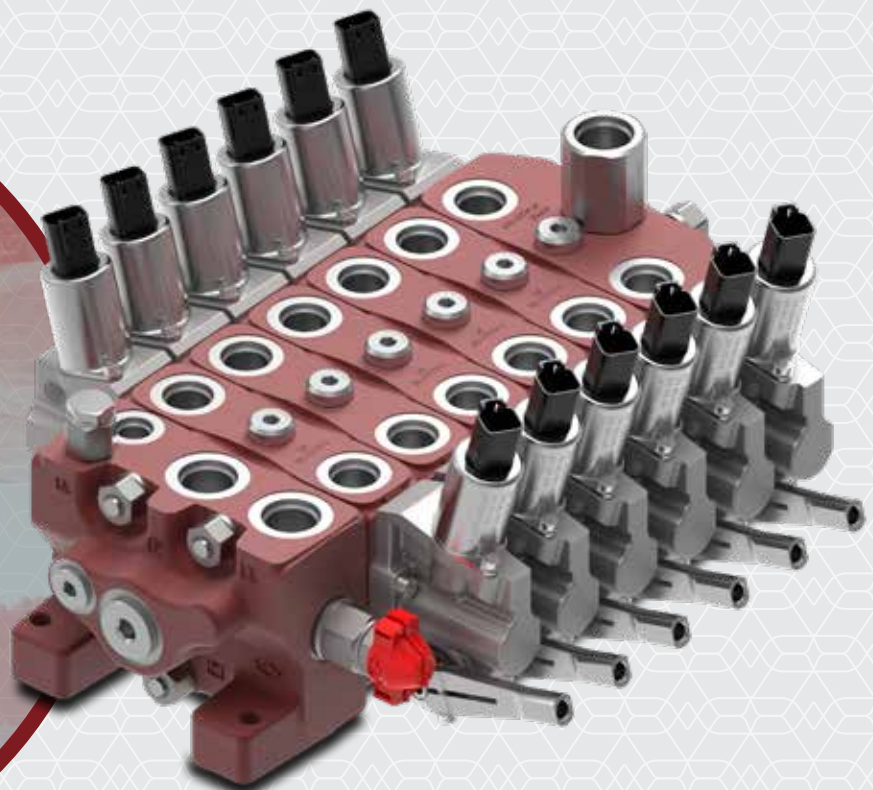


SDS100

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

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Inlet section

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Working section/Outlet working section

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Installation and maintenance

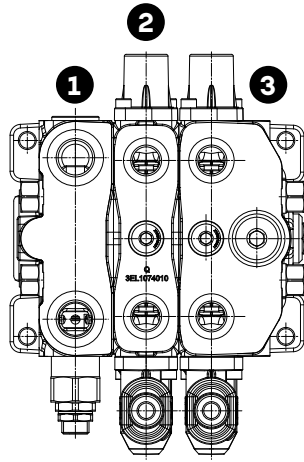
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General guide to configuration

Standard working section

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

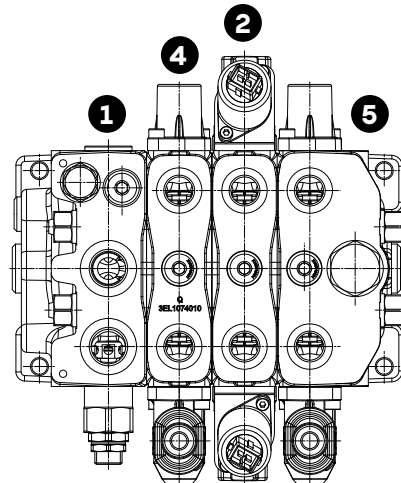
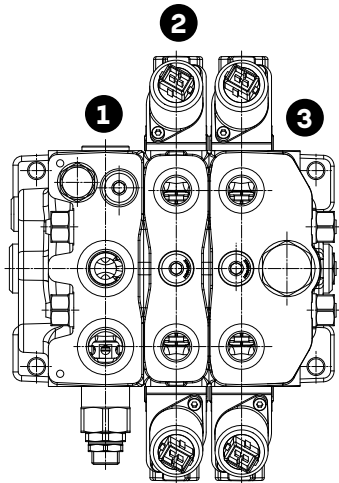


- 1: CN standard inlet section
- 2: Standard working section (type Q, P, SQ, SP)
- 3: Standard working section with outlet (type RQ, RP, RQS, RPS)

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 section 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 cm ³ /min	0.31 in ³ /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 mm ² /s	from 15 to 75 cSt
	Min.	12 mm ² /s	12 cSt
	Max.	400 mm ² /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	ISO 228/1	ISO 263			
ACCORDING TO	BS 2779	ANSI B1.1 unified	ISO 262	ISO 262	ANSI B1.20.3
CAVITY	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.

