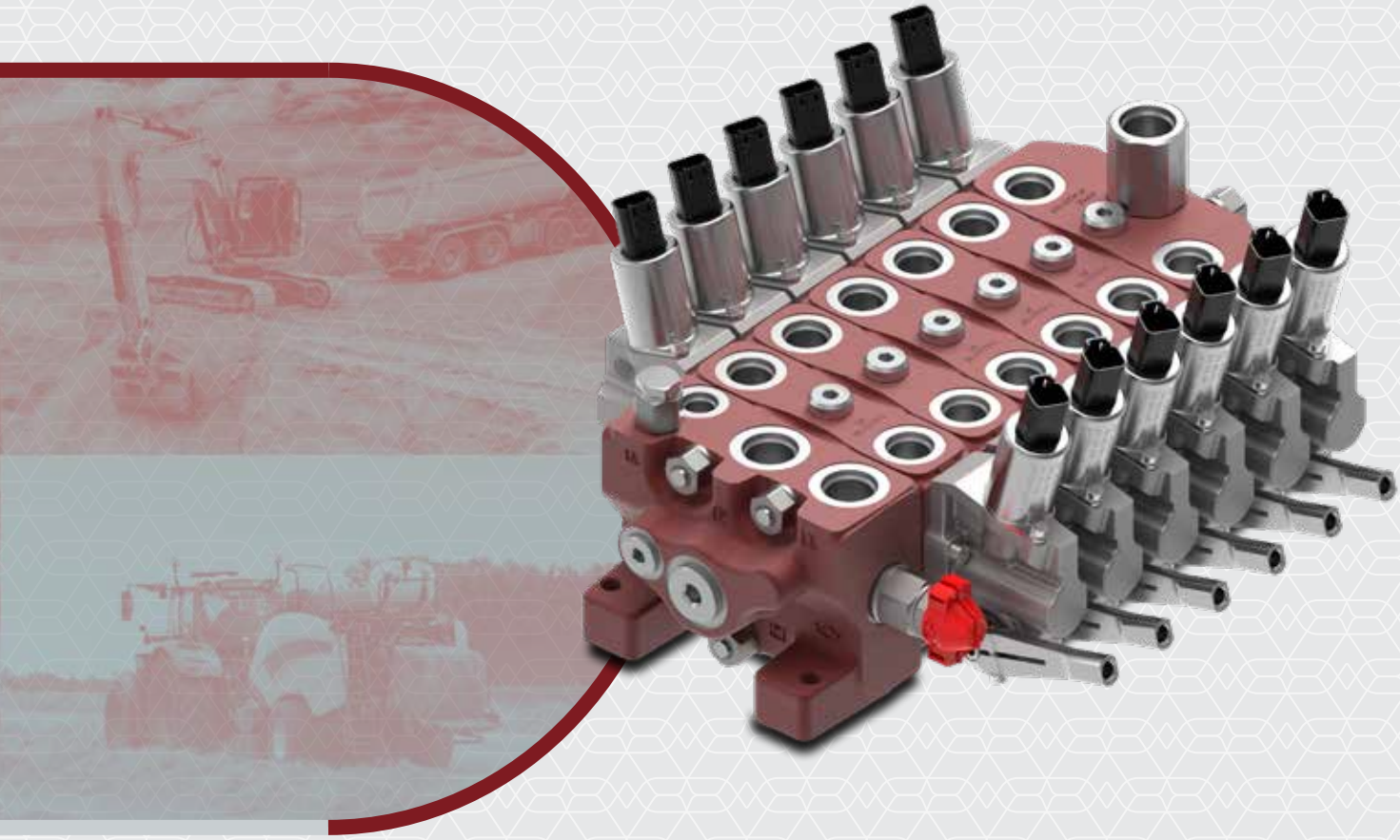
walvoil

MOTION BY PEOPLE

SDS100

Sectional Directional Control Valve



DIRECTIONAL VALVES

General informations

Simple, compact and heavy duty designed sectional valve from 1 to 10 sections for open and closed center hydraulic systems.

- Available with parallel, tandem or series circuit.
- Available manual, pneumatic, electric ON/OFF, proportional hydraulic and electro-hydraulic spool control kits.
- Fitted with a main pressure relief valve and a load check valve on every working section.
- Optional carry-over port.
- Optional secondary aux valve block on ports.
- Intermediate sections for several types of circuit.

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.

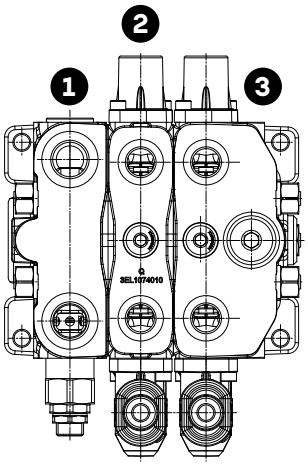
1st edition July 2025

Content

General guide to configuration

Standard working section

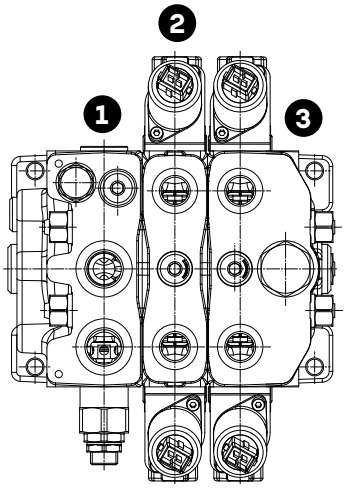
Fitted with manual, pneumatic, proportional hydraulic and ON/OFF electric control.

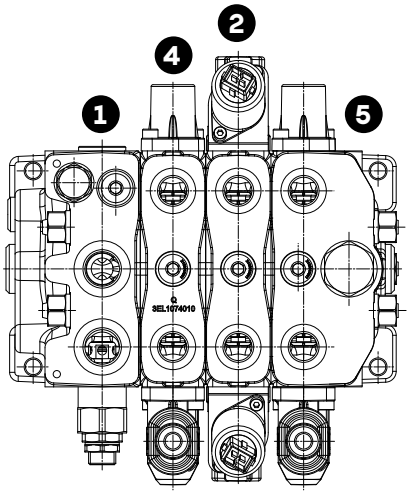


1: CN standard inlet section
2: Standard working section (type Q, P, SQ, SP)
3: Standard working section with outlet (type RQ, RP, RQS, RPS)

Working section with internal pilot and drain lines

They need inlet section with pressure reducing valve and outlet section with backpressure valve.
They are prearranged for double side proportional electro-hydraulic control but it's possible to mount manual and mechanical control using sections with cross pilot line and drain.





1: CRA inlet section with pressure reducing valve, relief valve, pilot lines on both sides, drain prearrangement, pressure reduced line prearrangement
2: Working sections (type QE, PE, SQE, SPE) with double side electro-hydraulic control
3: Double side electro-hydraulic control working sectrion with optional outlet (type RPE, RQE, RPSE), pilot lines on both side and backpressure valve
4: Working section (type QA, PA, SQA, SPA) with mechanical control and cross pilot line
5: Mechanical control working section with optional outlet (type RPA, RQA), O-ring seats for cross pilot line closing, backpressure valve.

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.

Number sections		From 1 to 10	
Nominal flow rating		60 l/min	*16 US gpm*
Max pressure		315 bar	*4600 psi*
Back pressure (max.) on outlet **T** port	With mechanical devices	10 bar	*145 psi*
	With hydraulic, pneumatic and electric devices	30 bar	*435 psi*
	With electro-hydraulic devices	10 bar	*145 psi*
Internal leakage A(B)->T (standard)	Δp = 100 bar - *1450 psi*	5 cm³/min	*0.31 in³/min*
Fluid		Mineral based oil	
Fluid temperature	With NBR (BUNA-N) seals	from -20°C to 80°C	*from -4° to 176°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 level of contamination		-/19/16 - ISO 4406	*NAS 1638 - class 10*
Environmental temperature for working conditions	With mechanical devices	from -40°C to 60°C	*from -40°F to 140°F*
	With hydraulic and pneumatic devices	from -30°C to 60°C	*from -22°F to 140°F*
	With electro-hydraulic and electric devices	from -30°C to 50°C	*from -4°F to 122°F*
Tie rods tightening torque (wrench 17)		35 Nm	*26 lbft*

Note - For different conditions please contact Sales Dept.

Standard thread

REFERENCE STANDARDS						
		BSP	**UN-UNF**	**METRIC(*)**	**METRIC ISO(*)**	**NPTF**
THREAD ACCORDING TO		ISO 228/1	ISO 263	ISO 262	ISO262	ANSI B1.20.3
		BS 2779	ANSI B1.1 unified			
CAVITY ACCORDING TO	ISO	1179-1	11926-1	9974-1	6149	
	SAE		J1926-1		J2244	J476a
	DIN	3852-2 shape X or Y		3852-1 shape X or Y		

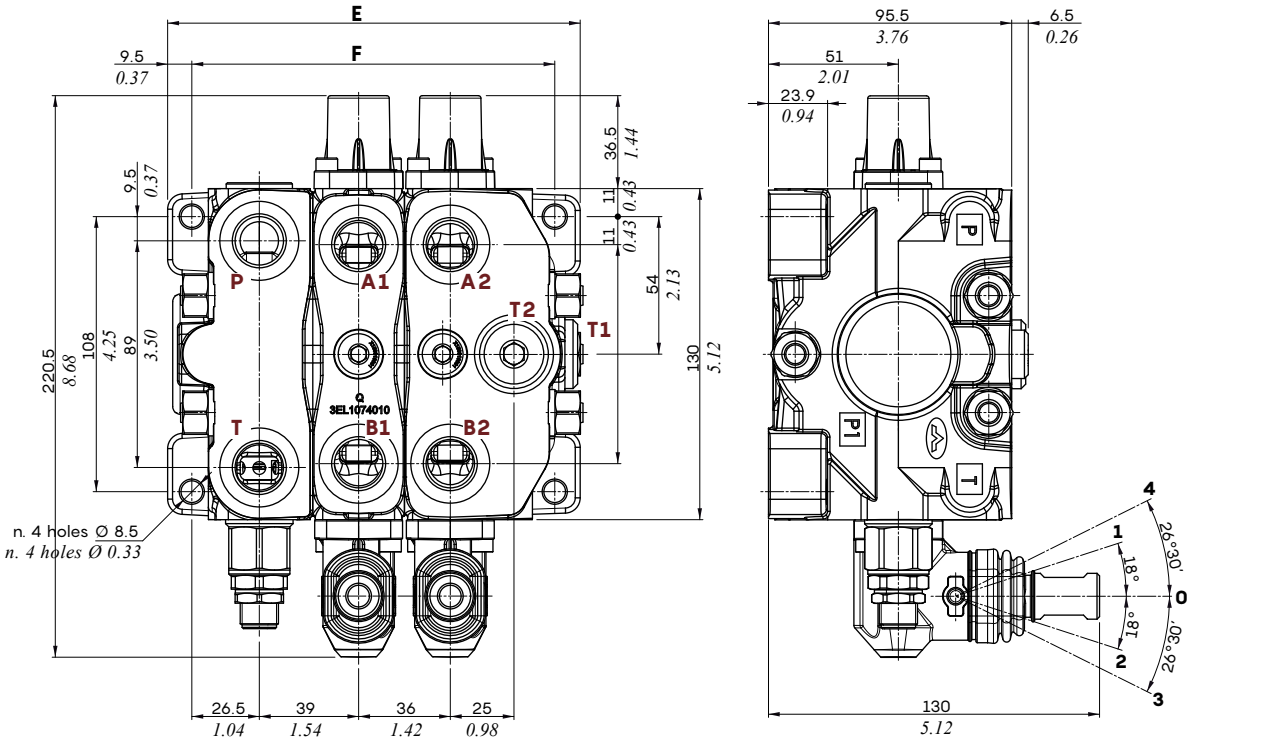
Note(*) - Metric threading is available on request.

PORTS THREAD		
MAIN PORTS	**BSP**	**UN-UNF**
Inlet **P** and **P1**	G 1/2	7/8"-14 (SAE10)
Ports **A** and **B**	G 3/8 - G 1/2	9/16-18 (SAE 6) - 3/4"-16 (SAE8)
Outlet **T, T1, T2** and carry-over **C**	G 1/2	7/8"-14 (SAE10)
Pilot **V** and drain **L**	G 1/4	9/16-18 (SAE 6)
CONTROLS PILOT PORTS		
Hydraulic pilots	G 1/4	7/16-20 (SAE 4)
Pneumatic pilots	NPTF 1/8-27	NPTF 1/8-27

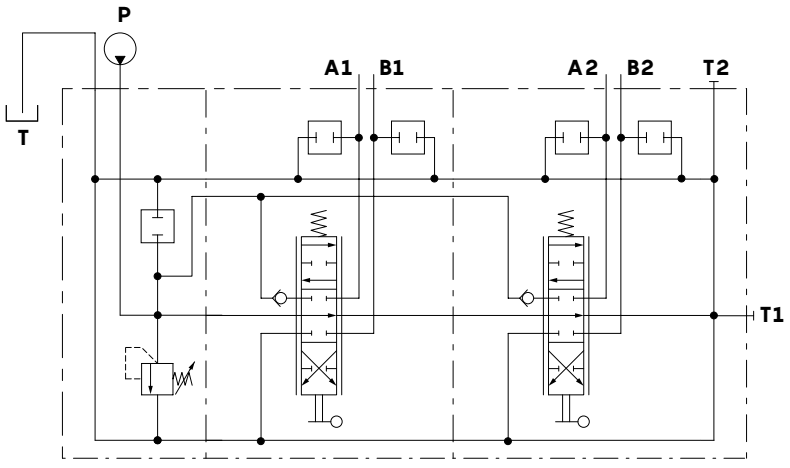
Dimensional data and hydraulic circuit

Configuration with mechanical, proportional hydraulic, ON/OFF electric controls

Left inlet standard configuration example



TYPE	E		F	
	mm	*in*	mm	*in*
SDS100/1	128.1	*5.04*	106.5	*4.19*
SDS100/2	164.1	*6.46*	142.5	*5.61*
SDS100/3	200.1	*7.87*	178.5	*7.02*
SDS100/4	236.1	*9.29*	214.5	*8.44*
SDS100/5	272.1	*10.71*	250.5	*9.86*
SDS100/6	308.1	*12.13*	286.5	*11.28*
SDS100/7	344.1	*13.54*	322.5	*12.70*
SDS100/8	380.1	*14.96*	358.5	*14.11*
SDS100/9	416.1	*16.38*	394.5	*15.53*
SDS100/10	452.1	*17.80*	430.5	*16.94*



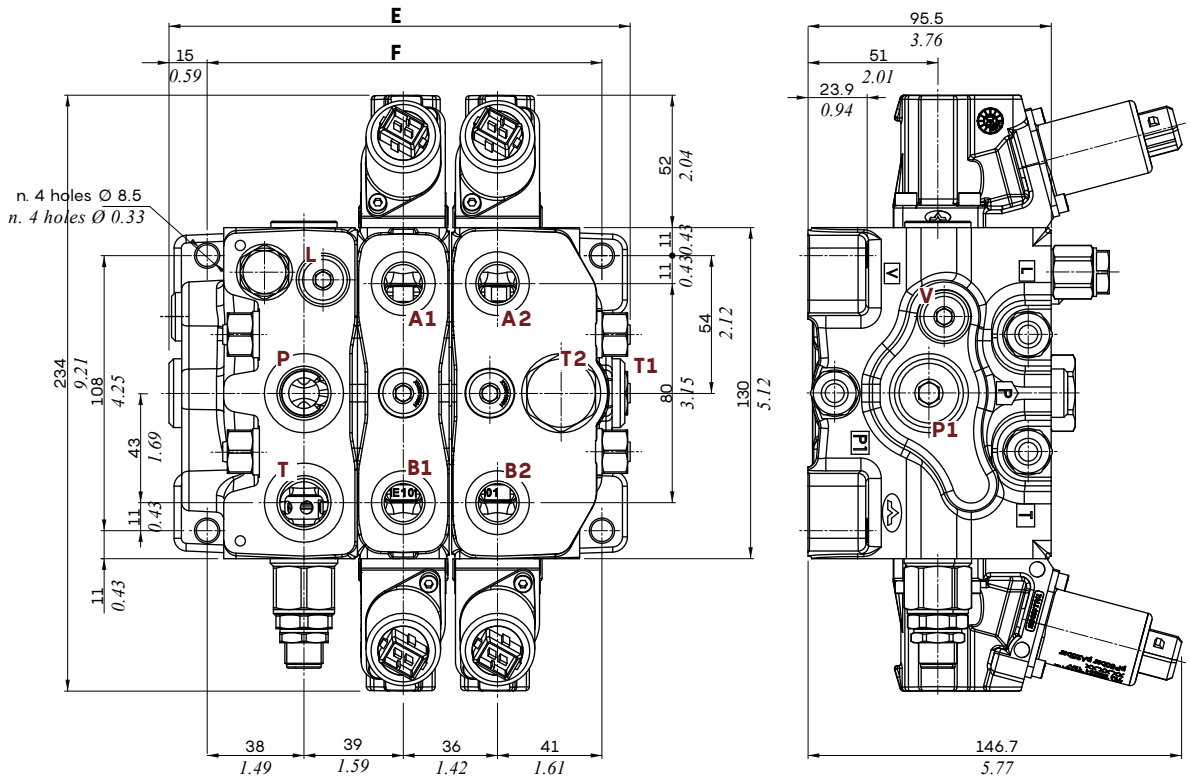
Parallel circuit, port valve arrangement on the sections
SDS100/2/CN(TVGW3-175)/P-101-8L.UTUT/RP-101-8L.UTUT-F

Note - Drawings and dimensions are referred to **BSP** thread

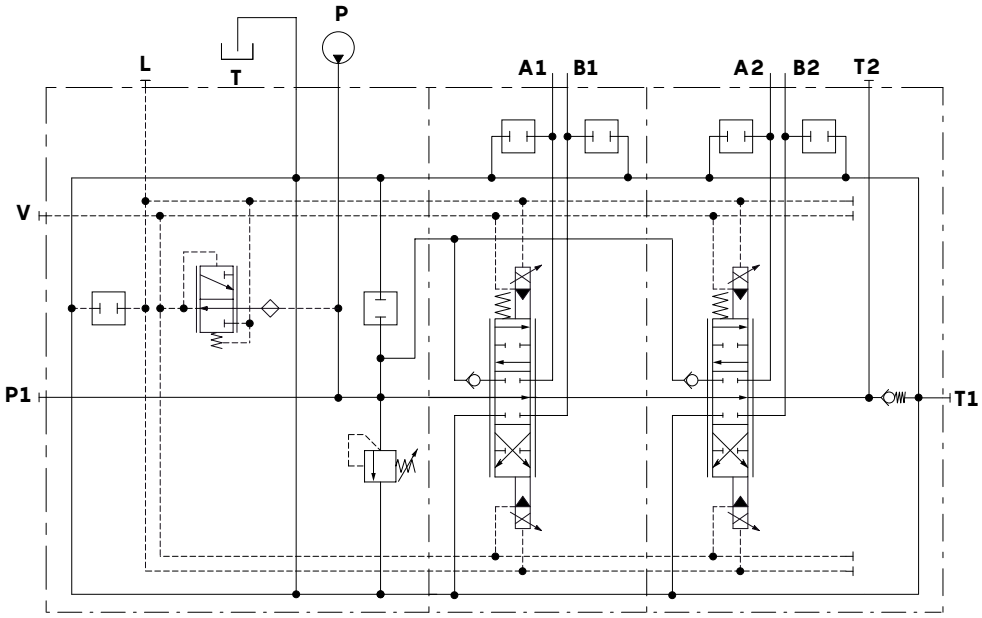
Dimensional data and hydraulic circuit

Configuration with electro-hydraulic control

Left inlet standard configuration example



TYPE	E		F	
	mm	*in*	mm	*in*
SDS100/1	141	*5.55*	118	*4.64*
SDS100/2	177	*6.96*	154	*6.06*
SDS100/3	213	*8.38*	190	*7.48*
SDS100/4	249	*9.80*	226	*8.90*
SDS100/5	285	*11.22*	262	*10.31*
SDS100/6	357	*14.05*	298	*11.73*
SDS100/7	393	*15.47*	334	*13.15*
SDS100/8	429	*16.89*	370	*14.56*
SDS100/9	465	*18.30*	406	*15.98*
SDS100/10	501	*19.72*	442	*17.40*



Parallel circuit, internal pilot and drain, port valve arrangement on the sections

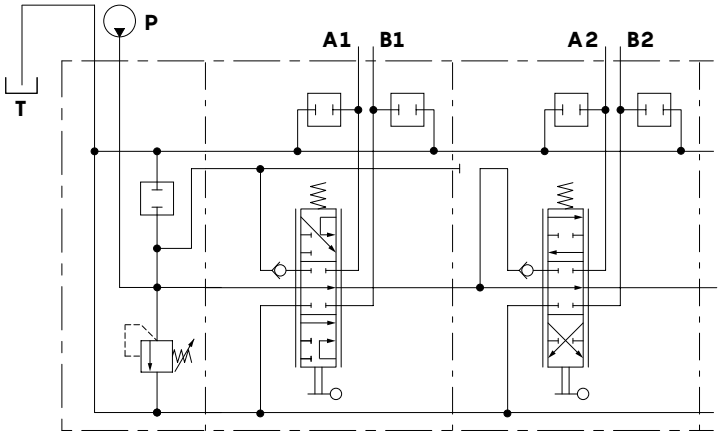
SDS100/2/CRAD(TVGW3-175)/PE-ET101-8EBET.UTUT/RPE-1ET01-8EB3T.UTUT-VRC-F-TAP(VL)

Note - Drawings and dimensions are referred to **BSP** thread

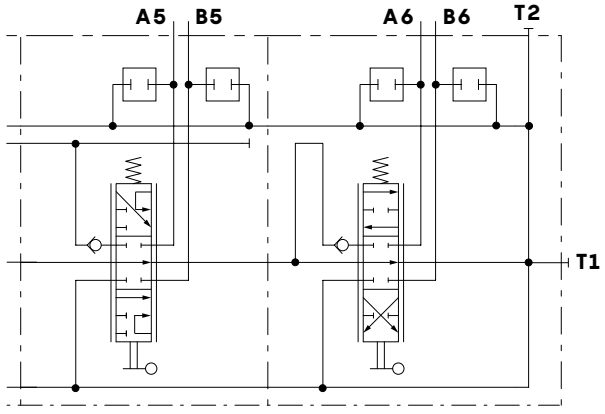
Hydraulic circuit

In addition to the parallel circuit, the SDS100 is available with working sections with series circuit and parallel-series (tandem).

Series circuit

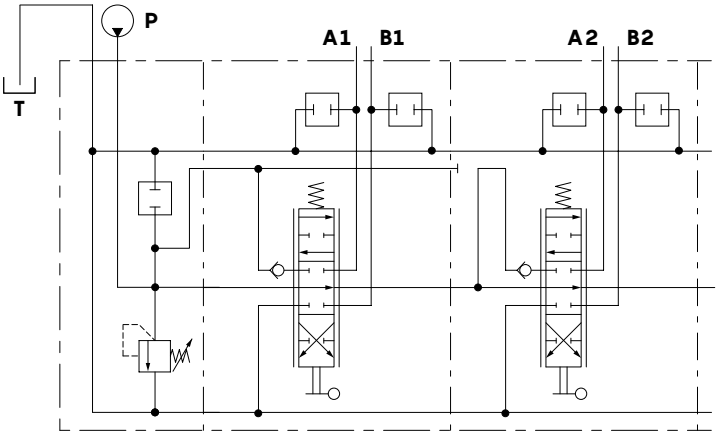


Series between standard working sections, serie spool
SDS100/2/CN(TVGW3-175)/P-**1S01**-8L.UTUT/**SP**-101-8L.UTUT/.....

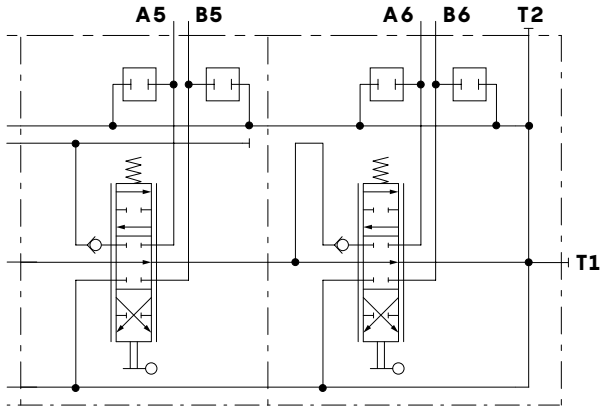


Series between penultimate and last section, serie spool
...../**PR-1S01**-8L.UTUT/**RPS**-101-8L.UTUT-F

Parallel-series circuit (tandem)



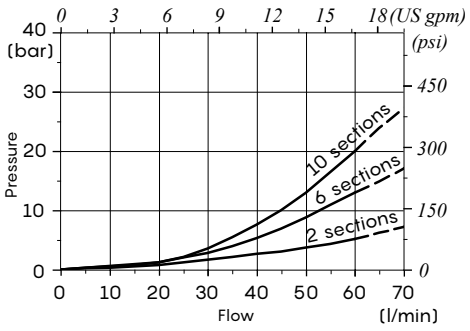
Tandem between standard work sections, standard spool
SDS100/2/CN(TVGW3-175)/P-101-8L.UTUT/**SP**-101-8L.UTUT/.....



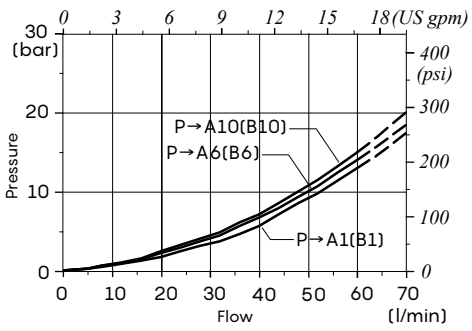
Tandem between penultimate and last section, standard spool
...../**PR**-101-8L.UTUT/**RPS**-101-8L.UTUT-F

Performance data

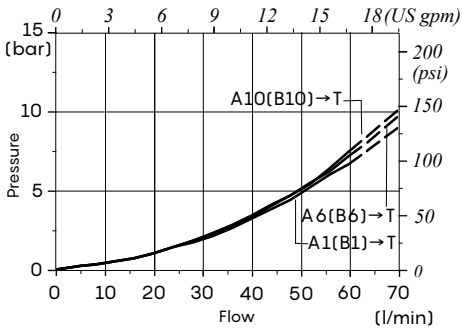
P⇒T pressure drops (spool type 1)



P⇒A(B) pressure drops (spool type 1)



A(B)⇒T pressure drops (spool type 1)



Complete section ordering codes

Configuration with mechanical, proportional hydraulic, ON/OFF electric controls

A Standard configuration with BP3 secondary aux valve block:

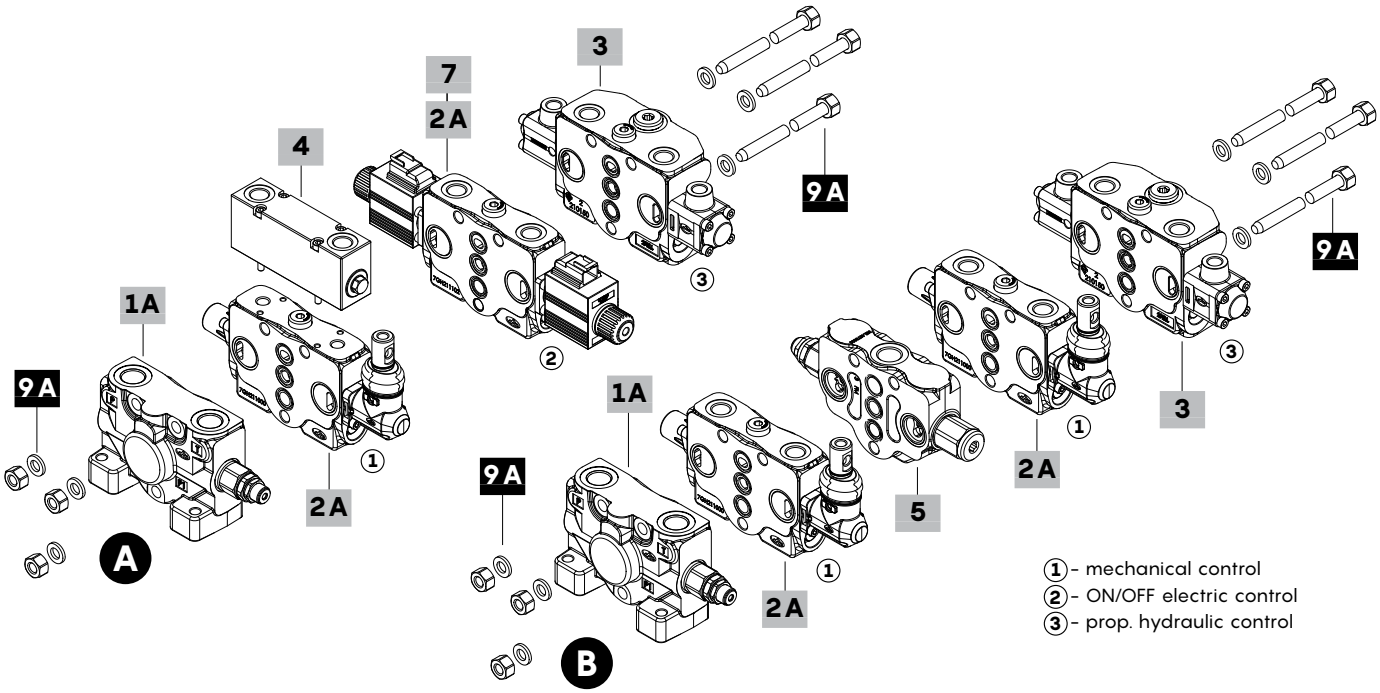
SDS100/3/CN(TVGW3-175)/PU-101-8L.UTUT.BP3A/P-S101-8ES3.UTUT/RP-I112-8IM.UTUT-F-12VDC-...

Nr of working section: 1A | 2A | 4 | 2A | 3 | 7 | 8

B Standard configuration with EI2 intermediate inlet section:

SDS100/3/CN(TVGW3-175)/P-101-8L.UTUT/EI2(TVGW3-125\GF-T)/P-101-8L.UTUT/RP-I112-8IM.UTUT-F-...

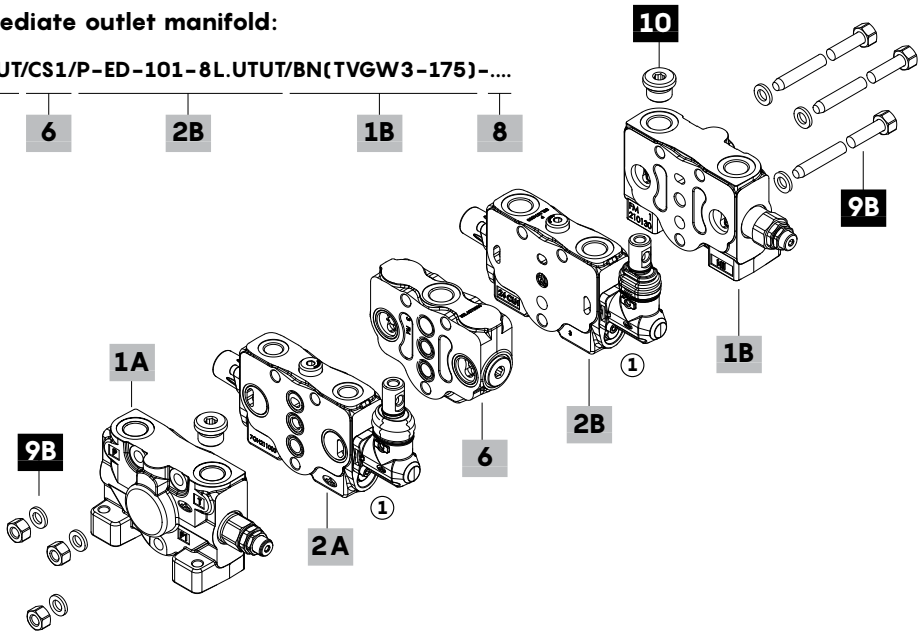
1A | 2A | 5 | 2A | 3 | 8



2-input configuration and CS1 intermediate outlet manifold:

SDS100/2/CN(TVGW3-175)/P-101-8L.UTUT/CS1/P-ED-101-8L.UTUT/BN(TVGW3-175)-....

