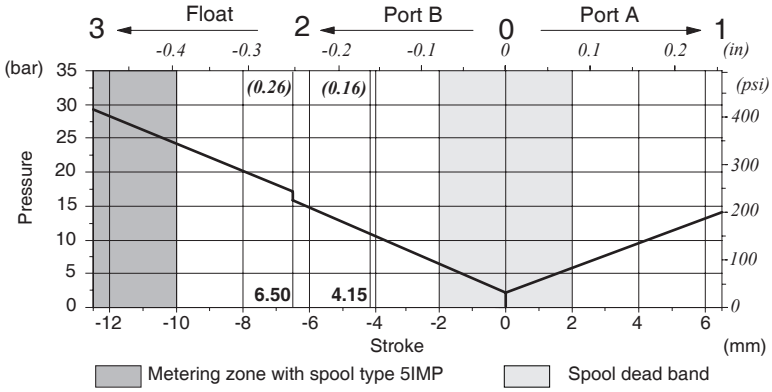
Features

Pilot pressure . . . . . : max. 100 bar / *1450 psi*

Pressure control curve on port VA and VB: type 075



Pressure - stroke diagram



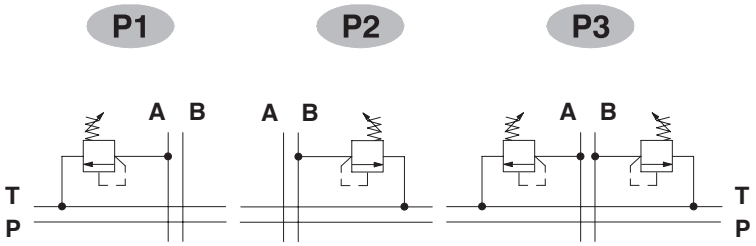
Note: these drawings are not to scale with the others included in the catalog

Port valves

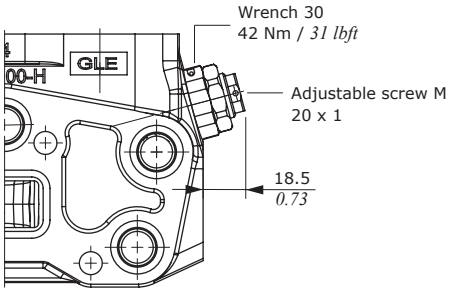
Antishock valves

P 1 (G 3 - 100)

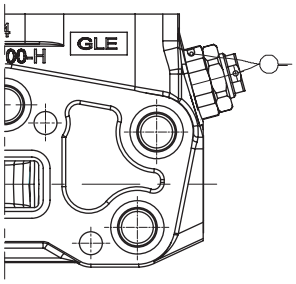
- Valve setting in bar
- Spring type
- Configuration
  - **1** mounted on port A
  - **2** mounted on port B
  - **3** mounted on port A and B



Configuration type **G:**
with screw

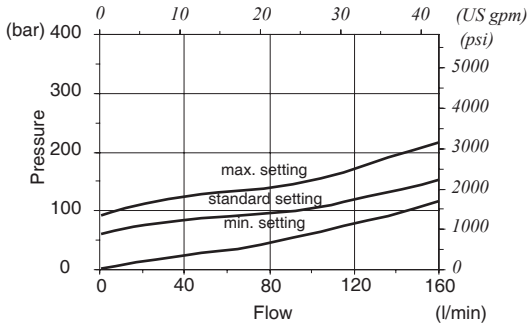


Configuration type **H:**
valve set and locked



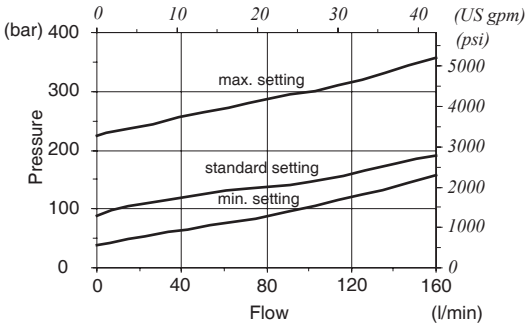
G2 setting range
(green band)

From 50 to 120 bar / from *725 to 1750 psi*



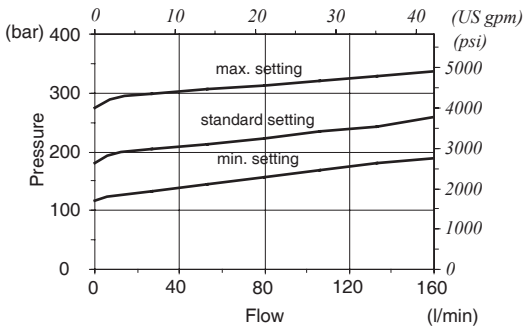
G3 setting range
(blue band)

From 100 to 250 bar / from *1450 to 3600 psi*



G4 setting range
(red band)

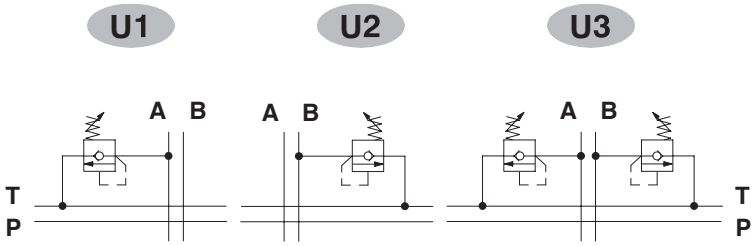
From 160 to 315 bar / from *2300 to 4600 psi*



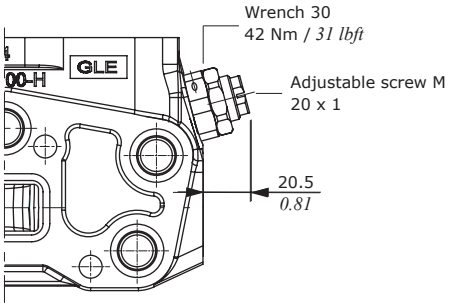
Antishock and anticavitation valves

U 1 (G 3 - 100)

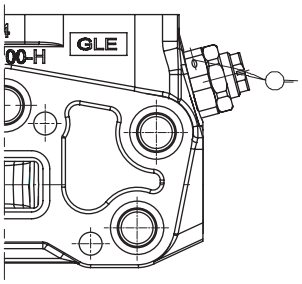
- Valve setting in bar
- Spring type
- Configuration
  - **1** mounted on port A
  - **2** mounted on port B
  - **3** mounted on port A and B



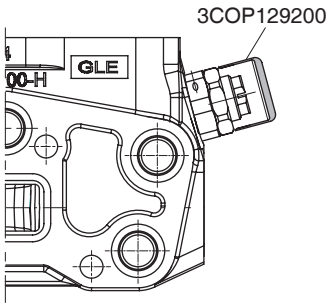
Configuration type **G:**
with screw



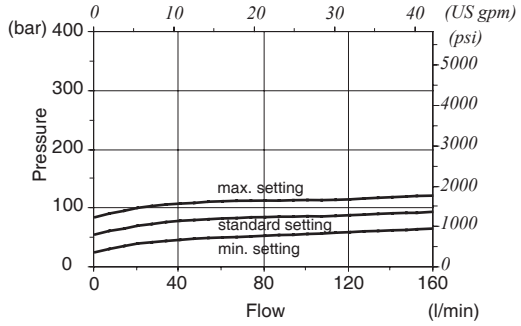
Configuration type **H:**
valve set and locked



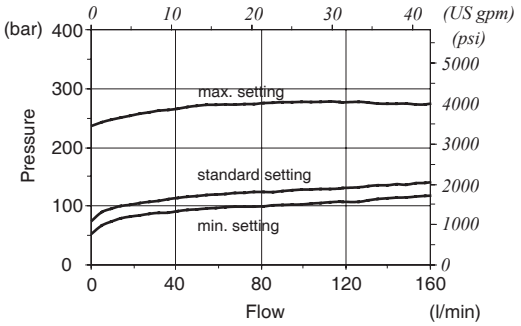
Configuration type **Z:**
with tamper proof cap



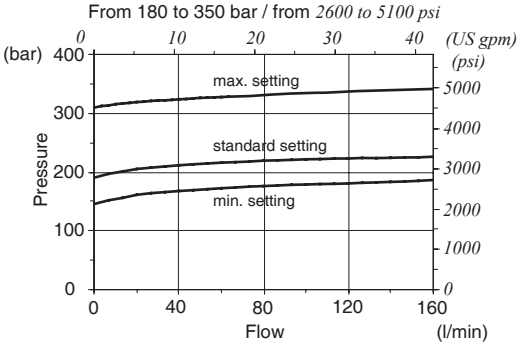
G2 setting range
(green band)
From 35 to 90 bar / from *510 to 1300 psi*



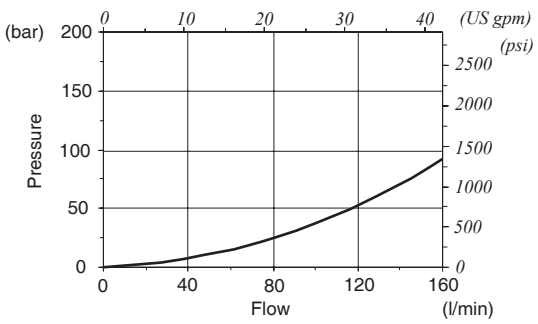
G3 setting range
(blue band)
From 100 to 250 bar / from *1450 to 3600 psi*



G4 setting range
(red band)
From 180 to 350 bar / from *2600 to 5100 psi*



Pressure drop P ⇒ T

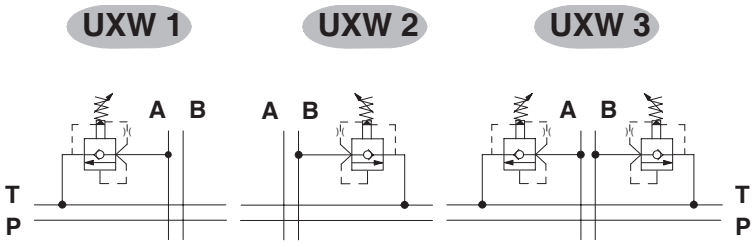


Port valves

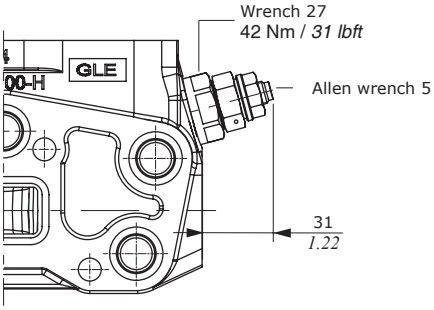
Pilot operated anti-shock and anticavitation valves

UXW 1 (G - 160)

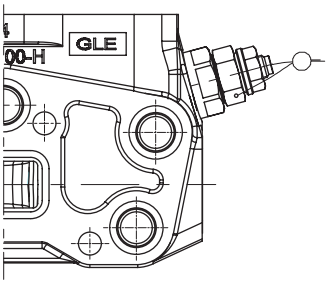
- Pressure setting in bar
- Configuration
- **1** mounted on port A
- **2** mounted on port B
- **3** mounted on port A and B



Configuration type **G:**
with screw

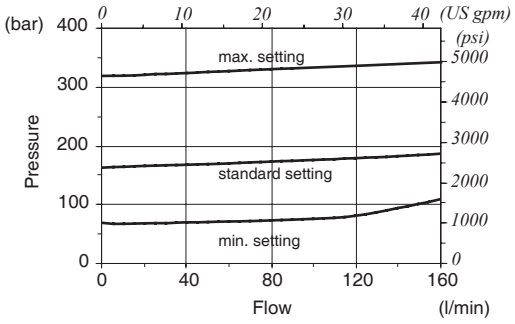


Configuration type **H:**
valve set and locked

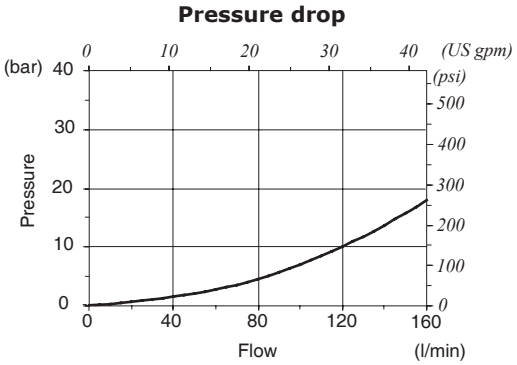


Range setting

From 63 to 315 bar / from *900 to 4600 psi*



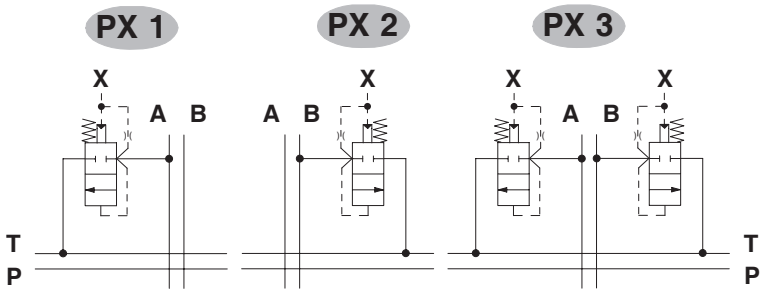
Pressure drop

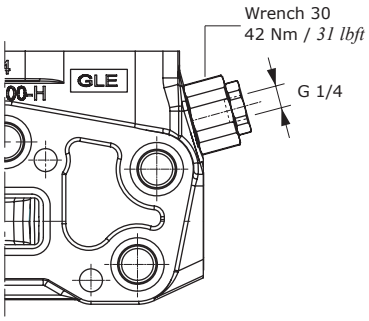


Pilot hydraulic unloader valve

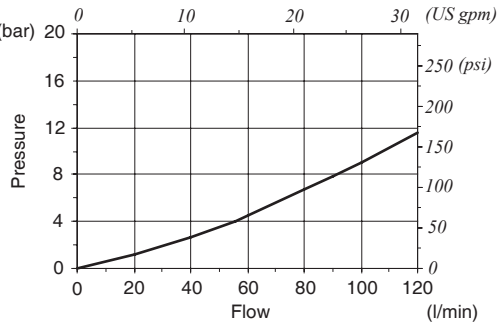
PX 1

- **1** mounted on port A
- **2** mounted on port B
- **3** mounted on port A and B