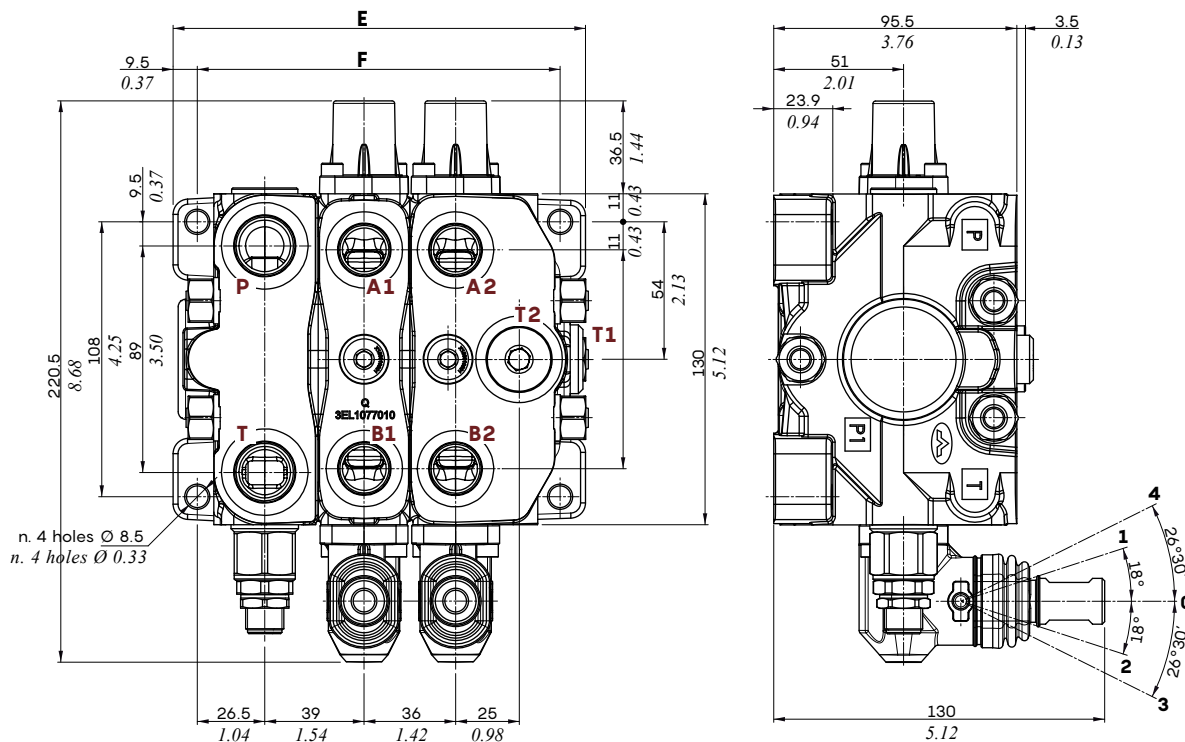
PORTS THREAD

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

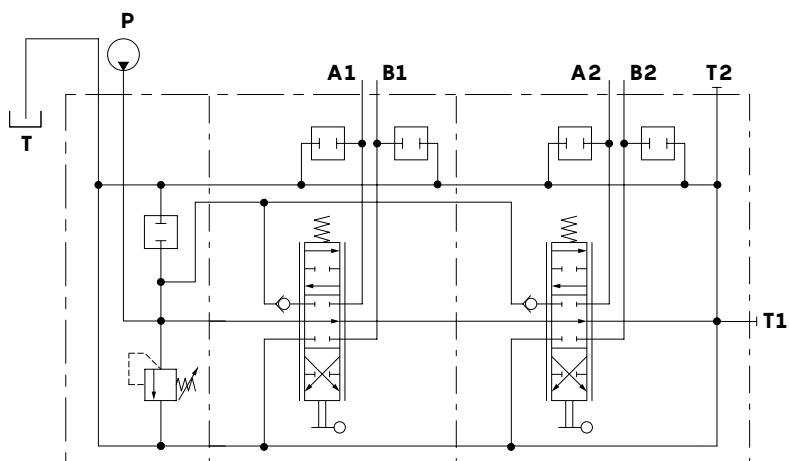
Dimensional data and hydraulic circuit

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

Left inlet standard configuration example



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



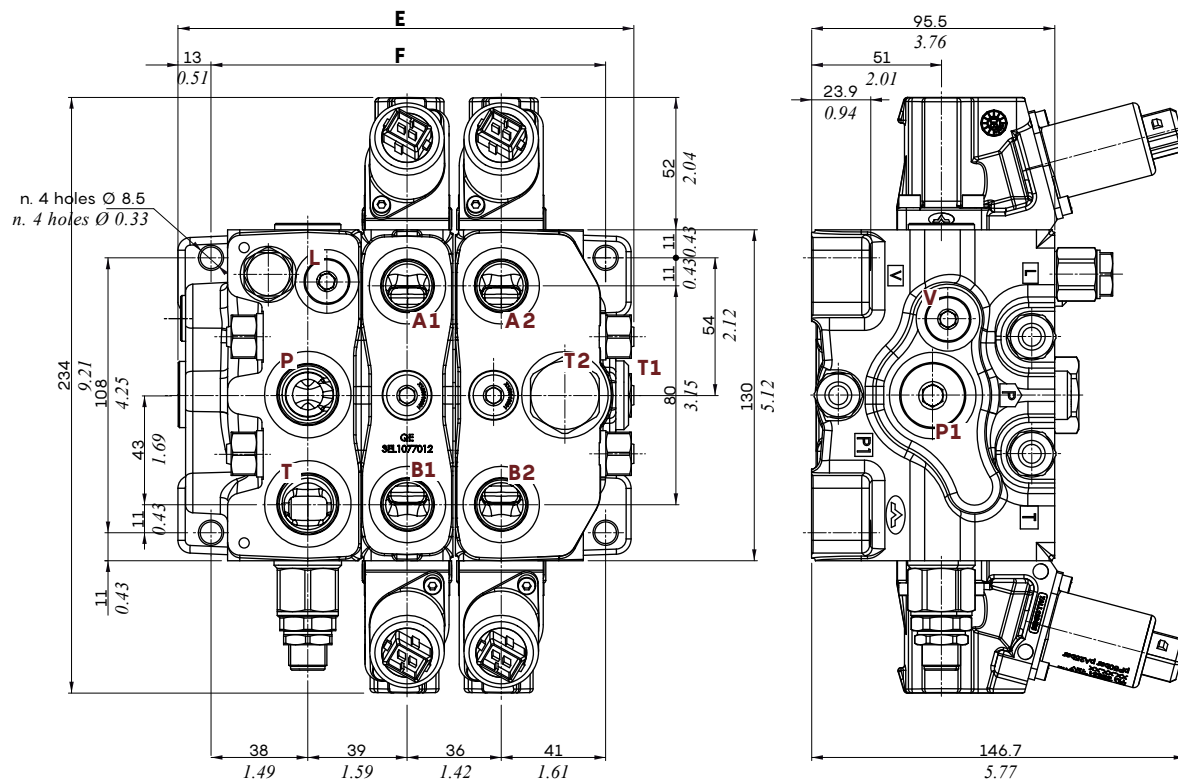
Parallel circuit, port valve arrangement on the sections
SDS100/2/CN(TVGW3-175)/P-101-8L.UTUT/RP-101-8L.UTUT-F-SAE