1A | 2A | 6 | 2B | 1B | 8



Complete section ordering codes

Configuration with mechanical, proportional hydraulic, ON/OFF electric controls

1A Inlet section*

TYPE: **SDS100/CN(SV)** CODE: 610201002
DESCRIPTION: P and T upper ports, without pressure relief valve
TYPE: **SDS100/CN(TVGW3-175)** CODE: 610201001
DESCRIPTION: P and T upper ports, with pressure relief valve

1B Right inlet section*

TYPE: **SDS100/BN(SV)** CODE: 610201007
DESCRIPTION: P and T upper ports, without pressure relief valve
TYPE: **SDS100/BN(TVGW3-175)** CODE: 610201026
DESCRIPTION: P and T upper ports, with pressure relief valve

2A Working section*

Mechanical control
TYPE: **SDS100/Q-101-8L** CODE: 610151000
DESCRIPTION: Parallel circuit, lever control without port valves arrangement
TYPE: **SDS100/P-101-8L.UTUT** CODE: 610101000
DESCRIPTION: As previous one, with port valves arrangement
TYPE: **SDS100/PU-101-8L.UTUT** CODE: 610100007
DESCRIPTION: As previous one, with port valves arrangement and secondary aux block valves
TYPE: **SDS100/P-101-8L.U100U100** CODE: 610101100
DESCRIPTION: As previous one, with shock valves with fixed setting
TYPE: **SDS100/Q5-501-13NL** CODE: 610106605
DESCRIPTION: Floating circuit, lever control without port valves arrangement
TYPE: **SDS100/SQ-101-8L** CODE: 610121001
DESCRIPTION: Parallel-series circuit, lever control without port valves arrangement
TYPE: **SDS100/SP-101-8L.UTUT** CODE: 610121000
DESCRIPTION: As previous one, with port valves arrangement
ON/OFF electric control
TYPE: **SDS100/Q-S102-8ES3-12VDC** CODE: 610151007
DESCRIPTION: Parallel circuit, without port valves arrangement
TYPE: **SDS100/Q-SHC102-8ES3LHC-12VDC** CODE: 610101012
DESCRIPTION: As previous one, with emergency lever
Proportional hydraulic control
TYPE: **SDS100/Q-I112-8IM** CODE: 610101003
DESCRIPTION: Parallel circuit, without port valves arrangement
TYPE: **SDS100/Q5-I504-13IMS** CODE: 610101600
DESCRIPTION: As previous one for floating circuit

2B Right working section*

Mechanical control
TYPE: **SDS100/Q-ED-101-8L** CODE: 610151004
DESCRIPTION: Parallel circuit, lever control without port valves arrangement
TYPE: **SDS100/P-ED-101-8L.UTUT** CODE: 610101007
DESCRIPTION: As previous one, with port valves arrangement
TYPE: **SDS100/P-ED-101-8L.U100U100** CODE: 610100002
DESCRIPTION: As previous one, with shock valves with fixed setting
TYPE: **SDS100/SQ-ED-101-8L** CODE: 610121008
DESCRIPTION: Parallel-series circuit, lever control without port valves arrangement
TYPE: **SDS100/SP-ED-101-8L.UTUT** CODE: 610121009
DESCRIPTION: As previous one, with port valves arrangement
ON/OFF electric control
TYPE: **SDS100/Q-ED-S102-8ES3-12VDC** CODE: 610100003
DESCRIPTION: Parallel circuit, without port valves arrangement
TYPE: **SDS100/Q-ED-SHC102-8ES3LHC-12VDC** CODE: 610100004
DESCRIPTION: As previous one, with emergency lever
Proportional hydraulic control
TYPE: **SDS100/Q-ED-I112-8IM** CODE: 610100005
DESCRIPTION: Parallel circuit, without port valves arrangement
TYPE: **SDS100/Q5-ED-I504-13IMS** CODE: 610100006
DESCRIPTION: As previous one for floating circuit

3 Outlet working section*

Mechanical control
TYPE: **SDS100/RQ-101-8L-F** CODE: 610351001
DESCRIPTION: Parallel circuit, lever control without port valves arrangement, outlet ports plugged
TYPE: **SDS100/RP-101-8L.UTUT-F** CODE: 610301001
DESCRIPTION: As previous one, with port valves arrangement
TYPE: **SDS100/RP-101-8L.U100U100-F** CODE: 610301100
DESCRIPTION: As previous one, with shock valves with fixed setting
TYPE: **SDS100/RQ-101-8L-AE** CODE: 610351002
DESCRIPTION: Parallel circuit, lever control without port valves arrangement, with carry-over
TYPE: **SDS100/RP-101-8L.UTUT-AE** CODE: 610301002
DESCRIPTION: As previous one, with port valves arrangement
ON/OFF electric control
TYPE: **SDS100/RQ-S102-8ES3-F-12VDC** CODE: 610300001
DESCRIPTION: Parallel circuit, without port valves arrangement
Proportional hydraulic control
TYPE: **SDS100/RQ-I112-8IM-F** CODE: 610351005
DESCRIPTION: Parallel circuit, without port valves arrangement
TYPE: **SDS100/RP-I112-8IM.UTUT-F** CODE: 610301005
DESCRIPTION: As previous one, with port valves arrangement

4 Secondary aux valve block*

TYPE: **BP3A** CODE: 611003102
DESCRIPTION: Double valve block on A and B ports
TYPE: **BP1A-BP2A** CODE: 611003111
DESCRIPTION: Single valve block on A or B ports

5 Intermediate inlet section* page 56

TYPE: **SDS100/EI2(TVGW2-125\GF-T)** CODE: 610421135
DESCRIPTION: With secondary pressure relief valve and auxiliary inlet (plugged)

6 Intermediate outlet manifold* page 57

TYPE: **SDS100/CS1** CODE: 610400010
DESCRIPTION: Outlet manifold

7 Voltage

Specify the voltage of electric devices

8 Valve threading

Only specify if it is different from BSP standard (see page 5)

9A Assembly kit

CODE	DESCRIPTION	CODE	DESCRIPTION
5TIR110123	For 1 section valve	5TIR110304	For 6 section valve
5TIR110160	For 2 section valve	5TIR110340	For 7 section valve
5TIR110195	For 3 section valve	5TIR110375	For 8 section valve
5TIR110235	For 4 section valve	5TIR110411	For 9 section valve
5TIR110267	For 5 section valve	5TIR110449	For 10 section valve

Note - The intermediate section **EI2** is to be considered as an additional section

9B Assembly kit with CS1 outlet manifold

CODE	DESCRIPTION	CODE	DESCRIPTION
5TIR110215	For 2 sec. valve+CS1	5TIR110397	For 7 sec. valve+CS1
5TIR110252	For 3 sec. valve+CS1	5TIR110431	For 8 sec. valve+CS1
5TIR110289	For 4 sec. valve+CS1	5TIR110467	For 9 sec. valve+CS1
5TIR110323	For 5 sec. valve+CS1	5TIR110503	For 10 sec. valve+CS1
5TIR110359	For 6 sec. valve+CS1		

10 Component*

CODE: 3XTAP727180
DESCRIPTION: G1/2 plug for T port closed on inlet section

Note (*) - Codes are referred to **BSP** thread

Complete section ordering codes

Configuration with electro-hydraulic/mixed controls

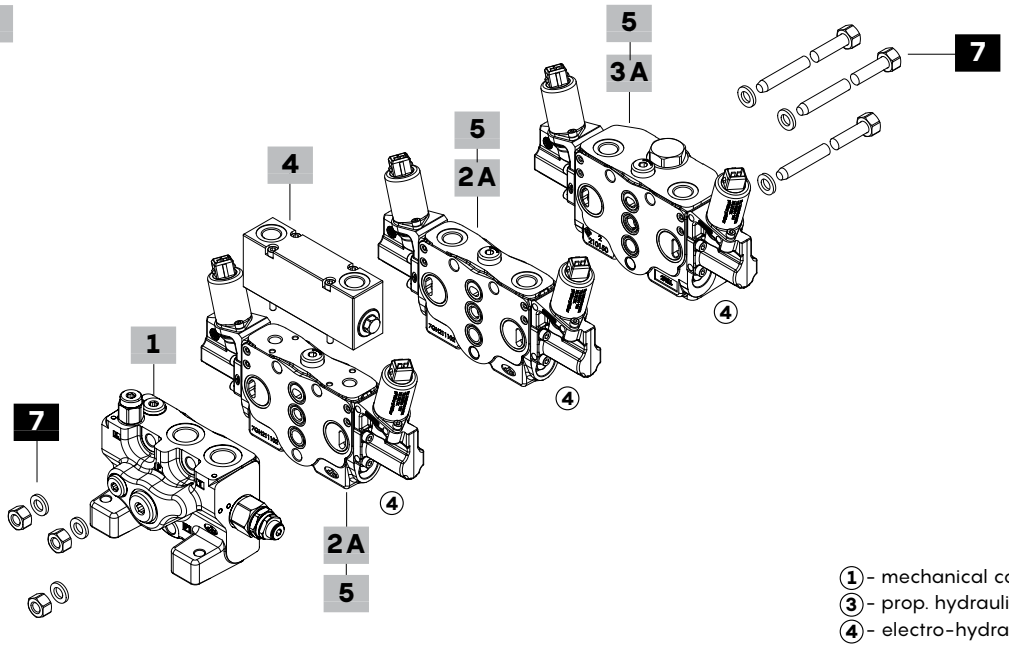
Electrohydraulic standard configuration with BP3 secondary aux valve block:

SDS100/3/CRAD(TVGW3-175)/PEU-ET101-8EB3T.UTUT.BP3A/PE-ET101-8EB3T.UTUT/RPE-ET101-8EB3T.UTUT-VRC-F-

Nr of working section: 1 | 2A | 4 | 2A | 3A

12VDC-TAP(VL)-....

5 | 1 | 6

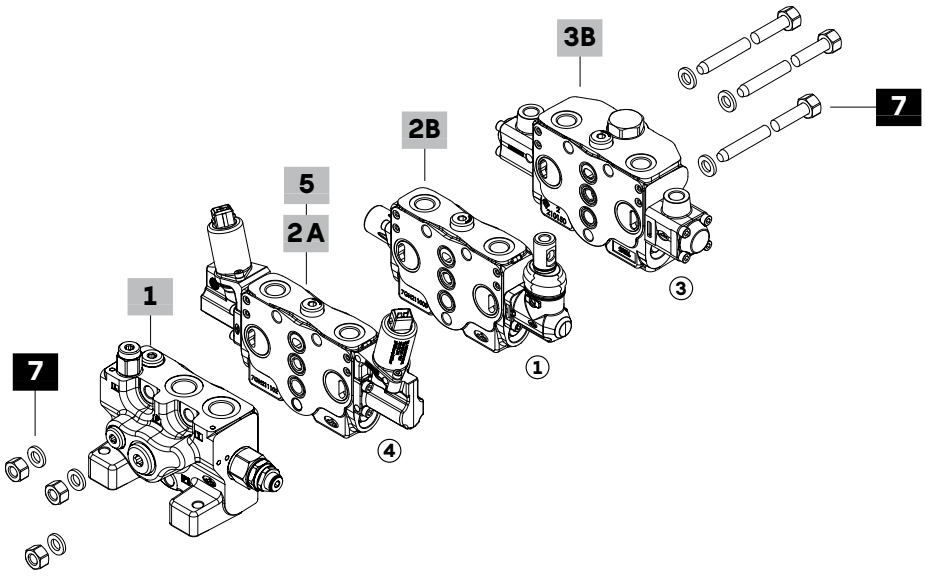


① - mechanical control
③ - prop. hydraulic control
④ - electro-hydraulic control

Mixed electrohydraulic/mechanical configuration:

SDS100/3/CRAD(TVGW3-175)/PE-ET101-8EB3T.UTUT/PA-101-8L.UTUT/RPA-I112-8IM.UTUT-VRC-F-12VDC-TAP(VL)-....

1 | 2A | 2B | 3B | 5 | 1 | 6



Complete section ordering codes

Configuration with electro-hydraulic/mixed controls

1 Inlet section*

TYPE: **SDS100/CRAD(TVGW3-175)-TAP(LV)** CODE: 610201015
DESCRIPTION: P and T upper ports open, pilot V and drain L plugged, with pressure relief valve and pressure reducing valve
TYPE: **SDS100/CPAD(TVGW3-175)-NOTAP(LV)** CODE: 610201017
DESCRIPTION: P and T upper ports open, pilot V and drain L open, with pressure relief valve and without pressure reducing valve (plugged)

2A Working section*

Electro-hydraulic control
TYPE: **SDS100/QE-ET101-8EB3T-12VDC** CODE: 610151002
DESCRIPTION: Parallel circuit, without port valves arrangement
TYPE: **SDS100/PE-ET101-8EB3T.UTUT-12VDC** CODE: 610101006
DESCRIPTION: As previous one, with port valves arrangement
TYPE: **SDS100/PE-PU-ET101-8EB3T.UTUT-12VDC** CODE: 610100008
DESCRIPTION: As previous one, with port valves arrangement and secondary aux block valves
TYPE: **SDS100/SQE-ET101-8EB3T-12VDC** CODE: 610121006
DESCRIPTION: Parallel-series circuit, without port valves arrangement
TYPE: **SDS100/SPE-ET101-8EB3T.UTUT-12VDC** CODE: 610121007
DESCRIPTION: As previous one, with port valves arrangement

2B Working section with cross pilot lines*

Mechanical control
TYPE: **SDS100/QA-101-8L** CODE: 610153001
DESCRIPTION: Parallel circuit, lever control without port valves arrangement
TYPE: **SDS100/PA-101-8L.UTUT** CODE: 610103001
DESCRIPTION: As previous one, with port valves arrangement
TYPE: **SDS100/PA-101-8L.U100U100** CODE: 610103002
DESCRIPTION: As previous one, with shock valves with fixed setting
TYPE: **SDS100/SQA-101-8L** CODE: 610121010
DESCRIPTION: Parallel-series circuit, lever control without port valves arrangement
TYPE: **SDS100/SPA-101-8L.UTUT** CODE: 610121011
DESCRIPTION: As previous one, with port valves arrangement
ON/OFF electric control
TYPE: **SDS100/PA-S102-8ES3.UTUT-12VDC** CODE: 610100001
DESCRIPTION: Parallel circuit, with port valves arrangement
Proportional hydraulic control
TYPE: **SDS100/QA-I112-8IM** CODE: 610100000
DESCRIPTION: Parallel circuit, without port valves arrangement

3A Outlet working section*

Electro-hydraulic control
TYPE: **SDS100/RQE-ET101-8EB3T-VRC-F-12VDC**
CODE: 610351006
DESCRIPTION: Parallel circuit, without port valves arrangement
TYPE: **SDS100/RPE-ET101-8EB3T.UTUT-VRC-F-12VDC**
CODE: 610301014
DESCRIPTION: As previous one, with port valves arrangement
TYPE: **SDS100/RQE-ET101-8EB3T-VRE-F-12VDC**
CODE: 610351007
DESCRIPTION: Parallel circuit, without port valves arrangement, with continuation of the pressure line (carry-over)
TYPE: **SDS100/RPE-ET101-8EB3T.UTUT-VRE-F-12VDC**
CODE: 610301007
DESCRIPTION: As previous one, with port valves arrangement

3B Outlet working section with cross pilot lines*

Mechanical control
TYPE: **SDS100/RQA-101-8L-VRC-F** CODE: 610303001
DESCRIPTION: Parallel circuit, lever control without port valves arrangement
TYPE: **SDS100/RPA-101-8L.UTUT-VRC-F** CODE: 610301009
DESCRIPTION: As previous one, with port valves arrangement

4 Secondary aux valve block*

TYPE: **BP3A** CODE: 611003102
DESCRIPTION: Double valve block on A and B ports
TYPE: **BP1A-BP2A** CODE: 611003111
DESCRIPTION: Single valve block on A or B ports

5 Voltage

Specify the voltage of electric devices

6 Valve threading

Only specify if it is different from BSP standard (see page 5)

7 Assembly kit

CODE	DESCRIPTION	CODE	DESCRIPTION
5TIR110123	For 1 section valve	5TIR110304	For 6 section valve
5TIR110160	For 2 section valve	5TIR110340	For 7 section valve
5TIR110195	For 3 section valve	5TIR110375	For 8 section valve
5TIR110235	For 4 section valve	5TIR110411	For 9 section valve
5TIR110267	For 5 section valve	5TIR110449	For 10 section valve

Note (*) - Codes are referred to **BSP** thread

Parts ordering codes

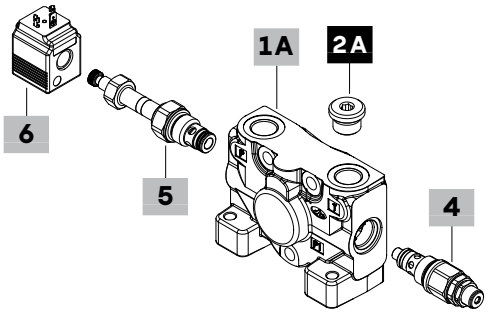
For valve with mechanical, prop. hydraulic, ON/OFF electric controls

C: left inlet
B: right inlet

Valve setting (bar)

SDS100 / CN (TVGW3 - 175) ELPW - 12VDC-....

1A 4 5 6 8



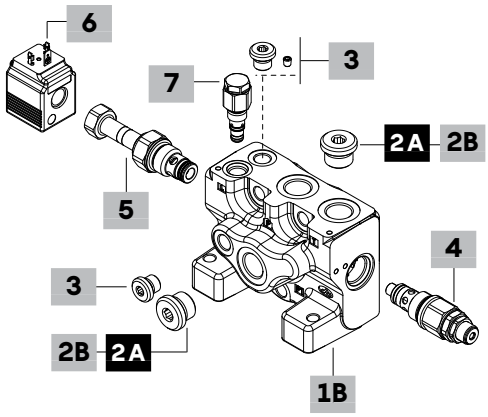
For valve with electro-hydraulic/mixed controls

C: left inlet
B: right inlet

R: with pressure reducing valve
P: with reducing valve blanking plug

SDS100 / C R A D (TVGW3 - 175) ELNW - 12VDC - TAP(VL)-....

1B 7 1B 2B 4 5 6 3 8



1A Inlet section* page 14

TYPE: **SDS100/CN** CODE: 3FIA107300
DESCRIPTION: P and T upper ports
TYPE: **SDS100/CNL** CODE: 3FIA107304
DESCRIPTION: P and T upper ports, P1 side port
TYPE: **SDS100/CNM** CODE: 3FIA107301
DESCRIPTION: P and T upper ports, pressure gauge arrangement on M port (plugged)

2A Plug for P, P1, T and M ports*

TYPE	CODE	DESCRIPTION
-	3XTAP727180	G1/2 plug
-	3XTAP719150	G1/4 plug for pressure gauge arrangement

1B Inlet section* page 16

TYPE: **SDS100/CRA** CODE: 3FIA107306
DESCRIPTION: With pressure reducing valve arrangement, P, T and drain L upper ports, P1 and pilot V side ports

2B Configuration P and T2 ports* page 16

TYPE	CODE	DESCRIPTION
D	3XTAP727180	P e T upper ports open, P1 side port plugged; require n. 1 G1/2 plug
C	3XTAP727180	P1 side port and T2 upper port open, P upper port plugged; require n. 1 G1/2 plug
G	-	P and T upper ports, P1 side port open

3 Configuration V and L ports* page 16

TYPE	CODE	DESCRIPTION
TAP(VL)	3XTAP719150	V and L ports plugged; require n. 2 G1/4 plug
NOTAP(VL)	4TAP306006	V and L ports open; require n. 1 conic M6 plug on L port
NOTAP(V)	3XTAP719150	V port open and L ports plugged; require n. 1 G1/4 plug on L port
NOTAP(L)	3XTAP719150+ 4TAP306006	V port plugged and L port open; require n. 1 G1/4 plug on V port and n. 1 conic M6 plug on L port

4 Pressure relief valve page 17

Valves standard setting is referred to 5 l/min *(1.3 US gpm)* flow.

TYPE	CODE	DESCRIPTION
(TVGW2-80)	0MC100020A04	Range 76-125 bar *(1100-1800 psi)* std setting 80 bar *(1160 psi)*
(TVGW3-175)	0MC100020A05	Range 126-220 bar *(1820-3200 psi)* std setting 175 bar *(2550 psi)*
(TVGW4-220)	0MC100020A06	Range 215-260 bar *(3010-3770 psi)* std setting 220 bar *(3200 psi)*
(TGW5-250)	0MC10002025	Range 180-350 bar *(2600-5100 psi)* std setting 250 bar *(3600 psi)*
SV	XTAP526360	Relief valve blanking plug

5 Solenoid operated unloading valve page 17

TYPE	CODE	DESCRIPTION
ELNW	0EF10002000	Without emergency override
ELPW	0EF10002002	With push-button emergency override
ELVW	0EF10002003	With screw emergency override
ELTW	0EF10002004	With "twist&push" emergency override
LT	XTAP526360	Unloading valve blanking plug

6 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200A	12VDC BER type coil, ISO4400 connector

For coil **BER** list, see page 58

7 Pressure reducing valve page 18

TYPE	CODE	DESCRIPTION
R	X219740035	Pressure reducing valve
P	XTAP418350	Reducing valve blanking plug

8 Section threading

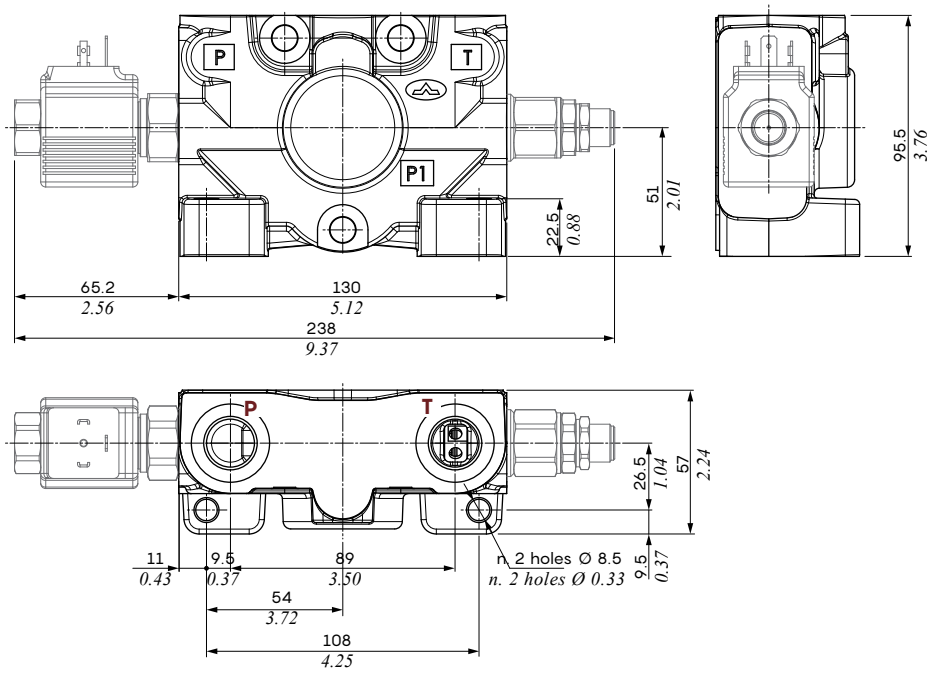
Only specify if it is different from BSP standard (see page 5)

Note (*) - Codes are referred to **BSP** thread

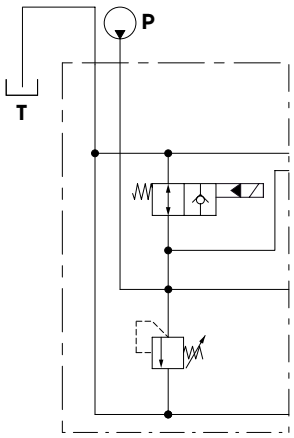
Dimensional data and hydraulic circuit

Inlet section for valve with mechanical, proportional hydraulic, ON/OFF electric controls

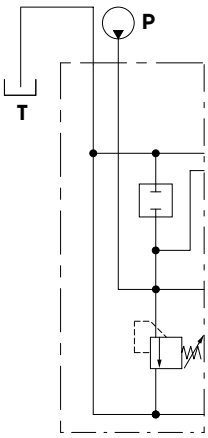
Type CN/BN



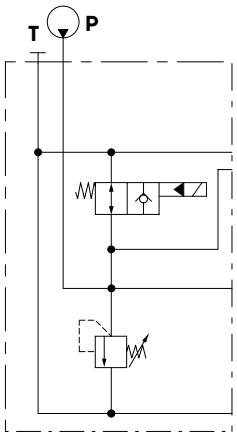
With unloading valve



Without unloading valve, with blanking plug



With T port plugged
for configuration with manifold CS1 or type TA/TL hydraulic circuit



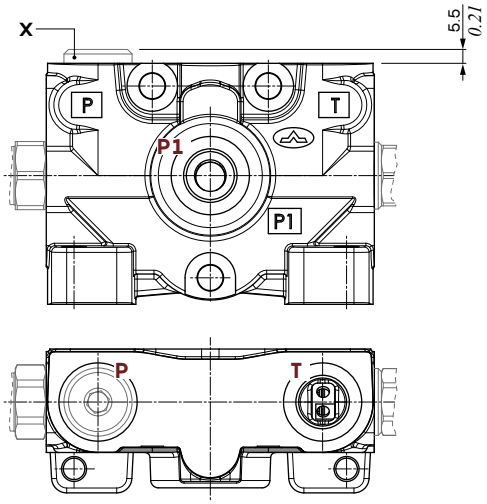
Wrenches and tightening torques
Note - For valves wrench and torque see related pages

Dimensional data and hydraulic circuit

Inlet section for valve with mechanical, proportional hydraulic, ON/OFF electric controls

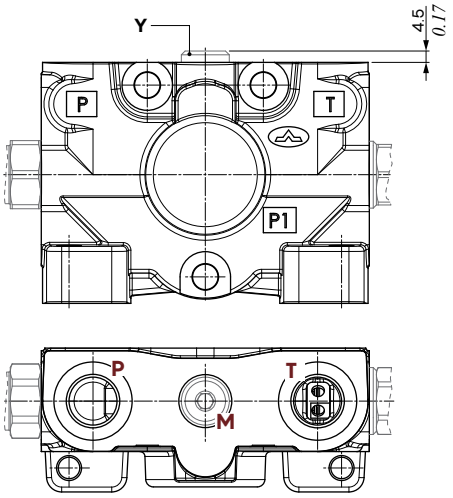
Type CNL/BNL

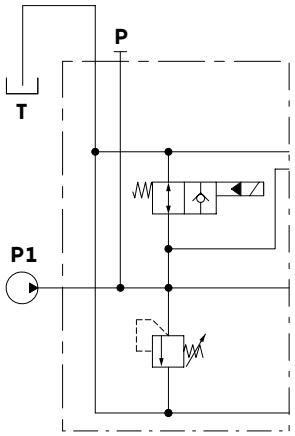
Unlisted dimensions are the same as inlet section type CN

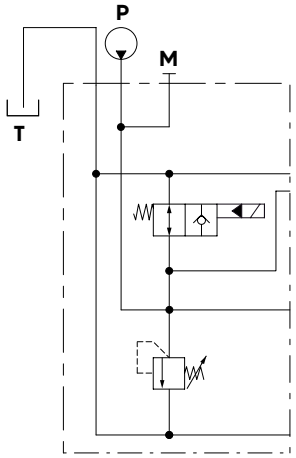


Type CNM/BNM

Unlisted dimensions are the same as inlet section type CN







Wrenches and tightening torques
X = allen wrench 8 - 24 Nm *(17.7 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*

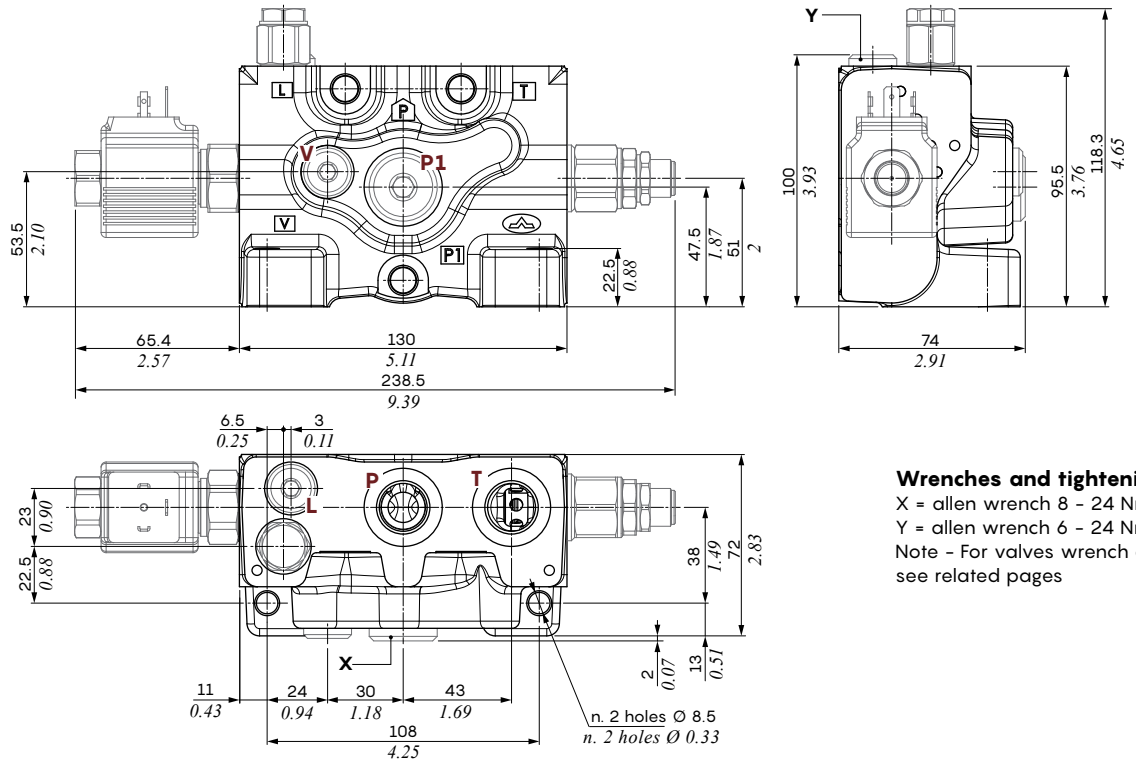
Configuration ports				
Type	**P port**	**P1 port**	**T port**	**M port**
CN/BN	open	-	open or plugged	-
CNL/BNL	plugged	open	open	-
CNM/BNM	open	-	open	plugged