Pressure drop P ⇒ T

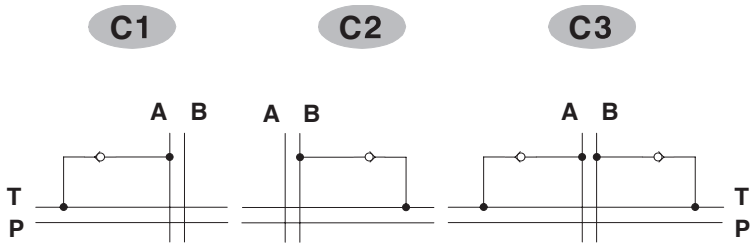


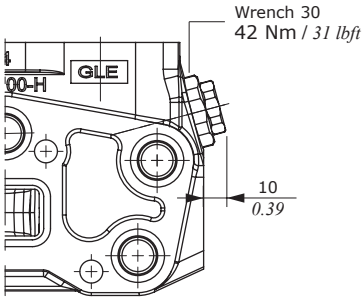
Port valves

Anticavitation valves

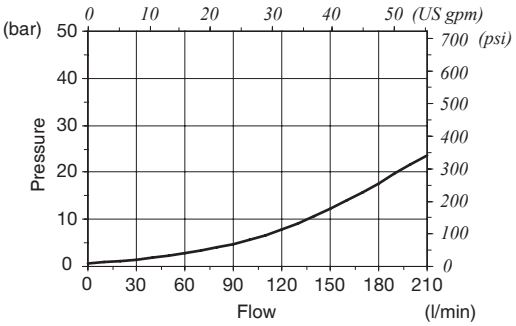
C 1

- **1** mounted on port A
- **2** mounted on port B
- **3** mounted on port A and B





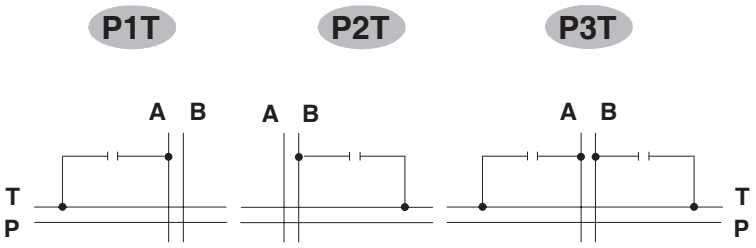
Pressure drop

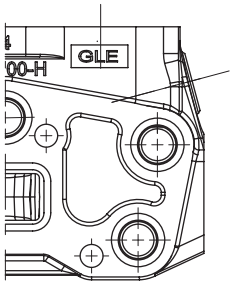


Valve blanking plugs

P 3 T

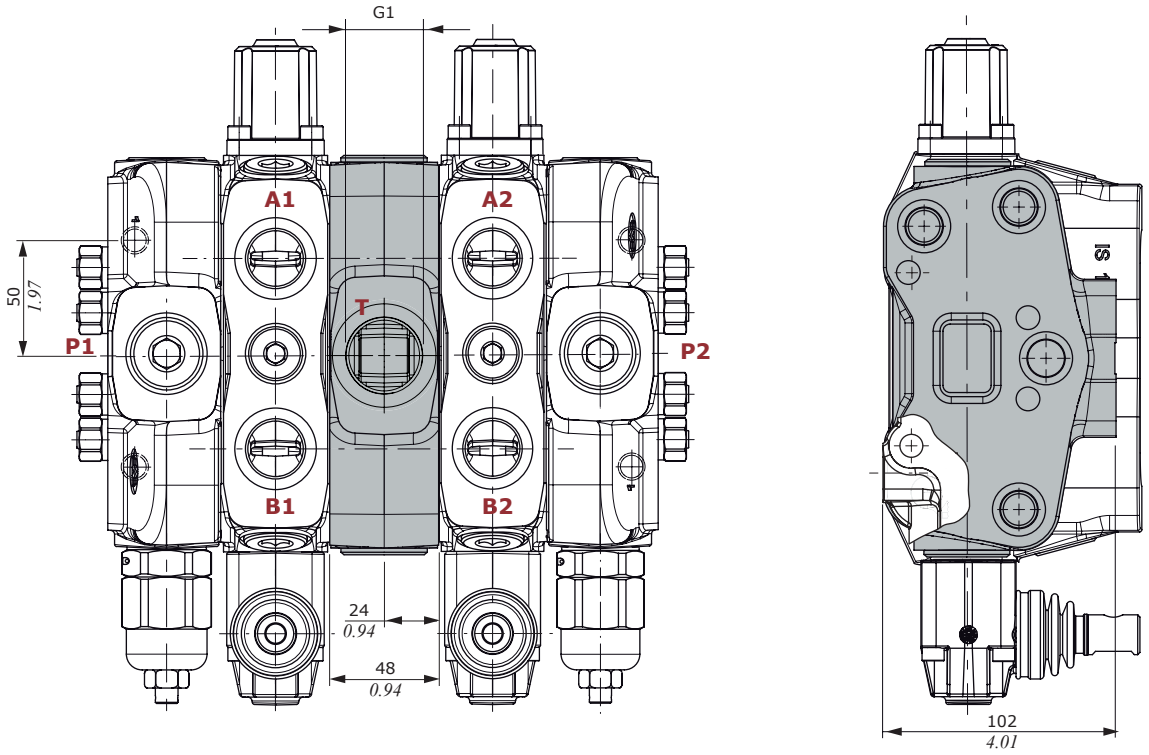
- **1** mounted on port A
- **2** mounted on port B
- **3** mounted on port A and B



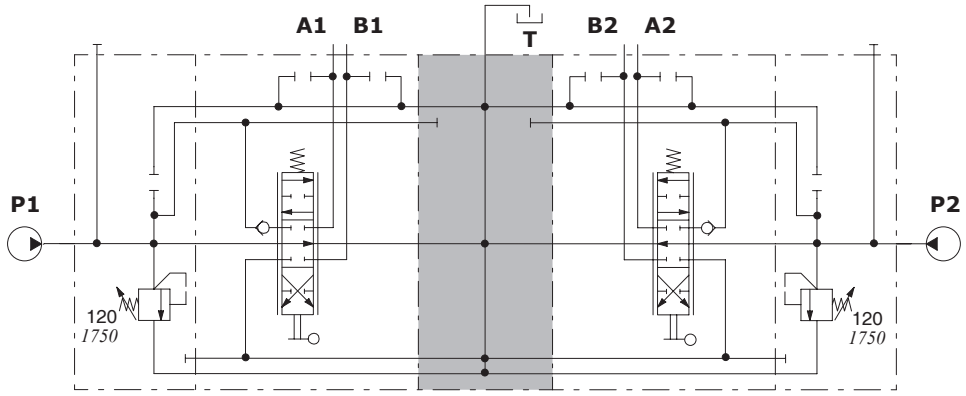


CS1 mid return manifold

Mid return manifolds for directional valve with left and right inlet both; they allow 2 independent circuits with common outlet.



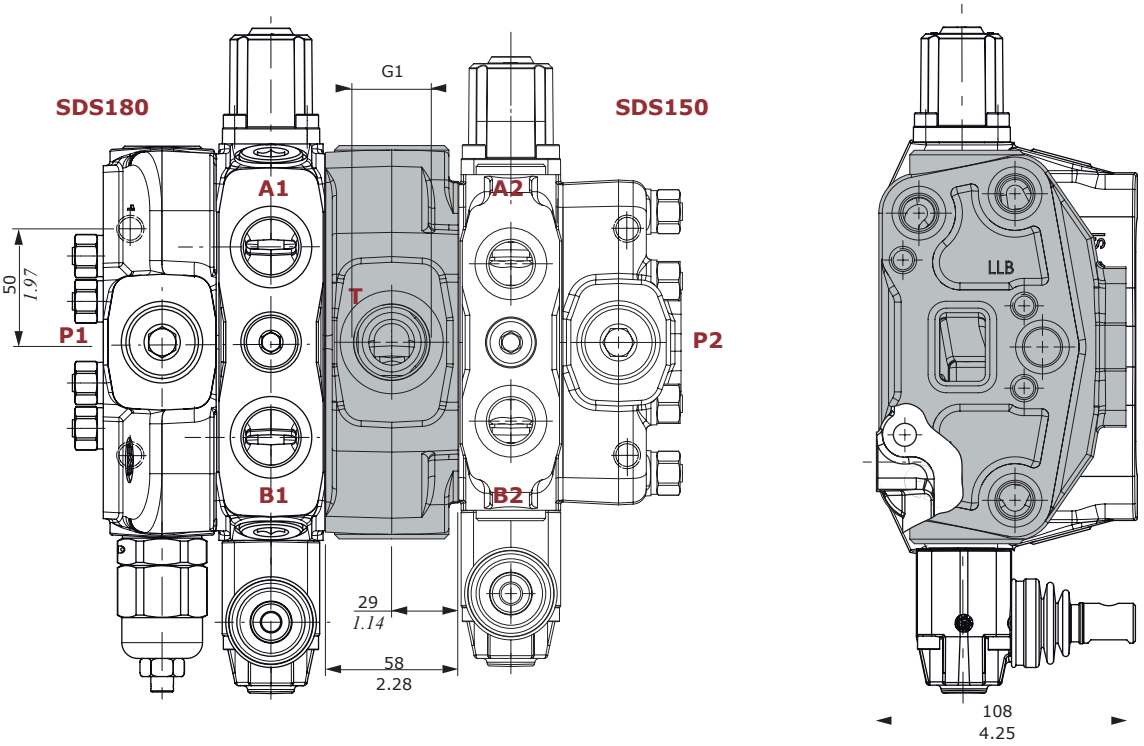
Hydraulic circuit



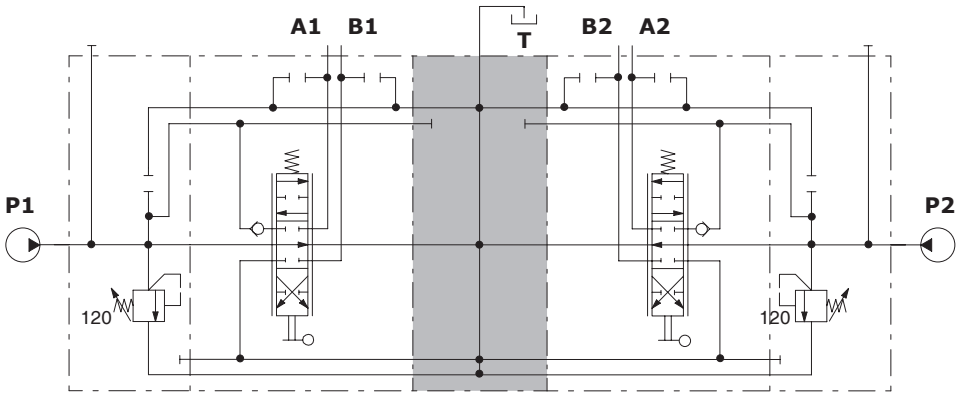
Description example:
SDS180/2/AC(YG3-120)/18L.UT3/**CS1**/ 18L.UT3/BC(YG3-120)

CS3 mid return manifold

Mid return manifolds for directional valves SDS180 with left inlet section and SDS150 with right inlet section; they allow 2 indipendent circuits with common outlet.