Note - Drawings and dimensions are referred to **UN-UNF** thread

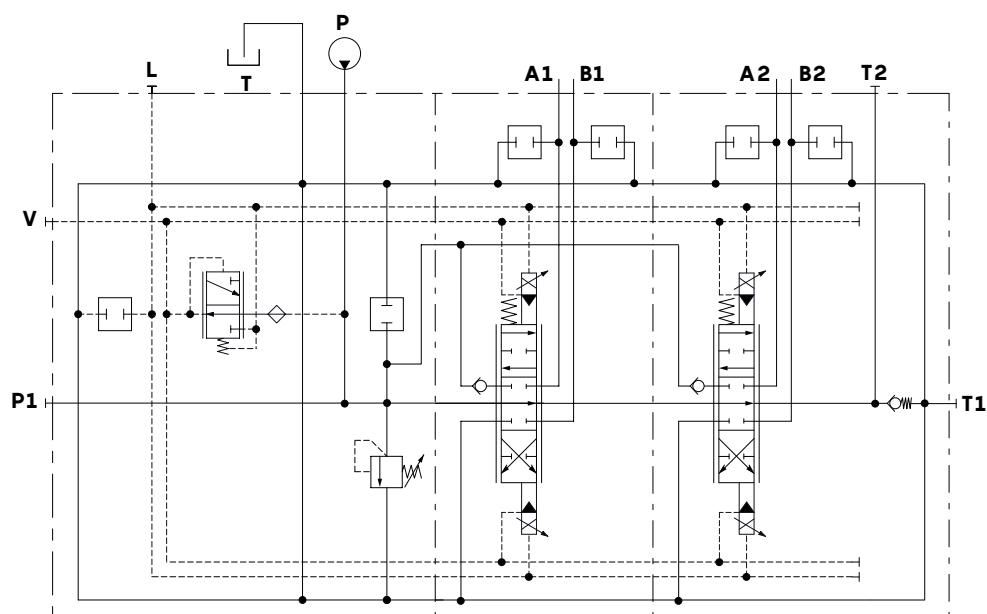
Dimensional data and hydraulic circuit

Configuration with electro-hydraulic control

Left inlet standard configuration example



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

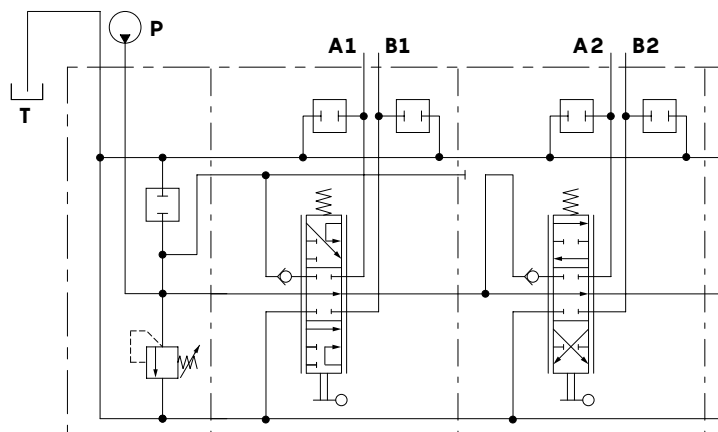
RPE-1ET01-8EB3T.UTUT-VRC-F-TAP(VL)-SAE

Note - Drawings and dimensions are referred to UN-UNF thread

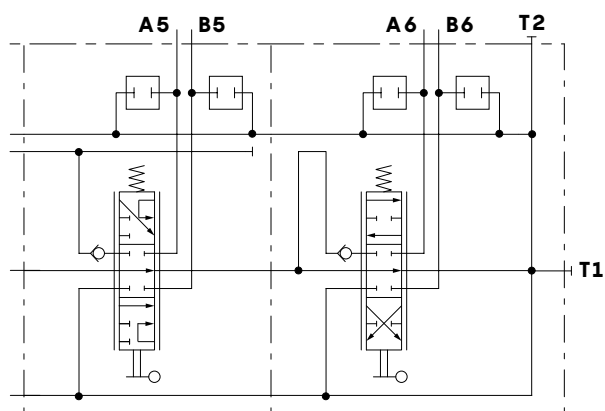
Hydraulic circuit

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

Series circuit

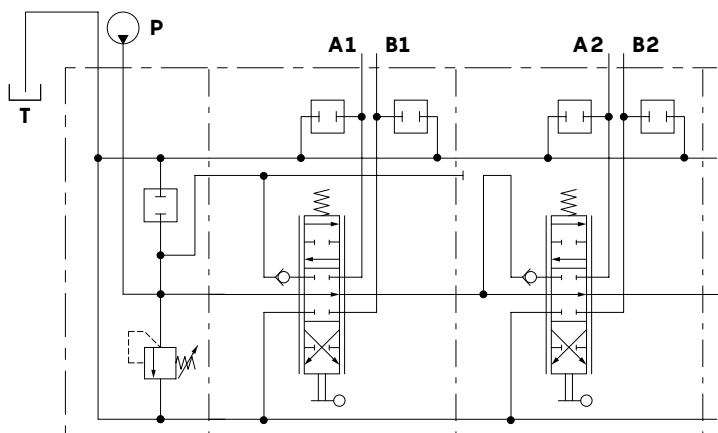


Series between standard working sections, serie spool
SDS100/2/CN(TVGW3-175)/P-**1S01**-8L.UTUT/**SP**-101-8L.UTUT/.....

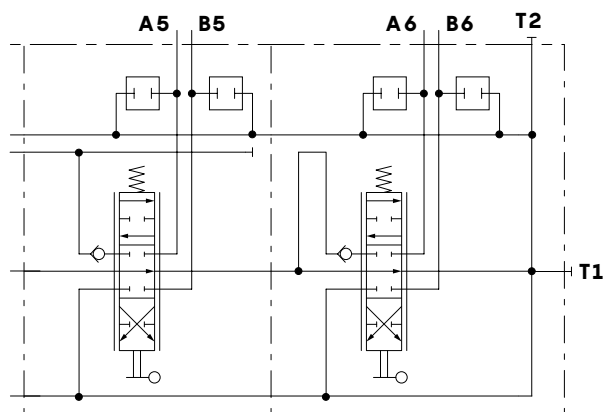


Series between penultimate and last section, serie spool
...../**PR-1S01**-8L.UTUT/**RPS**-101-8L.UTUT-F-SAE

Parallel-series circuit (tandem)



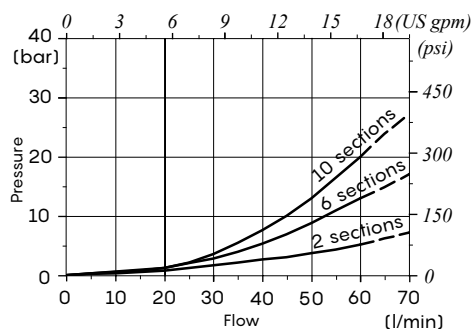
Tandem between standard work sections, standard spool
SDS100/2/CN(TVGW3-175)/P-101-8L.UTUT/**SP**-101-8L.UTUT/.....



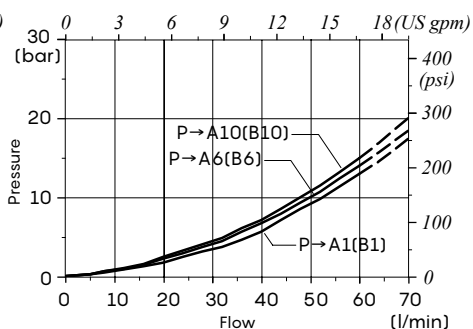
Tandem between penultimate and last section, standard spool
...../**PR**-101-8L.UTUT/**RPS**-101-8L.UTUT-F-SAE

Performance data

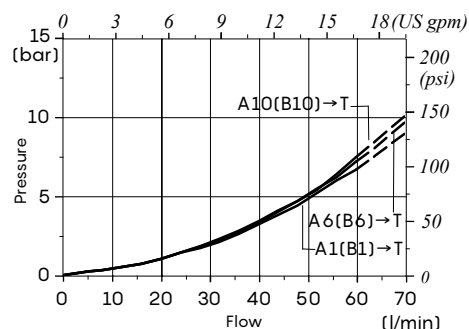
P⇒T pressure drops
(spool type 1)



P⇒A(B) pressure drops
(spool type 1)



A(B)⇒T pressure drops
(spool type 1)