Note - For description of the inlet sections, see page 13

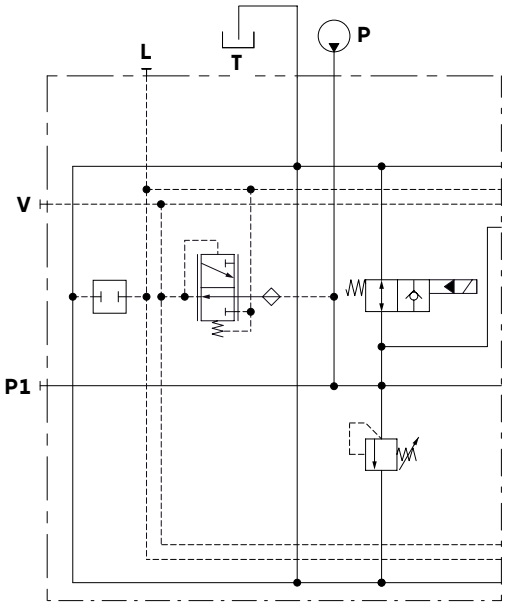
Dimensional data and hydraulic circuit

Inlet section for valve with electro-hydraulic/mixed controls

Type CRAD/BRAD



Wrenches and tightening torques
X = allen wrench 8 - 24 Nm *(17.7 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*
Note - For valves wrench and torque see related pages



Configuration ports				
Type	**P port**	**P1 port**	**T port**	**Pressure reducing valve**
CRA-D BRA-D	open	plugged	open	yes
CPA-D BPA-D	open	plugged	open	plugged
CRA-C BRA-C	plugged	open	open	yes
CPA-C BPA-C	plugged	open	open	plugged
CRA-G BRA-G	open	open	open	yes

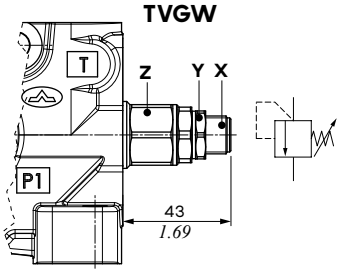
Note - For description of the inlet section, see page 13

Configuration ports		
Type	**V port**	**L port**
TAP(VL)	plugged	plugged
NOTAP(VL)	open	open
NOTAP(L)	plugged	open
NOTAP(V)	open	plugged

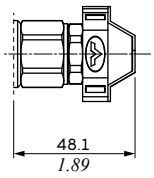
Inlet valve

Pressure relief valve

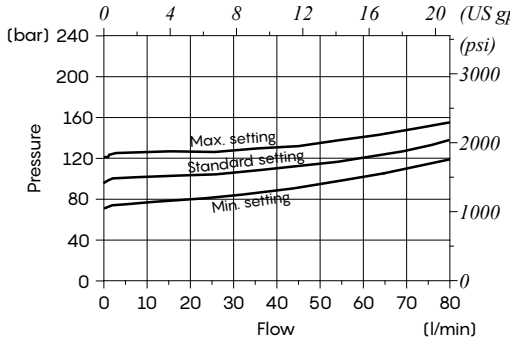
TVGW



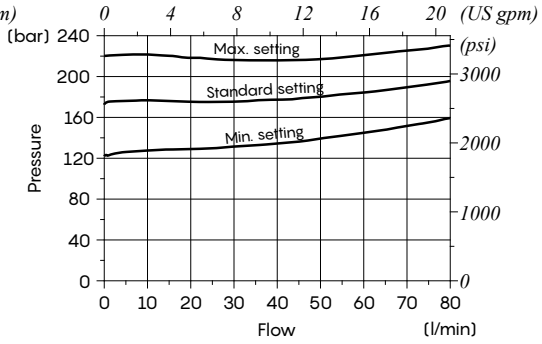
TVZW



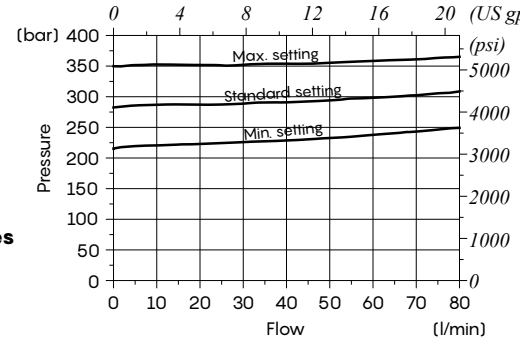
Setting range type TVGW2



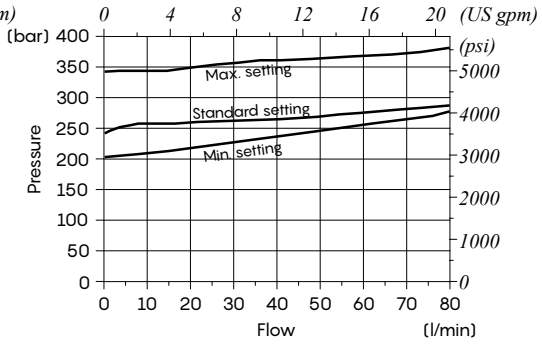
Setting range type TVGW3



Setting range type TVGW4



Setting range type TGW4

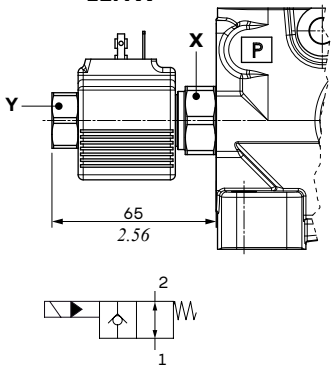


Legenda
TVGW/TGW: screw adjustment
TVZW: with anti-tamper cap
RAL3003 pigmented
(cap code 4COP126301, n. 2 pcs)

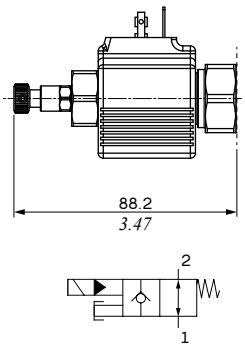
Wrenches and tightening torques
X = allen wrench 5
Y = wrench 19 - 20 Nm *(14.7 lbft)*
Z = wrench 24 - 50 Nm *(36.8 lbft)*

Solenoid operated unloading valve

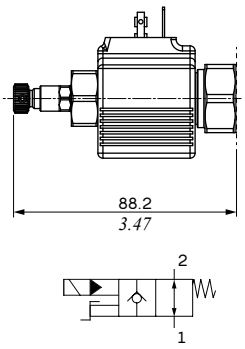
ELNW



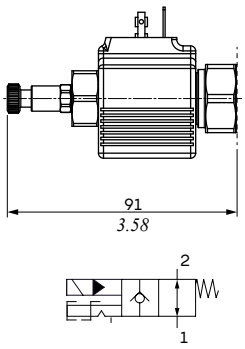
ELPW



ELVW



ELTW

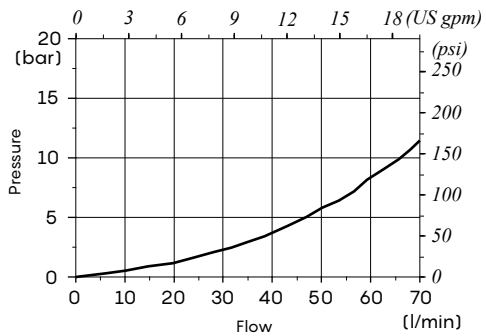


Legenda
ELNW: without emergency override
ELPW: with push-button emergency override
ELVW: with screw emergency override
ELTW: with "push&twist" emergency override

Features
Max. flow.....: 70 l/min *(18.49 US gpm)*
Max. pressure.....: 380 bar *(5500 psi)*
Internal Leakage.....: 0,50 cm³/min at 210 bar
(0.030 in³/min @ 3050 psi)
For coil features see **BER** type coil at page 58

Wrenches and tightening torques
X = wrench 27 - 50 Nm *(36.8 lbft)*
Y = wrench 22 - 5 Nm *(3.68 lbft)*

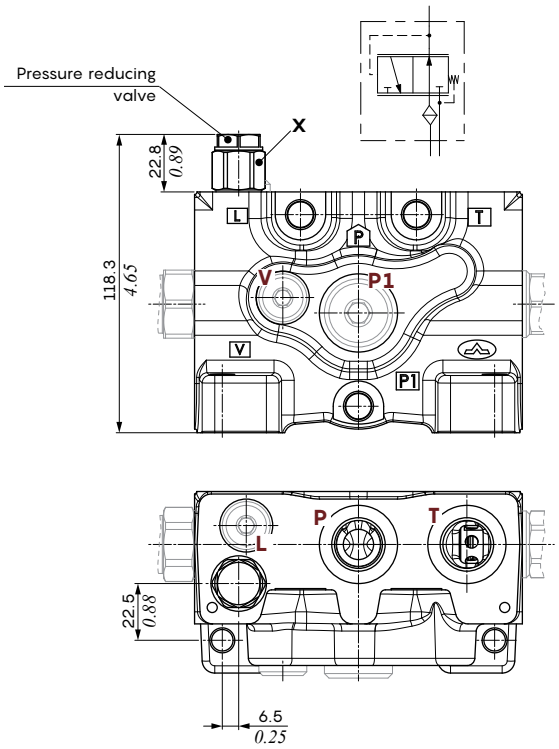
Pressure drops



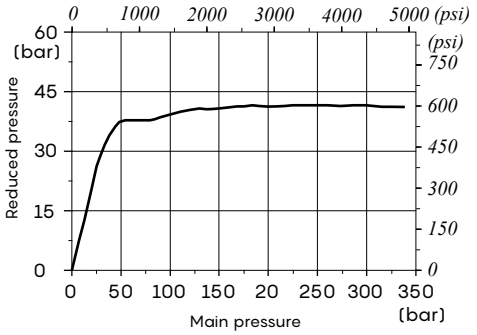
Inlet valve

Pressure reducing valve

Inlet section for valve with electro-hydraulic/mixed controls



Pressure reducing valve type R
Inlet pressure vs. reduced pressure



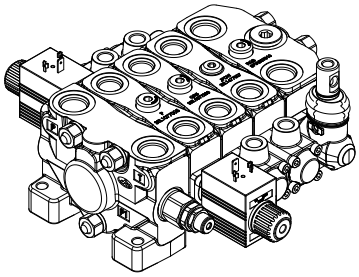
Wrenches and tightening torques
X = wrench 19 - 42 Nm *(31 lbft)*

Features

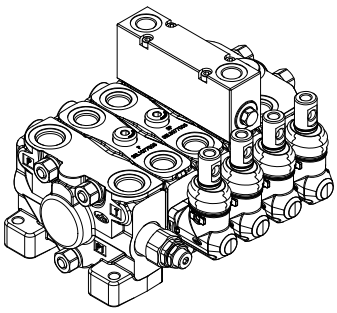
Max. inlet pressure	380 bar *(5500 psi)*
Reduced pressure range	30-45 bar *(435-650 psi)*
Max. back pressure	25 bar *(360 psi)*
Max. flow	4 l/min *(1.05 psi)*
Internal leakage	max 20 cm^3/min at 100 bar *(1.22 in^3/min @ 1450 psi)*

Parts ordering codes

For valve with mechanical, proportional hydraulic, ON/OFF electric controls



Standard configuration



Configuration with secondary aux valve block

Standard section with mechanical control:

Working section

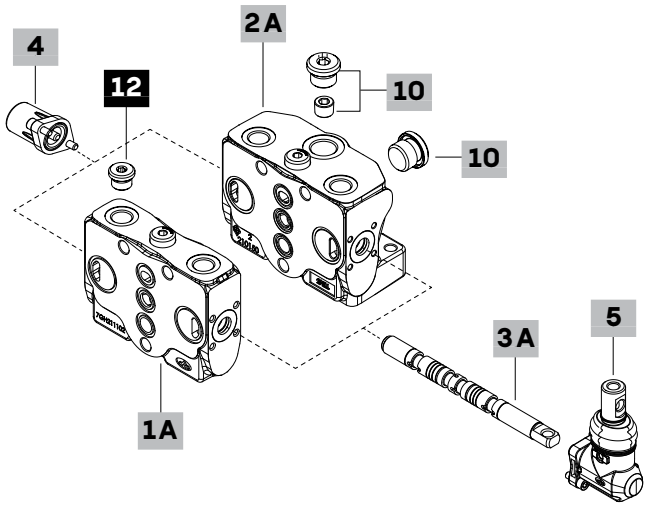
SDS100 / Q - 401 - 8 L - ....

1A 3A 4 5 11

Outlet working section

SDS100/RQ - 101 - 8 L - AEK - ....

2A 3A 4 5 10 11



Standard section with prop. hydraulic control:

Working section

Valve setting (bar): A.....B port

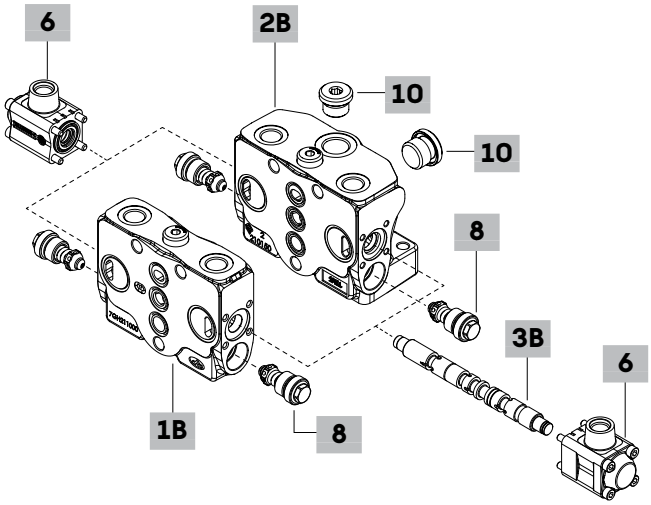
SDS100/P - I112 - 8IM . U100U100 - ....

1B 3B 6 8 11

Outlet working section

SDS100/RP - I112 - 8IM . UTUT - F - ....

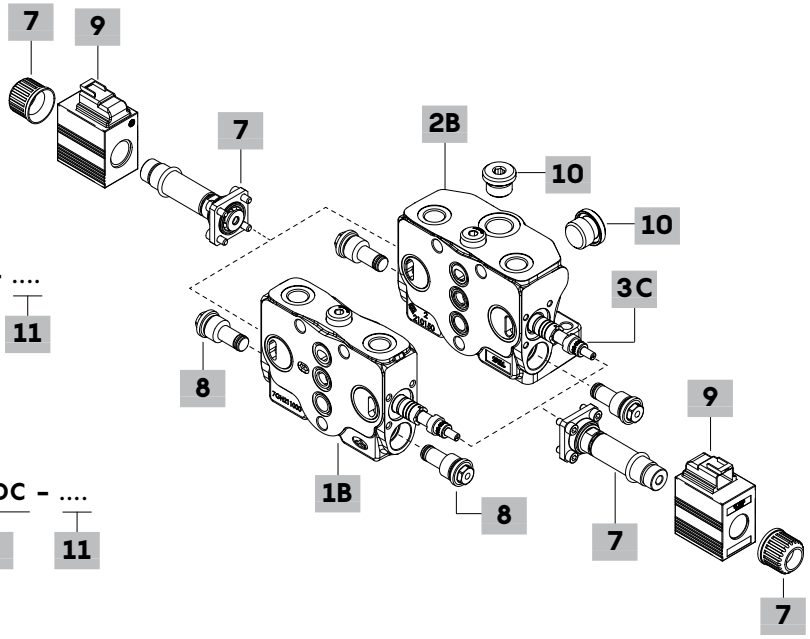
2B 3B 6 8 10 11



Parts ordering codes

For valve with mechanical, proportional hydraulic, ON/OFF electric controls

Standard section with ON/OFF electric control:



Working section

SDS100 / P – S102 – 8ES3 . UTUT – 12VDC – ....

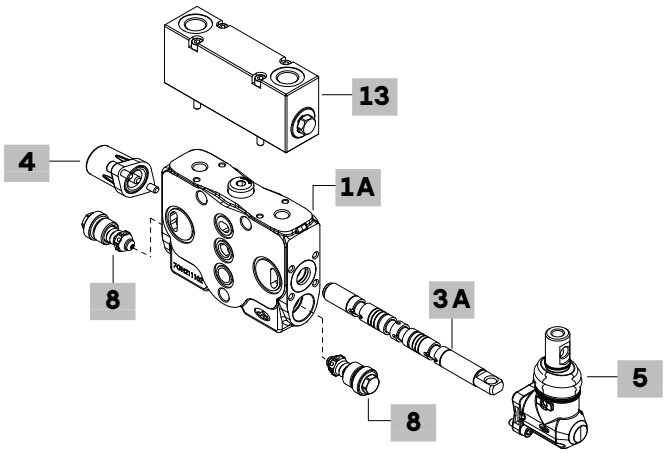
1B 3C 7 8 9 11

Outlet working section

SDS100/RP – S102 – 8ES3 . UTUT – F – 12VDC – ....

2B 3C 7 8 10 9 11

Section with secondary aux valve block arrangement, mechanical control:



Working section

SDS100 / PU – 101 – 8 L . UTUT . BP3A – ....

1A 3A 4 5 8 13 11

Parts ordering codes

For valve with mechanical, proportional hydraulic, ON/OFF electric controls

Unless otherwise specified, the working section are intended for valve with standard left inlet and right inlet.

1A Working section* page 28

For mechanical control

Without port valve arrangement:

TYPE: **SDS100/Q** CODE: 5EL1073010
DESCRIPTION: For parallel circuit

TYPE: **SDS100/Q-BSP12** CODE: 5EL1074010
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/SQ** CODE: 5EL3073010
DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/QR** CODE: 5EL1573090
DESCRIPTION: For series/parallel-series circuits in combination with outlet working sections type **RQS** or **RPS**

TYPE: **SDS100/Q5** CODE: 5EL1073210
DESCRIPTION: Type Q for floating circuit. Only for standard left inlet

With port valve arrangement:

TYPE: **SDS100/P** CODE: 5EL1073000
DESCRIPTION: For parallel circuit

TYPE: **SDS100/P-BSP12** CODE: 5EL1074000
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/PU** CODE: 5EL1073040
DESCRIPTION: Type P, with secondary aux valve block arrangement

TYPE: **SDS100/SP** CODE: 5EL3073000
DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/PR** CODE: 5EL1573095
DESCRIPTION: For series/parallel-series circuits in combination with outlet working sections type **RQS** or **RPS**

TYPE: **SDS100/P5** CODE: 5EL1073200
DESCRIPTION: Type P for floating circuit. Only for standard left inlet

TYPE: **SDS100/P5-BSP12** CODE: 5EL1074200
DESCRIPTION: Type P for floating circuit, with G1/2 ports. Only for standard left inlet

TYPE: **SDS100/P5ED** CODE: 5EL1073300
DESCRIPTION: Type P for floating circuit. Only for right inlet

TYPE: **SDS100/P5ED-BSP12** CODE: 5EL1474200
DESCRIPTION: Type P for floating circuit, with G1/2 ports. Only for right inlet

1B Working section* page 28

For proportional hydraulic and ON/OFF electric controls

Without port valve arrangement:

TYPE: **SDS100/Q-(IM-ES)** CODE: 5EL107301A
DESCRIPTION: For parallel circuit

TYPE: **SDS100/Q-(IM-ES)-BSP12** CODE: 5EL1074010A
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/SQ-(IM-ES)** CODE: 5EL307301A
DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/QR-(IM-ES)** CODE: 5EL1573091A
DESCRIPTION: For series/parallel-series circuits in combination with outlet working sections type **RQS** or **RPS**

TYPE: **SDS100/Q5-(IM-ES)** CODE: 5EL107321A
DESCRIPTION: Type Q for floating circuit. Only for standard left inlet

TYPE: **SDS100/SQ5-(IM)** CODE: 5EL307321A
DESCRIPTION: Type SQ for floating circuit. Only for standard left inlet

With port valve arrangement:

TYPE: **SDS100/P-(IM-ES)** CODE: 5EL107300A
DESCRIPTION: For parallel circuit

TYPE: **SDS100/P-(IM-ES)-BSP12** CODE: 5EL107400A
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/SP-(IM-ES)** CODE: 5EL307300A
DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/PR-(IM-ES)** CODE: 5EL1573095A
DESCRIPTION: For series/parallel-series circuits in combination with outlet working sections type **RQS** or **RPS**

1B Working section* page 28

.....continuation

For proportional hydraulic and ON/OFF electric controls

With port valve arrangement:

TYPE: **SDS100/P5-(IM-ES)** CODE: 5EL107320A
DESCRIPTION: Type P for floating circuit. Only for standard left inlet

TYPE: **SDS100/P5-(IM-ES)-BSP12** CODE: 5EL107420A
DESCRIPTION: Type P for floating circuit, with G1/2 ports. Only for standard left inlet

TYPE: **SDS100/SP5-(IM)** CODE: 5EL307320A
DESCRIPTION: Type SP for floating circuit. Only for standard left inlet

2A Outlet working section* page 30

For mechanical control

Without port valve arrangement:

TYPE: **SDS100/RQ** CODE: 5FIA207310
DESCRIPTION: For parallel circuit

TYPE: **SDS100/RQ-BSP12** CODE: 5FIA207410
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/RQS** CODE: 5FIA207319
DESCRIPTION: For series/parallel-series circuits. Requires **QR** or **PR** section upstream

TYPE: **SDS100/RQ5** CODE: 5FIA207316
DESCRIPTION: Type RQ for floating circuit. Only for standard left inlet

With port valve arrangement:

TYPE: **SDS100/RP** CODE: 5FIA207300
DESCRIPTION: For parallel circuit

TYPE: **SDS100/RP-BSP12** CODE: 5FIA207400
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/RPS** CODE: 5FIA207309
DESCRIPTION: For series/parallel-series circuits. Requires **QR** or **PR** section upstream

TYPE: **SDS100/RP5** CODE: 5FIA207305
DESCRIPTION: Type RP for floating circuit. Only for standard left inlet

TYPE: **SDS100/RP5-BSP12** CODE: 5FIA207423
DESCRIPTION: Type RP for floating circuit, with G1/2 ports. Only for standard left inlet

2B Outlet working section* page 30

For proportional hydraulic and ON/OFF electric controls

Without port valve arrangement:

TYPE: **SDS100/RQ-(IM-ES)** CODE: 5FIA20731A
DESCRIPTION: For parallel circuit

TYPE: **SDS100/RQ-(IM-ES)-BSP12** CODE: 5FIA20741A
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/RQS-(IM-ES)** CODE: 5FIA207319A
DESCRIPTION: For series/parallel-series circuits. Requires **QR** or **PR** section upstream

TYPE: **SDS100/RQ5-(IM-ES)** CODE: 5FIA207315A
DESCRIPTION: Type RQ for floating circuit. Only for standard left inlet

With port valve arrangement:

TYPE: **SDS100/RP-(IM-ES)** CODE: 5FIA20730A
DESCRIPTION: For parallel circuit

TYPE: **SDS100/RPS-(IM-ES)** CODE: 5FIA207309A
DESCRIPTION: For series/parallel-series circuits. Requires **QR** or **PR** section upstream

TYPE: **SDS100/RP5-(IM-ES)** CODE: 5FIA207305A
DESCRIPTION: Type RP for floating circuit. Only for standard left inlet

Note (*) - Codes are referred to **BSP** thread

Parts ordering codes

For valve with mechanical, proportional hydraulic, ON/OFF electric controls

3A Spool for mechanical control page 32

TYPE	CODE	DESCRIPTION
Double acting with A and B closed in neutral position:		
109	3CU6210202	60 l/min *(16 US gpm)* flow
103	3CU6210160	50 l/min *(13.2 US gpm)* flow
101	3CU6210100	40 l/min *(10.5 US gpm)* flow
102	3CU6210110	20 l/min *(5.3 US gpm)* flow
107	3CU6210200	15 l/min *(3.96 US gpm)* flow
1S01	3CU6211100	For seres circuit, 20÷40 l/min *(5.3÷10.5 US gpm)* flow
1S02	3CU6212100	For seres circuit, 40÷60 l/min *(10.5÷16 US gpm)* flow
Double acting with A and B closed in neutral position, regenerative:		
801	3CU6261001	Regenerative in pos. 2 with spool in; 40 l/min *(10.5 US gpm)* flow
802	3CU6261002	Regenerative in pos. 1, with spool in; 40 l/min *(10.5 US gpm)* flow
Double acting with A and B to tank in neutral position:		
201	3CU6225130	40 l/min *(10.5 US gpm)* flow
2S01	3CU6226130	For seres circuit, 40 l/min *(10.5 US gpm)* flow
Double acting with A and B partially to tank in neutral position:		
2H01	3CU6225102	40 l/min *(10.5 US gpm)* flow
2SH01	3CU6226140	For seres circuit, 40 l/min *(10.5 US gpm)* flow
Double acting with A and B closed in neutral pos., 4 pos, floating in 4th pos. with spool in; type 13N or 13F positioner and P5 or Q5 working section is required		
503	3CU6242111	60 l/min *(16 US gpm)* flow
501	3CU6242100	40 l/min *(10.5 US gpm)* flow
Single acting on A, B plugged: G3/8 or G1/2 plug is required		
301	3CU6231100	40 l/min *(10.5 US gpm)* flow
Single acting on B, A plugged: G3/8 or G1/2 plug is required		
401	3CU6235100	40 l/min *(10.5 US gpm)* flow

3B Spool for prop. hydraulic control page 32

TYPE	CODE	DESCRIPTION
Double acting with A and B closed in neutral position:		
I117	3CU6410117	60 l/min *(16 US gpm)* flow
I112	3CU6210420	50 l/min *(13.2 US gpm)* flow
I118	3CU6410118	20 l/min *(5.3 US gpm)* flow
Double acting with A and B to tank in neutral position:		
I203	3CU6225420	40 l/min *(10.5 US gpm)* flow
Double acting with A and B closed in neutral pos., 4 pos, floating in 4th pos. with spool in; type 13IMS positioner is required		
I504	3CU6442504	40 l/min *(10.5 US gpm)* flow
Single acting on A, B plugged: G3/8 or G1/2 plug is required		
I301	3CU6431000	40 l/min *(10.5 US gpm)* flow

Note: the respective version I401 with single acting on B is obtained by turning the spool

3C Spool for ON/OFF electric control page 32

TYPE	CODE	DESCRIPTION
For without emergency lever control		
Double acting with A and B closed in neutral position:		
S102	3CU6810102	40 l/min *(10.5 US gpm)* flow
Double acting with A and B closed in neutral position, regenerative:		
S801	3CU6861000	Regenerative in pos. 1, with spool in; 40 l/min *(10.5 US gpm)* flow
Double acting with A and B to tank in neutral position:		
S201	3CU6825201	40 l/min *(10.5 US gpm)* flow
For with emergency lever control		
Double acting with A and B closed in neutral position:		
SHC102	3CU6810102HC	40 l/min *(10.5 US gpm)* flow
Double acting with A and B to tank in neutral position:		
SHC201	3CU6825201HC	40 l/min *(10.5 US gpm)* flow
Double acting with A and B partially to tank in neutral position:		
SHC2H01	3CU68252H1HC	40 l/min *(10.5 US gpm)* flow

4 "A" side control kit page 34

TYPE	CODE	DESCRIPTION
7FT	5V07407000	With friction and neutral pos. notch
7FTN	5V07407010	As 7FT, friction regulation with spring
8	5V08107000	3 pos., spring return to neutral pos.
8MC	5V08207000	As type 8, with hard spring type C
8MD	5V08307000	As type 8. with extra-hard spring type D
8F2	5V08107100	Spool stroke limiter on B port
8D	5V08107200	External pin with M6 female thread
8D2	5V08107220	External pin with M8 male thread
8TL	5V08107310	Arrangement for double control
8RM2-12VDC	5V08107590	Electromagnetic detent in pos.2
8MG3(NO)	5V08107660	With micro in postions 1 and 2, NO contact
8MG3(NC)	5V08107662	With micro in postions 1 and 2, NC contact
8MG1(NO)	5V08107670	With micro in postion 1, NO contact
8MG2(NO)	5V08107680	With micro in postion 2, NO contact
8PP	5V08107700	Proportional pneumatic control
8PNB	5V08107718	ON/OFF waterproof pneumatic control
8EPNB3-12VDC	5V08107742	ON/OFF electropneumatic control
8EPNB3-24VDC	5V08107743	ON/OFF electropneumatic control
8K-12VDC	5V08707212	Solenoid detent in neutral position
8K-24VDC	5V08707224	As previous one
9B	5V09207000	Detent in position 1
10B	5V10207000	Detent in position 2
11B	5V11207000	Detent in positions 1 and 2
For floating circuit (spool type 501/503)		
13N	5V13307005	4 positions, detent in 4th position with spring return to neutral position
13F	5V13507000	4 positions, spring return to neutral position

5 "B" side control kit page 40

TYPE	CODE	DESCRIPTION
L	5LEV107000	Standard lever box
LSG	5LEV107000S	As type L, water-proof type
LF1	5LEV107100	Spool stroke limiter on A port
LSGF1	5LEV107100S	As type LF1, water-proof type
LB3	5LEV307000	Open lever in steel and cast iron
SLP	5COP107010	Without lever with dust-proof plate
SLC	5COP207000	Without lever with endcap
TQ	5TEL102100	Flexible cable connection
LCA1-4	5CLO207010	Joystick for 2 section operation: type 1 and 4 configurations
LCA2-3	5CLO207011	As previous one: type 2-3 configurations

6 Proportional hydraulic control* page 43

TYPE	CODE	DESCRIPTION
8IM	5IDR207300	With upper ports, spring return to neutral position
8IMS	5IDR207320	As type 8IM, with side ports
8IMF3	5IDR207310	AS type 8IM, with spool stroke limiter
For floating circuit (spool type I504)		
13IMS	5IDR207350	With side ports, spring return to neutral position

7 ON/OFF electric control page 45

TYPE	CODE	DESCRIPTION
8ES1-8ES2	5CAN08028	Single acting on A or B port
8ES3	5CAN08029	Double acting
8ES3LHC	5CAN08047	Double acting with spool stroke limiter

Note (*) - Codes are referred to **BSP** thread

Parts ordering codes

For valve with mechanical, proportional hydraulic, ON/OFF electric controls

8 Port valves — page 52

TYPE	CODE	DESCRIPTION
UT	XTAP522441	Valve blanking plug
C	5KIT410000	Anticavitation valve

Fixed setting antishock and anticavitation valves:
setting is referred to 10 l/min *(2.6 US gpm)*
TYPE: **U100** CODE: 5KIT330100
└ setting (bar) └ setting (bar)
SETTING:

25 bar *(363 psi)*	30 bar *(435 psi)*	40 bar *(580 psi)*
50 bar *(725 psi)*	63 bar *(914 psi)*	80 bar *(1150 psi)*
100 bar *(1450 psi)*	110 bar *(1590 psi)*	125 bar *(1800 psi)*
140 bar *(2050 psi)*	150 bar *(2150 psi)*	160 bar *(2300 psi)*
175 bar *(2550 psi)*	190 bar *(2750 psi)*	200 bar *(2900 psi)*
210 bar *(3050 psi)*	220 bar *(3190 psi)*	230 bar *(3350 psi)*
240 bar *(3500 psi)*	250 bar *(3600 psi)*	260 bar *(3750 psi)*
270 bar *(3900 psi)*	280 bar *(4050 psi)*	290 bar *(4200 psi)*
300 bar *(4350 psi)*	310 bar *(4500 psi)*	320 bar *(4650 psi)*
340 bar *(4950 psi)*	360 bar *(5200 psi)*	400 bar *(5800 psi)*
420 bar *(6100 psi)*		

9 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SOL412012	12VDC, type D12, ISO4400 connector

For **D12** coils list, see page 58

10 Outlet circuit* — page 54

TYPE	CODE	DESCRIPTION
F	3XTAP727180	T1 side and T upper ports plugged; require n. 2 G1/2 plug
TA	3XTAP727180	T side open and T1 side ports plugged; require n. 1 G1/2 plug
TL	3XTAP727180	T1 side open and T upper ports plugged; require n. 1 G1/2 plug
AE	3XTAP727180 +4TAP314010	Continuation of the pressure line on T upper port (carry-over), require nr. 1 M14x1,5 conic plug on T upper port and n. 1 G1/2 plug on T1 side port
AEK	3XTAP727180 +4TAP314010	Closed center; T1 side and T upper ports plugged, require nr. 1 M14x1,5 conic plug + nr. 1 G1/2 plug on T upper port and nr. 1 G1/2 plug on T side port

11 Section threading

Only specify if it is different from BSP standard (see page 5).