Hydraulic circuit

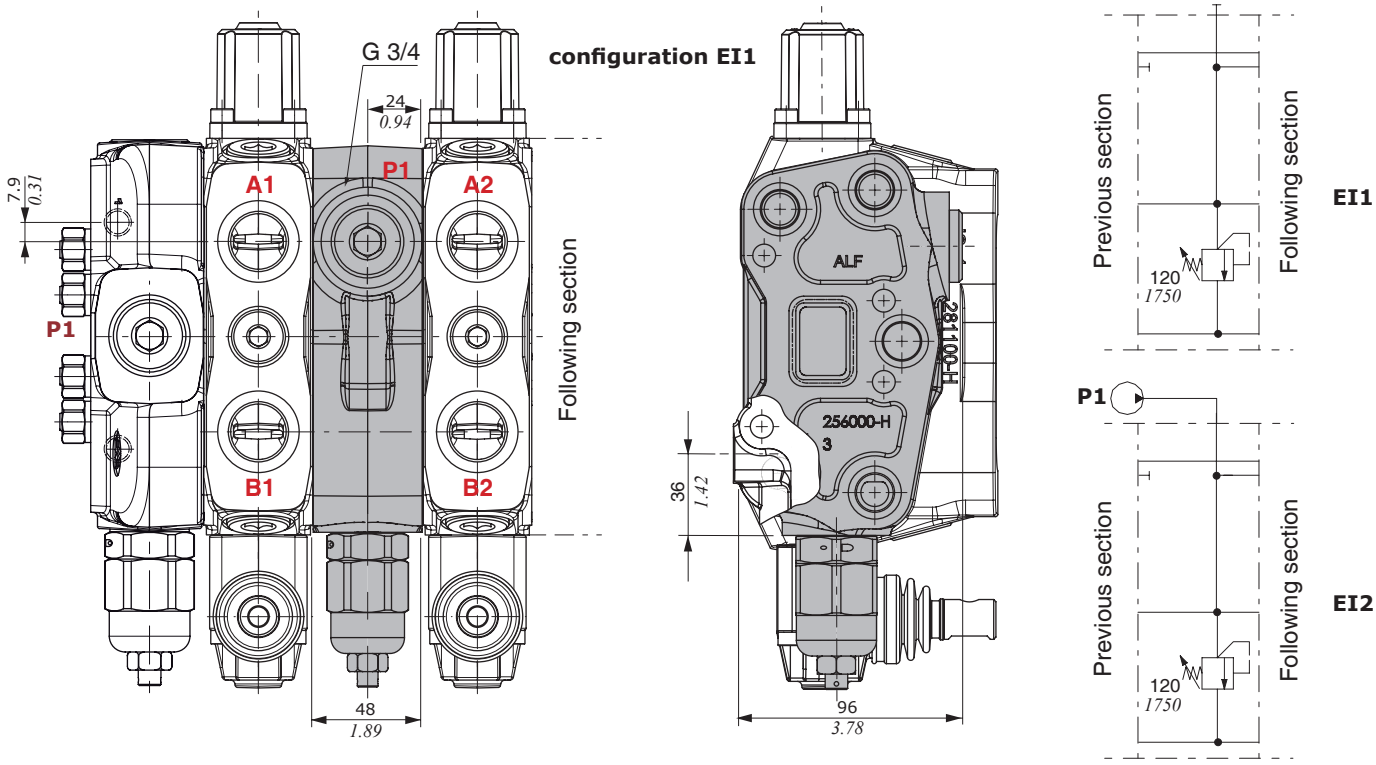


Description example:
SDS180/1/AC(YG3-120)/18L.UT3/**CS3**/18L.UT3/BC(YG3-120)/SDS150/1

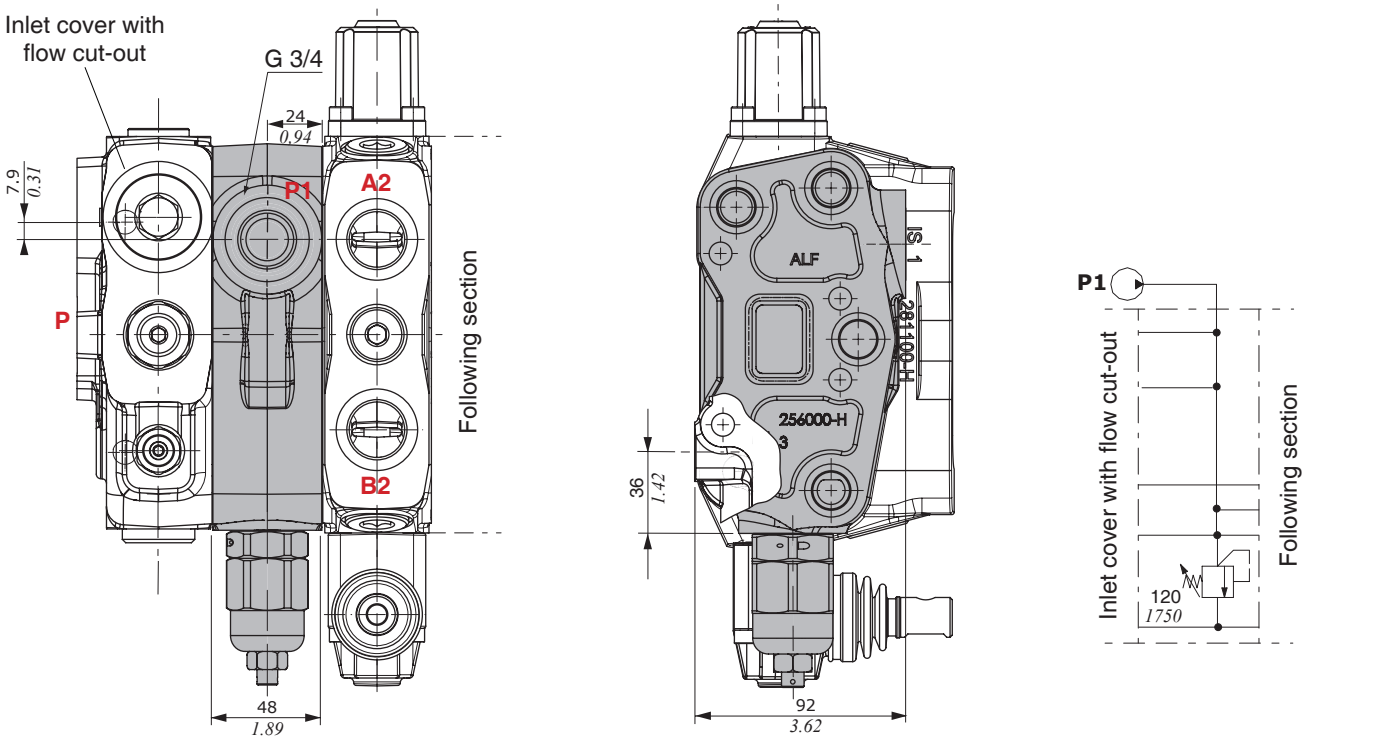
Service relief valve section

EI configuration

The operation of up stream section exclude the EI downstream section.
The pressure of the downstream sections should be adjusted at least 20 bar below the relief valve setting.
Execution EI2, without plug, is prearranged for a second inlet.



EIM configuration

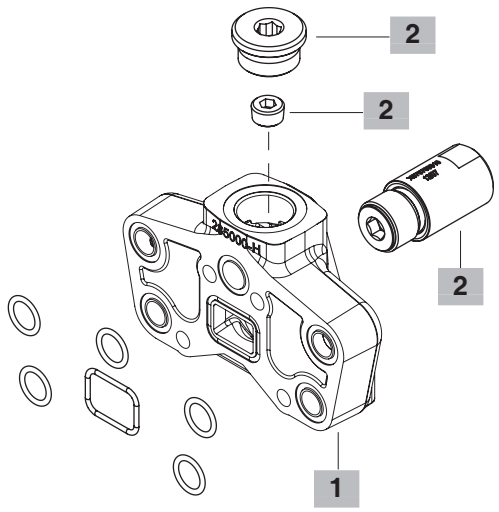


NOTE – *EIM intermediate section must be always assembled with inlet cover with flow cut-out.*

Parts ordering codes

FS SDS180 / RC

Available configurations
RC: side outlet
RD: upper outlet
RE: upper outlet with side carry-over
RK: upper outlet and closed centre
RV: upper outlet with backpressure valve (see page 40)



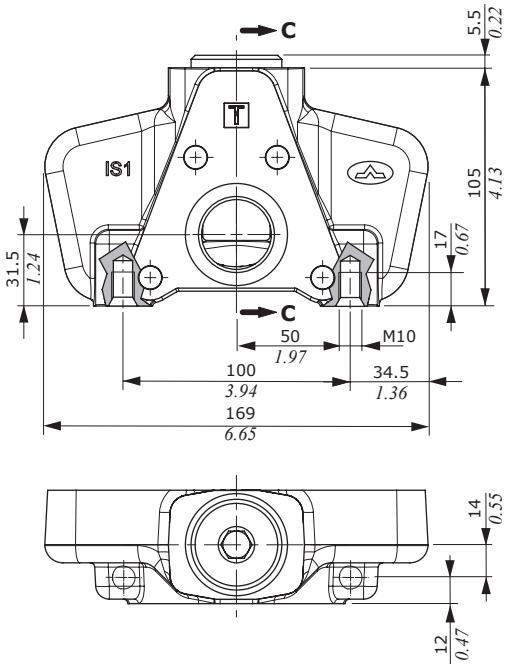
1 Complete outlet cover

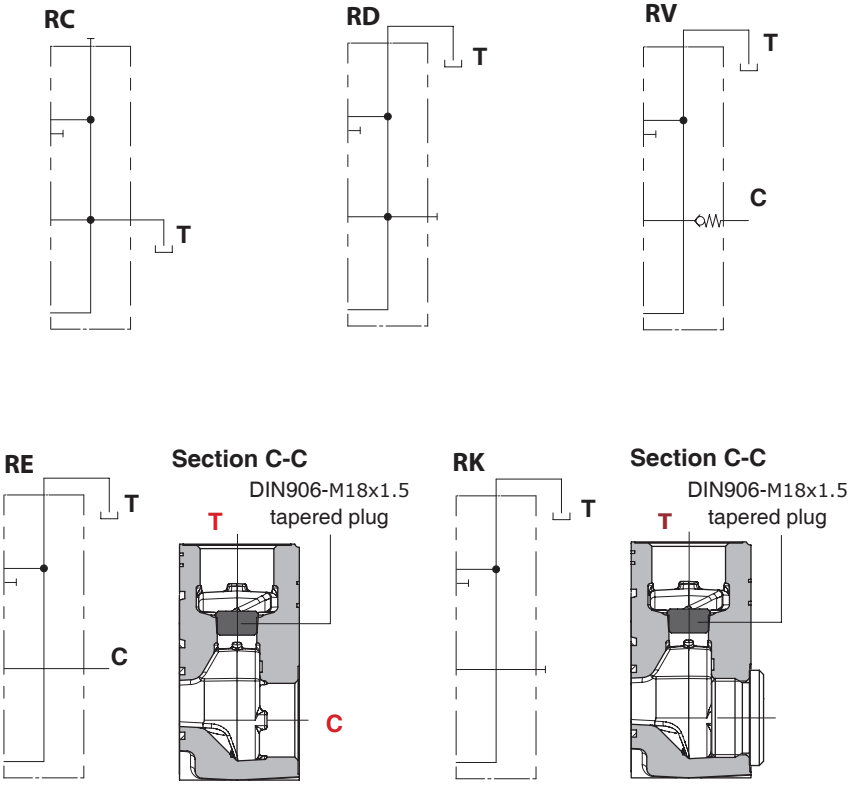
TYPE	CODE	DESCRIPTION
RC	618301003	Side outlet
RD	618301002	Upper outlet
RE	618301001	Upper outlet with side carry-over sleeve
RK	618301004	Upper outlet with closed center
RV	618301009	With backpressure valve

2 Circuit options

TYPE	CODE	QTY	DESCRIPTION
-	4TAP318010	1	M18x1.5 tapered plug for carry-over (RE), carry-over with backpressure valve (RV) and closed centre (RK) options
VRE(6)	X076710006	1	Backpressure valve (6 bar / *87 psi*) for RV configuration
VRE	X076700010	1	Backpressure valve (10 bar / *145 psi*) for RV configuration
-	3XTAP740210	1	Plug G 1

Dimensional data and hydraulic circuit





Working conditions

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	on inlet P	180 l/min	*47 US gpm*
	on ports A and B	160 l/min	*42 US gpm*
Max pressure (1)		315 bar	*4600 psi*
Stadard stand by		14 bar	*203 psi*
Internal leakage (standard) A(B)⇒T	Δp = 100 bar - *1450 psi*	5 cm³/min	*0.30 in³/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 mm²/s	*from 15 to 75 cSt*
	min.	12 mm²s	*12 cSt*
	max.	400 mm²s	*400 cSt*
Max. contamination level		-/19/16 - ISO 4406	*NAS 1638 - class 10*
Ambient temperature for working conditions		from -40°C to 60°C	*from -40°F to 140°F*