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

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

1A

2A

4

2A

3

7

8

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

1A

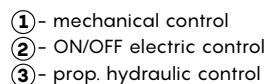
2A

5

2A

3

8



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

1A

2A

6

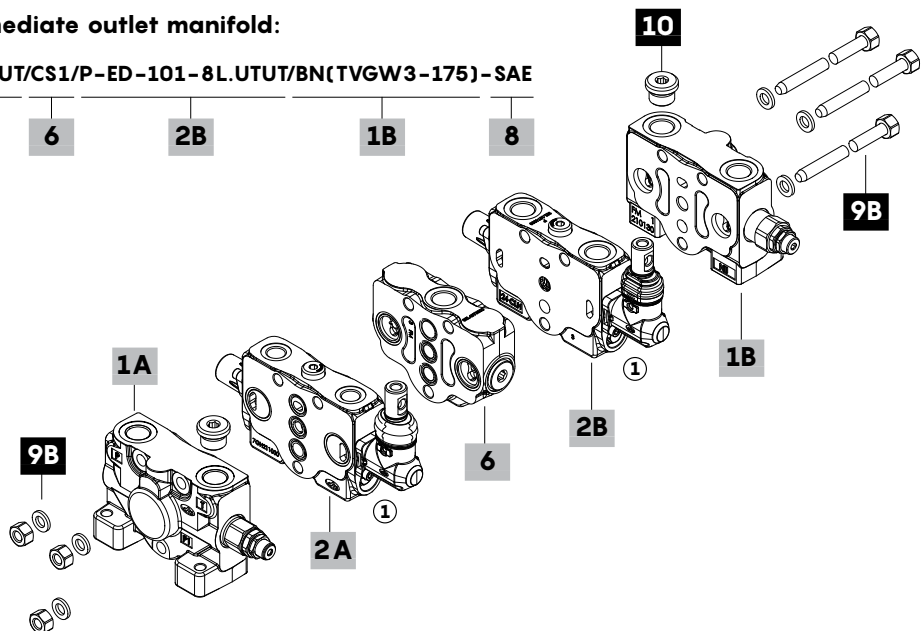
2B

1B

8

10

9B



Complete section ordering codes

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

1A Inlet section*

TYPE: **SDS100/CN(SV)-SAE10** CODE: 610205008
 DESCRIPTION: P and T upper ports, without pressure relief valve
 TYPE: **SDS100/CN(TVGW3-175)-SAE10** CODE: 610201003
 DESCRIPTION: P and T upper ports, with pressure relief valve

1B Right inlet section*

TYPE: **SDS100/BN(SV)-SAE10** CODE: 610205010
 DESCRIPTION: P and T upper ports, without pressure relief valve
 TYPE: **SDS100/BN(TVGW3-175)-SAE10** CODE: 610205306
 DESCRIPTION: P and T upper ports, with pressure relief valve

2A Working section*

Mechanical control

TYPE: **SDS100/Q-101-8L-SAE8** CODE: 610155001
 DESCRIPTION: Parallel circuit, lever control without port valves arrangement
 TYPE: **SDS100/P-101-8L.UTUT-SAE8** CODE: 610101001
 DESCRIPTION: As previous one, with port valves arrangement
 TYPE: **SDS100/PU-101-8L.UTUT-SAE8** CODE: 610100007
 DESCRIPTION: As previous one, with port valves arrangement and secondary aux block valves
 TYPE: **SDS100/P-101-8L.U100U100-SAE8** CODE: 610105013
 DESCRIPTION: As previous one, with shock valves with fixed setting
 TYPE: **SDS100/Q5-501-13NL-SAE8** CODE: 610155600
 DESCRIPTION: Floating circuit, lever control without port valves arrangement
 TYPE: **SDS100/SQ-101-8L-SAE8** CODE: 610125013
 DESCRIPTION: Parallel-series circuit, lever control without port valves arrangement
 TYPE: **SDS100/SP-101-8L.UTUT-SAE8** CODE: 610125015
 DESCRIPTION: As previous one, with port valves arrangement

ON/OFF electric control

TYPE: **SDS100/Q-S102-8ES3-12VDC-SAE8** CODE: 610155008
 DESCRIPTION: Parallel circuit, without port valves arrangement
 TYPE: **SDS100/Q-SHC102-8ES3LHC-12VDC-SAE8** CODE: 610105024
 DESCRIPTION: As previous one, with emergency lever

Proportional hydraulic control

TYPE: **SDS100/Q-I112-8IM-SAE8** CODE: 610155004
 DESCRIPTION: Parallel circuit, without port valves arrangement
 TYPE: **SDS100/Q5-I504-13IMS-SAE8** CODE: 610155601
 DESCRIPTION: As previous one for floating circuit

2B Right working section*

Mechanical control

TYPE: **SDS100/Q-ED-101-8L-SAE8** CODE: 610155002
 DESCRIPTION: Parallel circuit, lever control without port valves arrangement
 TYPE: **SDS100/P-ED-101-8L.UTUT-SAE8** CODE: 610135002
 DESCRIPTION: As previous one, with port valves arrangement
 TYPE: **SDS100/P-ED-101-8L.U100U100-SAE8** CODE: 610100009
 DESCRIPTION: As previous one, with shock valves with fixed setting
 TYPE: **SDS100/Q5-ED-501-13NL-SAE8** CODE: 610100010
 DESCRIPTION: Floating circuit, lever control without port valves arrangement
 TYPE: **SDS100/SQ-ED-101-8L-SAE8** CODE: 610125017
 DESCRIPTION: Parallel-series circuit, lever control without port valves arrangement
 TYPE: **SDS100/SP-ED-101-8L.UTUT-SAE8** CODE: 610125018
 DESCRIPTION: As previous one, with port valves arrangement

ON/OFF electric control

TYPE: **SDS100/Q-ED-S102-8ES3-12VDC-SAE8** CODE: 610100011
 DESCRIPTION: Parallel circuit, without port valves arrangement
 TYPE: **SDS100/Q-ED-SHC102-8ES3LHC-12VDC-SAE8** CODE: 610100012
 DESCRIPTION: As previous one, with emergency lever

Proportional hydraulic control

TYPE: **SDS100/Q-ED-I112-8IM-SAE8** CODE: 610100013
 DESCRIPTION: Parallel circuit, without port valves arrangement
 TYPE: **SDS100/Q5-ED-I504-13IMS-SAE8** CODE: 610100014
 DESCRIPTION: As previous one for floating circuit

3 Outlet working section*

Mechanical control

TYPE: **SDS100/RQ-101-8L-F-SAE8** CODE: 610355001
 DESCRIPTION: Parallel circuit, lever control without port valves arrangement, outlet ports plugged
 TYPE: **SDS100/RP-101-8L.UTUT-F-SAE8** CODE: 610301003
 DESCRIPTION: As previous one, with port valves arrangement
 TYPE: **SDS100/RP-101-8L.U100U100-F-SAE8** CODE: 610305004
 DESCRIPTION: As previous one, with shock valves with fixed setting
 TYPE: **SDS100/RQ-101-8L-AE-SAE8** CODE: 610355002
 DESCRIPTION: Parallel circuit, lever control without port valves arrangement, with carry-over
 TYPE: **SDS100/RP-101-8L.UTUT-AE-SAE8** CODE: 610305003
 DESCRIPTION: As previous one, with port valves arrangement

ON/OFF electric control

TYPE: **SDS100/RQ-S102-8ES3-F-12VDC-SAE8** CODE: 610300002
 DESCRIPTION: Parallel circuit, without port valves arrangement

Proportional hydraulic control

TYPE: **SDS100/RQ-I112-8IM-F-SAE8** CODE: 610355004
 DESCRIPTION: Parallel circuit, without port valves arrangement
 TYPE: **SDS100/RP-I112-8IM.UTUT-F-SAE8** CODE: 610300003
 DESCRIPTION: As previous one, with port valves arrangement