12 Plug for single acting spool*

CODE	DESCRIPTION
3XTAP722160	G3/8 plug
3XTAP727180	G1/2 plug

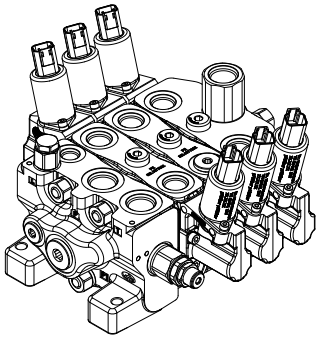
13 Secondary aux valve block* — page 53

TYPE: **BP3A** CODE: 611003102
DESCRIPTION: Double valve block on A and B ports
TYPE: **BP1A/BP2A** CODE: 611003111
DESCRIPTION: Single valve block on A or B ports

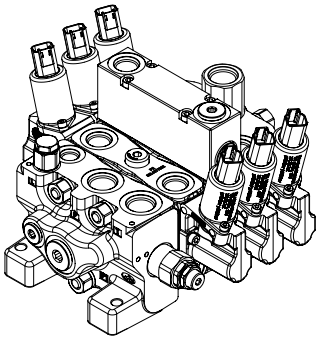
Note (*) - Codes are referred to **BSP** thread

Parts ordering codes

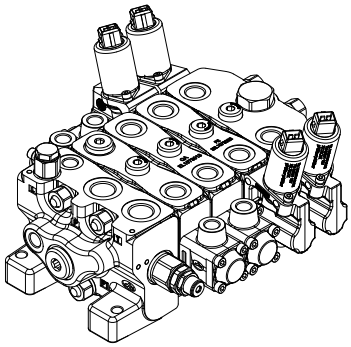
For valve with electro-hydraulic/mixed controls



Standard configuration



Configuration with secondary aux valve block



Mixed configuration with
cross pilot lines working section

Standard section with electro-hydraulic control:

Working section

Valve setting (bar): A.....B port

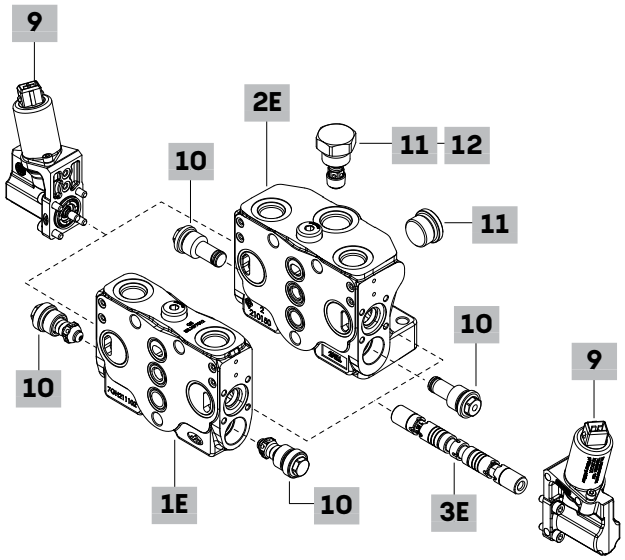
SDS100/PE-ET101-8EB3T.U100U100-12VDC-....

1E 3E 9 10 9 13

Outlet working section

SDS100/RPE-ET101-8EB3T.UTUT-VRC-F-12VDC-....

2E 3E 9 10 12 11 9 13



Standard section with cross pilot lines, mechanical control:

Working section

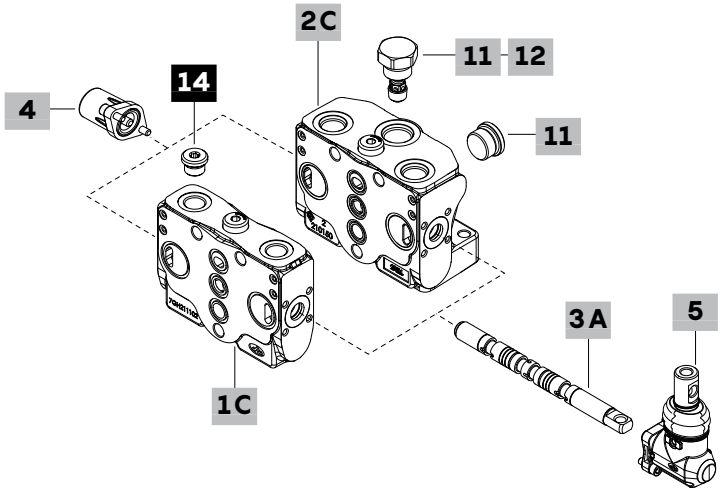
SDS100 / QA - 401 - 8 L - ....

1C 3A 4 5 13

Outlet working section

SDS100/RPA - 101 - 8 L - VRC - F - ....

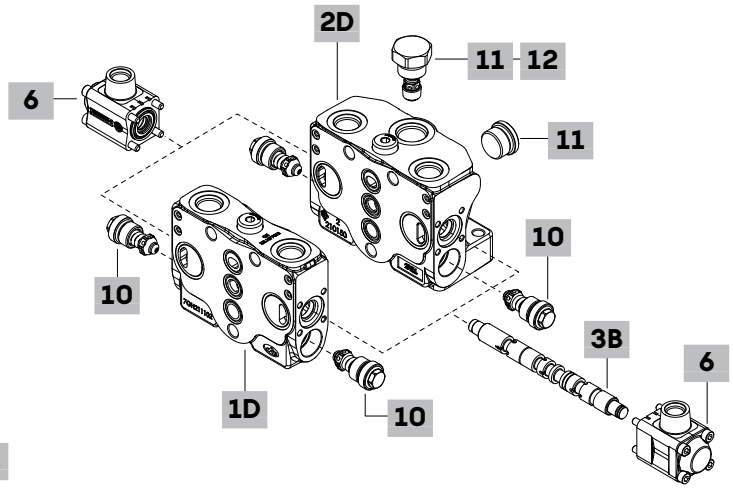
2C 3A 4 5 12 11 13



Parts ordering codes

For valve with electro-hydraulic/mixed controls

Standard section with cross pilot lines, prop. hydraulic control:



Working section

SDS100 / PA - I112 - 8IM . U100U100 - ....

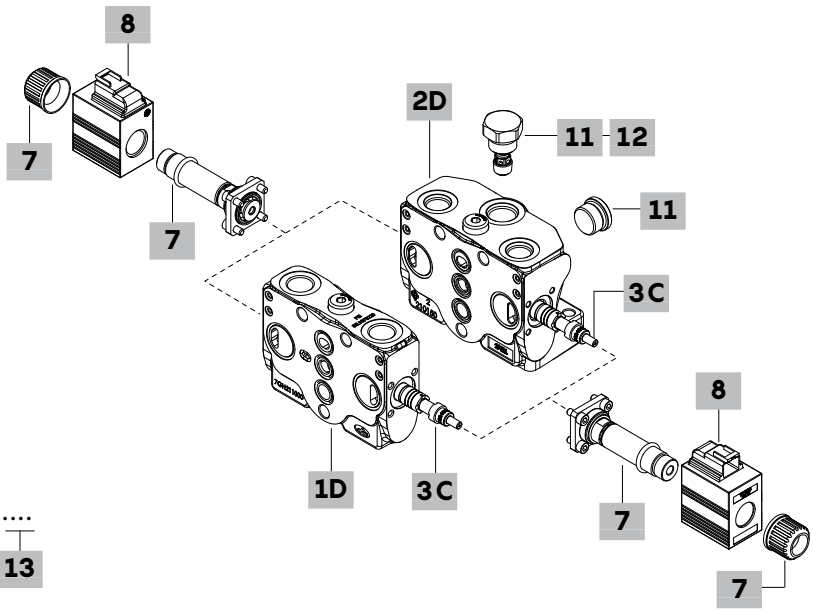
1D 3B 6 10 13

Outlet working section

SDS100/RPA-I112-8IM.U100U100-VRC-F-....

2D 3B 6 10 12 11 13

Standard section with cross pilot lines, ON/OFF electric control:



Working section

SDS100 / PA - S102 - 8ES3 - 12VDC - ....

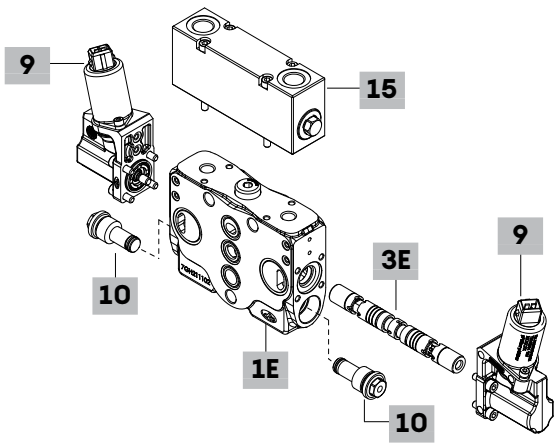
1D 3C 7 8 13

Outlet working section

SDS100/RQA-S102-8ES3-VRC-F-12VDC-....

2D 3C 7 12 11 8 13

Section with secondary aux valve block arrangement, electro-hydraulic control:



Working section

SDS100/PE-PU-ET101-8EB3T.UTUT.BP3A-12VDC-....

1E 3E 9 10 15 9 13

Parts ordering codes

For valve with electro-hydraulic/mixed controls

Unless otherwise specified, the working section are intended for valve with standard left inlet and right inlet.

1C Working section with cross pilot lines* page 29

For mechanical control

Without port valve arrangement:

TYPE: **SDS100/QA** CODE: 5EL1073013
DESCRIPTION: For parallel circuit

TYPE: **SDS100/QA-BSP12** CODE: 5EL1074011
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/SQA** CODE: 5EL3073013
DESCRIPTION: For series/parallel-series circuits

With port valve arrangement:

TYPE: **SDS100/PA** CODE: 5EL1073003
DESCRIPTION: For parallel circuit

TYPE: **SDS100/PA-BSP12** CODE: 5EL1074001
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/SPA** CODE: 5EL3073003
DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/P5A** CODE: 5EL1073203
DESCRIPTION: Type PA for floating circuit. Only for standard left inlet

1D Working section with cross pilot lines* page 29

For proportional hydraulic and ON/OFF electric controls

Without port valve arrangement:

TYPE: **SDS100/QA-(IM-ES)** CODE: 5EL1073013A
DESCRIPTION: For parallel circuit

TYPE: **SDS100/QA-(IM-ES)-BSP12** CODE: 5EL1074011A
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/SQA-(IM-ES)** CODE: 5EL3073013A
DESCRIPTION: For series/parallel-series circuits

With port valve arrangement:

TYPE: **SDS100/PA-(IM-ES)** CODE: 5EL1073003A
DESCRIPTION: For parallel circuit

TYPE: **SDS100/PA-(IM-ES)-BSP12** CODE: 5EL1074001A
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/SPA-(IM-ES)** CODE: 5EL3073003A
DESCRIPTION: For series/parallel-series circuits

1E Working section* page 29

For electro-hydraulic control

Without port valve arrangement:

TYPE: **SDS100/QE** CODE: 5EL1073012
DESCRIPTION: For parallel circuit

TYPE: **SDS100/QE-BSP12** CODE: 5EL1074012
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/SQE** CODE: 5EL3073012
DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/Q5E** CODE: 5EL1073212
DESCRIPTION: Type Q for floating circuit. Only for standard left inlet

With port valve arrangement:

TYPE: **SDS100/PE** CODE: 5EL1073002
DESCRIPTION: For parallel circuit

TYPE: **SDS100/PE-BSP12** CODE: 5EL1074002
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/PE-PU** CODE: 5EL1079001
DESCRIPTION: Type P, with secondary aux valve block arrangement

TYPE: **SDS100/SPE** CODE: 5EL3073002
DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/PRE-BSP12** CODE: 5EL1574011
DESCRIPTION: For series/parallel-series circuits, G1/2 ports, in combination with outlet working sections type **RQS** or **RPS**.

TYPE: **SDS100/P5E** CODE: 5EL1073202
DESCRIPTION: Type PE for floating circuit. Only for standard left inlet

TYPE: **SDS100/P5E-BSP12** CODE: 3EL1074202
DESCRIPTION: Type PE for floating circuit, with G1/2 ports. Only for right inlet

2C Outlet working sec. with cross pilot lines* page 31

For mechanical control

Without port valve arrangement:

TYPE: **SDS100/RQA** CODE: 5FIA207314
DESCRIPTION: For parallel circuit

With port valve arrangement:

TYPE: **SDS100/RPA** CODE: 5FIA207306
DESCRIPTION: For parallel circuit

2D Outlet working sec. with cross pilot lines* page 31

For proportional hydraulic and ON/OFF electric controls

Without port valve arrangement:

TYPE: **SDS100/RQA-(IM-ES)** CODE: 5FIA207316A
DESCRIPTION: For parallel circuit

TYPE: **SDS100/RQA-(IM-ES)-BSP12** CODE: 5FIA207411A
DESCRIPTION: For parallel circuit with G1/2 ports

With port valve arrangement:

TYPE: **SDS100/RPA-(IM-ES)** CODE: 5FIA207306A
DESCRIPTION: For parallel circuit

2E Outlet working section* page 31

For electro-hydraulic control

Without port valve arrangement:

TYPE: **SDS100/RQE** CODE: 5FIA207312
DESCRIPTION: For parallel circuit

TYPE: **SDS100/RQE-BSP12** CODE: 5FIA207412
DESCRIPTION: For parallel circuit with G1/2 ports

With port valve arrangement:

TYPE: **SDS100/RPE** CODE: 5FIA207302
DESCRIPTION: For parallel circuit

TYPE: **SDS100/RPE-BSP12** CODE: 5FIA207402
DESCRIPTION: For parallel circuit with G1/2 ports

TYPE: **SDS100/RPSE-BSP12** CODE: 5FIA207401
DESCRIPTION: For series/parallel-series circuits. Requires **QRE** or **PRE** section upstream

TYPE: **SDS100/RP5E** CODE: 5FIA207307
DESCRIPTION: Type RPE for floating circuit. Only for standard left inlet

3A Spool for mechanical control

For available spool list, see page 22

3B Spool for prop. hydraulic control

For available spool list, see page 22

3C Spool for ON/OFF electric control

For available spool list, see page 22

Note (*) - Codes are referred to **BSP** thread

Parts ordering codes

For valve with electro-hydraulic/mixed controls

3E Spool for electro-hydraulic control page 32

TYPE	CODE	DESCRIPTION
Double acting with A and B closed in neutral position:		
ET103	3CU67IE103	60 l/min *(16 US gpm)* flow
ET101	3CU67IE101	40 l/min *(10.5 US gpm)* flow
ET102	3CU67IE102	20 l/min *(5.3 US gpm)* flow
ET1S01	3CU6712000	For seres circuit, 20÷40 l/min *(5.3÷10.5 US gpm)* flow
ET1S02	3CU6712002	For seres circuit, 40÷60 l/min *(10.5÷16 US gpm)* flow
ET801	3CU676E801	Regenerative in pos. 2 with spool in; 40 l/min *(10.5 US gpm)* flow
Double acting with A and B to tank in neutral position:		
ET204	3CU672E204	60 l/min *(16 US gpm)* flow
ET201	3CU672E201	40 l/min *(10.5 US gpm)* flow
ET203	3CU672E203	20 l/min *(5.3 US gpm)* flow
Double acting with A and B partially to tank in neutral position:		
ET2H03	3CU672E211	60 l/min *(16 US gpm)* flow
ET2H01	3CU672E209	40 l/min *(10.5 US gpm)* flow
Double acting with A and B closed in neutral pos., 4 pos, floating in 4th pos. with spool in; type 13EB positioner and P5E or Q5E working section is required		
ET503	3CU674E503	60 l/min *(16 US gpm)* flow
ET501	3CU674E501	30 l/min *(7.92 US gpm)* flow
ET502	3CU674E502	20 l/min *(5.3 US gpm)* flow
Single acting on A, B plugged: G3/8 or G1/2 plug is required		
ET303	3CU673E303	60 l/min *(16 US gpm)* flow
ET301	3CU673E301	40 l/min *(10.5 US gpm)* flow
ET302	3CU673E302	20 l/min *(5.3 US gpm)* flow

Note - The respective versions ET401, ET402, ET403 with single acting on B is obtained by turning the spool

4 "A" side control kit

For available A side control list, see page 22

5 "B" side control kit

For available B side control list, see page 22

6 Proportional hydraulic control*

For available hydraulic control list, see page 22

7 ON/OFF electric control

For available hydraulic control list, see page 22

8 Coil

For available coil list, see page 58

14 Plug for single acting spool*

CODE	DESCRIPTION
3XTAP722160	G3/8 plug
3XTAP727180	G1/2 plug

15 Secondary aux valve block*

For available valve list, see page 23

9 Electro-hydraulic control page 46

TYPE	CODE	DESCRIPTION
Without lever control:		
8EB3T-12VDC	5IDR904214	With AMP connector, 12VDC
8EB3T-24VDC	5IDR904222	As previous one, 24VDC
8EB34T-12VDC	5IDR904236	With Deutsch connector, 12VDC
8EB34T-24VDC	5IDR904237	As previous one, 24VDC
8EB3TF3-12VDC	5IDR904217	With AMP conn., spool stroke limiter 12VDC
8EB3TF3-24VDC	5IDR904224	As previous one, 24VDC
8EB34TF3-12VDC	5IDR904235	With Deutsch conn., spool stroke limiter, 12VDC
8EB34TF3-24VDC	5IDR904237	As previous one, 24VDC
Without lever control, with spool position sensor:		
8EB3TSPSD-12VDC	5IDR904233	With AMP conn. and digital sensor 12VDC
8EB3TSPSD-24VDC	5IDR904226	As previous one, 24VDC
Without lever control: for floating circuit (spool type ET5..):		
13EB3T-12VDC	5IDR917729	With AMP connector, 12VDC
13EB3T-24VDC	5IDR917730	As previous one, 24VDC
13EB34T-12VDC	5IDR904236	With Deutsch connector, 12VDC
13EB34T-24VDC	5IDR917734	As previous one, 24VDC
With lever control:		
8EB3TLH-12VDC	5IDR904215A	With AMP connector, 12VDC
8EB3TLH-24VDC	5IDR904228A	As previous one, 24VDC
8EB34TLH-12VDC	5IDR904219A	With Deutsch connector, 12VDC
8EB34TLH-24VDC	5IDR904239A	As previous one, 24VDC
8EB3TLHF3-12VDC	5IDR904229A	With AMP conn., spool stroke limiter 12VDC
8EB3TLHF3-24VDC	5IDR904218A	As previous one, 24VDC
8EB34TLHF3-12VDC	5IDR904240A	With Deutsch conn., spool stroke limiter, 12VDC
8EB34TLHF3-24VDC	5IDR904241A	As previous one, 24VDC
With lever control and spool position sensor:		
8EB3TLHSPSD-12VDC	5IDR904234A	With AMP conn. and digital sensor 12VDC
8EB3TLHSPSD-24VDC	5IDR904232A	As previous one, 24VDC
8EB3TLHF3SPSL-0.5(A)-4.5(B)-12VDC	5IDR904259A	With AMP conn., spool stroke limiter and analogic sensor, 12VDC
8EB3TLHF3SPSL-0.5(A)-4.5(B)-24VDC	5IDR904247A	As previous one, 24VDC
With lever control: for floating circuit (spool type ET5..):		
13EB3TLH-12VDC	5IDR917728A	With AMP connector, 12VDC
13EB3TLH-24VDC	5IDR917725A	As previous one, 24VDC
13EB34TLH-12VDC	5IDR917731A	With Deutsch connector, 12VDC
13EB34TLH-24VDC	5IDR917732A	As previous one, 24VDC

10 Port valves

For available aux valve list, see page 23

11 Outlet circuit* page 55

TYPE	CODE	DESCRIPTION
F	3XTAP727180	T1 side and T upper ports plugged; require n. 2 G1/2 plug

12 Back pressure valve* page 55

TYPE	CODE	DESCRIPTION
VRC	5GIU511370	Back pressure valve, 12 bar *(174 psi)*
VRC(21)	5GIU511371	Back pressure valve, 21 bar *(304.5 psi)*
VRE	5GIU527590	Back pressure valve, 8 bar *(174 psi)* Continuation of the pressure line (carry-over)

13 Section threading

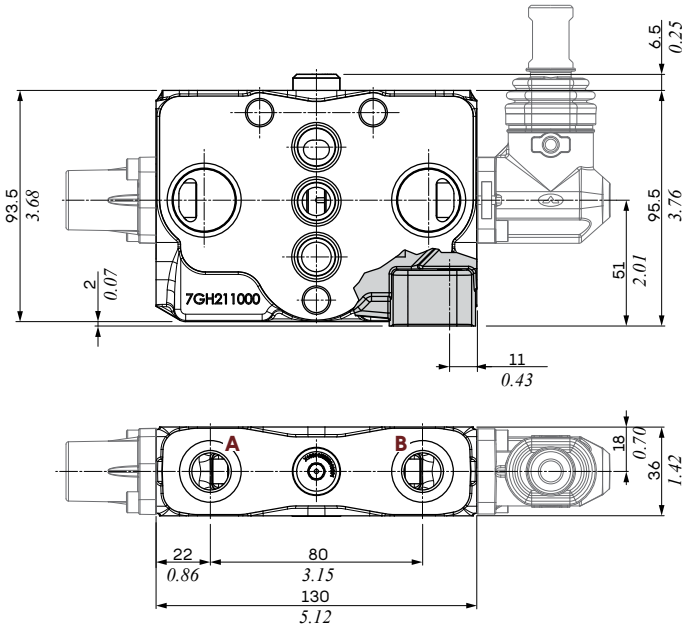
Only specify if it is different from BSP standard (see page 5).

Note (*) - Codes are referred to **BSP** thread

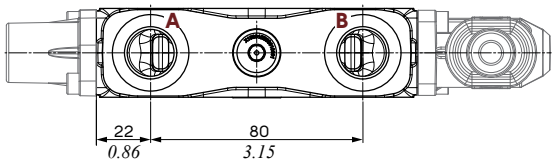
Dimensional data and hydraulic circuit

Working section for mechanical, proportional hydraulic, ON/OFF electric controls

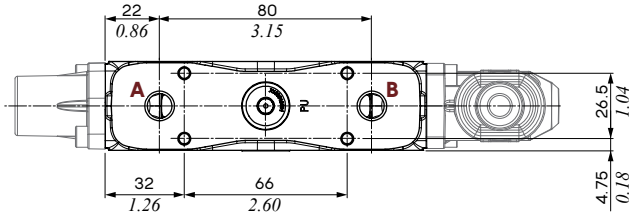
Type Q/P
(counterbore side)



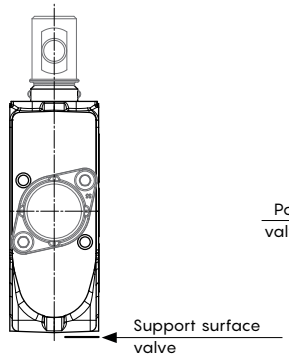
With G1/2 ports

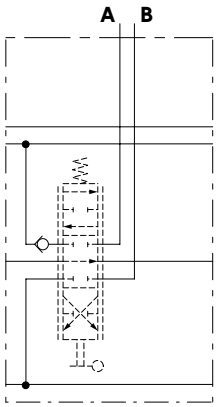


Type P with secondary aux valve block arrangement(*)

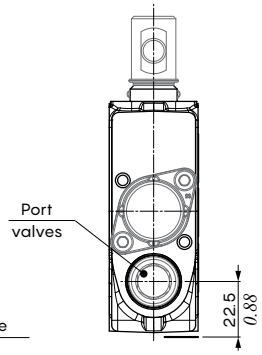


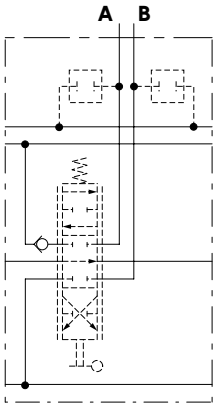
Type Q/Q5
Without port valves arrangement
(type Q5 for floating circuit)



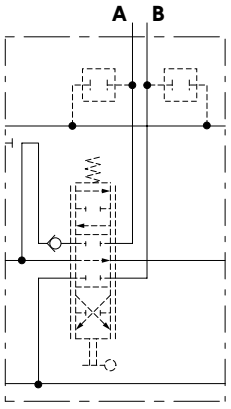


Type P/P5
With port valves arrangement
(type P5 for floating circuit)

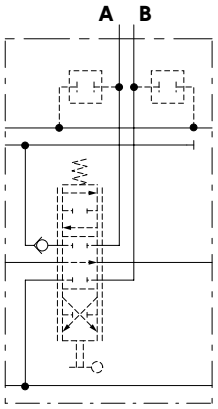




Type SQ/SP
As Q/P, for series or tandem circuits



Type QR/PR
For series or tandem circuits on penultimate section



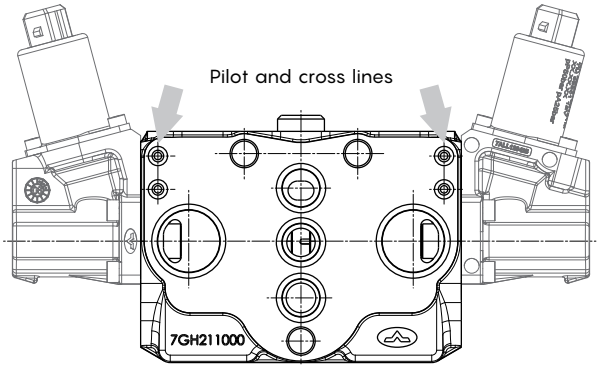
Note (*) - For dimensions and circuits of valve block, see page 53

Dimensional data and hydraulic circuit

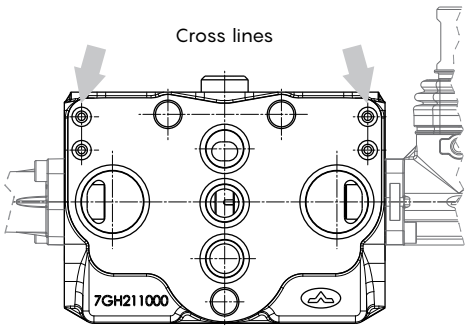
Working section for electro-hydraulic/mixed controls

The dimensions of electrohydraulic control section, are the same as Q and P mechanical control section.