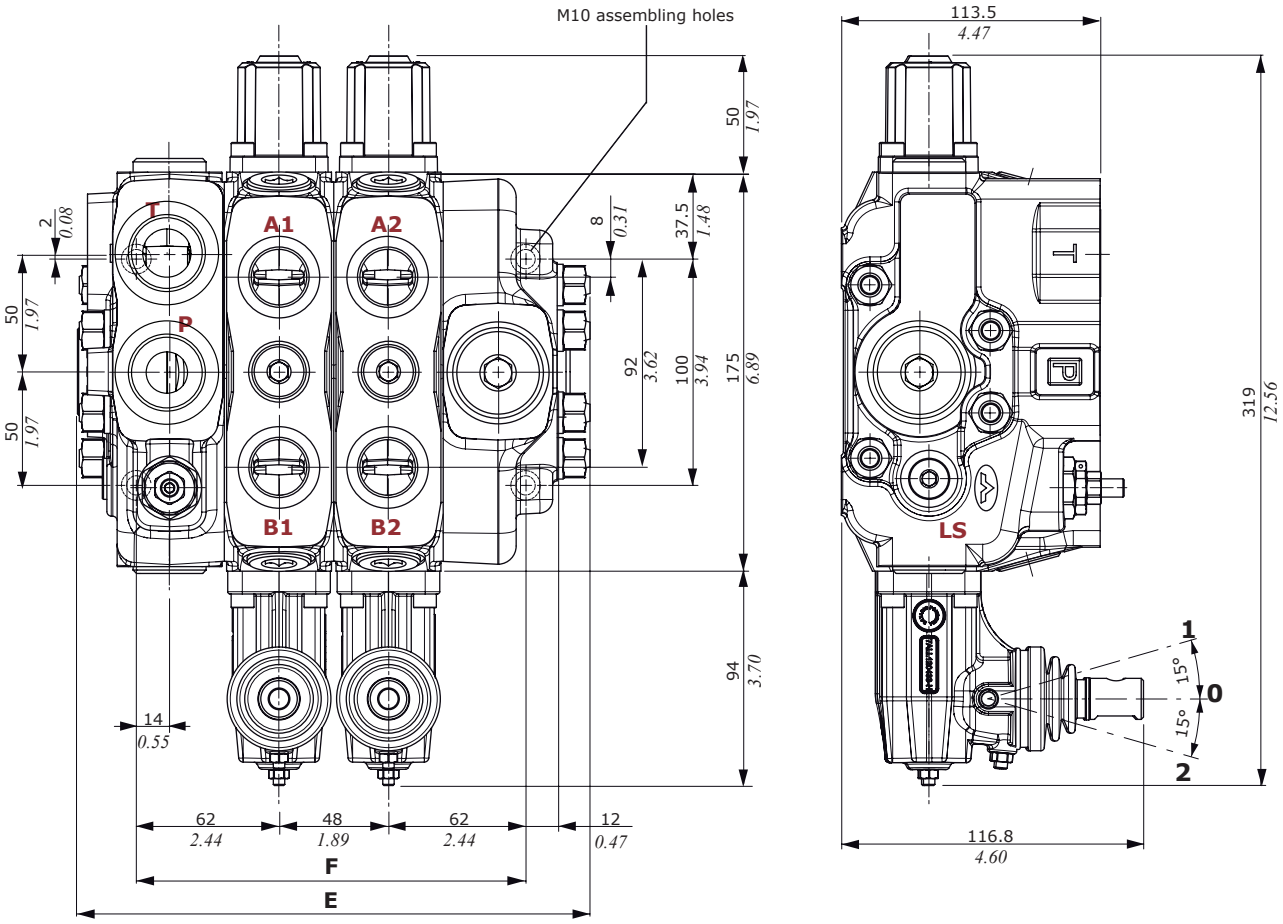
NOTE - *(1) Intermittent pressure at max. 250,000 cycles with specific internal testing.*

Standard threads

REFERENCE STANDARD				
		BSP	**UN-UNF**	**NPTF**
THREAD ACCORDING TO		ISO 228/1	ISO 263	NSI B1.20.3
		BS 2779	ANSI B1.1 unified	
CAVITY DIMENSION ACCORDING TO	ISO	1179-1	11926-1	
	SAE		J1926-1	J476a
	DIN	3852-2 shape X or Y		

PORTS THREADING		
MAIN	**BSP**	**UN-UNF**
Inlet **P -** Outlet **T**	G 1	1 5/16-12 (SAE 16)
Ports **A** and **B**	G 3/4	1 1/16-12 (SAE 12)
Load sensing **LS**	G 1/4	9/16-18 (SAE 6)
PILOT		
Hydraulic	G 1/4	9/16-18 (SAE 6)

Dimensional data



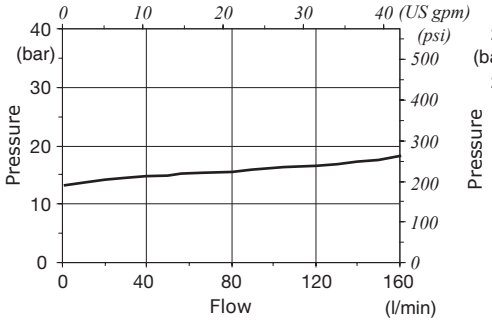
NOTE: *Drawings and dimensions are referred to BSP thread configuration.*

TYPE	E		F		Weight	
	mm	*in*	mm	*in*	Kg	*lb*
DLS180/1	177,8	*7*	124	*4.88*	13.8	*30.42*
DLS180/2	225,8	*8.89*	172	*6.77*	19.2	*42.33*
DLS180/3	273,8	*10.78*	220	*8.66*	24.6	*54.23*
DLS180/4	321,8	*12.67*	268	*10.55*	30	*66.14*
DLS180/5	369,8	*14.56*	316	*12.44*	35.4	*78.04*
DLS180/6	417,8	*16.45*	364	*14.33*	40.8	*89.95*

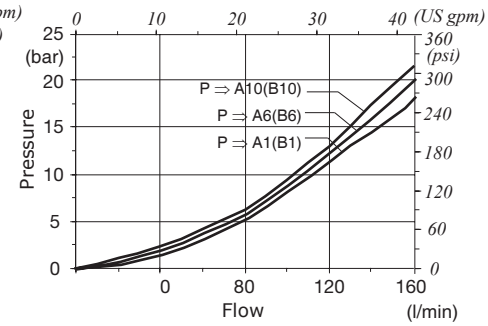
TYPE	E		F		Weight	
	mm	*in*	mm	*in*	Kg	*lb*
DLS180/7	465,8	*18.34*	412	*16.22*	46.2	*101.85*
DLS180/8	513,8	*20.23*	460	*18.11*	51.6	*113.76*
DLS180/9	561,8	*22.12*	508	*20.00*	57	*125.66*
DLS180/10	609,8	*24*	556	*21.89*	62.4	*137.57*
DLS180/11	657,8	*25.90*	604	*23.78*	67.8	*149.47*
DLS180/12	705,8	*27.76*	652	*25.67*	73.2	*161.38*

Performance data

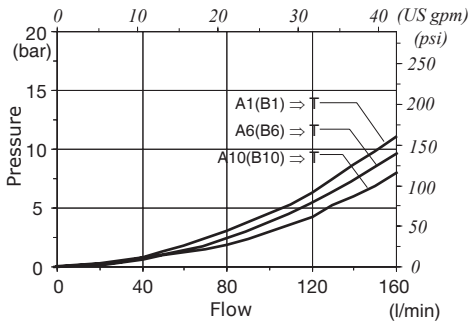
P ⇒ T pressure drop inlet compensator (margin pressure)



P ⇒ A(B) pressure drop (standard spool @ max. stroke)

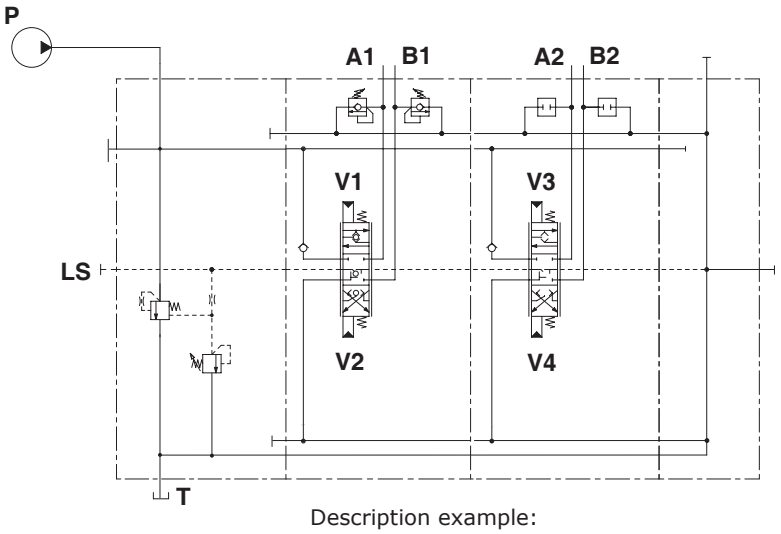


A(B) ⇒ T pressure drop



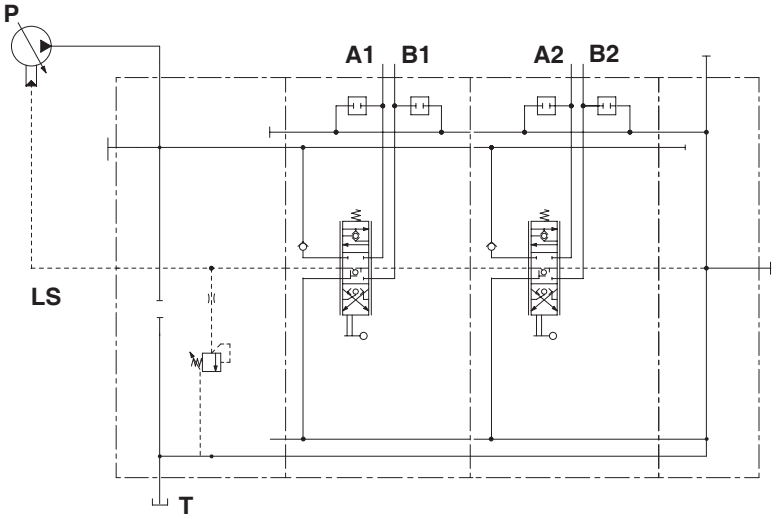
Hydraulic circuit

For open center circuit (fixed displacement pump)



Description example:
DLS180/2/AMD(G4–210)/6ZM8IMF3.U3(G3-170)/6ZM8IMF3/RF

For closed center circuit (variable displacement pump with Load-Sensing compensator)

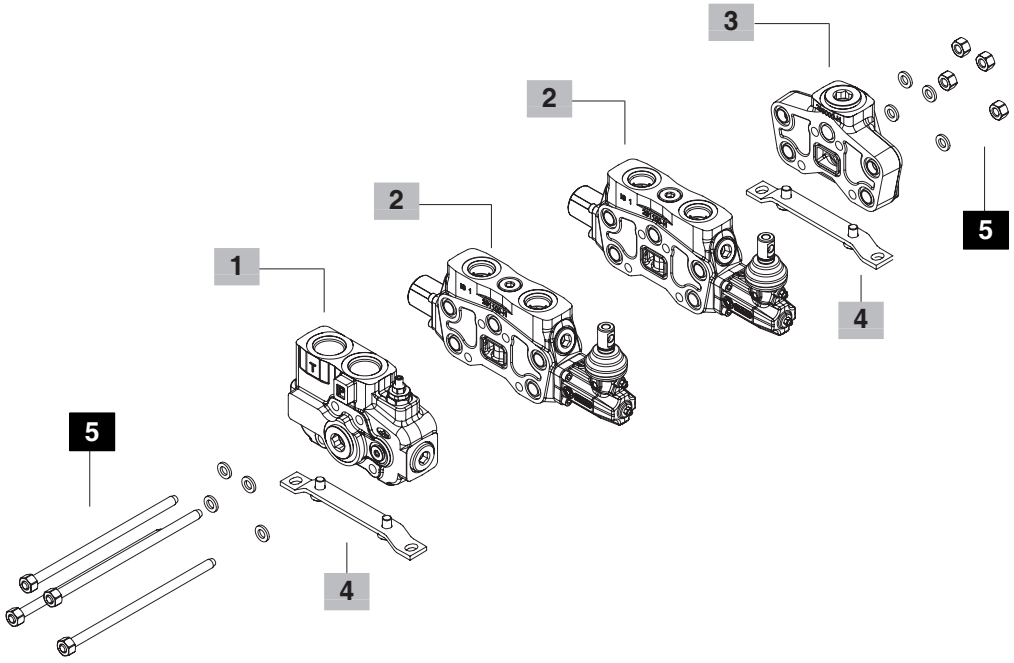


Description example:
DLS180/2/AND(G3–120)/6ZLF3/6ZLF3/RF

Complete sections ordering codes

DLS180 / 2 / AMD(G3-120) / 6ZLF3 / 6ZLF3 / RF - STAF

Nr. of working sections — 1 — 2 — 3 — 4



1 Inlet section * — page 60

TYPE	CODE	DESCRIPTION
AMD(G3-120)	61F331000	For open centre circuit, with L.S. pressure relief valve
AMDT(G3-120)	61F311002	As previous with upper outlet closed
AND(G3-120)	61F332000	For closed centre circuit, with L.S. pressure relief valve
ANDT(G3-120)	61F312002	As previous with upper outlet closed
APD(SV)	61F333000	Without compensator and L.S. pressure relief valve
APDT(SV)	61F313002	As previous with upper outlet closed