4 Secondary aux valve block *

TYPE: **BP3A-SAE8** CODE: 611007102
 DESCRIPTION: Double valve block on A and B ports
 TYPE: **BP1A-BP2A-SAE8** CODE: 611007111
 DESCRIPTION: Single valve block on A or B ports

5 Intermediate inlet section*

page 56

TYPE: **SDS100/EI2(TVGW2-125\GF-T)-SAE8** CODE: 610425135
 DESCRIPTION: With secondary pressure relief valve and auxiliary inlet (plugged)

6 Intermediate outlet manifold*

page 57

TYPE: **SDS100/CS1-SAE8** CODE: 610405010
 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*

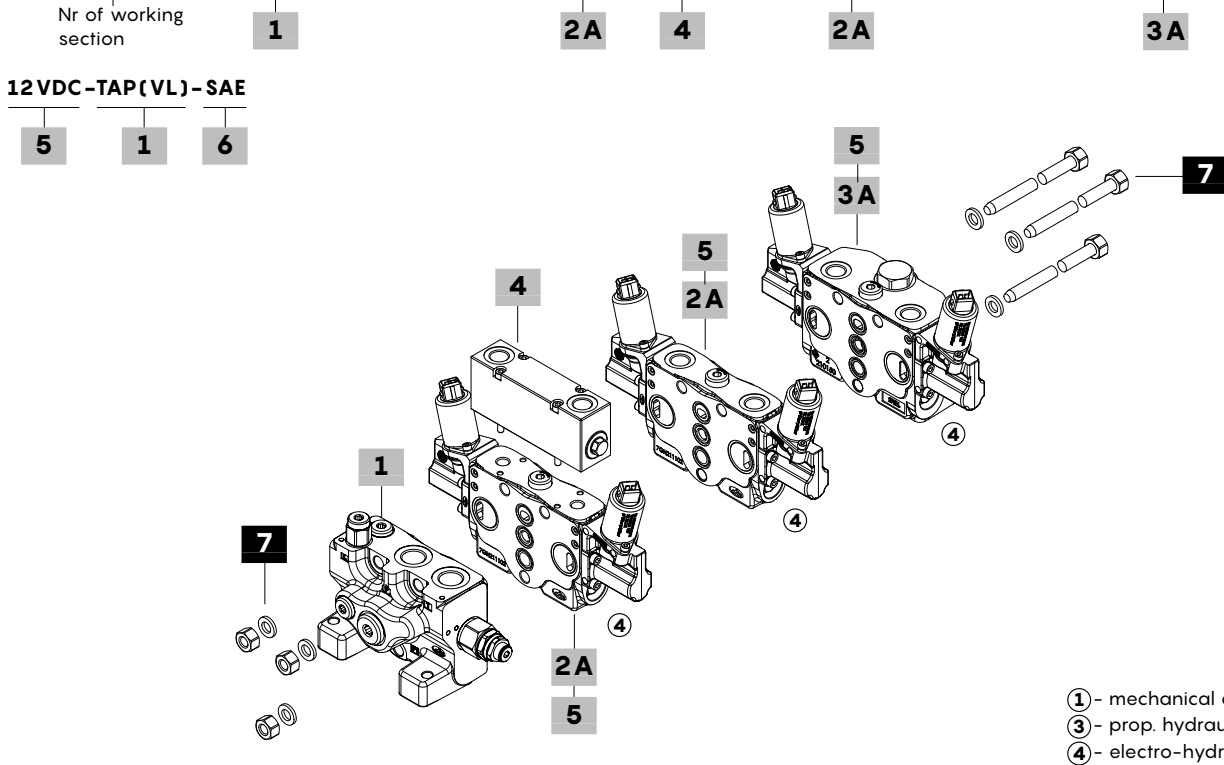
CODE	DESCRIPTION
3XTAP822150	SAE8 plug for working sections
3XTAP826160	SAE10 plug for T port closed on inlet section

Note (*) - Codes are referred to **UN-UNF** thread

Configuration with electro-hydraulic/mixed controls

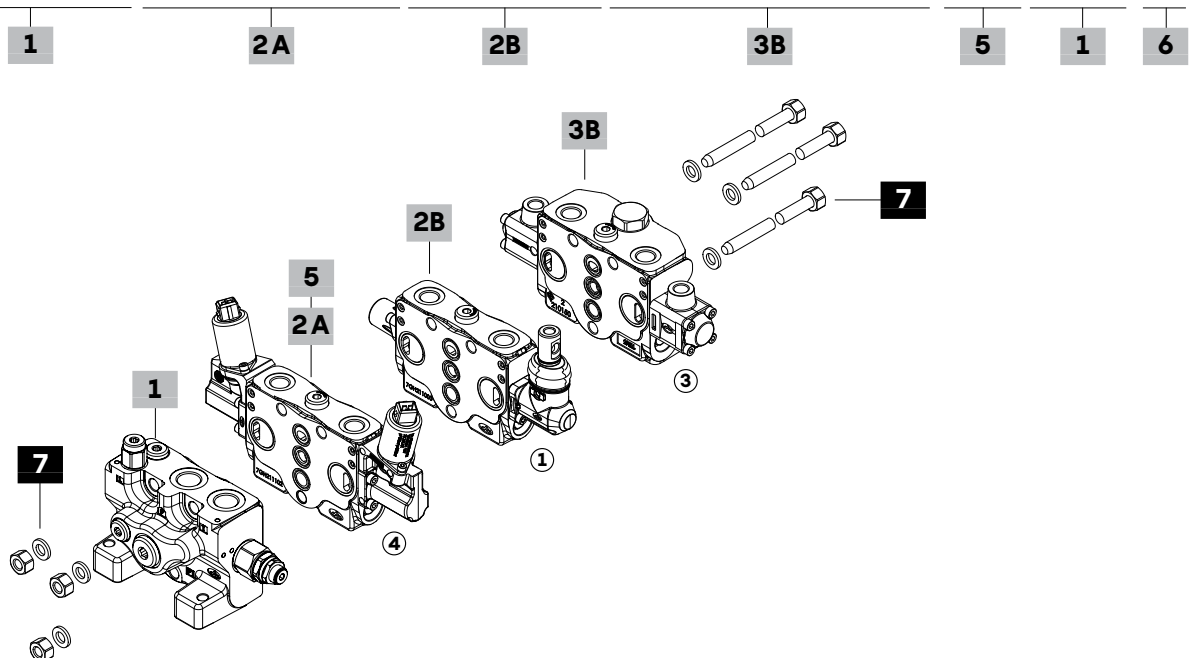
Electrohydraulic standard configuration with BP3 secondary aux valve block:

SDS100/3/CRAD(TVGW3-175)/PEU-ET101-8EB3T.UTUT.BP3 A/PE-ET101-8EB3T.UTUT/RPE-ET101-8EB3T.UTUT-VRC-F-



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)-SAE



Complete section ordering codes

Configuration with electro-hydraulic/mixed controls

1 Inlet section*

TYPE: **SDS100/CRAD(TVGW3-175)-TAP(LV)-SAE10** CODE: 610205021
 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)-SAE10** CODE: 610205023
 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-SAE8** CODE: 610151009
 DESCRIPTION: Parallel circuit, without port valves arrangement
 TYPE: **SDS100/PE-ET101-8EB3T.UTUT-12VDC-SAE8** CODE: 610105023
 DESCRIPTION: As previous one, with port valves arrangement
 TYPE: **SDS100/PE-PU-ET101-8EB3T.UTUT-12VDC-SAE8** CODE: 610100008
 DESCRIPTION: As previous one, with port valves arrangement and secondary aux block valves
 TYPE: **SDS100/SQE-ET101-8EB3T-12VDC-SAE8** CODE: 610121012
 DESCRIPTION: Parallel-series circuit, without port valves arrangement
 TYPE: **SDS100/SPE-ET101-8EB3T.UTUT-12VDC-SAE8** CODE: 610125020
 DESCRIPTION: As previous one, with port valves arrangement

2B Working section with cross pilot lines*

Mechanical control

TYPE: **SDS100/QA-101-8L-SAE8** CODE: 610155006
 DESCRIPTION: Parallel circuit, lever control without port valves arrangement
 TYPE: **SDS100/PA-101-8L.UTUT-SAE8** CODE: 610105008
 DESCRIPTION: As previous one, with port valves arrangement
 TYPE: **SDS100/PA-101-8L.U100U100-SAE8** CODE: 610105014
 DESCRIPTION: As previous one, with shock valves with fixed setting
 TYPE: **SDS100/SQA-101-8L-SAE8** CODE: 610125021
 DESCRIPTION: Parallel-series circuit, lever control without port valves arrangement
 TYPE: **SDS100/SPA-101-8L.UTUT-SAE8** CODE: 610125022
 DESCRIPTION: As previous one, with port valves arrangement
ON/OFF electric control
 TYPE: **SDS100/PA-S102-8ES3.UTUT-12VDC-SAE8** CODE: 610100015
 DESCRIPTION: Parallel circuit, with port valves arrangement
Proportional hydraulic control
 TYPE: **SDS100/QA-I112-8IM-SAE8** CODE: 610100016
 DESCRIPTION: Parallel circuit, without port valves arrangement

3A Outlet working section*

Electro-hydraulic control

TYPE: **SDS100/RQE-ET101-8EB3T-VRC-F-12VDC-SAE8** CODE: 610355005
 DESCRIPTION: Parallel circuit, without port valves arrangement
 TYPE: **SDS100/RPE-ET101-8EB3T.UTUT-VRC-F-12VDC-SAE8** CODE: 610305015
 DESCRIPTION: As previous one, with port valves arrangement
 TYPE: **SDS100/RQE-ET101-8EB3T-VRE-F-12VDC-SAE8** CODE: 610355006
 DESCRIPTION: Parallel circuit, without port valves arrangement, with continuation of the pressure line (carry-over)
 TYPE: **SDS100/RPE-ET101-8EB3T.UTUT-VRE-F-12VDC-SAE8** CODE: 610305011
 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-SAE8** CODE: 610301015
 DESCRIPTION: Parallel circuit, lever control without port valves arrangement
 TYPE: **SDS100/RPA-101-8L.UTUT-VRC-F-SAE8** CODE: 610305007
 DESCRIPTION: As previous one, with port valves arrangement

4 Secondary aux valve block *

TYPE: **BP3A-SAE8** CODE: 611007102
 DESCRIPTION: Double valve block on A and B ports
 TYPE: **BP1A-BP2A-SAE8** CODE: 611007111
 DESCRIPTION: Single valve block on A or B ports

5 Voltage

Specify the voltage of electric devices

6 Valve threading

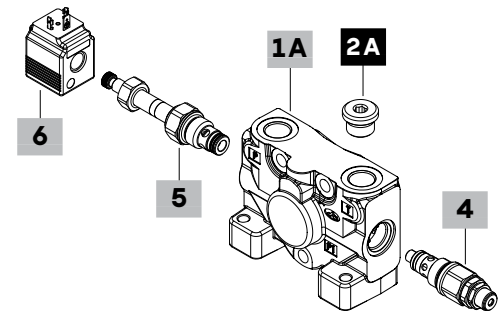
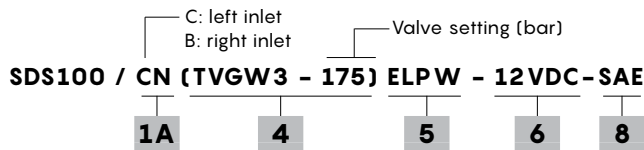
Only specify if it is different from BSP standard (see page 5)

7 Assembly kit

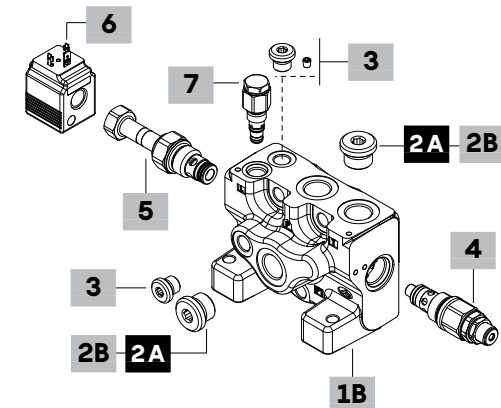
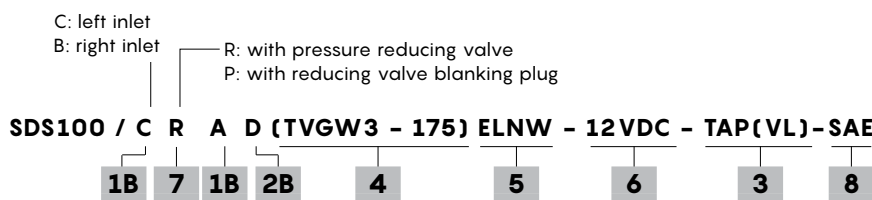
CODE	DESCRIPTION	CODE	DESCRIPTION
5TIR110123	For 1 section valve	5TIR110304	For 6 section valve
5TIR110160	For 2 section valve	5TIR110340	For 7 section valve
5TIR110195	For 3 section valve	5TIR110375	For 8 section valve
5TIR110235	For 4 section valve	5TIR110411	For 9 section valve
5TIR110267	For 5 section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

Note (*) - Codes are referred to **UN-UNF** thread

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



For valve with electro-hydraulic/mixed controls



1A Inlet section* page 14

TYPE:	SDS100/CN - SAE10	CODE: 3FIA107700
DESCRIPTION:	P and T upper ports	
TYPE:	SDS100/CNL - SAE10	CODE: 3FIA107704
DESCRIPTION:	P and T upper ports, P1 side port	
TYPE:	SDS100/CNM - SAE10	CODE: 3FIA107701
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
-	3XTAP826160	SAE10 plug
-	3XTAP817130	SAE6 plug for pressure gauge arrangement