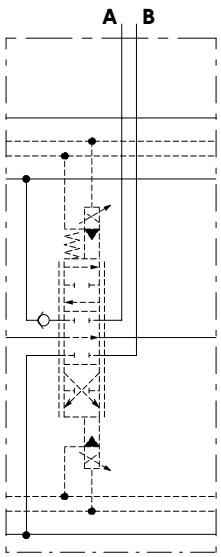
Type QE/PE
(counterbore side)



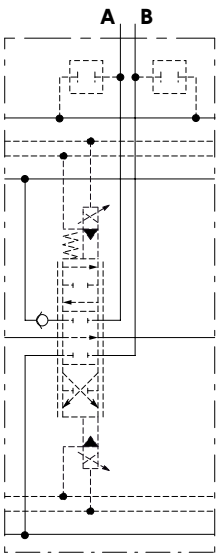
With cross lines, type QA/PA and mechanical control
(counterbore side)



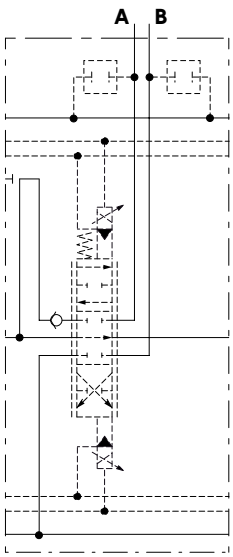
Type QE/Q5E
Without port valves arrangement
(type Q5E for floating circuit)



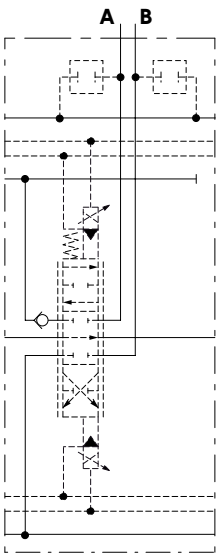
Type PE/P5E
With port valves arrangement
(type P5E for floating circuit)



Type SQE/SPE
As QE/PE, for series or tandem circuits



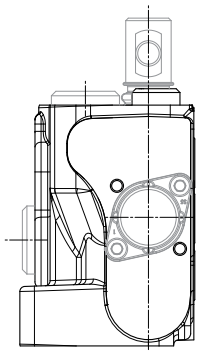
Type PRE
For series or tandem circuits on penultimate section



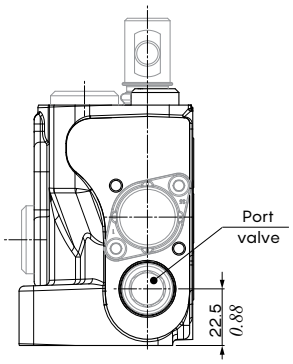
Dimensional data and hydraulic circuit

Outlet working section for mechanical, proportional hydraulic, ON/OFF electric controls

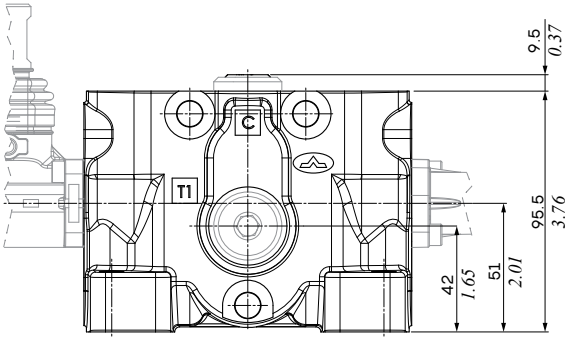
Type RQ/RQ5
Without port valves arrangement
(type RQ5 for floating circuit)

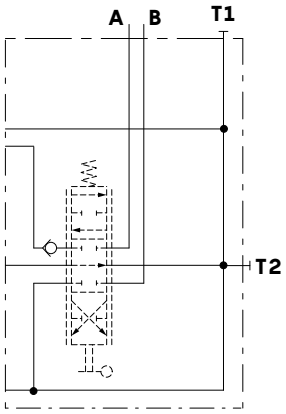


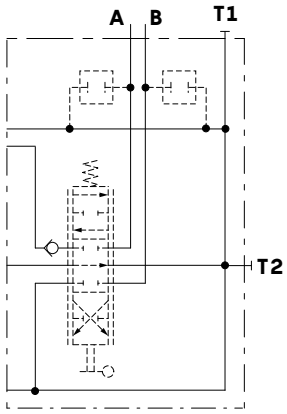
Type RP/RP5
With port valves arrangement
(type RP5 for floating circuit)

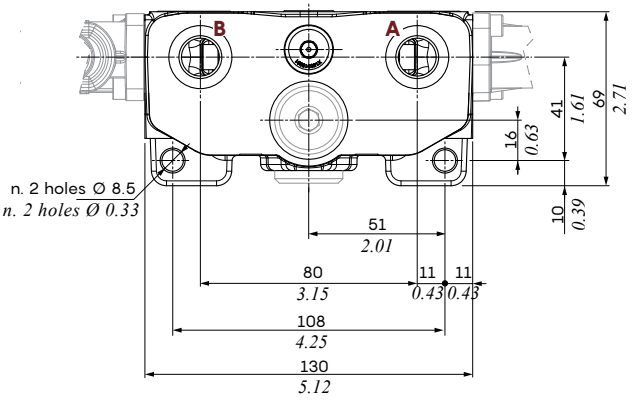


Type RQ/RP

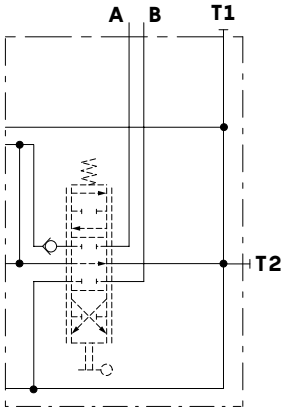




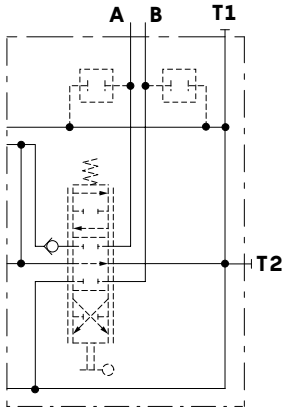




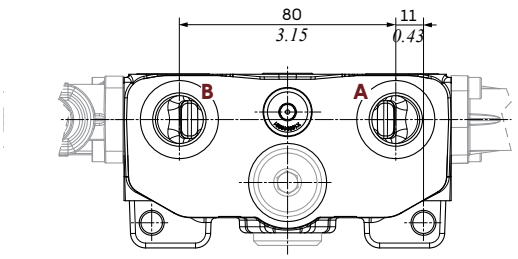
Type RQS
As RQ, for series or tandem circuits



Type RPS
As RP, for series or tandem circuits



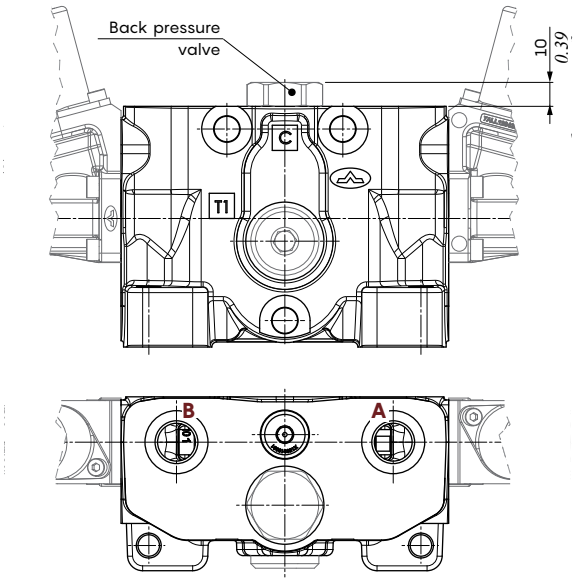
With G1/2 ports



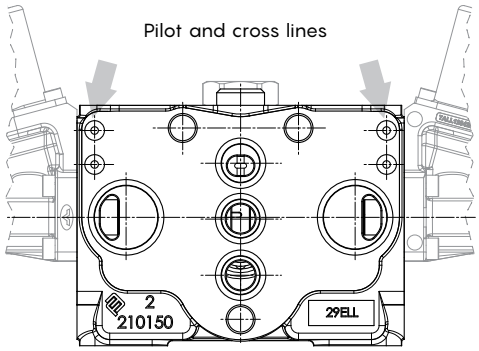
Dimensional data and hydraulic circuit

Outlet working section for electro-hydraulic/mixed controls

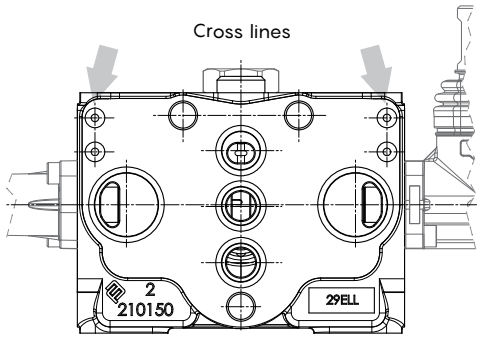
Type RQE/RPE/RP5E
Unlisted dimensions are the same as inlet section type RQ/RP
(type RP5E for floating circuit)



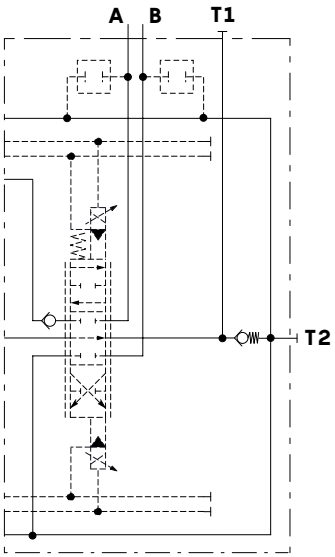
Type RQE/RPE
(counterbore side)



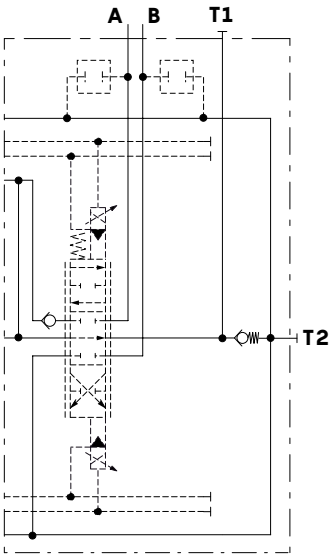
With cross lines, type RQA/RPA and mechanical control
(counterbore side)



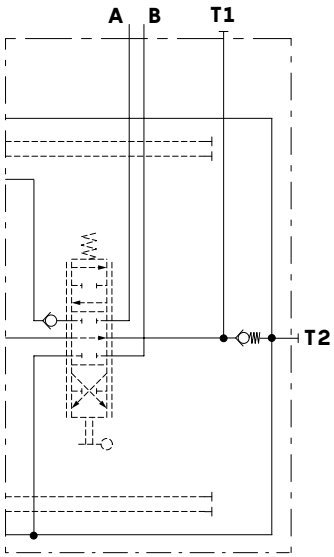
Type RQE/RPE/RP5E
As RQ/RP/RP5
(type RP5E for floating circuit)



Type RPSE
As RPE, for series or tandem circuits



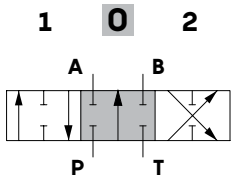
Type RQA/RPA
As RQ/RP,
for cross lines circuits



Spool

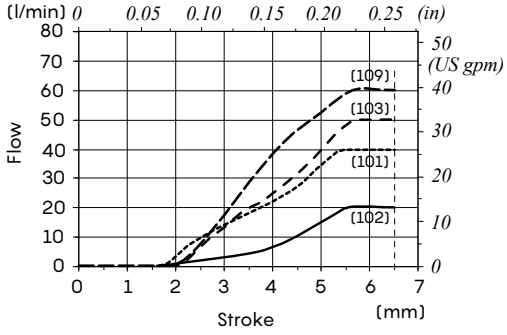
Type 1-I1-ET1
(101/102/103/107/109/I112/I117/I118 /S102/SHC102/ET101/ET102/ET103)

A and B closed in neutral position



Stroke
(101/102/103/107/109/I112/I117 /I118/ET101/ET102/ET103)
position 1: + 6,5 mm *(+ 0.26 in)*
position 2: - 6,5 mm *(- 0.26 in)*
(S102)
position 1: + 3,3 mm *(+ 0.13 in)*
position 2: - 3,3 mm *(- 0.13 in)*
(SHC102)
position 1: + 3,4 mm *(+ 0.14 in)*
position 2: - 3,4 mm *(- 0.14 in)*

Metering spool type 1
P→A(B)→B(A)→T



Spool type 107
Q_{in} = 15 l/min *(3.96 US gpm)*
$P_{(on\ ports)}$ = 100 bar *(1450 psi)*

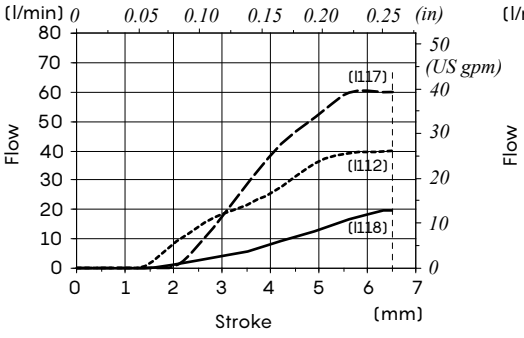
Spool type 101/I112/ET101
Q_{in} = 40 l/min *(10.5 US gpm)*
$P_{(on\ ports)}$ = 100 bar *(1450 psi)*

Spool type 102/I118/ET102
Q_{in} = 20 l/min *(5.28 US gpm)*
$P_{(on\ ports)}$ = 100 bar *(1450 psi)*

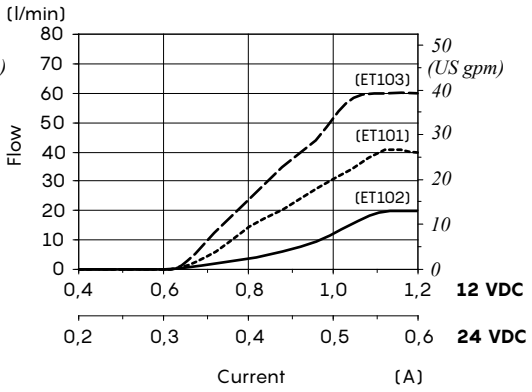
Spool type 103
Q_{in} = 50 l/min *(13.2 gpm)*
$P_{(on\ ports)}$ = 100 bar *(1450 psi)*

Spool type 109/I117/ET103
Q_{in} = 60 l/min *(15.8 US gpm)*
$P_{(on\ ports)}$ = 100 bar *(1450 psi)*

Metering spool type I1
P→A(B)→B(A)→T

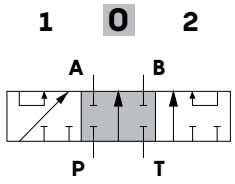


Metering spool type ET1
P→A(B)→B(A)→T



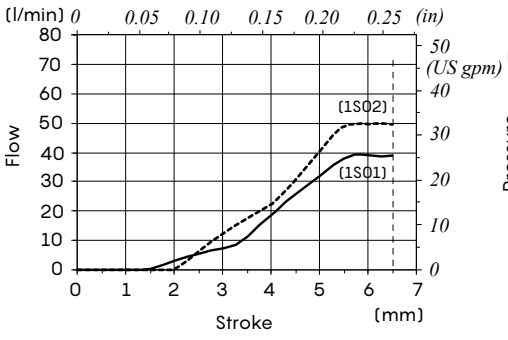
Type 1S-ET1S
(1S01/1S02/ET1S01/ET1S02)

A and B closed in neutral position, for series circuit

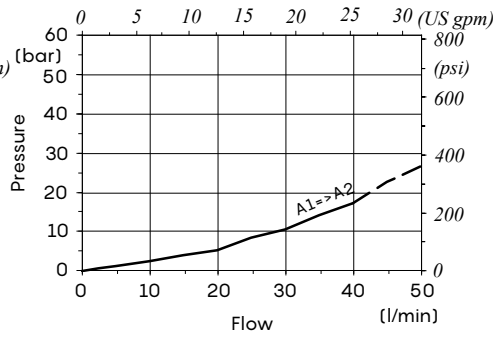


Stroke
position 1: + 6,5 mm *(+ 0.26 in)*
position 2: - 6,5 mm *(- 0.26 in)*

Metering spool type 1S
P→A(B)→B(A)→T



Pressure drop
spool type 1S (1S02)



Spool type 1S01/ET1S01

Q_{in} = 20÷40 l/min *(5.28÷10.5 US gpm)* - $P_{(on\ port)}$ = 100 bar *(1450 psi)*

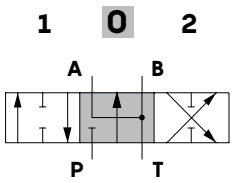
Spool type 1S02/ET1S02

Q_{in} = 40÷60 l/min *(10.5÷15.8 US gpm)* - $P_{(on\ port)}$ = 100 bar *(1450 psi)*

Spool

Type 2-I2-S2-SHC2-ET2
(201/I203/S201/SHC201 /ET201/ET203/ET204)

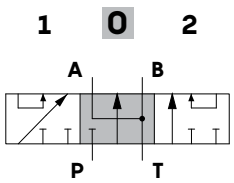
A and B to tank in neutral position



Stroke
(201/I203/ET201/ET203/ET204)
position 1: + 6,5 mm *(+ 0.26 in)*
position 2: - 6,5 mm *(- 0.26 in)*
(S201)
position 1: + 3,3 mm *(+ 0.13 in)*
position 2: - 3,3 mm *(- 0.13 in)*
(SHC201)
position 1: + 3,4 mm *(+ 0.14 in)*
position 2: - 3,4 mm *(- 0.14 in)*

Type 2S01

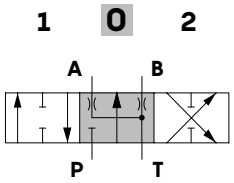
A and B to tank in neutral position, for series circuit



Stroke
position 1: + 6,5 mm *(+ 0.26 in)*
position 2: - 6,5 mm *(- 0.26 in)*

Type 2H-SHC2H-ET2H
(2H01/SHC2H01/ET2H01/ET2H03)

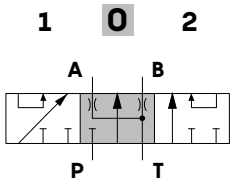
A and B partially to tank in neutral position



Stroke
(2H01/ET2H01/ET2H03)
position 1: + 6,5 mm *(+ 0.26 in)*
position 2: - 6,5 mm *(- 0.26 in)*
(SHC2H01)
position 1: + 3,4 mm *(+ 0.14 in)*
position 2: - 3,4 mm *(- 0.14 in)*

Type 2SH01

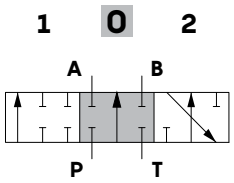
A and B partially to tank in neutral position, for series circuit



Stroke
position 1: + 6,5 mm *(+ 0.26 in)*
position 2: - 6,5 mm *(- 0.26 in)*

Type 3-I3-ET3
(301/I301/ET301/ET302/ET303)

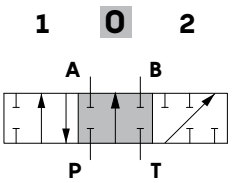
Single acting on A, B plugged



Stroke
position 1: + 6,5 mm *(+ 0.26 in)*
position 2: - 6,5 mm *(- 0.26 in)*

Type 4-I4-ET4
(401/I401/ET401/ET402/ET403)

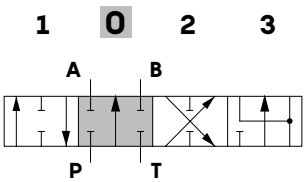
Single acting on B, A plugged



Stroke
position 1: + 6,5 mm *(+ 0.26 in)*
position 2: - 6,5 mm *(- 0.26 in)*

Type 5-I5-ET5
(501/503/I504/ET501/ET502/ET503)

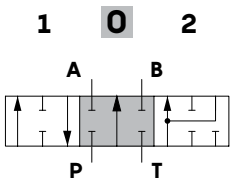
A and B closed in neutral position, floating in 4th position



Stroke
position 1: + 6 mm *(+ 0.23 in)*
position 2: - 6 mm *(- 0.23 in)*
position 3: - 10.5 mm *(- 0.41 in)*

Type 8-S8-ET8
(801/802/S801/ET801)

A and B closed in neutral position, regenerative



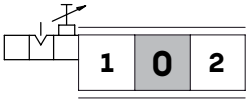
Stroke
position 1: + 6,5 mm *(+ 0.26 in)*
position 2: - 6,5 mm *(- 0.26 in)*

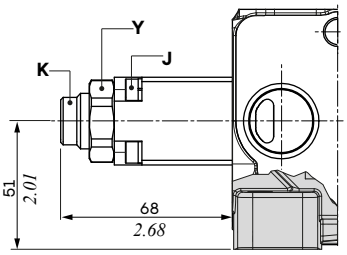
Mechanical control

"A" side control kit

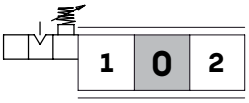
With friction

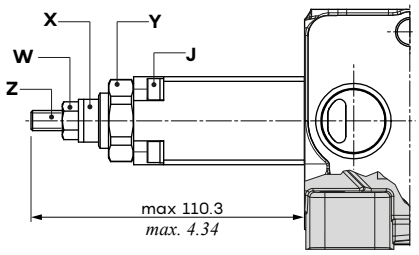
Type 7FT





Type 7FTN
With spring regulation

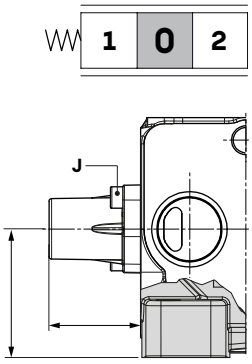




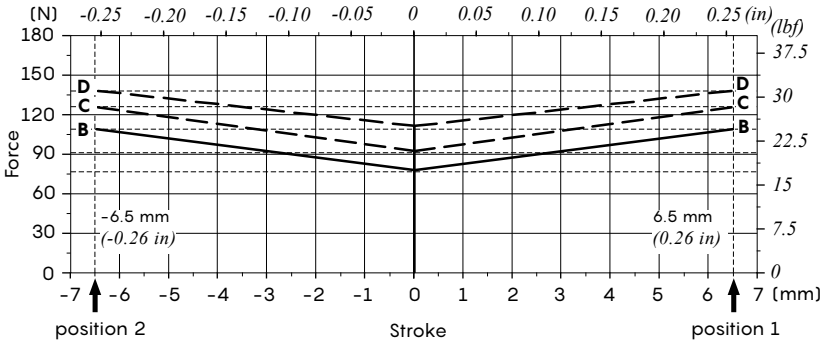
Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
K = allen wrench 6
X = wrench 17
Y = wrench 30, manual tightening
Z = allen wrench 4
W = wrench 13 - 24 Nm *(17.7 lbft)*

With spring return in neutral position

Types 8/8MC/8MD
Standard/hard/extra-hard spring



Force vs. Stroke diagram



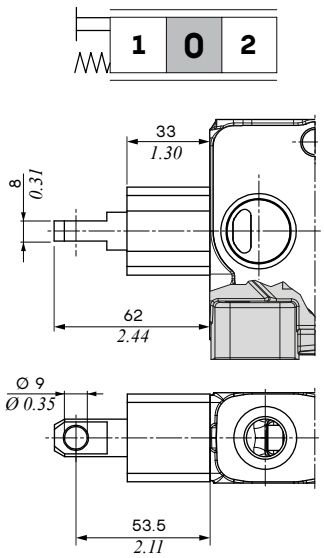
Legenda
Spring type B: from 76 N to 108,5 N *(17 lbf to 24.3 lbf)*
Spring type C: from 91 N to 126 N *(20.4 lbf to 28.3 lbf)*
Spring type D: from 110,9 N to 138,9 N *(24.9 lbf to 31.2 lbf)*

Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
Z = wrench 9

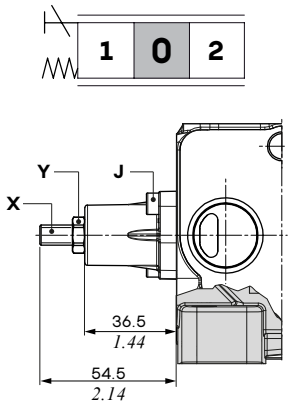
"A" side control kit

With spring return in neutral position

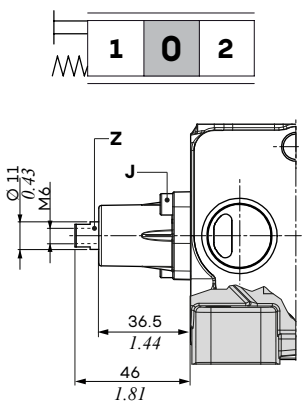
Type 8TL(*)
Arrangement for double control



Type 8F2
With stroke limiter on B port

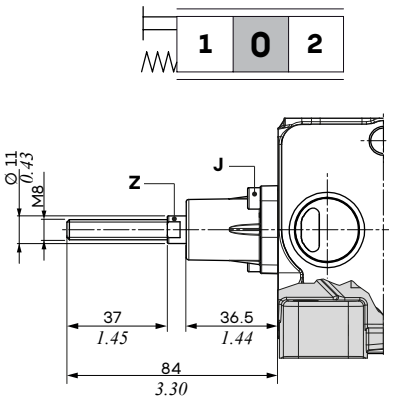


Type 8D
External pin with M6 female thread



(*) For connect the kit 8TL to flexible cable always ask the following kits:
- kit type **CP50** code 5TEL405005, with fixed cap for CG cables with revolving end;
- kit type **TQ50** code 5TEL105110, with revolving cap for CD cables with fixed end.

Type 8D2
External pin with M8 male thread



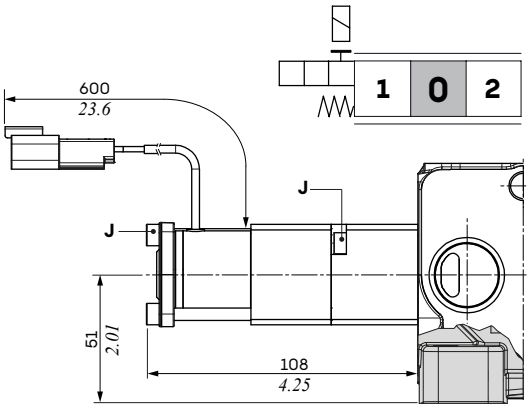
Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = allen wrench 4
Y = wrench 13 - 24 Nm *(17.7 lbft)*
Z = wrench 9

Mechanical control

"A" side control kit

With electromagnetic detent in position 2

Type 8RM2

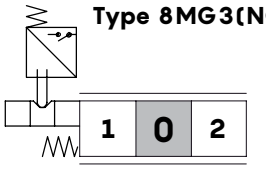


Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

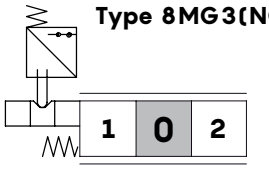
Features
Nominal voltage.....: 12 VDC ± 10%
Nominal power.....: 5.5 W
Min detent release.....: 200 N *(45 lbf)*
Coil resistance (@ 20°C - *68°F*).....: 26.2 Ohm
Coil insulance.....: Class H (180°C - *356°F*)
Insertion.....: 100%
Connector.....: Deutsch DT04-2P
Mating connector.....: Deutsch DT06-2S, code 5CON140046

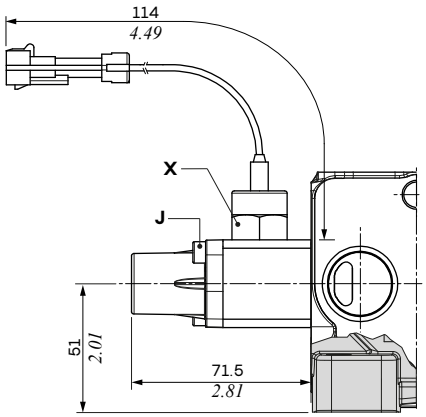
With microswitch for spool check in positions 1 and 2

Type 8MG3(NO)



Type 8MG3(NC)





Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = wrench 22 - 24 Nm *(17.7 lbft)*

Features
Switch mechanical life.....: 5x10^5 cycles
Switch electric life.....: 10^5 cycles @ 7 A - 13.5 VDC, resistive load
5x10^4 cycles @ 10 A - 12 VDC, resistive load
5x10^4 cycles @ 3 A - 28 VDC, resistive load
Connctor.....: Packard Weather-Pack
Mating connector.....: Packard Weather-Pack, code 5CON001

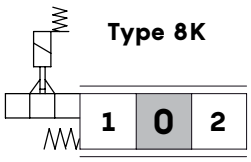
	Complete controls		
	Microswitch operation		
	position 1	position 2	position 1, 2
Circuit	**8MG1**	**8MG2**	**8MG3**
(NO)	5V08107670	5V08107680	5V08107660
(NC)	-	-	5V08107662 (*)

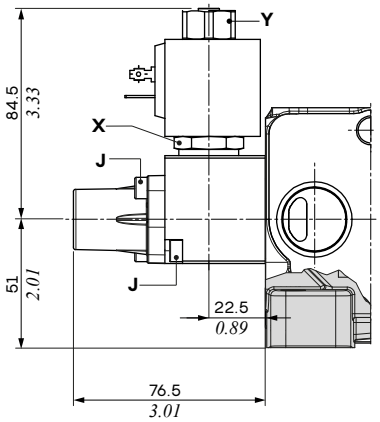
Note (*) - With integrated connector

Mechanical control

"A" side control kit

Solenoid detent in neutral position





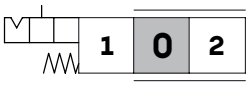
Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = wrench 24 - 9.8 Nm *(7.2 lbft)*
Y = wrench 21 - 6.6 Nm *(4.9 lbft)*

	Complete controls		
	Coil connector		
Voltage	IS0 4400	Packard M-Mack	Deutsch DT04
12 VDC	5V08707112	5V08707613	5V08707412
24 VDC	5V08707124	5V08707124	5V08707424

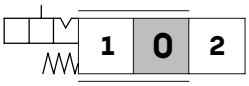
For coil features type **BE** see page 58.

With detent and spring return in neutral position

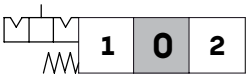
Type 9B
Detent in position 1
(A curve)



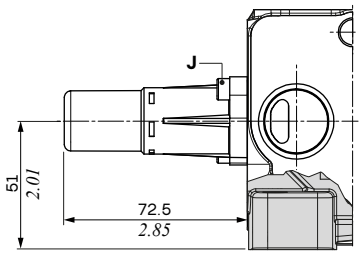
Type 10B
Detent in position 2
(B curve)



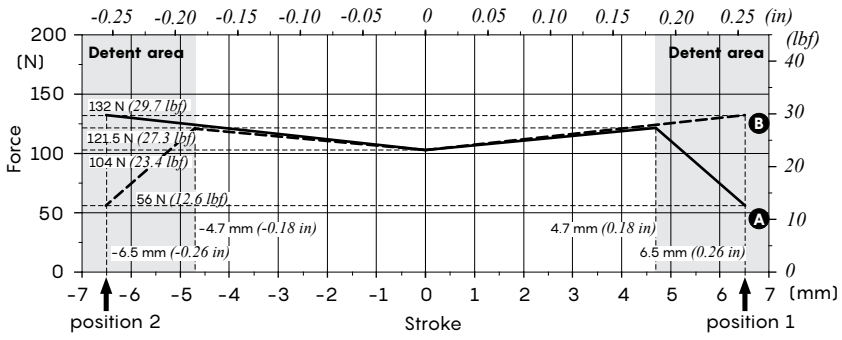
Type 11B
Detent in positions
1 (A curve) and 2 (B curve)



Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*



Force vs. Stroke diagram



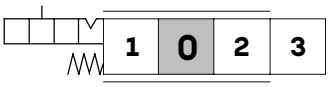
Release force 160 N ± 10 N *(36 lbf ± 2.2 lbf)*

Mechanical control

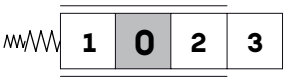
"A" side control kit

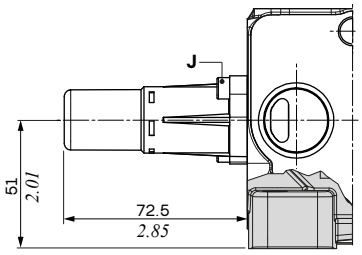
With detent and spring return in neutral position, for floating circuit

Type 13N
Detent in position 3



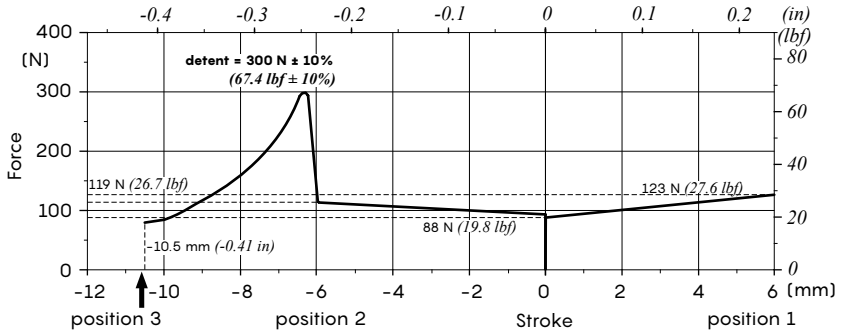
Type 13F
Additional spring in position 3





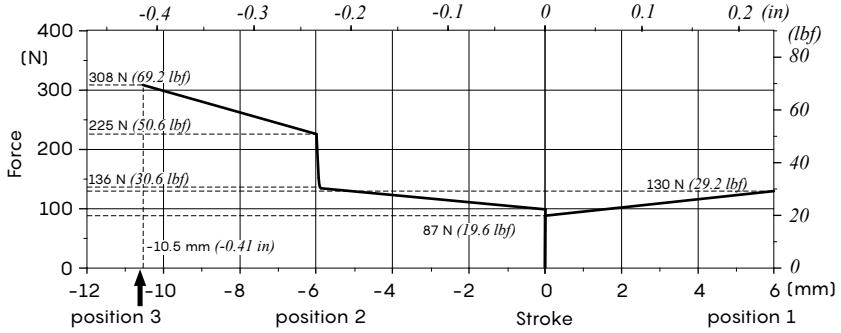
Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

Type 13N: Force vs. Stroke diagram



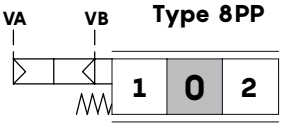
Release force from position 3: 250 N ± 10% *(56.2 lbf ± 10 %)*

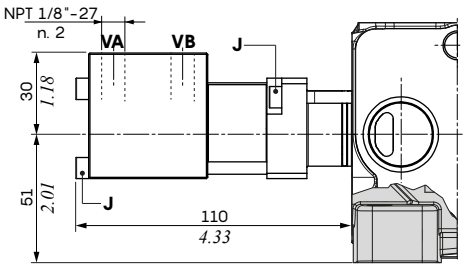
Type 13F: Force vs. Stroke diagram

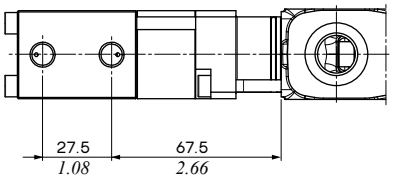


Proportional pneumatic control

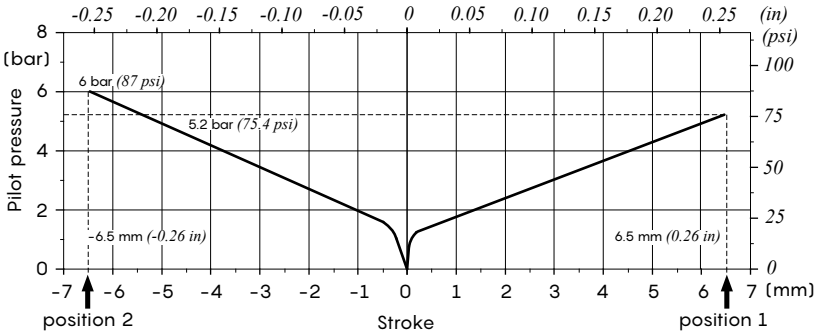
Type 8PP







Stroke vs. Pilot pressure(*)



(*) The curves are performed without the passage of oil.