2 Working section * — page 62

TYPE	CODE	DESCRIPTION
6Z8LF3	61F131601	Parallel circuit, lever control
6ZM8IMHF3	61F131602	Parallel circuit, proportional hydraulic control with spool stroke limiter

3 Outlet section * — page 68

TYPE	CODE	DESCRIPTION
RF	618301008	With ports plugged
RD	618301014	Upper outlet
RC	618301013	Side outlet

4 Fixing bracket — page 73

TYPE	CODE	DESCRIPTION
STAF	5STA125220	Brackets with fixing screws

5 Assembling kit

CODE	DESCRIPTION
5TIR110170	Tie rod kit for 1 working section directional valve
5TIR110218	Tie rod kit for 2 working sections directional valve
5TIR110266	Tie rod kit for 3 working sections directional valve
5TIR110316	Tie rod kit for 4 working sections directional valve
5TIR110368	Tie rod kit for 5 working sections directional valve
5TIR110410	Tie rod kit for 6 working sections directional valve
5TIR110458	Tie rod kit for 7 working sections directional valve
5TIR110506	Tie rod kit for 8 working sections directional valve
5TIR110554	Tie rod kit for 9 working sections directional valve
5TIR110602	Tie rod kit for 10 working sections directional valve
5TIR110650	Tie rod kit for 11 working sections directional valve
5TIR110698	Tie rod kit for 12 working sections directional valve

NOTE (*) – *Codes are referred to **BSP** thread.*

Parts ordering codes

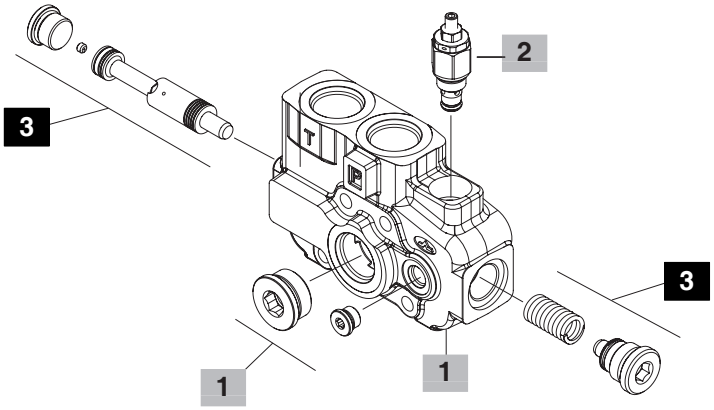
FE DLS180 / AM D T (G3 - 120)

- 1 → Available configurations
- 2 → Pressure relief valve setting (bar)

Available configurations

D: With side inlet port closed

C: With upper inlet port closed



1 Inlet cover body * page 61

TYPE	CODE	DESCRIPTION
AM	5FIA318300	For fixed displacement pump, L.S. compensator (open centre) with main relief valve
AN	5FIA318301	For variable displacement pump, (closed centre) with main relief valve
AP	5FIA318302	For variable displacement pump, (closed centre) without main relief valve

2 Inlet relief options page 21

Standard setting is referred to 10 l/min - *2.6 US gpm* flow.

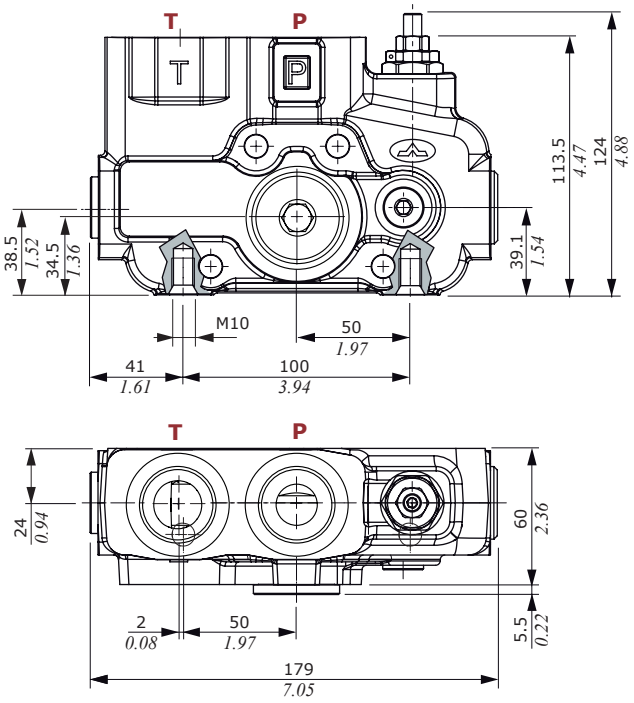
TYPE	CODE	DESCRIPTION
SV	XTAP525320	Relief valve blanking plug
Load Sensing main relief valve		
LSW(G2)	5KIT118110	Range 5-50 bar / *72-720 psi* standard setting 30 bar / *400 psi*
LSW(G3)	5KIT118111	Range 50-200 bar / *720-3200 psi* standard setting 150 bar / *2150 psi*
LSW(G4)	5KIT118112	Range 180-315 bar / *2600-4550 psi* standard setting 250 bar / *3600 psi*

3 Compensator kit

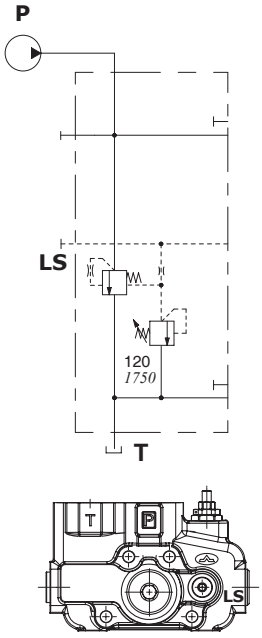
CODE	DESCRIPTION
5KIT018300	Compensator kit, for AM section
5KIT018310	Compensator blanking kit, for AN and AP section

NOTE (*) – *Codes are referred to **BSP** thread.*

Dimensional data and hydraulic circuit

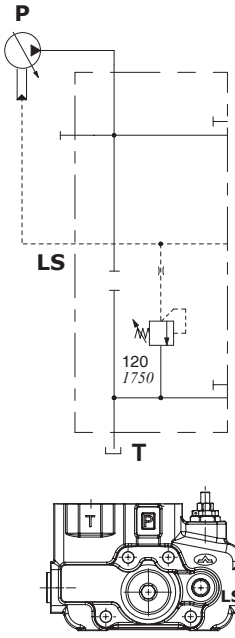


For fixed displacement pump, L.S. compensator (open centre) with main relief valve



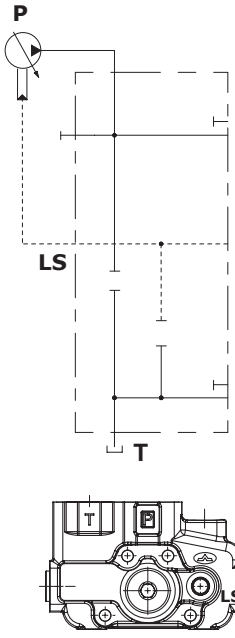
Description example:
AMD(G3–120)

For variable displacement pump, (closed centre) with main relief valve



Description example:
AND(G3–120)

For variable displacement pump, (closed centre) without main relief valve

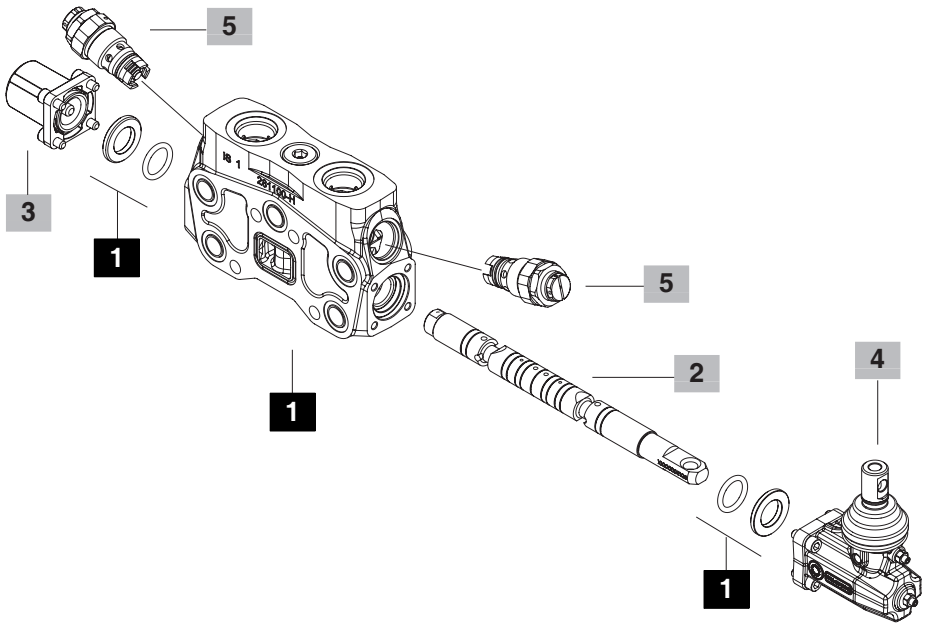


Description example:
APD(SV)

Parts ordering codes (mechanical control)

EL DLS180 / 6Z 8 LF3 P1 (G3 - 100)

2 3 4 5



1 Working section kit * page 64

TIPO	CODICE	DESCRIZIONE
P	5EL5183000	Parallel circuit for hydraulic controls

2 Spools page 64

Double acting, 3 positions, with A and B closed in neutral position.

6QM	3CU3610040	For flow 40 l/min - *10.57 Us gpm*
6OM	3CU3610080	For flow 80 l/min - *21.13 Us gpm*
6VM	3CU3610120	For flow 120 l/min - *31.70 Us gpm*
6ZM	3CU3610140	For flow 140 l/min - *36.98 Us gpm*

Double acting, 3 positions, with A and B to tank in neutral position.

7V	3CU3625120	For flow 120 l/min - *31.70 Us gpm*
7Z	3CU3625140	For flow 140 l/min - *36.98 Us gpm*

3 "A" side spool positioners page 65

TYPE	CODE	DESCRIPTION
7FT	5V07210100	With friction and neutral position sensor
8MC	5V08210000	With spring return in neutral position
9BZ	5V09110030	With detent in position 1 and spring return in neutral position
10BZ	5V10110030	With detent in position 2 and spring return in neutral position
11BZ	5V11110030	Detent in positions 1 and 2 and spring return in neutral position
8IZ	5V08110800	Proportional hydraulic control

4 "B" side options page 65

TYPE	CODE	DESCRIPTION
L	5LEV110110-H	Standard lever box
LF3	5LEV110115-H	Lever box with spool stroke limiter
LA	5LEV110125-H	Steel lever kit
LAF3	5LEV110120-H	Steel lever kit with spool stroke limiter
SLP	5COP110000	With dust-proof plate
TQ	5TEL118100-H	Cable connection

5 Port valves page 46

Valves standard setting is referred to 10 l/min - *2.64 USgpm* flow.