1B Inlet section* page 16

TYPE:	SDS100/CRA - SAE10	CODE: 3FIA107706
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	3XTAP826160	P e T upper ports open, P1 side port plugged; require n. 1 SAE10 plug
C	3XTAP826160	P1 side port and T upper port open, P upper port plugged; require n. 1 SAE10 plug
G	-	P and T upper ports, P1 side port open

3 Configuration V and L ports* page 16

TYPE	CODE	DESCRIPTION
TAP(VL)	3XTAP817130	V and L ports plugged; require n. 2 SAE6 plug
NOTAP(VL)	4TAP306006	V and L ports open; require n. 1 conic M6 plug on L port
NOTAP(V)	3XTAP817130	V port open and L ports plugged; require n. 1 SAE6 plug on L port
NOTAP(L)	3XTAP817130+ 4TAP306006	V port plugged and L port open; require n. 1 SAE6 plug on V port and n. 1 conic M6 plug on L port

Note (*) - Codes are referred to **UN-UNF** thread

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)	OMC100020A04	Range 76-125 bar (1100-1800 psi) std setting 80 bar (1160 psi)
(TVGW3-175)	OMC100020A05	Range 126-220 bar (1820-3200 psi) std setting 175 bar (2550 psi)
(TVGW4-220)	OMC100020A06	Range 215-260 bar (3010-3770 psi) std setting 220 bar (3200 psi)
(TVGW5-250)	OMC10002025	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

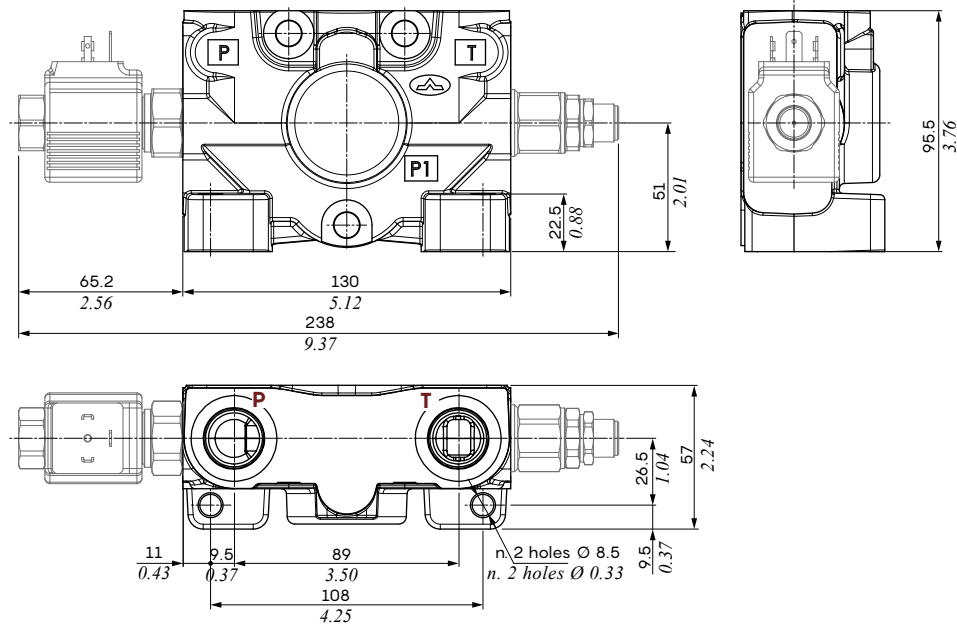
8 Section threading

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

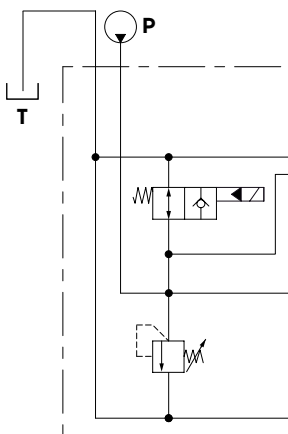
Dimensional data and hydraulic circuit

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

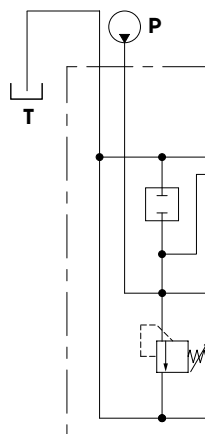
Type CN/BN-SAE



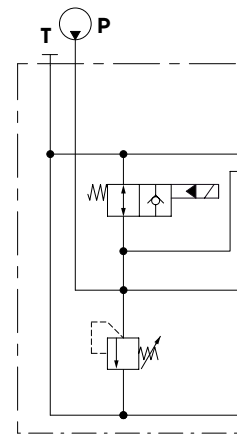
With unloading valve



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

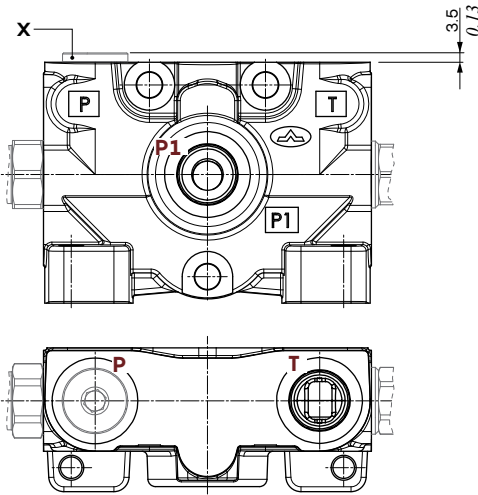
Note - For valves wrench and torque
see related pages

Dimensional data and hydraulic circuit

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

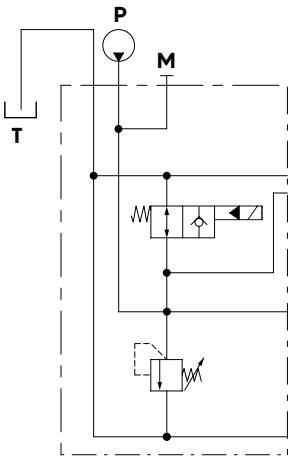
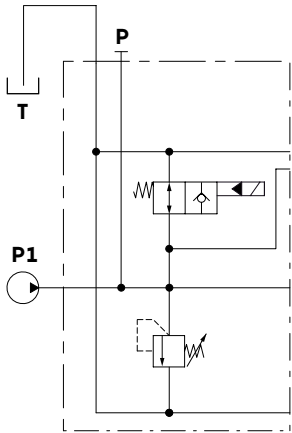
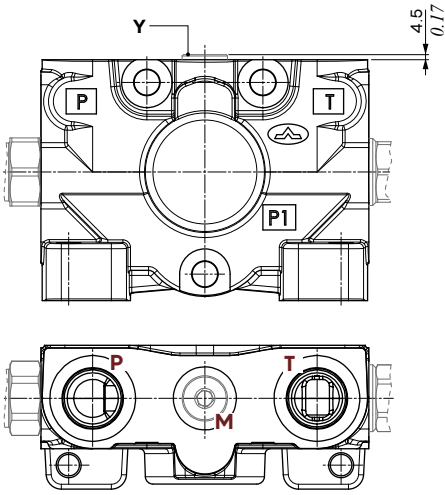
Type CNL/BNL- SAE