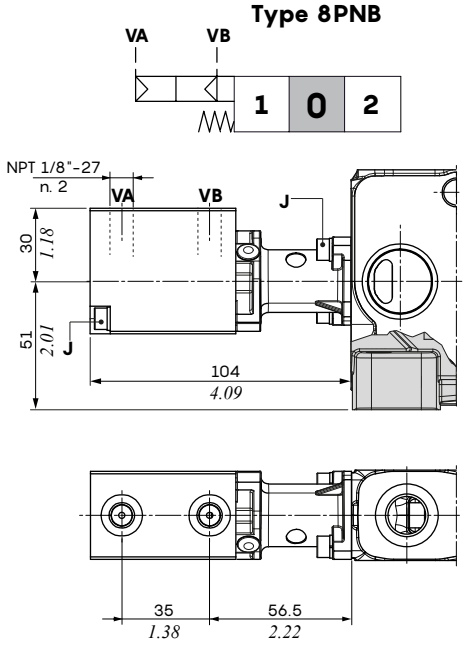
Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

Mechanical control

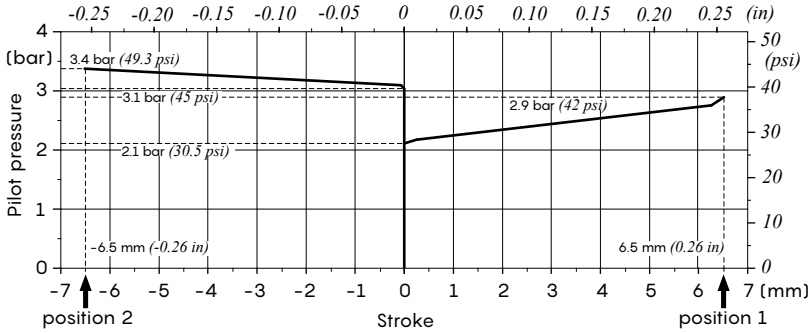
"A" side control kit

ON/OFF pneumatic control

Type 8PNB



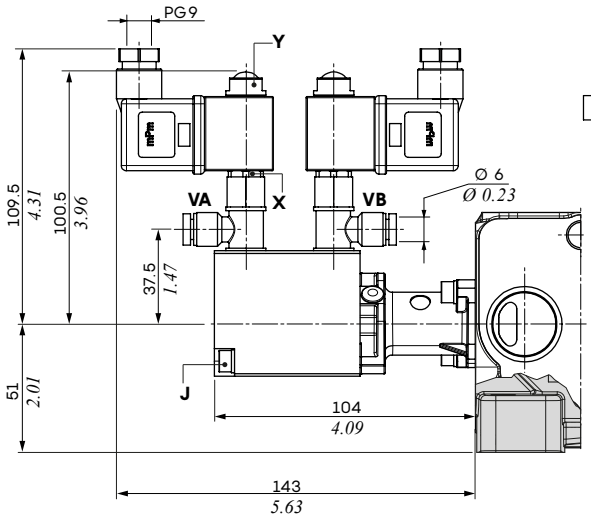
Stroke vs. Pilot pressure(*)



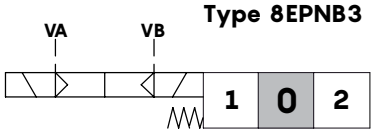
(*) The curves are performed without the passage of oil.

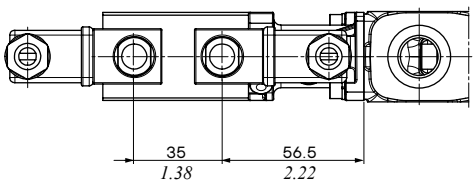
Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

ON/OFF electropneumatic control



Type 8EPNB3





Features
Pilot pressure.....: 6 bar (max. 15 bar)
87 psi (max. 218 psi)

For coil features type **BPV** see page 58

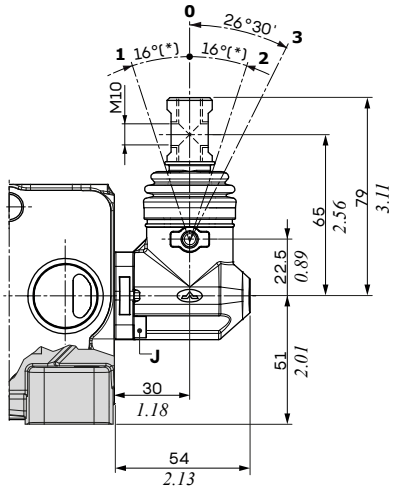
Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = wrench 15 - 6.6 Nm *(4.9 lbft)*
Y = wrench 13 - manual tightening

Mechanical control

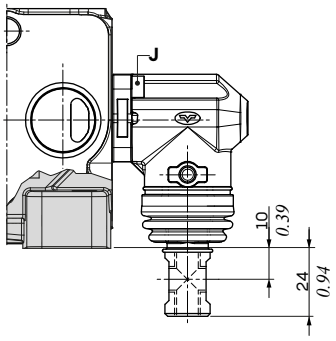
"B" side control kit

With lever box

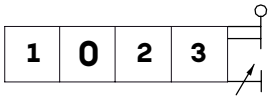
Type L

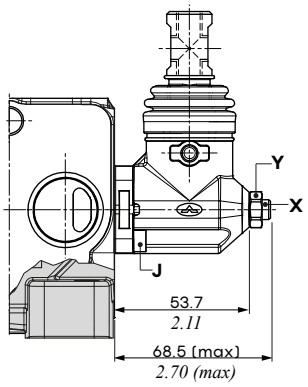


L180 configuration



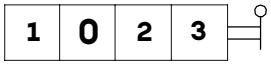
Type LF1
Spool stroke limiter
on A port

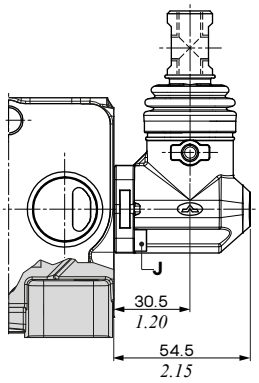




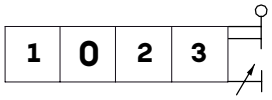
Angle (*)
16° with type 8.. controls
15° with type 13.. controls

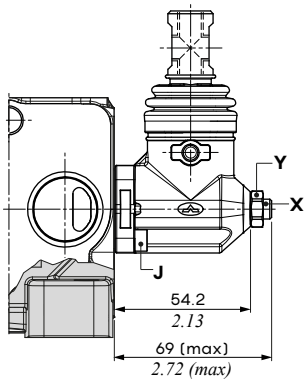
Type LSG
As type L, water-proof



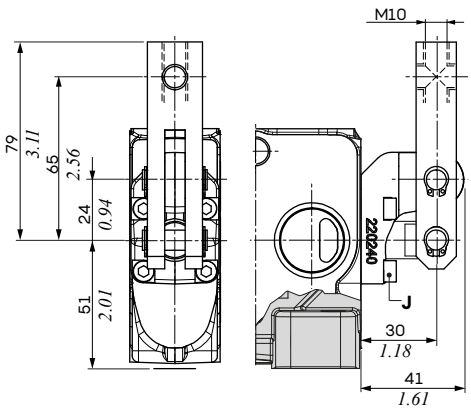


Type LSGF1
As type LF1, water-proof





Type LB3
Open lever



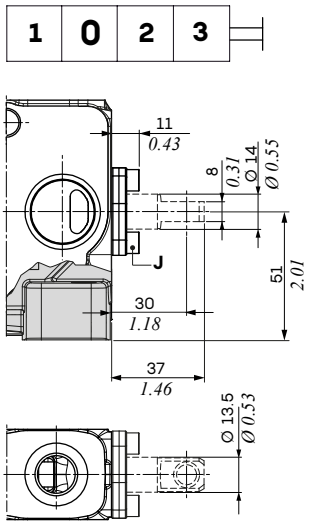
Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = allen wrench 4
Y = wrench 13 - 24 Nm *(17.7 lbft)*

Mechanical control

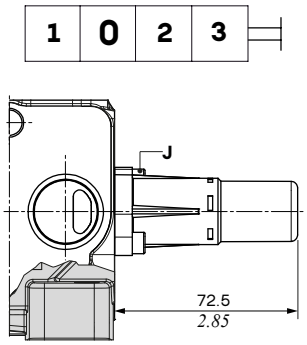
"B" side control kit

Without lever box

Type SLP
With dust-proof plate

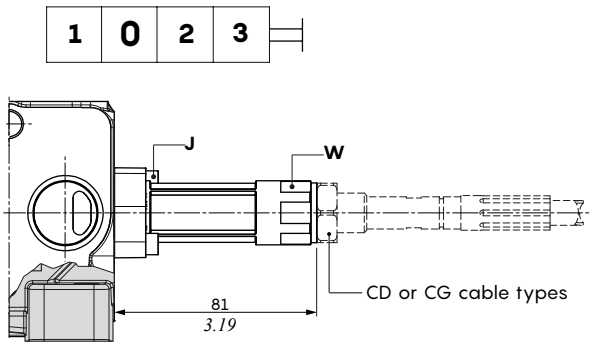


Type SLC
With endcap



Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
W = wrench 24

Type TQ
Flexible cable connection

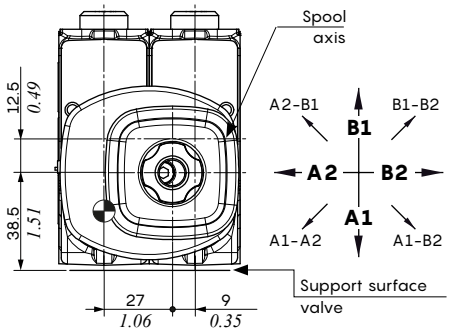


Mechanical control

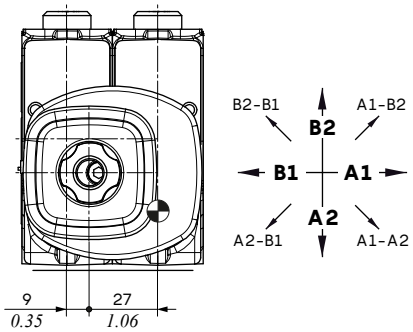
"B" side control kit

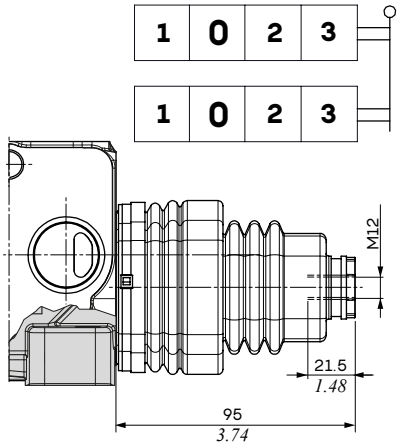
With Joystick for 2 section operation

Type LCA1-4
LCA1 configuration

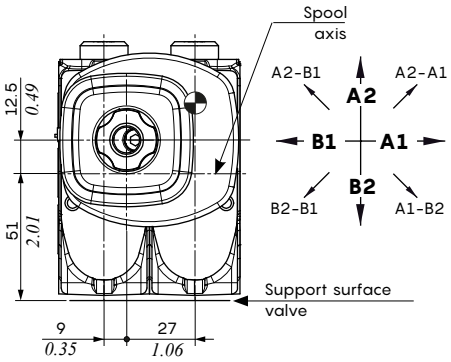


Type LCA2-3
LCA2 configuration

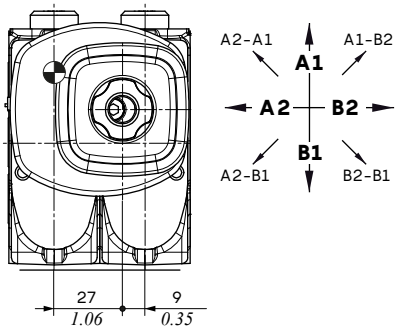


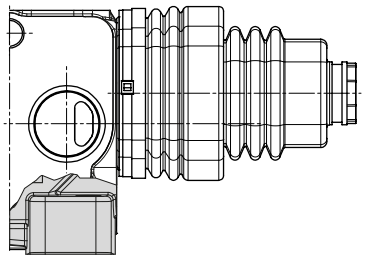


LCA4 configuration

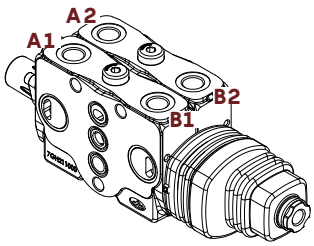


LCA3 configuration



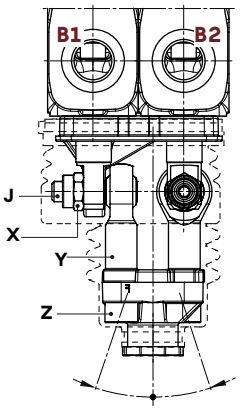


LCA1 configuration example

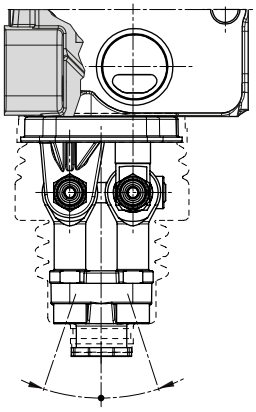


Working angles

Horizontal axis



Vertical axis



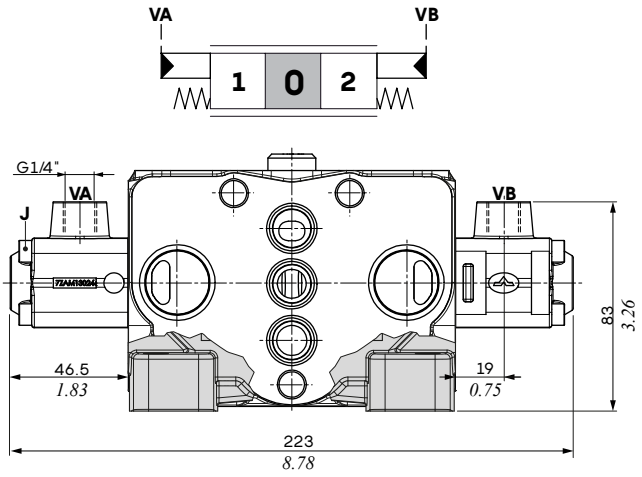
Wrenches and tightening torques
J = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
Y = wrench 24
X = wrench 13 - 9.8 Nm *(7.2 lbft)*
Z = allen wrench 6 - 9.8 Nm *(7.2 lbft)*

Max. working angles	Horizontal axis	Vertical axis
Single action operation	15°4'	15°4'
Single action operation with floating	25°2'	25°2'
Two section operation	15°52'	15°52'
Two section operation with floating	18°3'	18°3'

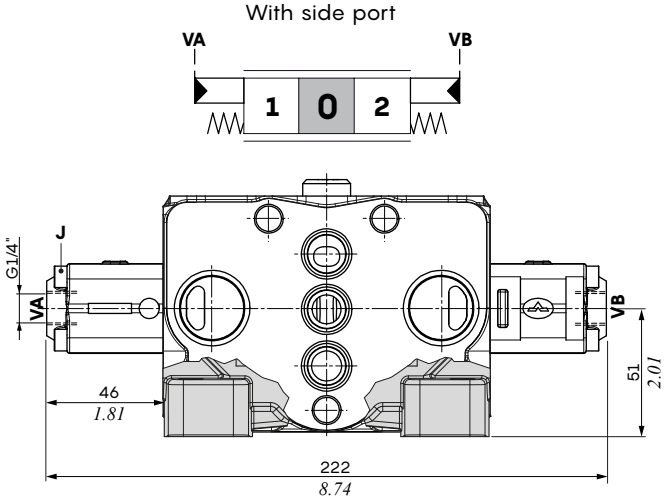
Proportional hydraulic control

With spring return in neutral position

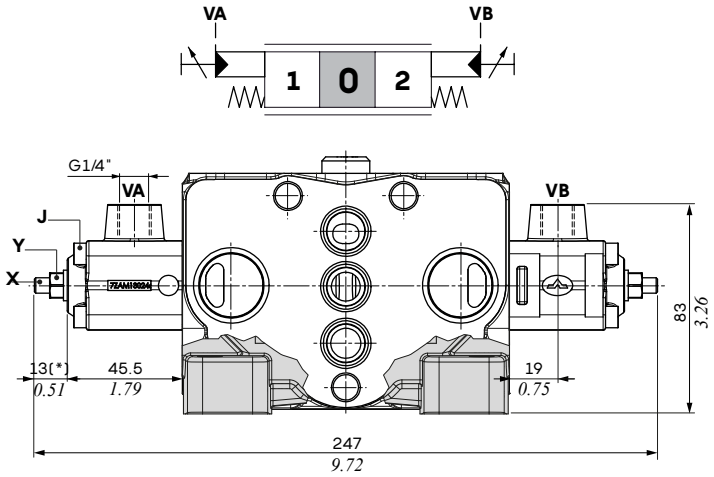
Type 8IM
With upper port



Type 8IMS
With side port



Type 8IMF3
With upper port
and spool stroke limiter



(*): Minimum distance for no adjustment

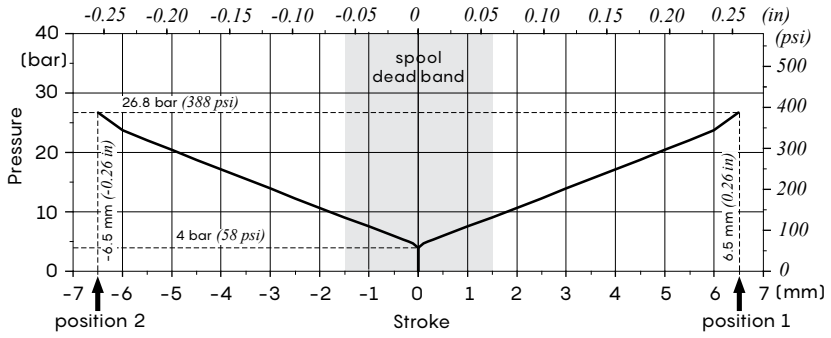
Features (all types)

Max. pressure.....: 70 bar *(1015 psi)*

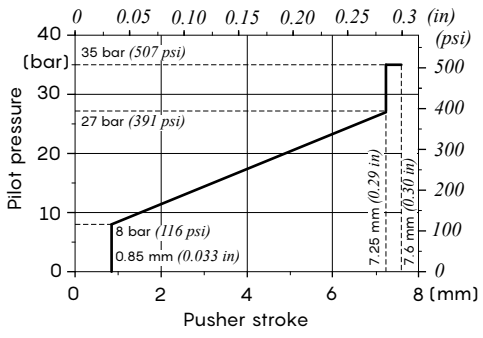
Wrenches and tightening torques

J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
Y = wrench 10 - 9.8 Nm *(7.2 lbft)*
X = allen wrench 3

Pressure vs. Stroke diagram



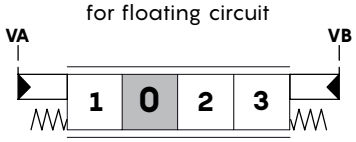
Suggested pressure control curve: type 088

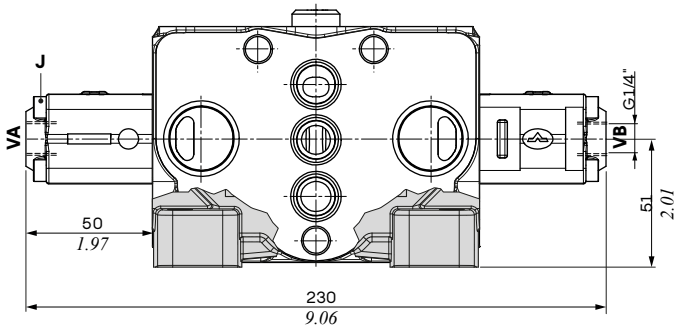


Proportional hydraulic control

With spring return in neutral position, for floating circuit

Type 13IMS
With side port
for floating circuit





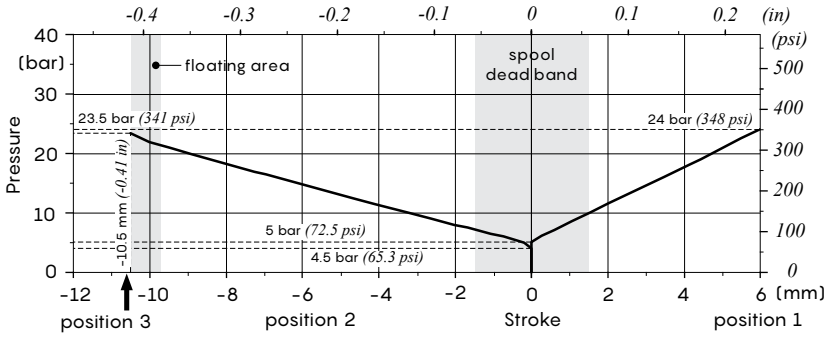
Features

Max. pressure.....: 70 bar *(1015 psi)*

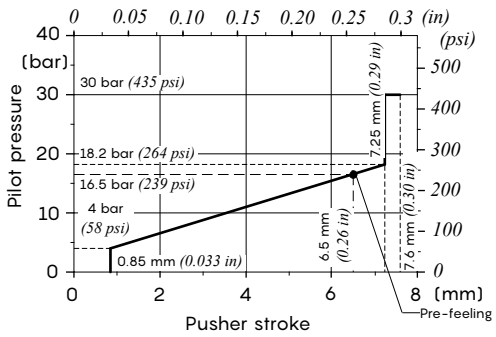
Wrenches and tightening torques

J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

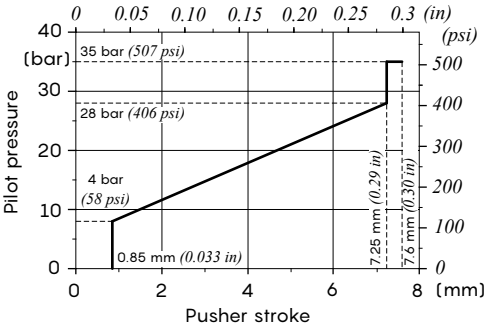
Pressure vs. Stroke diagram



Suggested pressure control curve on VB port: type 086



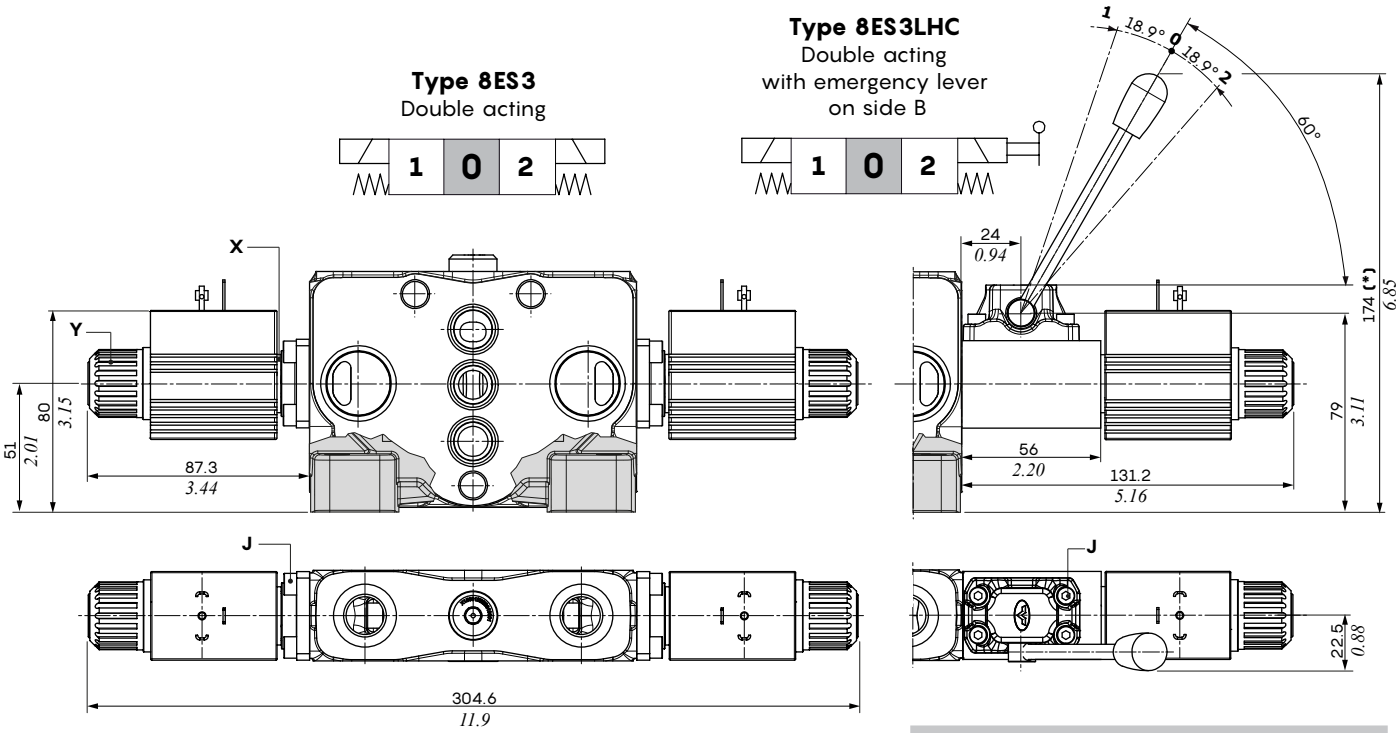
Suggested pressure control curve on VA port: type 089



With spring return in neutral position

Type 8ES3
Double acting

Type 8ES3LHC
Double acting
with emergency lever
on side B



Type	Lever lengths mm - *in*	Dimension (*) mm - *in*
YAST290610A	100 - *3.93*	174 - *6.85*
YAST290615	150 - *5.90*	215 - *8.46*

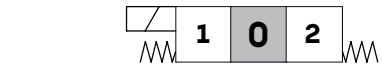
IMPORTANT: lever to be used only for emergency operation, not for continuative use.

Features

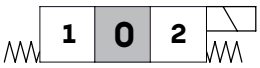
Max. flow on working ports.....: 60 l/min *(16 US gpm)*
Internal leakage A(B)⇒T.....: 10 cm³/min @ 100 bar and 40°C
(0.61 cm³/min @ 1450 psi and 104°F)

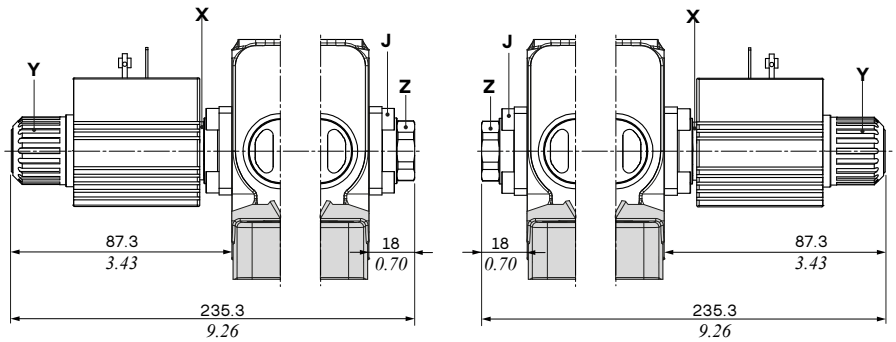
For features coil type **D12** see page 58

Type 8ES1
Single acting in A

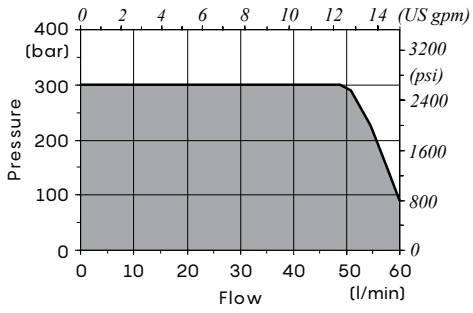


Type 8ES2
Single acting in B





Operating conditions



Wrenches and tightening torques

J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = wrench 17 - 24 Nm *(17.7 lbft)*
Y = special wrench - 6.6 Nm *(4.9 lbft)*
Z = wrench 22 - 24 Nm *(17.7 lbft)*

Electro-hydraulic control

Main features

Following specifications are measured with:
- mineral oil of 46 mm2/s (46 cSt) viscosity at 40°C (104°F) temperature
- standard spools, connecting P⇒A⇒B⇒T ports without flow multiplication
- 12 VDC and 24 VDC nominal voltage with ± 10% tolerance.

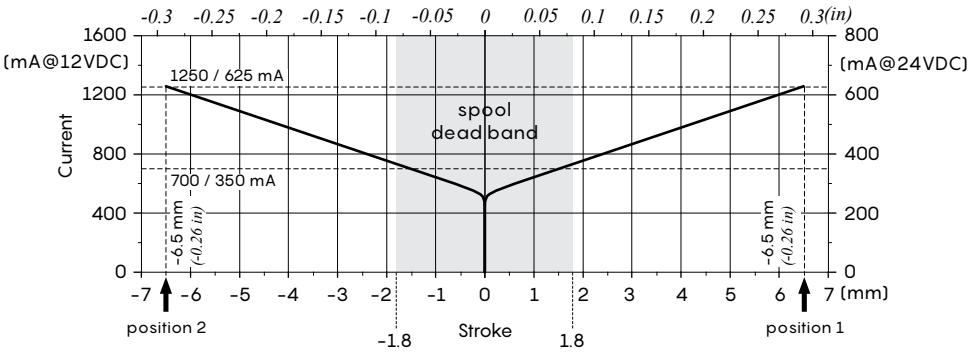
Following electrohydraulic controls need CED400W electronic unit; for information please contact Sales Department.