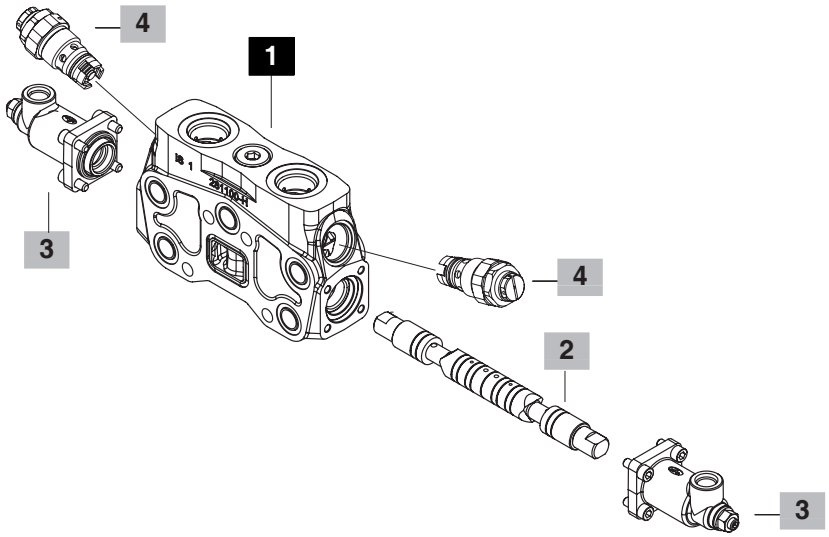
TYPE	CODE	DESCRIPTION
P3T	XTAP530361	A and B ports valve blanking plugs, omitted from the description
C	3XCAR416100	Anti-cavitation valve
Anti-shock valve		
P(G2)	XCAR216115	Range 50-120 bar / *725-1750 psi* standard setting 63 bar / *900 psi*
P(G3)	XCAR216116	Range 100-250 bar / *1450-3600 psi* standard setting 100 bar / *1450 psi*
P(G4)	XCAR216117	Range 160-315 bar / *2300-4600 psi* standard setting 200 bar / *2900 psi*
Pilot hydraulic unloader valve		
PX	XCAR416301	Pilot hydraulic unloader valve
Anti-shock and anti-cavitation valve		
U(G2)	X011411099	Range 35-90 bar / *510 -1300 psi* standard setting 60 bar / *870 psi*
U(G3)	X011411100	Range 100-250 bar / *1450-3600 psi* standard setting 100 bar / *1800 psi*
U(G4)	X011411101	Range 180-350 bar / *2600-5100 psi* standard setting 200 bar / *2900 psi*
Pilot operated anti-shock and anti-cavitation valve		
UXW(G)	X01141B160	Range 63-315 bar / *900-4600 psi* standard setting 160 bar / *2300 psi*

NOTE (*) – *Codes are referred to **BSP** thread.*

Parts ordering codes (proportional hydraulic control)

EL DLS180 / 6ZM 8IMF3 P1 (G3 - 100)

2 3 4



1 Working section kit * page 64

TIPO	CODE	DESCRIPTION
P/IM	5EL5183000A	Parallel circuit for hydraulic controls

2 Spools page 64

TYPE	CODE	DESCRIPTION
Double acting, 3 positions, with A and B closed in neutral position.		
6QM	3CU3550040	For flow 40 l/min - *10.57 Us gpm*
6OM	3CU3550080	For flow 80 l/min - *21.13 Us gpm*
6VM	3CU3550120	For flow 120 l/min - *31.70 Us gpm*
6ZM	3CU3550140	For flow 140 l/min - *36.98 Us gpm*
Double acting, 3 positions, with A and B to tank in neutral position.		
7VM	3CU3555120	For flow 120 l/min - *31.70 Us gpm*
7ZM	3CU3555140	For flow 140 l/min - *36.98 Us gpm*

3 Complete controls page 67

TYPE	CODE	DESCRIPTION
8IM	5IDR216300	Zama control kit for special spools and body kit without seals and ring. Range 5.8-19 bar / *84-270 psi*
8IMF3	5IDR216303	Zama control kit with stroke limiters. Range 5.8-19 bar *84-270 psi*
8IMO	5IDR216000	Steel control kit. Range 5.8-19 bar *84-270 psi*
8IMOHF3	5IDR216303-H	Steel control kit with stroke limiters. Range 5.8-19 bar / *84-270 psi*

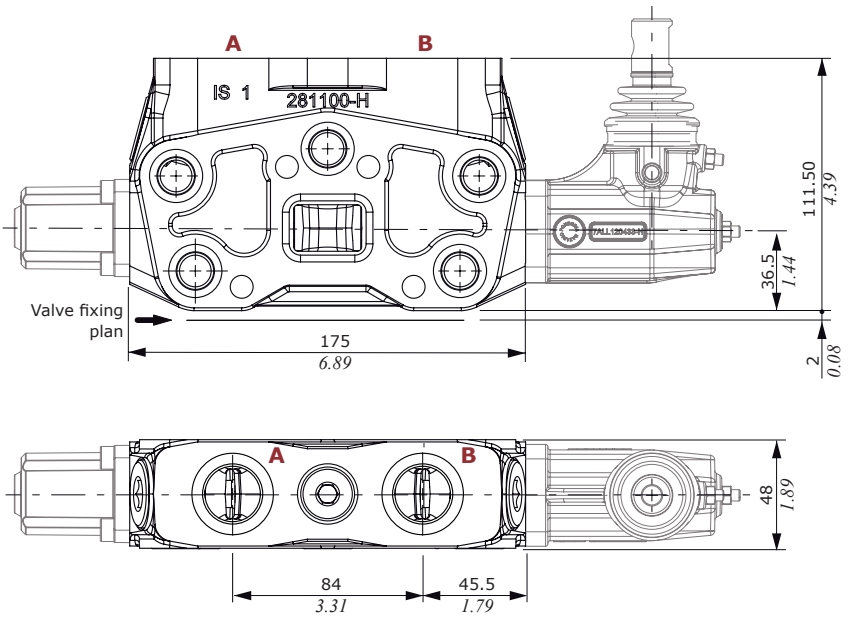
4 Port valves page 46

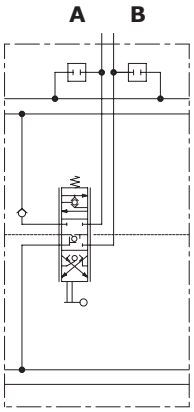
Valves standard setting is referred to 10 l/min flow.

TYPE	CODE	DESCRIPTION
P3T	XTAP530361	A and B ports valve blanking plugs, omitted from the description
C	3XCAR416100	Anti-cavitation valve
Anti-shock valve		
P(G2)	XCAR216115	Range 50-120 bar / *725-1750 psi* standard setting 63 bar / *900 psi*
P(G3)	XCAR216116	Range 100-250 bar / *1450-3600 psi* standard setting 100 bar / *1450 psi*
P(G4)	XCAR216117	Range 160-315 bar / *2300-4600 psi* standard setting 200 bar / *2900 psi*
Pilot hydraulic unloader valve		
PX	XCAR416301	Pilot hydraulic unloader valve
Anti-shock and anti-cavitation valve		
U(G2)	X011411099	Range 35-90 bar / *510-1300 psi* standard setting 60 bar / *870 psi*
U(G3)	X011411100	Range 100-250 bar / *1450-3600 psi* standard setting 100 bar / *1800 psi*
U(G4)	X011411101	Range 180-350 bar / *2600-5100 psi* standard setting 200 bar / *2900 psi*
Pilot operated anti-shock and anti-cavitation valve		
UXW(G)	X01141B160	Range 63-315 bar / *900-4600 psi* standard setting 200 bar / *2900 psi*

NOTE (*) – *Codes are referred to **BSP** thread.*

Dimensional data and hydraulic circuit

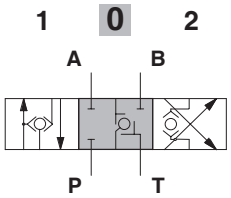




Description example:
6Z8LF3

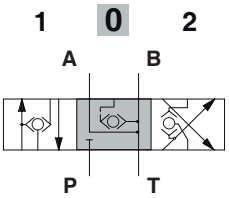
Spools

Spool type 6Q/6O/6V/6Z
Double acting, 3 positions, with A and B closed in neutral position



Spool stroke
position 1: + 7 mm *(+ 0.28 in)*
position 2: - 7 mm *(- 0.28 in)*

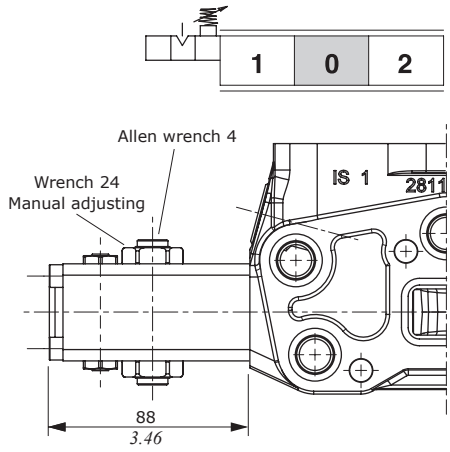
Spool type 7V/7Z
Double acting, 3 positions, with A and B to tank in neutral position



Spool stroke
position 1: + 7 mm *(+ 0.28 in)*
position 2: - 7 mm *(- 0.28 in)*

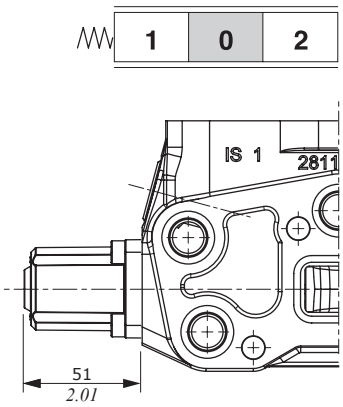
"A" side spool positioners

With friction type 7FT



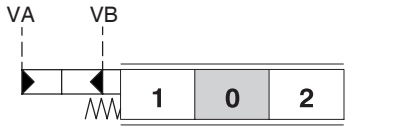
With spring return

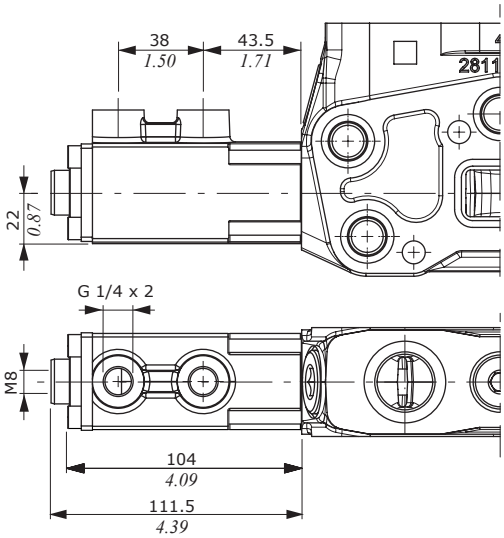
Type 8MC



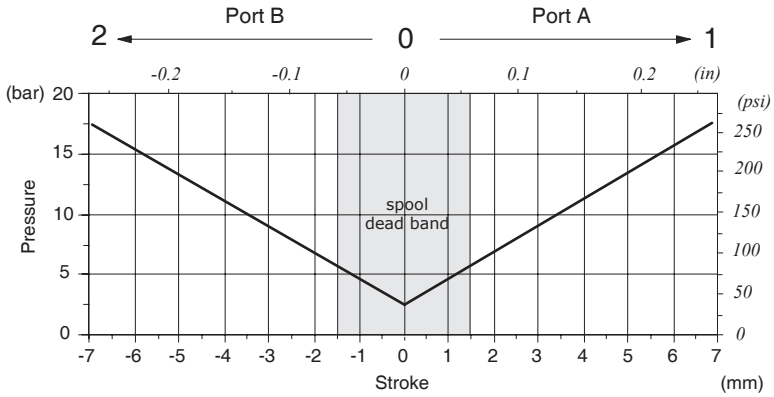
For "A" side spool positioners **9BZ**, **10BZ** and **11BZ** see page 33

8IZ proportional hydraulic control





Pressure - stroke diagram



Features

Pilot pressure . . . . . : max. 100 bar / *1450 psi*

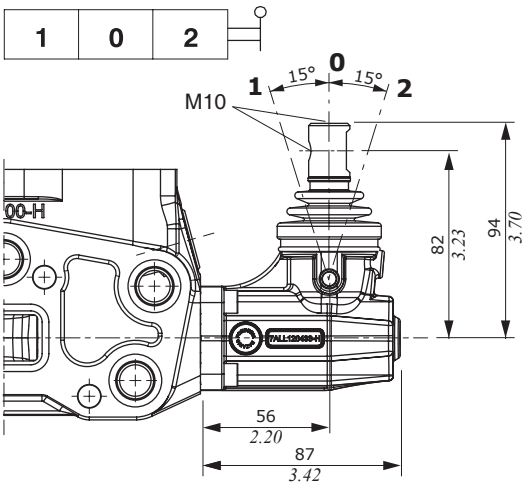
stroke. . . . . .: ± 7mm *(± 0.28 in)*

"B" side options

Lever control

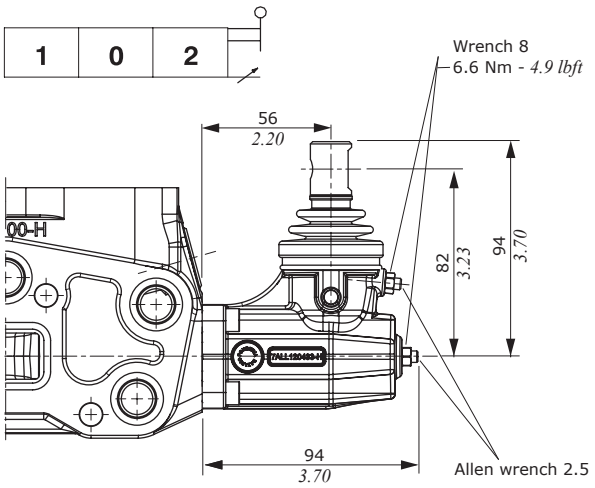
L Type

Aluminium pivot box with protective rubber bellow.



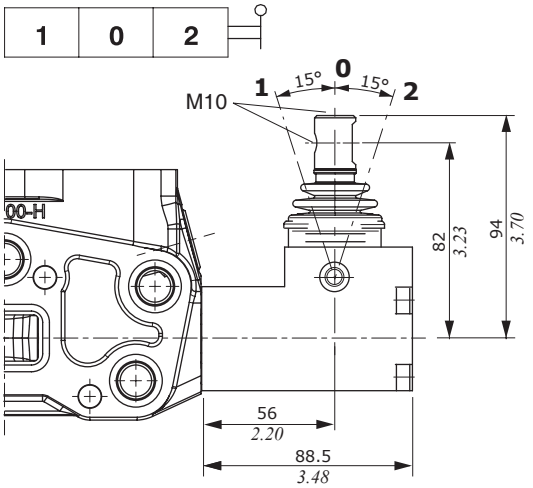
LF3 Type

With spool stroke adjustments in pos.1 and 2, (P→A), (P→B).



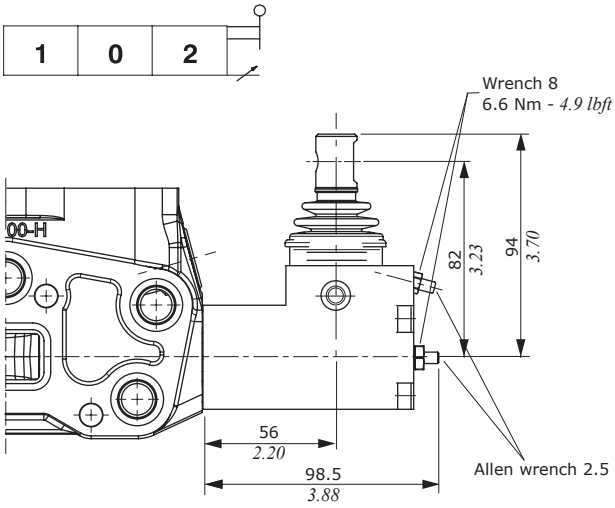
LA Type

Steel execution.



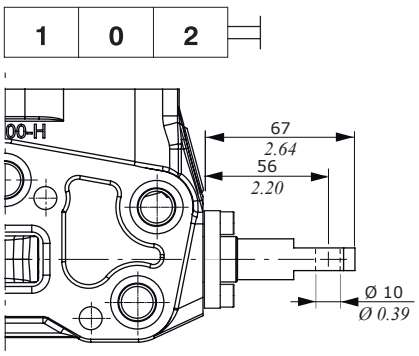
LAF3 Type

Steel execution with spool stroke adjustments.



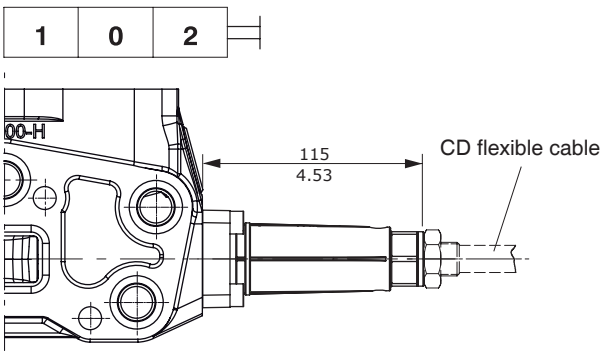
SLP type

Mechanical control with dust-proof plate kit.



TQ cable remote contol kit

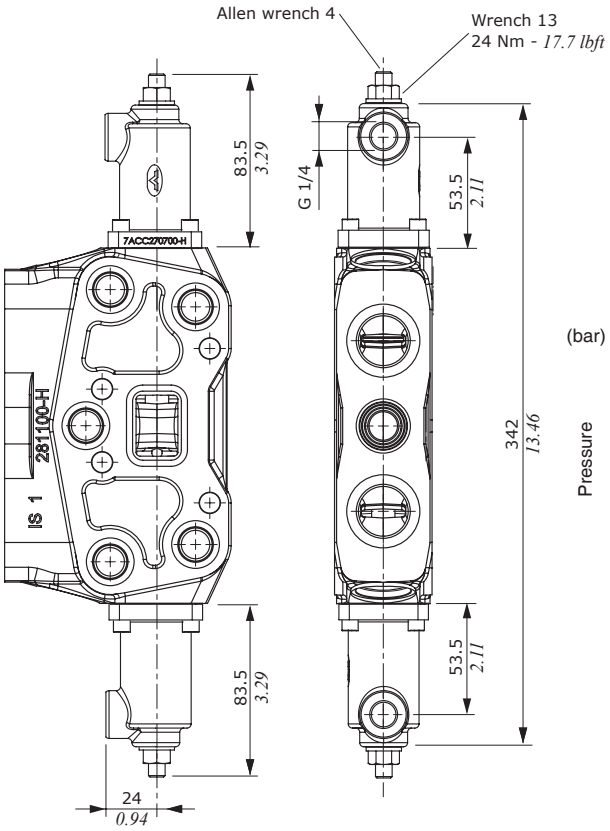
For remote control with flexible cable.

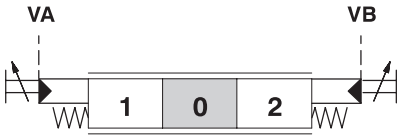


Complete controls

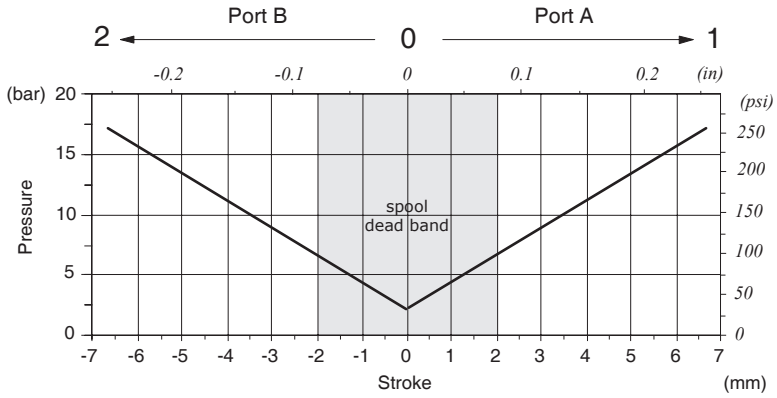
8IMOHF3 proportional hydraulic kit

For other complete controls see page 43.





Pressure - stroke diagram

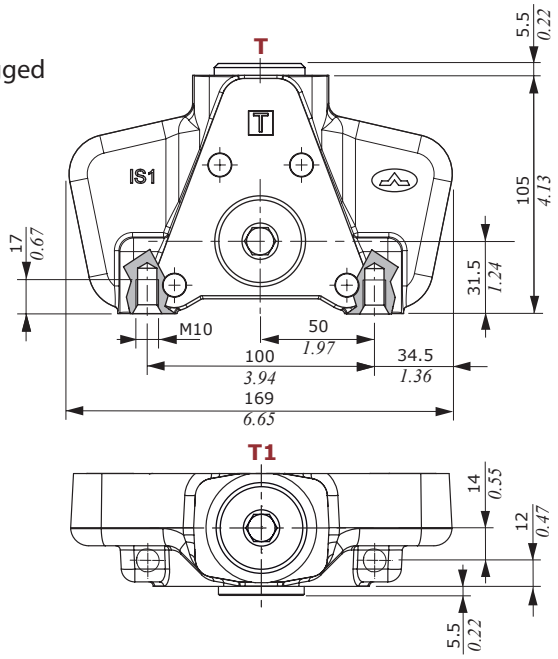


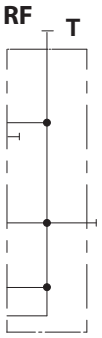
Features

Pilot pressure . . . . . : max. 100 bar / *1450 psi*

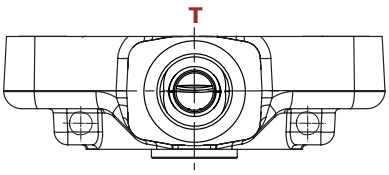
Dimensional data and hydraulic circuit

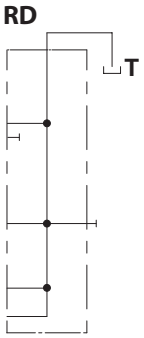
Type RF
with ports plugged



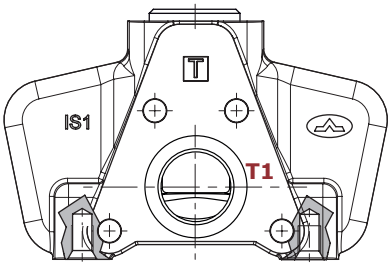


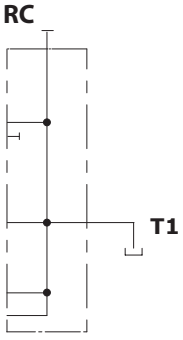
Type RD
upper outlet





Type RC
side outlet

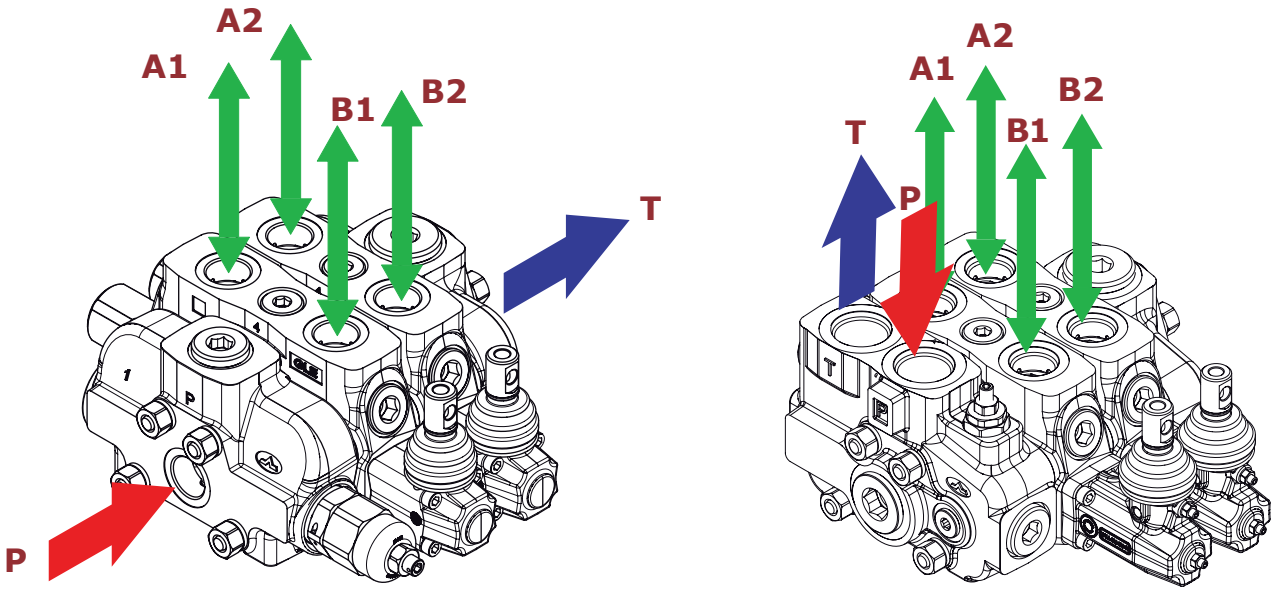




Installation and maintenance

The SDS180 and DLS180 valve are assembled and tested as per the technical specification of this catalogue.
Before the final installation on your equipment, follow the below re commendations:

- the valve can be assembled in any position; order to prevent working section deformation and spool sticking mount the product on a flat surface;
- In order to prevent the possibility of water entering the lever box and spool control kit, do not use high pressure wash down directly on the valve;
- prior to painting, ensure plastic port plugs are tightly in place.