Specifications		Spool control type	
		8EB3T	13EB3T
Electric specifications			
Coil impedance	12 VDC	4.72 Ω	4.72 Ω
	24 VDC	20.8 Ω	20.8 Ω
Max. operating current	12 VDC	1.5 A	1.5 A
	24 VDC	0.75 A	0.75 A
No load current consumption		0	0
Hysteresis max. (1)	external drain	3% 5% with lever	4% 7% with lever
	internal drain	4% 6% with lever	6% 9% with lever
Time response	from 0 ⇒ 100% and from 100% ⇒ 0 of stroke	< 50 ms	< 55 ms
Min. flow control signal	12 VDC	700 mA	440 mA
	24 VDC	350 mA	220 mA
Flow control signal	12 VDC	1250 mA	760 mA
	24 VDC	625 mA	380 mA
Max. float flow control signal	12 VDC		880 mA
	24 VDC		440 mA
Dither frequency	low frequency	150 Hz	
	high frequency	180 Hz - 200 mA	
Insertion		100%	
Coil insulance		Class H (180°C - *356°F*)	
Connector type		AMP JPT - Deutsch DT	
Weather protection (connector)		IP65 (JPT type) - IP69K (DT type)	
Hydraulic specifications			
Max. pressure		40 bar *(580 psi)*	
Max. back pressure		10 bar *(145 psi)*	

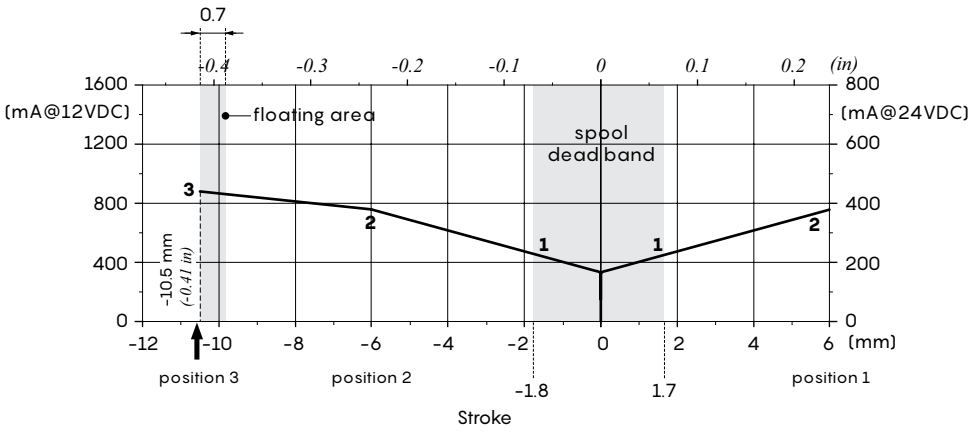
Note (1): Hysteresis is indicated at nominal supply voltage and f = 0.008 Hz for one cycle (one cycle = neutral ⇒ full A ⇒ neutral ⇒ full B ⇒ neutral).
For the calculation rules see "Appendix A" on page 62

Main features

Type 8EB3T: Stroke vs. Current diagram



Type 13EB3T: Stroke vs. Current diagram



13EB3T control
1 = 440 mA @ 12 VDC - 220 mA @ 24 VDC
2 = 760 mA @ 12 VDC - 380 mA @ 24 VDC
3 = 880 mA @ 12 VDC - 440 mA @ 24 VDC

Electro-hydraulic control

Spool position sensor

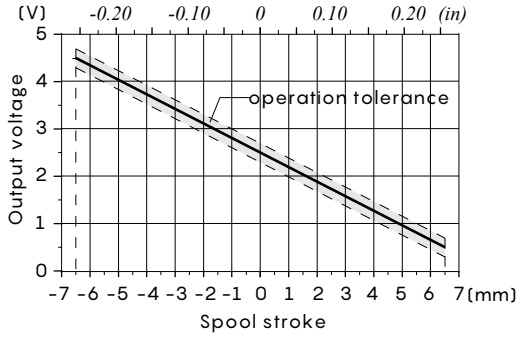
The sensor can be ordered exclusively through the electro-hydraulic EB type controls; see pages 27 for available control list.

SPSL sensor

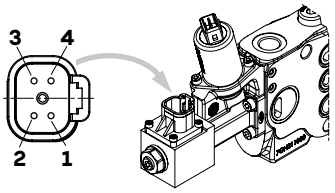
The SPSL position sensor converts the spool movements into a voltage linear signal.

Working conditions		
Voltage supply		5 VDC
Current absorption		< 10 mA (no load)
Mechanical life		3x10⁶
Connector type		Deutsch DT04-4P
Weather protection		IP67 / IP69K
Working temperature		from -40°C to 105°C *(from -40°F to 221°F)*
Working pressure		350 bar *(5100 psi)*
Max. electrical stroke		±10 mm *(±0.39 in)*
Max. mechanical stroke		±10 mm *(±0.39 in)*
Output signal	range	from 0.5 to 4.5 V
	linearity	± 5%
	spool in neutral	2,5 ± 0,2 V
	max. current	1 mA
EMC compatibility		ISO 13766 / ISO 14982
Mechanical vibrations, shock, bumps		IEC 68-2-6,-27,-29

SPSL sensor output signal



Deutsch DT04-4P connector	
Pin	**Function**
1	+ 5V
2	not connected
3	GND
4	signal OUT



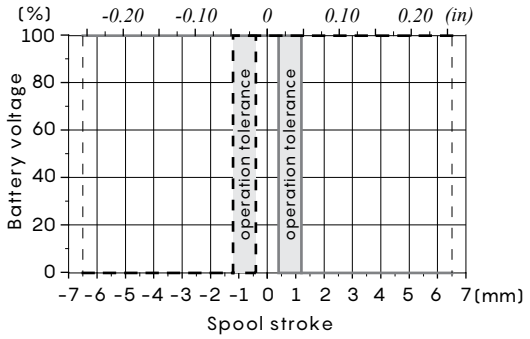
Deutsch DT06-4S mating connector, code 5CON140072

SPSD sensor

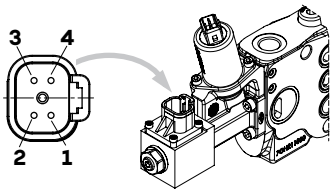
The SPSD position sensor converts the spool movements into an electric digital signal.

Working conditions		
Voltage supply		from 9 to 32 VDC
Current absorption		< 10 mA (no load)
Mechanical life		3x10⁶
Connector type		Deutsch DT04-4P
Weather protection		IP67 / IP69K
Working temperature		from -40°C to 105°C *(from -40°F to 221°F)*
Working pressure		350 bar *(5100 psi)*
Max. electrical stroke		±10 mm *(±0.39 in)*
Max. mechanical stroke		±10 mm *(±0.39 in)*
Output signal	type	PNP
	max. current.	6 mA
EMC compatibility		ISO 13766 / ISO 14982
Mechanical vibrations, shock, bumps		IEC 68-2-6,-27,-29

SPSD sensor output signal



Deutsch DT04-4P connector	
Pin	**Function**
1	Out A
2	GND
3	VB +
4	Out B



Deutsch DT06-4S mating connector, code 5CON140072

Type controls

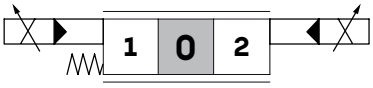
1 : With AMP JPT connector - AMP JPT mating connector, code: 5CON003

2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

Without lever control, spring return in neutral position

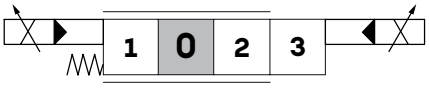
Type 8EB3T
With AMP connector

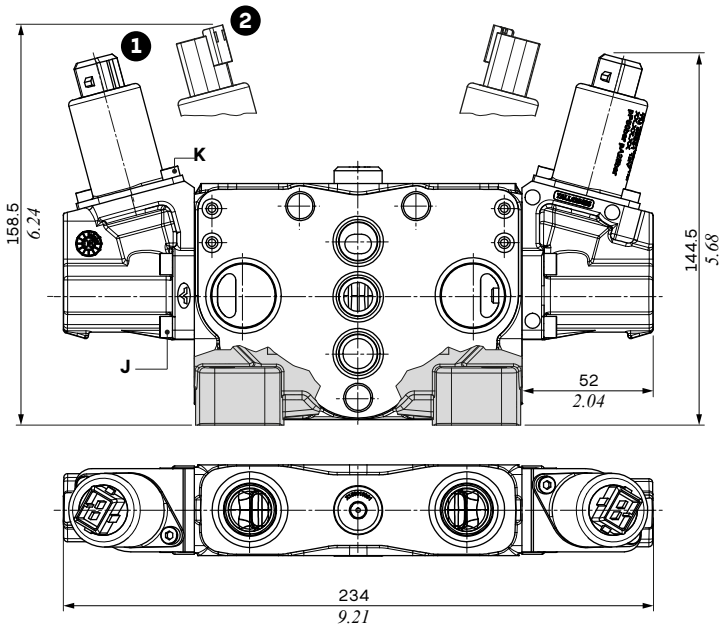
Type 8EB34T
With Deutsch connector



Type 13EB3T
With AMP connector
for floating circuit

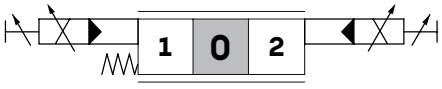
Type 13EB34T
With Deutsch connector
for floating circuit

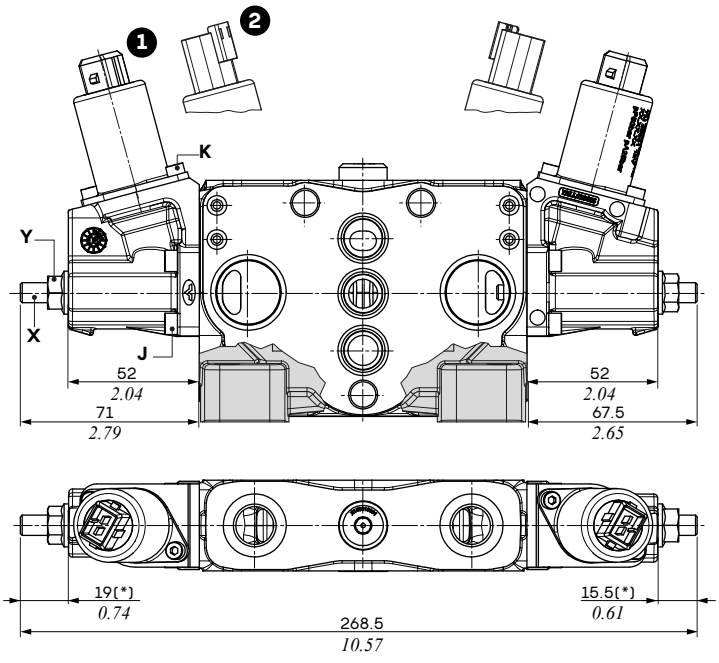




Type 8EB3TF3
With AMP connector
and spool stroke limiter

Type 8EB34TF3
With Deutsch connector
and spool stroke limiter





Wrenches and tightening torques

J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
K = allen wrench 3 - 5 Nm *(3.6 lbft)*
X = allen wrench 3
Y = wrench 10 - 9.8 Nm *(7.2 lbft)*

(*): Minimum distance for no adjustment

Electro-hydraulic control

Type controls

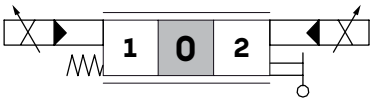
1 : With AMP JPT connector - AMP JPT mating connector, code: 5CON003

2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

With lever control, spring return in neutral position

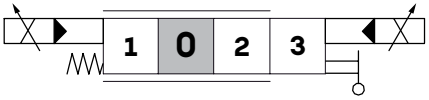
Type 8EB3TLH
With AMP connector

Type 8EB34TLH
With Deutsch connector

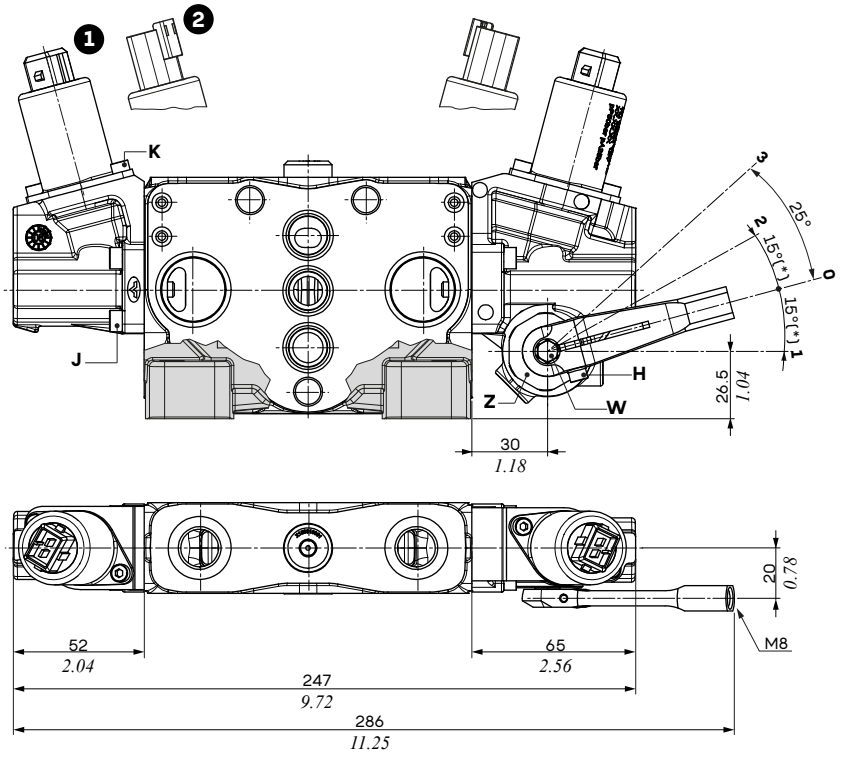


Type 13EB3TLH
With AMP connector
for floating circuit

Type 13EB34TLH
With Deutsch connector
for floating circuit

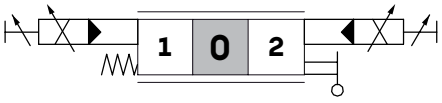


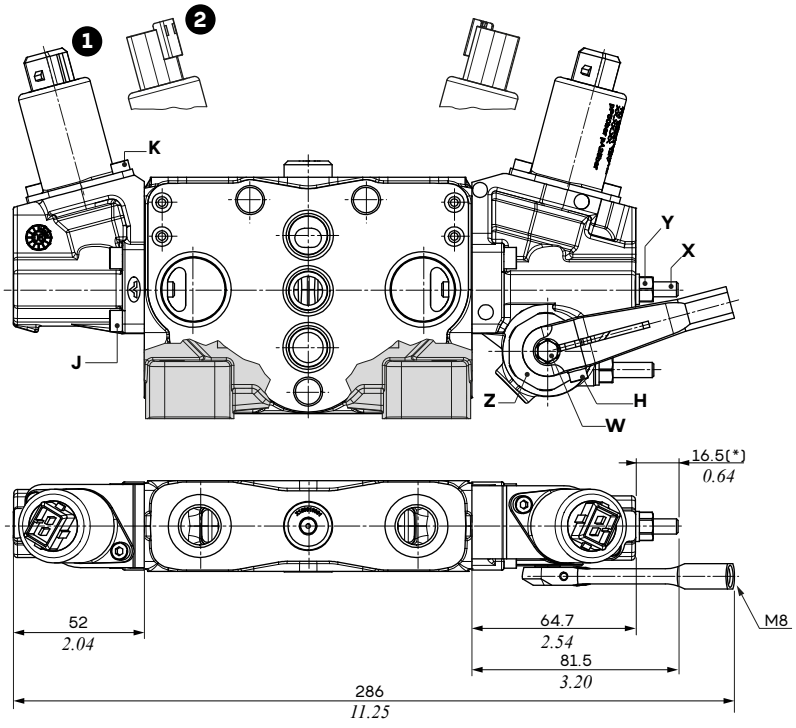
Angle (*)
15° with 8EB3.. type controls
14° with 13EB3.. type controls



Type 8EB3TLHF3
With AMP connector
and spool stroke limiter

Type 8EB34TLHF3
With Deutsch connector
and spool stroke limiter





Wrenches and tightening torques
H = allen wrench 3 - 6.6 Nm *(4.9 lbft)*
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
K = allen wrench 3 - 5 Nm *(3.7 lbft)*
X = allen wrench 3
Y = wrench 10 - 9.8 Nm *(7.2 lbft)*
Z = wrench 29 - 24 Nm *(17.7 lbft)*
W = wrench 8

(*): Minimum distance for no adjustment

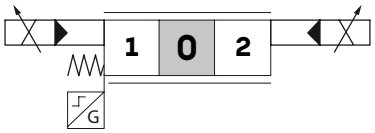
Type controls

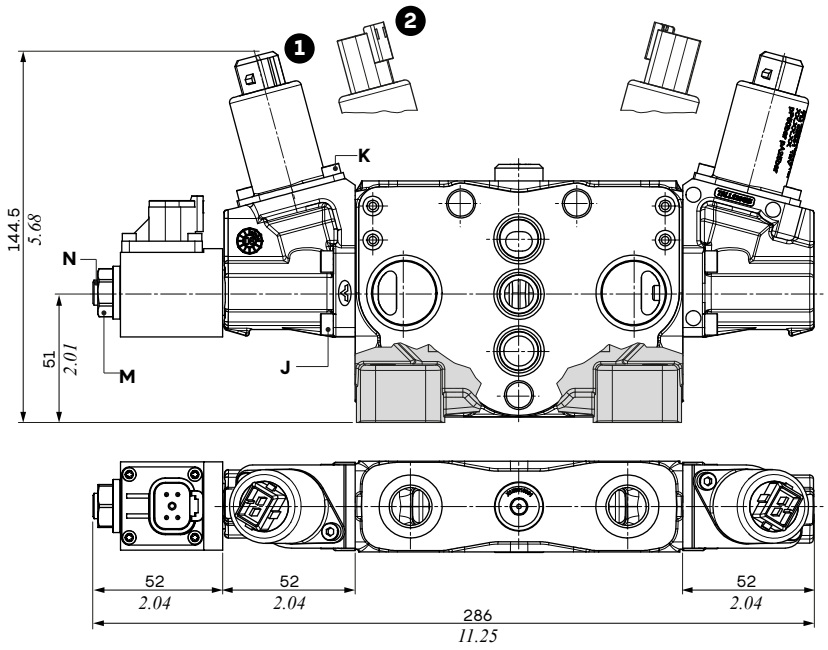
1: With AMP JPT connector - AMP JPT mating connector, code: 5CON003

2: With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

Without lever control, with spool position sensor

Type 8EB3TSPSD
Digital output sensor
and AMP connector



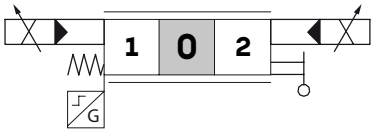


Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
K = allen wrench 3 - 5 Nm *(3.7 lbft)*
M = wrench 4 - 9.8 Nm *(7.2 lbft)*
N = wrench 10 - 9.8 Nm *(7.2 lbft)*

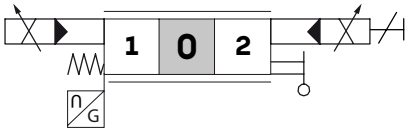
With lever control, with spool position sensor

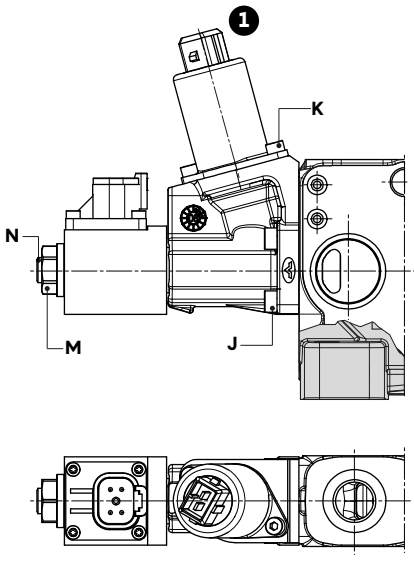
Note - For more dimensions
see previous pages

Type 8EB3TLHSPSD
Digital output sensor
and AMP connector

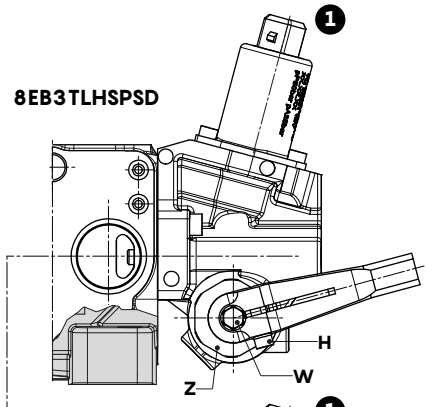


Type 8EB3TLHF3SPSL
Analog output sensor, AMP connector
and spool stroke limiter

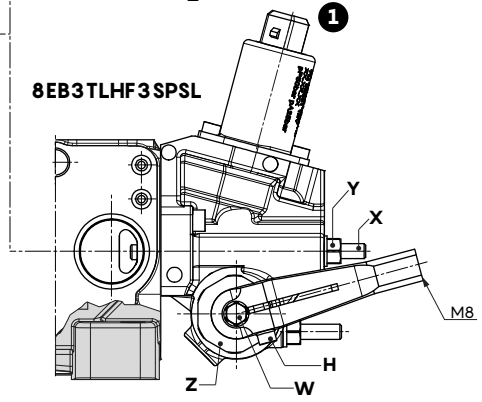




8EB3TLHSPSD

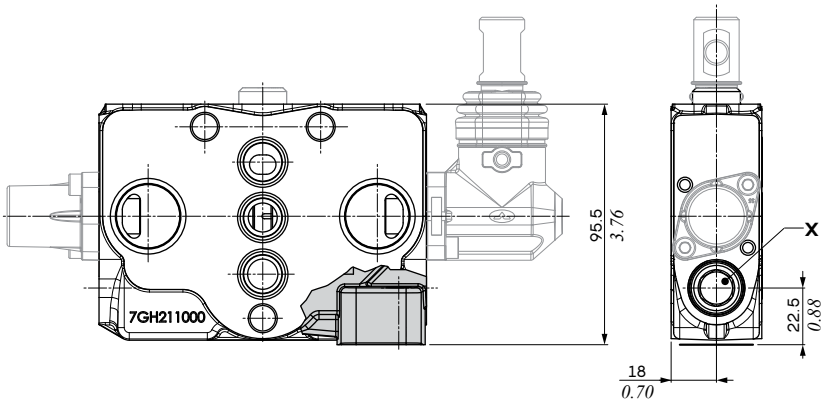


8EB3TLHF3SPSL



Port valves

Dimensional data, hydraulic circuit and performance data



Type U
Antishock valves with prefill

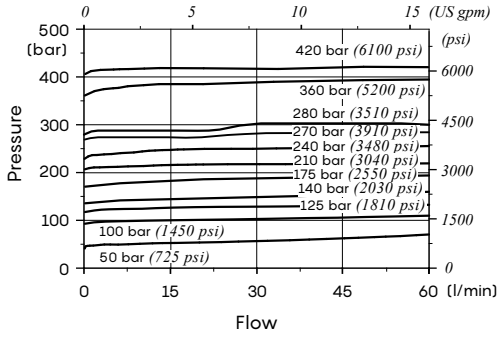
Type C
Anticavitation valves

Type UT
Valve blanking plug

Wrenches and tightening torques
X = wrench 13 - 24 Nm *(17.7 lbft)*

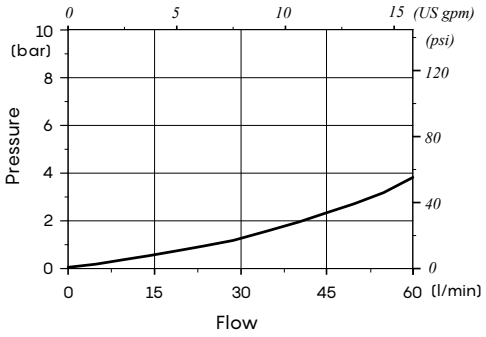
Type U: antishock valves with prefill

Setting example
(10 l/min - *2.6 Us gpm*)

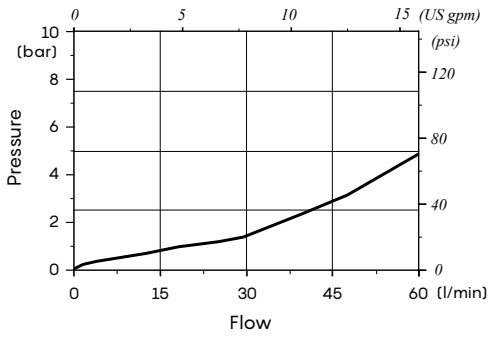


Type C: anticavitation valves

Pressure drop



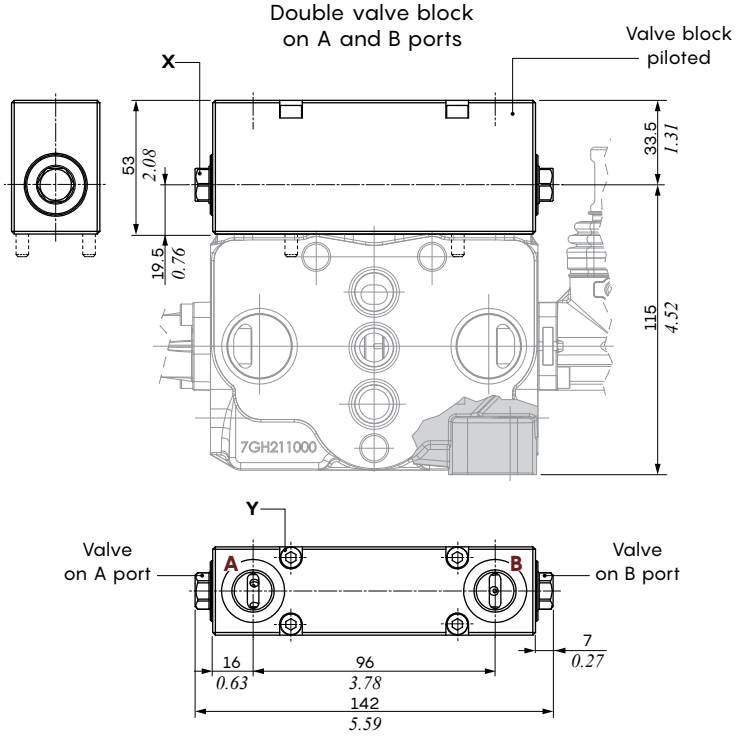
Pressure drop
(in anticavitation)

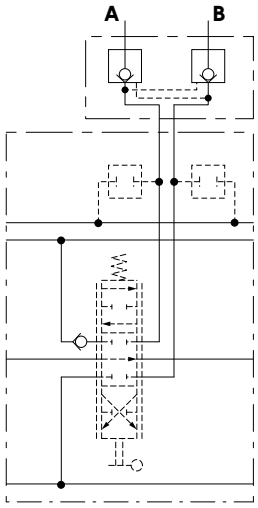


Secondary aux valve block

Dimensional data and hydraulic circuit

Type BP3A
Double valve block
on A and B ports

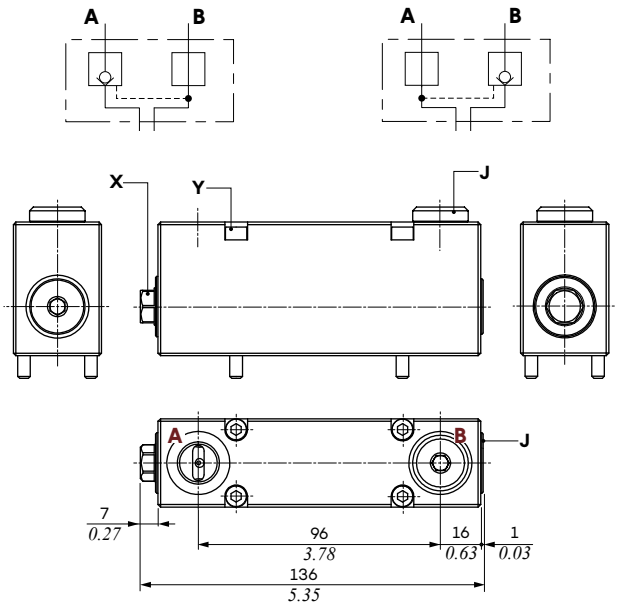


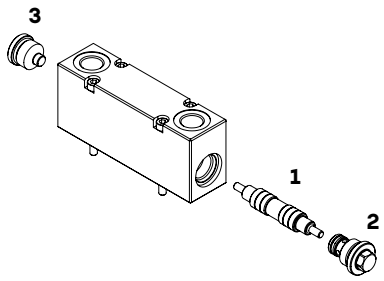


Wrenches and tightening torques
X = wrench 13 - 42 Nm *(31 lbft)*
Y = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
J = allen wrench 6 - 24 Nm *(17.7 lbft)*

Type BP1A
Single valve block
on A port

Type BP2A(*)
Single valve block
on B port





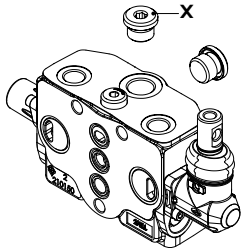
Spare parts		
	Description	Code
1	Piston	3PIS214820
2	BP Cartridge	X209310000
3	Valve blanking plug	XTAP822220

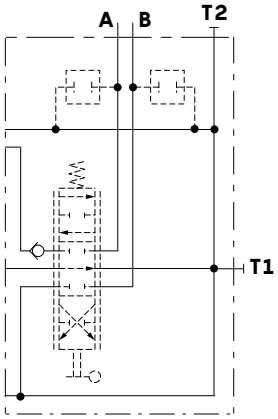
Note (*) - Drawings are referred to valve block type BP1A. For type BP2A mount the plug on A port.

Outlet circuit

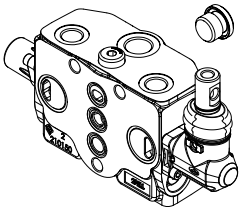
Outlet working section for mechanical, proportional hydraulic, ON/OFF electric controls

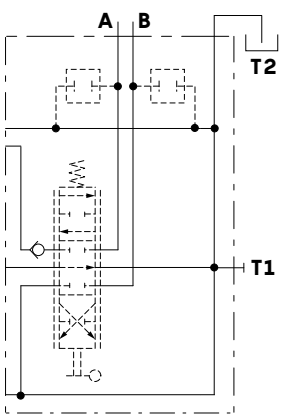
Type F
T2 and T1 ports plugged



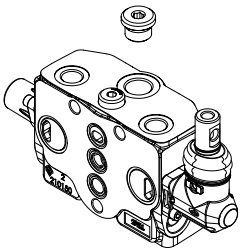


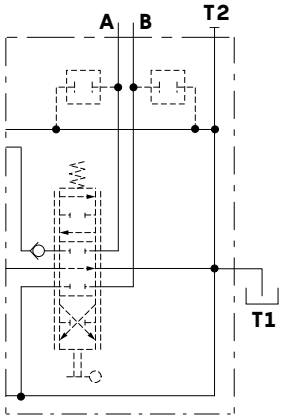
Type TA
T2 port open and
T1 port plugged



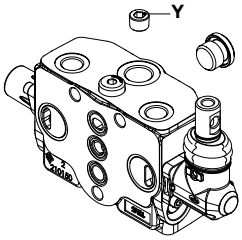


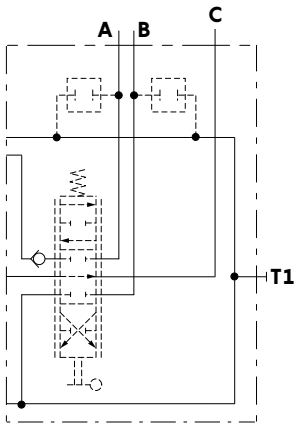
Type TL
T2 port plugged and
T1 port open



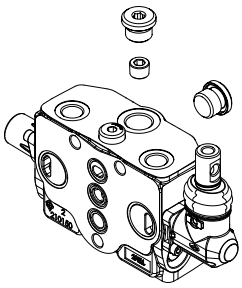


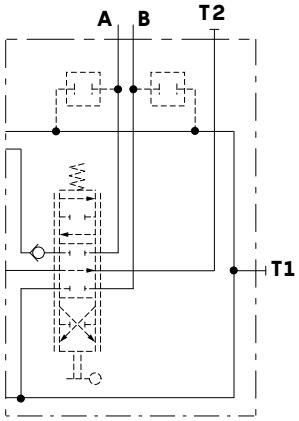
Type AE
Carry-over on T2 port
and T1 port plugged





Type AEK
T2 and T1 ports plugged
for closed circuit





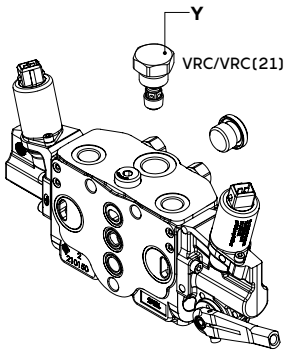
Circuit configuration				
Type	**T2 port**	**T1 port**	**Carry-over**	**Note**
F	plugged	plugged	-	outlet is on port T of inlet section
TA	open	plugged	-	it's necessary to plug T port on inlet section
TL	plugged	open	-	it's necessary to plug T port on inlet section
AE	open	plugged	open	outlet is on port T of inlet section
AEK	plugged	plugged	plugged	outlet is on port T of inlet section

Wrenches and tightening torques
X = allen wrench 8 - 42 Nm *(31 lbft)*
Y = allen wrench 7 - 24 Nm *(17.7 lbft)*

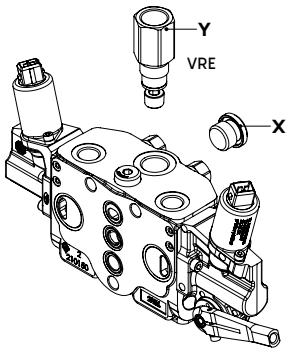
Outlet working section for electrohydraulic/mixed controls

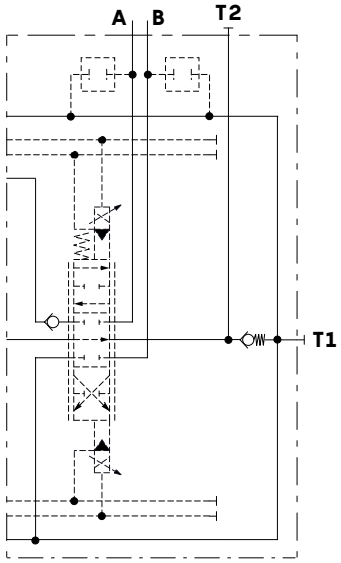
Type F
T2 and T1 ports plugged

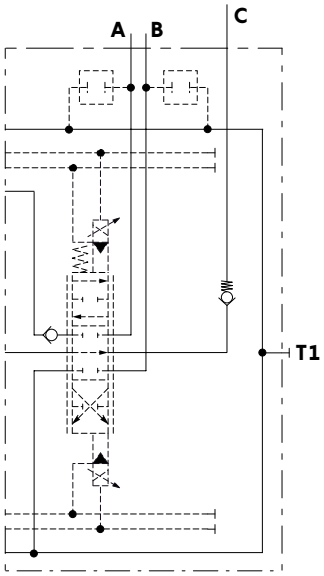
With back pressure valve
VRC/VRC21



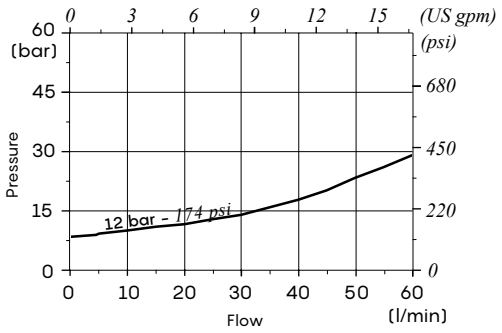
With back pressure valve
VRE (carry-over function)



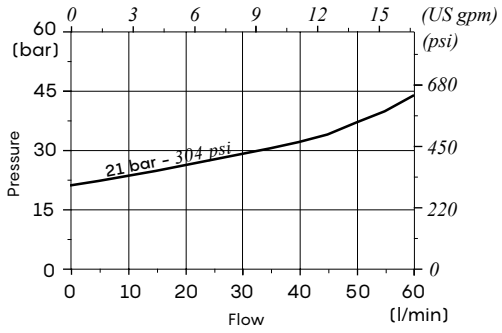




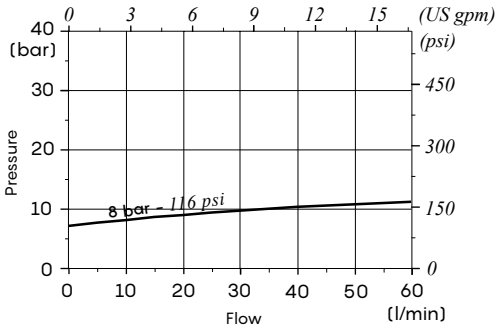
Valve type VRC
Pressure drop



Valve type VRC(21)
Pressure drop



Valve type VRE
Pressure drop



Wrenches and tightening torques
X = allen wrench 8 - 42 Nm *(31 lbft)*
Y = wrench 27 - 24 Nm *(17.7 lbft)*

Intermediate inlet section type EI2

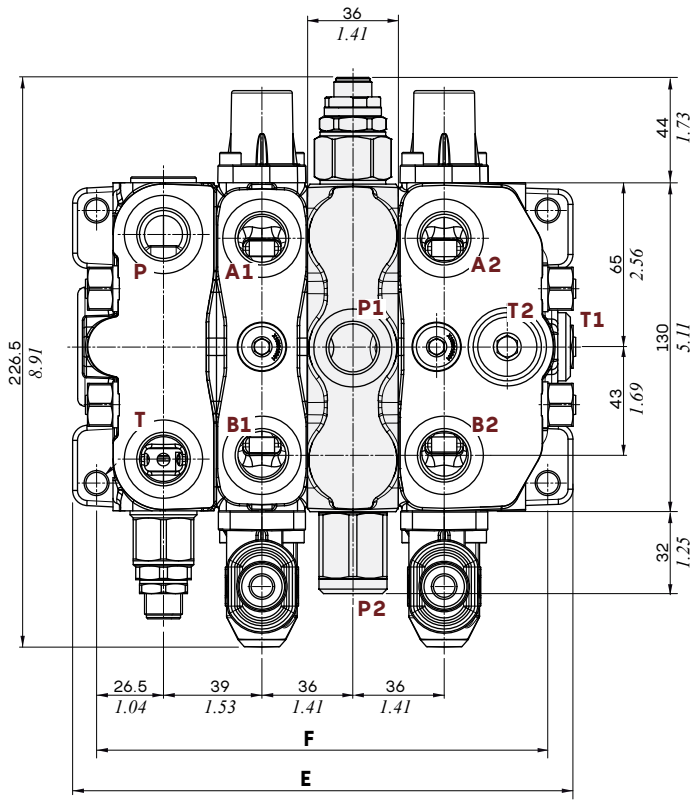
Dimensional data and hydraulic circuit

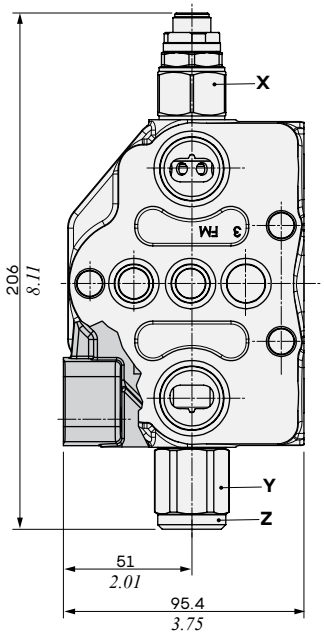
Section with secondary pressure relief valve (VMP) and arrangement for a second inlet (P1 o P2).

Configuration example:

SDS100/2/CN(TVGW3-175)/P-101-8L.UTUT/EI2(TVGW3-125\GF-T)/RP-101-8L.UTUT-F/...

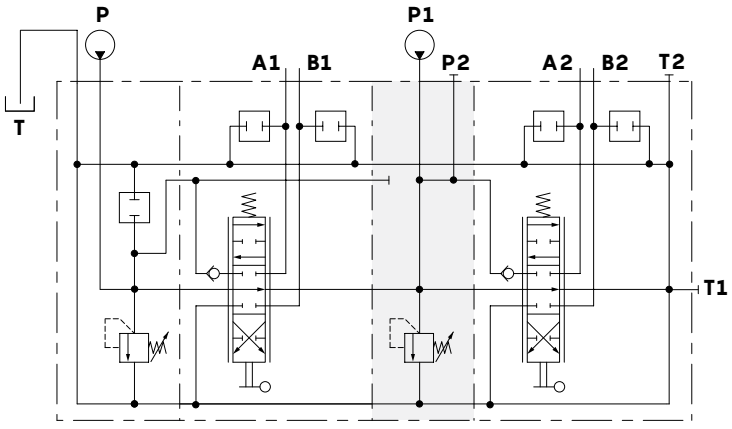
- Nr of working section
- Inlet section
- Working section
- Intermediate inlet section with plugged auxiliary inlet
- Outlet working section





Wrenches and tightening torques
X = wrench 24 - 50 Nm *(36.8 lbft)*
Y = wrench 27 - 24 Nm *(17.7 lbft)*
Z = allen wrench 8 - 42 Nm *(31 lbft)*

TYPE	E		F	
	mm	*in*	mm	*in*
SDS100/2+EI2	200.1	*7.87*	178.5	*7.02*
SDS100/3+EI2	236.1	*9.30*	214.5	*8.44*
SDS100/4+EI2	272.1	*10.71*	250.5	*9.86*
SDS100/5+EI2	308.1	*12.13*	286.5	*11.28*
SDS100/6+EI2	344.1	*13.54*	322.5	*12.69*
SDS100/7+EI2	380.1	*14.96*	358.5	*14.11*
SDS100/8+EI2	416.1	*16.38*	394.5	*15.53*
SDS100/9+EI2	452.1	*17.80*	430.5	*16.94*



Note - Drawings and dimensions are referred to **BSP** thread

Intermediate outlet manifold type CS1

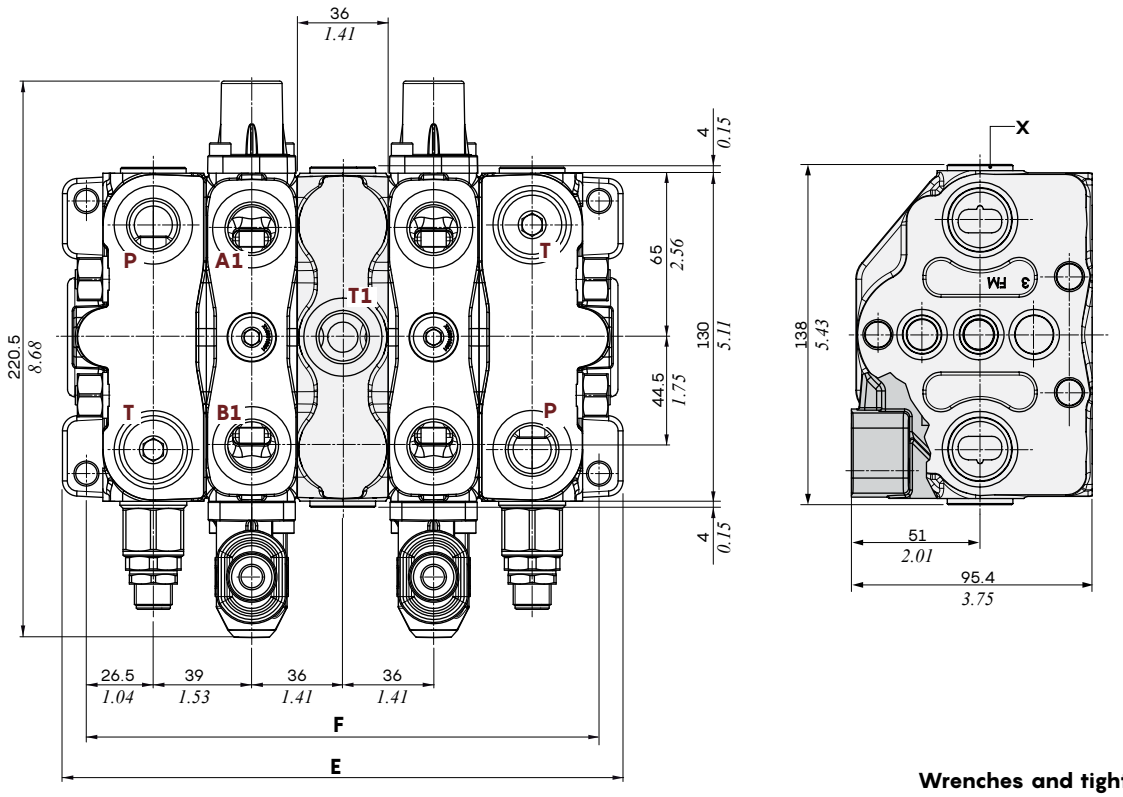
Dimensional data and hydraulic circuit

Outlet manifold for distributor configured with 2 side inlet and single common T outlet.

Configuration example:

SDS100/2/CN(TVGW3-175)/P-101-8L.UTUT/CS1/P-ED-101-8L.UTUT/BN(TVGW3-175)-....

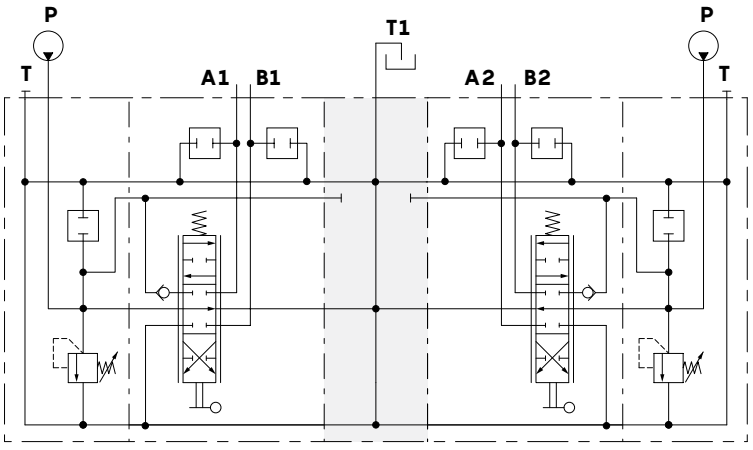
Nr of working section	Inlet section	Working section	Intermediate outlet manifold	Working section	Inlet section



Wrenches and tightening torques
X = allen wrench 8 - 24 Nm *(17.7 lbft)*

Note (*) - For right inlet configuration with CS1 manifold, contact Sales Dpt.

TYPE	E		F	
	mm	*in*	mm	*in*
SDS100/2+CS1	222	*8.74*	203	*7.99*
SDS100/3+CS1	258	*10.15*	239	*9.41*
SDS100/4+CS1	294	*11.57*	275	*10.82*
SDS100/5+CS1	330	*12.99*	311	*12.24*
SDS100/6+CS1	366	*14.41*	347	*13.66*
SDS100/7+CS1	402	*15.82*	383	*15.07*
SDS100/8+CS1	438	*17.24*	419	*16.49*
SDS100/9+CS1	474	*18.66*	455	*17.91*
SDS100/10+CS1	510	*20.07*	491	*19.33*



Note - Drawings and dimensions are referred to **BSP** thread

Coil and connector

Dimensional data and features

Coil type	Voltage	Connectors					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
BER	10 VDC	4SLE001000A	-	-	-	-	-
	12 VDC	4SLE001200A 4SLE001217A(3)	4SLE001201A(5) 4SLE001209A(3-5) 4SLE001202A(6) 4SLE001216B(3-6) 4SLE001206A(2)	4SLE001203A(5) 4SLE001211A(3-5)	4SLE001210A(2)	4SLE001214A(2)	4SLE001207A
	14 VDC	-	4SLE001400A(6) 4SLE001401A(3-6) 4SLE001402A(3-5)	4SLE001403A(3-5)	-	-	-
	24 VDC	4SLE002400A 4SLE002408A(3) 4SLE302400A(1)	4SLE002401A(5) 4SLE002407A(3-5) 4SLE002402A(6)	4SLE002403A(5)	-	-	4SLE002404A
	28 VDC	-	4SLE002802A(6)	4SLE002800A(5)	-	-	-
	48 VDC	4SLE004800A 4SLE304800A(1)	-	-	-	-	-
	110VDC	4SLE011000A 4SLE311000A(1)	-	-	-	-	-
	220 VDC	4SLE022000A 4SLE322000A(1)	-	-	-	-	-
BPV	12 VDC	4SLA001200	-	-	-	-	-
	24 VDC	4SLA002403	-	-	-	-	-
BE	12 VDC	4SL1000120A	4SL1000123B(6) 4SL1000140(3-6) 4SL1000123B(2)	-	-	-	4SL1000122B
	24 VDC	4SL1000240B 4SL1030240(1)	4SL1002401(6)	-	-	-	-
	48 VDC	4SL1010480	-	-	-	-	-
	110 VDC	4SL1011100 4SL1031100(1)	-	-	-	-	-
	220 VDC	4SL1022200 4SL1032200(1)	-	-	-	-	-
D12	10,5 VDC	4SOL412011	4SOL412111(2)	-	-	-	-
	12 VDC	4SOL412012 4SOL412016(3)	4SOL412013(6) 4SOL412112(2) 4SOL412015(3-6) 4SOL412113(2-3)	-	-	-	4SOL412017(3)
	24 VDC	4SOL412024	4SOL412025(6) 4SOL412124(2) 4SOL412027(3-6)	4SOL412224(2)	-	-	-

Mating connectors							
Standard		4CN1009995	5CON140031	5CON003	5CON001	5CON017	-
With rectifier	see following table						

Notes: (1) supply with AC and use only with rectifier connector - (2) with flying leads - (3) with bidirectional diode - (4) with unidirectional diode - (5) integrated perpendicular type - (6) integrated parallel type

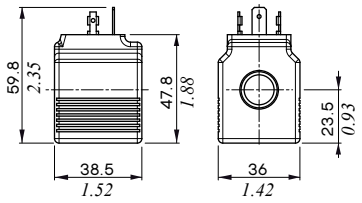
Voltage	ISO 4400 mating connector with rectifier			
	type **BER** coil	type **BE** coil	type **BPV** coil	type **D12** coil
24 VDC	4CN1010240	4CN3010240	-	-
48 VDC	4CN1010480	4CN3010480	-	-
110 VDC	4CN1011100	4CN3011100	-	-
220 VDC	4CN1012200	4CN3012200	-	-

Coil and connector

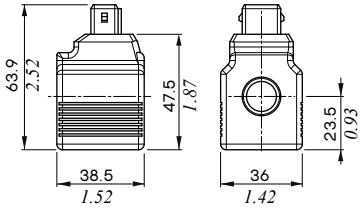
Dimensional data and features

Type BER

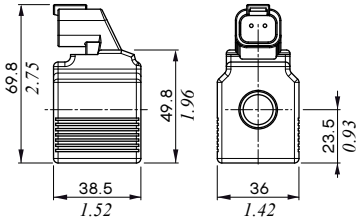
With ISO4400 connector



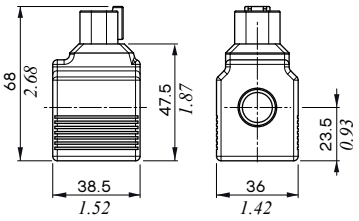
With AMP JPT connector



With DEUTSCH DT04 connector
(parallel type)



With DEUTSCH DT04 connector
(perpendicular type)



Features

Nominal voltage tolerance: ±10%

Power rating.....: 19,2 W - 12/24 VDC - 48 RAC
: 19,1 W - 28 VDC
: 19 W - 10/14/48/110/220 VDC
24/110/220 RAC

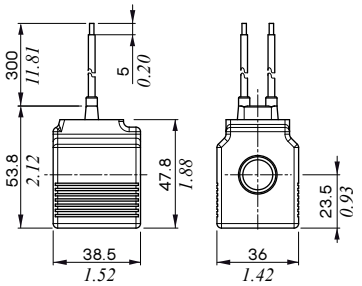
Max. operating current.....: 1,90 A - 10 VDC
: 1,60 A - 12 VDC
: 1,36 A - 14 VDC
: 0,80 A - 24 VDC
: 0,68 A - 28 VDC
: 0,40 A - 48 VDC
: 0,17 A - 110 VDC
: 0,09 A - 220 VDC
: 0,89 A - 24 RAC
: 0,45 A - 48 RAC
: 0,19 A - 110 RAC
: 0.09 A - 220 RAC

Coil insulance.....: Class H (180°C - *356°F*)

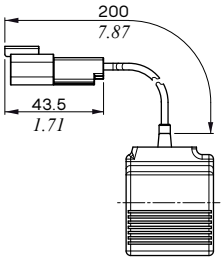
Weather protection.....: IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
: IP67 - Weatherpack
: IP67 - Metri-pack

Insertion.....: 100%

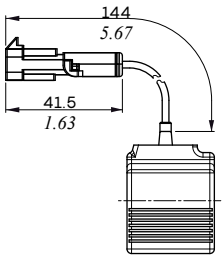
With flying leads



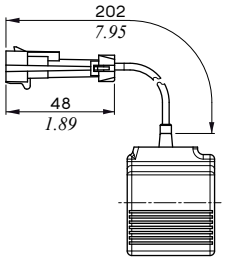
With flying leads and DEUTSCH DT04 connector



With flying leads and PACKARD WEATHER-PACK connector

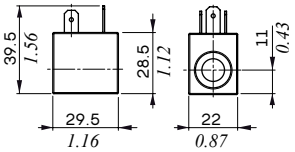


With flying leads and PACKARD METRI-PACK connector



Type BPV

With ISO4400 connector



Features

Nominal voltage tolerance: ±10%

Power rating.....: 8 W - 12/24 VDC

Max. operating current.....: 0,67 A - 12 VDC
: 0,33 A - 24 VDC

Coil insulance.....: Class H (180°C - *356°F*)

Weather protection.....: IP65 - ISO4400

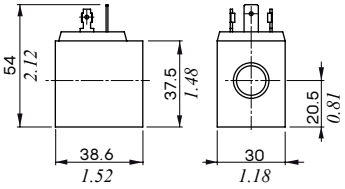
Insertion.....: 100%

Coil and connector

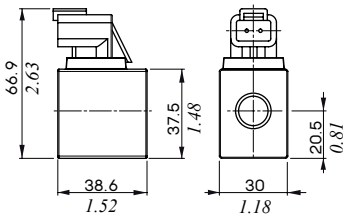
Dimensional data and features

Type BE

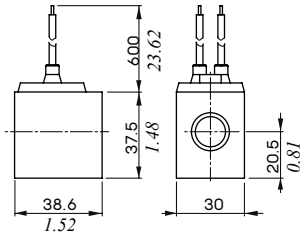
With ISO4400 connector



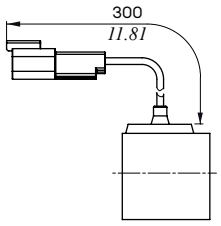
With DEUTSCH DT04 connector
(parallel type)



With flying leads



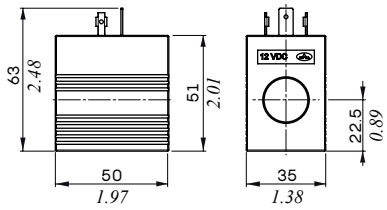
With flying leads and DEUTSCH DT04 connector



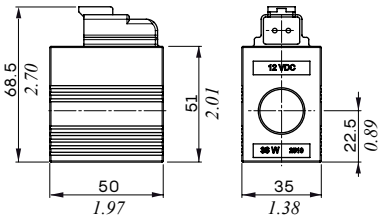
Features
Nominal voltage tolerance: ±10%
Power rating.....: 18,7 W - 12 VDC
: 18,6 W - 24 VDC
: 17,3 W - 110 VDC
: 15,7 W - 220 VDC
: 18,3 W - 24 RAC
: 16 W - 110 RAC
: 16 W - 220 RAC
Max. operating current.....: 1,56 A - 12 VDC
: 0,77 A - 24 VDC
: 0,157 A - 110 VDC
: 0,08 A - 220 VDC
: 0,85 A - 24 RAC
: 0,16 A - 110 RAC
: 0,08 A - 220 RAC
Coil insulance.....: Classe F (155°C)
Weather protection.....: IP65 - ISO4400
: IP69K - Deutsch DT
Insertion.....: 100%

Type D12

With ISO4400 connector

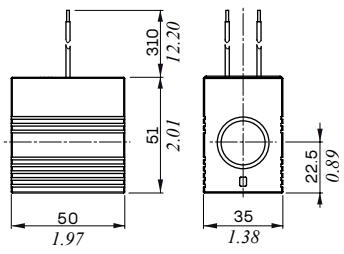


With DEUTSCH DT04 connector
(parallel type)

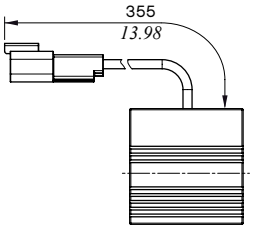


Features
Nominal voltage tolerance: ±10%
Power rating.....: 36 W - 10,5/12/24 VDC
Max. operating current.....: 3,43 A - 10,5 VDC
: 3 A - 12 VDC
: 1,5 A - 24 VDC
Coil insulance.....: Classe H (180°C)
Weather protection.....: IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
Insertion.....: 100%

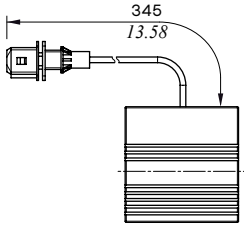
With flying leads



With flying leads and DEUTSCH DT04 connector



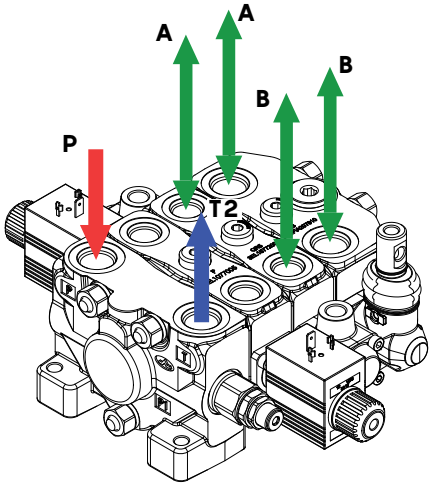
With flying leads and AMP JPT connector

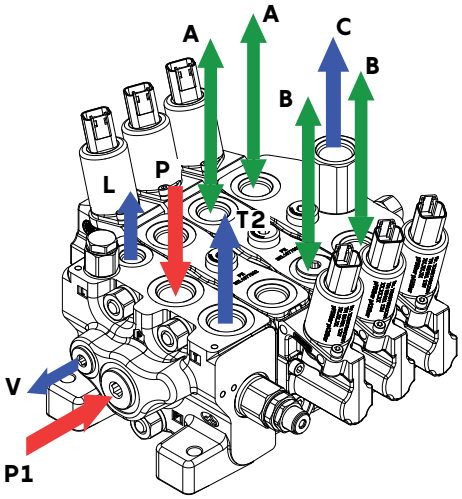


Main rules

The SDS100 series valves are assembled and tested as per the technical specifications of this catalogue.
Before the final installation on your equipment, please follow the below recommendations:

- the valve can be assembled in any position; in order to prevent body deformation and spool sticking mount the product on a flat surface;
- In order to prevent the possibility of water entering the spool control kit, do not use high pressure washdown directly on the valve;
- prior to painting, ensure plugs on normally open ports are tightly in place.





FITTING TIGHTENING TORQUE – Nm / *lbft*					
THREAD TYPE	**P and P1 ports**	**A and B ports**		**T, T1, T2 and C ports**	**V and L ports**
BSP	G1/2	G3/8	G1/2	G1/2	G1/4
With O-Ring seal	50 / *36.9*	35 / *35.8*	50 / *36.9*	50 / *36.9*	25 / *18.4*
With copper washer	60 / *44.3*	40 / *29.5*	60 / *44.3*	60 / *44.3*	30 / *22.1*
With steel and rubber washer	60 / *44.3*	30 / *22.1*	60 / *44.3*	60 / *44.3*	16 / *11.8*
UN-UNF	7/8-14 (SAE 10)	3/4-16 (SAE 8)	7/8-14 (SAE 10)	7/8-14 (SAE 10)	9/16-18 (SAE 6)
With O-Ring seal	90 / *66.4*	35 / *35.8*	90 / *66.4*	90 / *66.4*	30 / *22.1*

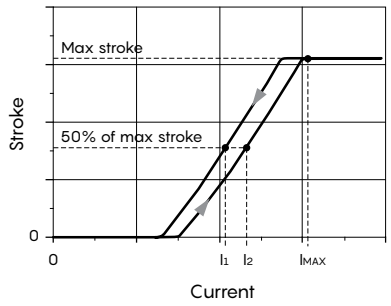
Note - These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish.

Appendix A

Electro-hydraulic controls: hysteresis calculation rule

Hysteresis is calculated as the difference between control currents (I_2-I_1) needed to reach 50% of nominal spool stroke, referred to maximum control current IMAX, needed to reach 100% of spool stroke.
I2 is determined on spool stroke increase line, I1 is determined on spool stroke decrease line.

Example diagram for data detection



$$\text{Hysteresis } \% = \frac{I_2 - I_1}{I_{MAX}} \times 100$$

Notes

WALVOIL NEL MONDO | WALVOIL WORLDWIDE

WALVOIL S.P.A.
DIREZIONE E COORDINAMENTO INTERPUMP GROUP S.P.A.
Sede principale, Filiali e Uffici di rappresentanza
Headquarters, Subsidiaries and Representative Offices

WALVOIL S.P.A. SEDE PRINCIPALE | HEADQUARTERS
Via Adige, 13/D . 42124 Reggio Emilia . Italy
TEL. +39 0522 932411
info@walvoil.com | www.walvoil.com

AUSTRALASIA | AUSTRALASIA

WALVOIL FLUID POWER AUSTRALASIA PTY LTD
6 Leonard Avenue . Toukley NSW 2263 . Sydney . Australia
TEL. +61 413 739 938
australasia@walvoil.com

BRASILE | BRAZIL

INTERPUMP HYDRAULICS BRASIL LTDA | WALVOIL DIVISION
Rua Gilberto de Zorzi, 525 . Bairro Forqueta 95115-730
Caxias do Sul (RS)
TEL. +55 54 3289 7000
infobrasil@walvoil.com

CANADA | CANADA

WALVOIL CANADA INC.
3100, Rue Jacob Jordan . Terrebonne . Qc J6X 4J6 . Canada
TEL. +1 450 477 1076 Ext:2225
info@walvoilcanada.com | www.walvoilcanada.com

CINA | CHINA

WALVOIL FLUID POWER (DONGGUAN) CO. LTD
1st Floor, the Third Factory Area, Sijia, Shijie Town, Dongguan City
Guangdong province. China.
TEL. +86 769 81816189-8020
info@walvoil.com.cn | www.walvoil.com.cn

COREA DEL SUD | SOUTH KOREA

WALVOIL FLUID POWER KOREA LTD.
(17818)80-15, Oseongsandan 1Ro, Oseong-myun,
Pyeongtaek-si Gyeonggi-do
Republic of Korea 451-872
TEL. +82 31 682 6030
info@walvoil.co.kr | www.walvoil.co.kr

FRANCIA | FRANCE

WALVOIL FLUID POWER FRANCE
362 rue de La Jaunais . Vritz . 44540 Vallons-de-l'Erdre
TEL. +33 2 41 94 41 06
france@walvoil.com

INDIA | INDIA

WALVOIL FLUID POWER (INDIA) PVT. LTD.
No. 1, 2nd Cross, 2nd Main, KIADB Industrial Area, Attibele, Anekal Taluk
Bangalore - 562107 .
TEL. +91 80 0614 24000
info@walvoil.co.in | www.walvoil.co.in

MESSICO | MEXICO

WALVOIL FLUID POWER MEXICO S.A. DE C.V.
Julian Sepulveda Davila #109, Parque Industrial SG, cp. 66640, Apodaca
Nuevo León, Mexico

U.S.A. | U.S.A.

WALVOIL FLUID POWER CORP. | HEADQUARTERS
4111 North Garnett Tulsa, OK 74116, USA
TEL. +1 918 858 7100
info@walvoilusa.com | www.walvoilusa.com

WALVOIL FLUID POWER CORP
1109, Technology Drive . Red Wing . MN 55066 . U.S.A.
TEL. +1 651 212 6400
info@walvoilusa.com | www.walvoilusa.com

D2WWEB01E
1st edition July 2025

A member of