Fitting tightening torque - Nm / *lbft*

THREAD TYPE	port P	ports A, B	port T	Hydraulic pilot
BSP	G 3/4	G 3/4	G 1	G 1/4
With O-Ring seal	90 / *66.4*	90 / *66.4*	100 / *73.7*	20 / *15.7*
With copper washer	90 / *66.4*	90 / *66.4*	90 / *66.4*	25 / *18.4*
With steel and rubber washer	70 / *51.6*	70 / *51.6*	100 / *73.7*	16 / *11.8*
UN-UNF	1 5/16-12 (SAE 16)	1 1/16-12 (SAE 12)	1 5/16-12 (SAE 16)	9/16-18 (SAE 6)
With O-Ring seal	150 / *110.6*	95 / *70.1*	150 / *110.6*	30 / *22.1*

NOTE – *These torque are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish. The manufacturer shall be consulted.*

Coils

Types and ordering codes

Coil type	Voltage	Connectors					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
BER	10 VDC	4SLE001000	-	-	-	-	-
	12 VDC	4SLE001200 4SLE001217(3)	4SLE001201(5) 4SLE001209(3-5) 4SLE001202(6) 4SLE001216(3-6) 4SLE001206(2)	4SLE001203(5) 4SLE001211(3-5)	4SLE001210(2)	4SLE001214(2)	4SLE001207
	24 VDC	4SLE002400 4SLE002408(3) 4SLE302400(1)	4SLE002401(5) 4SLE002407(3-5) 4SLE002402(6)	4SLE002403(5)	-	-	4SLE002404
	48 VDC	4SLE004800 4SLE304800(1)	-	-	-	-	-
	110VDC	4SLE011000 4SLE311000(1)	-	-	-	-	-
	220 VDC	4SLE022000 4SLE322000(1)	-	-	-	-	-
BE	12 VDC	4SL1000120	4SL1000123(6) 4SL1000140(3-6) 4SL1000124(2)	-	-	-	4SL1000122
	24 VDC	4SL1000240 4SL1030240(1)	4SL1002401(6)	-	-	-	-
	110 VDC	4SL1011100 4SL1031100(1)	-	-	-	-	-
	220 VDC	4SL1022200 4SL1032200(1)	-	-	-	-	-
BT	10 VDC	4SL3000100					
	12 VDC	4SL3000120 4SL3000126(4)	4SL3000130(6) 4SL3000134(3-6) 4SL3000128(2)	4SL3000122(5) 4SL3001200(3-5)	4SL3000124(2)	4SL3000127(2)	4SL300012C
	24 VDC	4SL3000240 4SL3030240(1)	4SL3000249(6) 4SL300024C(3-6)	4SL3000248(5)	-	-	4SL3000246
	26 VDC	4SL3000260	-	-	-	-	-
	48 VDC	4SL3000480 4SL3030480(1)	-	-	-	-	-
	110 VDC	4SL3001100 4SL3031100(1)	-	-	-	-	-
	220 VDC	4SL3002200 4SL3032200(1)	-	-	-	-	
BPV	12 VDC	4SLA001200	-	-	-	-	-
	24 VDC	4SLA002400	-	-	-	-	-
Mating connectors (For connector with rectifier sse following table)		4CN1009995	5CON140031	5CON003	5CON001	5CON017	-

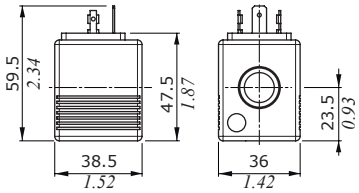
Notes: (1) supply with AC and use only with rectifier connector - (2) with flying leads - (3) with bidirectional diode - (5) with unidirectional diode (5) integrated perpendicular type - (6) integrated parallel type

Voltage	ISO 4400 mating connector with rectifier			
	coil type **BER**	coil type **BT**	coil type **BPV**	coil type **BE**
24 VDC	4CN1010240	4CN3010240	-	4CN1010240
48 VDC	4CN1010480	4CN3010480	-	4CN1010480
110 VDC	4CN1011100	4CN3011100	-	4CN1011100
220 VDC	4CN1012200	4CN3012200	-	4CN1012200

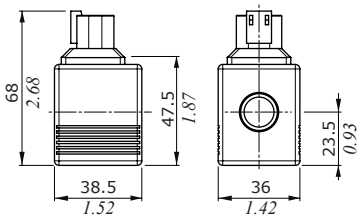
Dimensions and features

Type BER

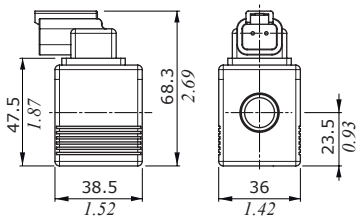
ISO4400 connector



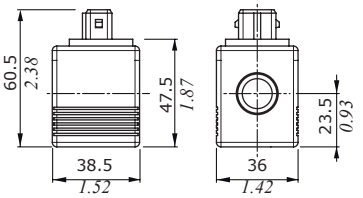
DEUTSCH DT04 connector
(perpendicular type)



DEUTSCH DT04 connector
(parallel type)



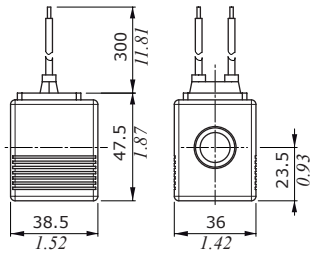
AMP JPT connector



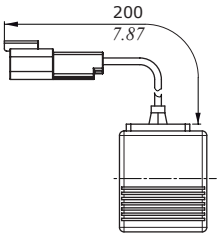
Features

Nominal voltage tolerance : ±10%
Power rating . . . . . : 19.2 W - 10/12/24/48/ 110/220 VDC
: 19 W - 24/110/220 RAC
: 19.2 W - 48 RAC
Max. operating current . . : 1.9 A - 10 VDC
: 1.61 A - 12 VDC
: 0.80 A - 24 VDC
: 0.40 A - 48 VDC
: 0.17 A - 110 VDC
: 0.09 A - 220 VDC
: 0.89 A - 24 RAC
: 0.45 A - 48 RAC
: 0.19 A - 110 RAC
: 0.09 A - 220 RAC
Coil insulance . . . . . : Class H (180°C - *356°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
: IP67 - Weatherpack
: IP67 - Metri-pack
Insertion . . . . . : 100%

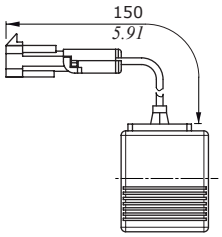
Flying leads



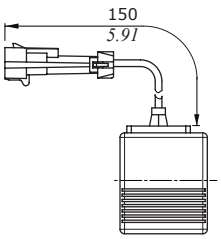
Flying leads with DEUTSCH DT04 connector



Flying leads with PACKARD WEATHER-PACK connector

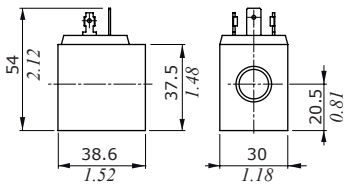


Flying leads with PACKARD METRI-PACK connector

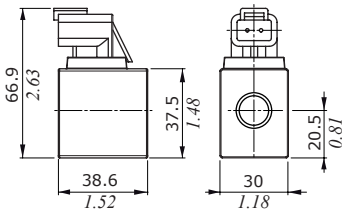


Type BE

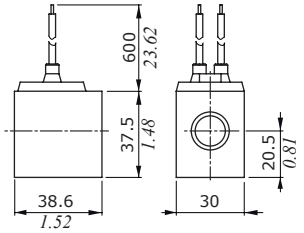
ISO4400 connector



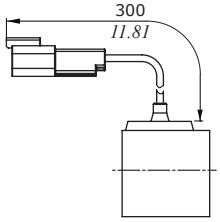
DEUTSCH DT04 connector



Flying leads



Flying leads with DEUTSCH DT04 connector



Features

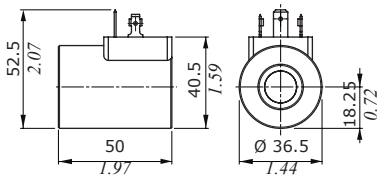
Nominal voltage tolerance : ±10%
Power rating . . . . . : 18.7 W - 12 VDC
: 18.6 W - 24 VDC
: 17.3 W - 110 VDC
: 15.7 W - 220 VDC
: 18.3 W - 24 RAC
: 16 W - 110 RAC
: 16 W- 220 RAC
Max. operating current . . : 1.56 A - 12 VDC
: 0.77 A - 24 VDC
: 0.157 A - 110 VDC
: 0.08 A - 220 VDC
: 0.85 A - 24 RAC
: 0.16 A - 110 RAC
: 0.08 A - 220 RAC
Coil insulance . . . . . : Class F (155°C - *311°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
Insertion . . . . . : 100%

Coils

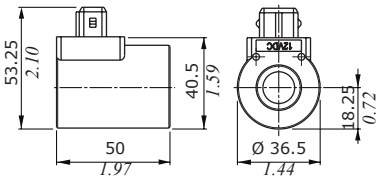
Dimensions and features

Type BT

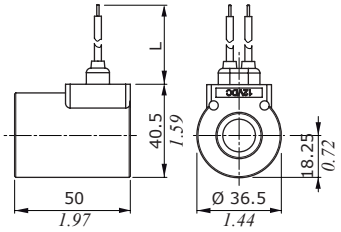
ISO4400 connector



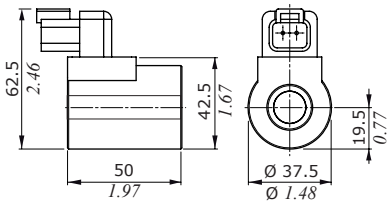
AMP JPT connector



Flying leads



DEUTSCH DT04 connector

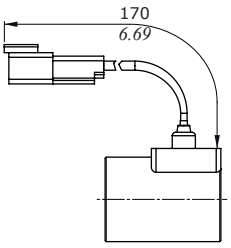


Coil type	Dimension L (mm)	*(in)*
12VDC	247	*9.72*
24VDC	307	*12.09*

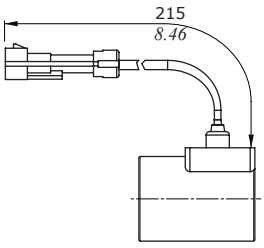
Features

Nominal voltage tolerance : ±10%
Power rating . . . . . : 19 W - 10 VDC
: 21 W - 12/24/26 VDC
: 20.3 W - 48 VDC
: 17.3 W - 110 VDC
: 17.7 W - 220 VDC
: 19.9 W - 24 RAC
: 20.7 W - 48 RAC
: 20 W - 110 / 220 RAC
Max. operating current . . : 1.9 A - 10 VDC
: 1.77 A - 12 VDC
: 0.89 A - 24VDC
: 0.84 A - 26 VDC
: 0.43 A - 48 VDC
: 0.16 A - 110 VDC
: 0.08 A - 220 VDC
: 0.93 A - 24 RAC
: 0.47 A - 48 RAC
: 0.18 A - 110 RAC
: 0.09 A - 220 RAC
Coil insulance . . . . . : Class F (155°C - *311°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
: IP67 - Weatherpack
: IP67 - Metri-pack
Insertion . . . . . : 100%

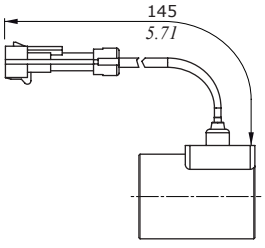
Flying leads with DEUTSCH DT04 connector



Flying leads with PACKARD WEATHER-PACK connector

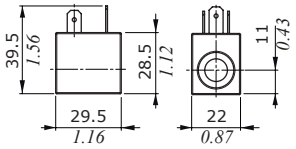


Flying leads with PACKARD METRI-PACK connector

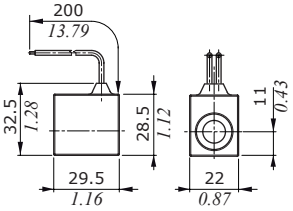


Type BPV

ISO4400 connector



Flying leads

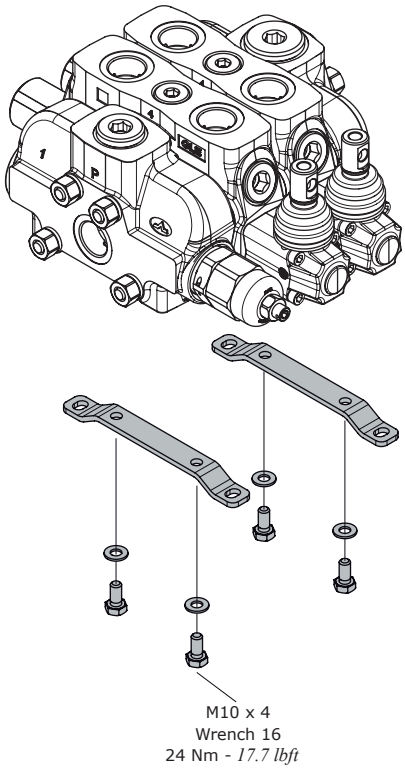


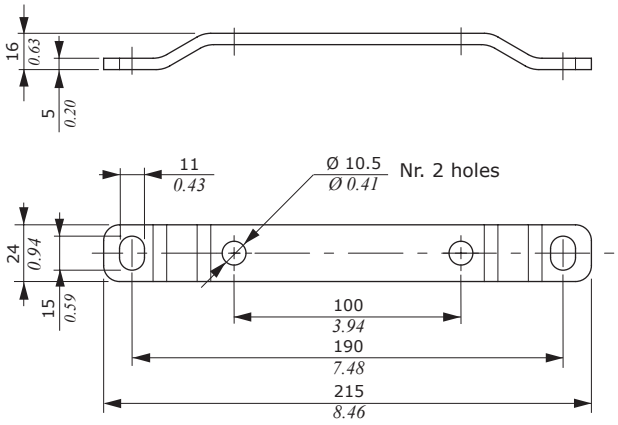
Features

Nominal voltage tolerance : ±10%
Power rating . . . . . : 8 W - 12/24 VDC
Max. operating current . . : 0.67 A - 12 VDC
: 0.33 A - 24VDC
Coil Insulance . . . . . : Class H (180°C - *356°F*)
Weather protection . . . . . : IP65 - ISO4400
Insertion . . . . . : 100%

Fixing brackets

They are available for SDS180 directional valves and they are zinc plated steel, complete with mounting screws.





Painting

SDS180 valve can be supplied with one coat of black paint (**CVN** configuration).
Description example: SDS180/2/AC(YG3-120)/18L/18L/RC-**<CVN>**
NOTE – *For different colour consult Sales Department*.

Notes

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