Unlisted dimensions are the same as inlet section type CN



Type CNM/BNM- SAE

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)

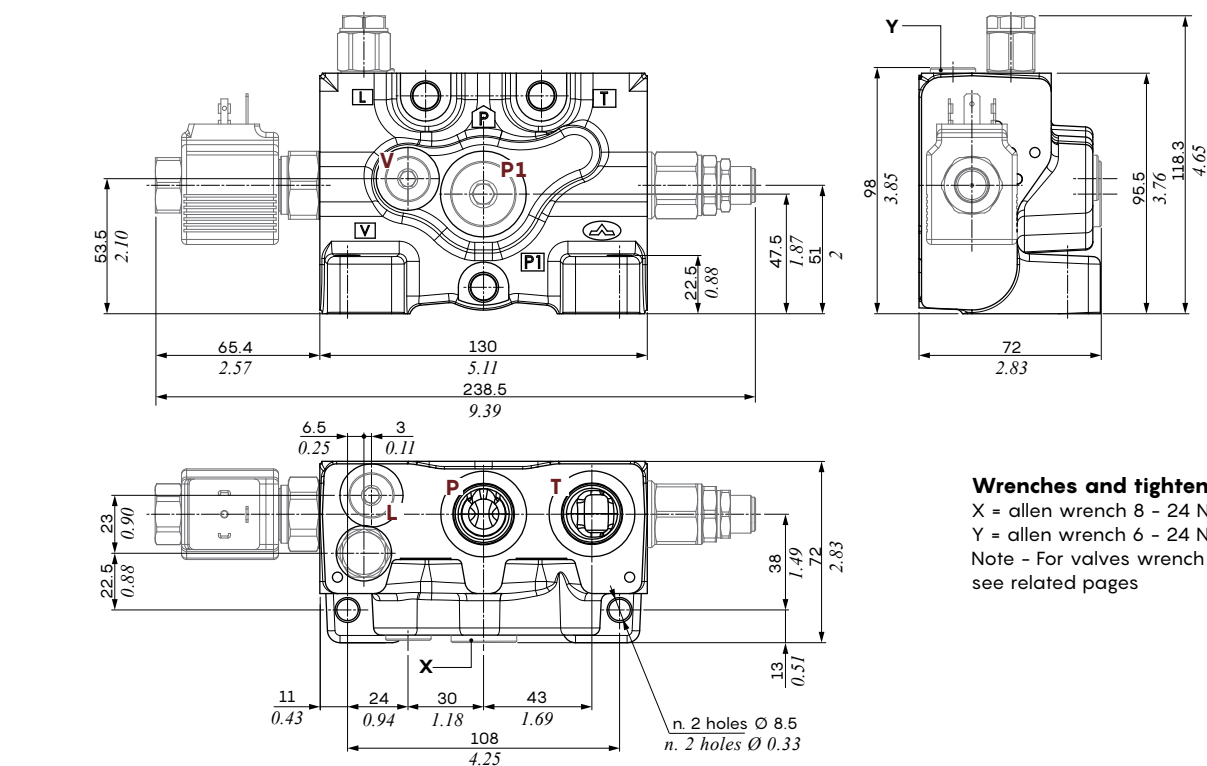
Configuration ports				
Type	P port	P1 port	T port	M port
CN/BN- SAE	open	-	open or plugged	-
CNL/BNL- SAE	plugged	open	open	-
CNM/BNM- SAE	open	-	open	plugged

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-SAE

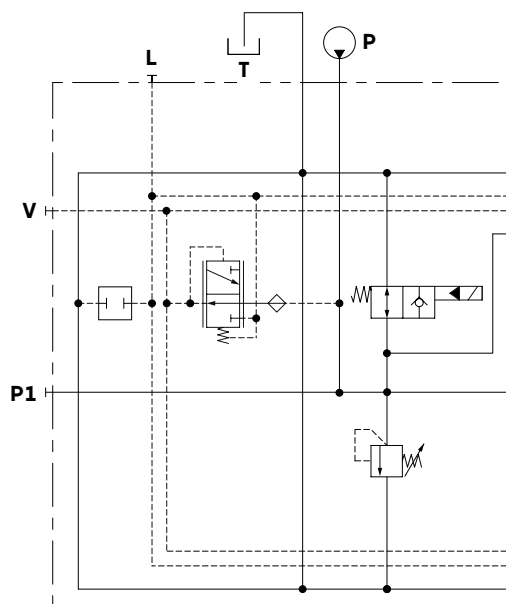


Wrenches and tightening torques

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

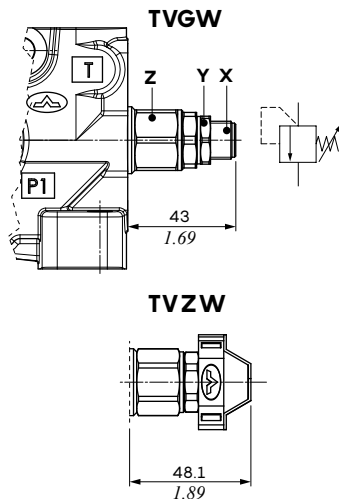
Type	P port	P1 port	T port	Pressure reducing valve
CRA-D-SAE BRA-D-SAE	open	plugged	open	yes
CPA-D-SAE BPA-D-SAE	open	plugged	open	plugged
CRA-C-SAE BRA-C-SAE	plugged	open	open	yes
CPA-C-SAE BPA-C-SAE	plugged	open	open	plugged
CRA-G-SAE BRA-G-SAE	open	open	open	yes

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

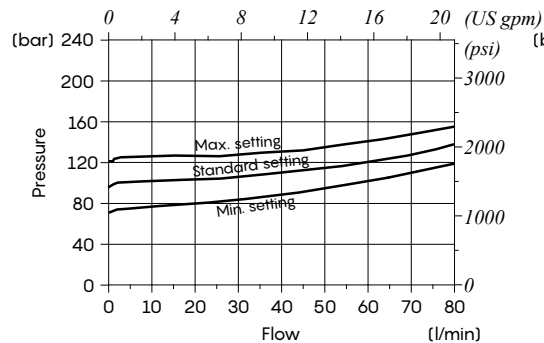
Configuration ports

Type	V port	L port
TAP(VL)	plugged	plugged
NOTAP(VL)	open	open
NOTAP(L)	plugged	open
NOTAP(V)	open	plugged

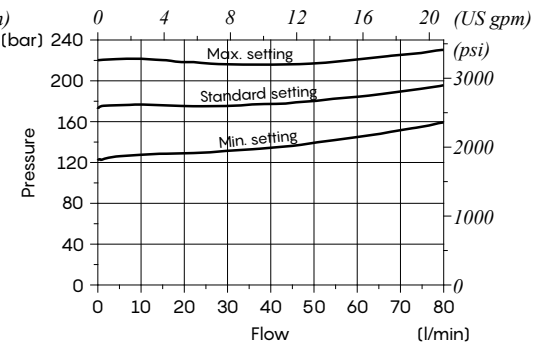
Pressure relief valve



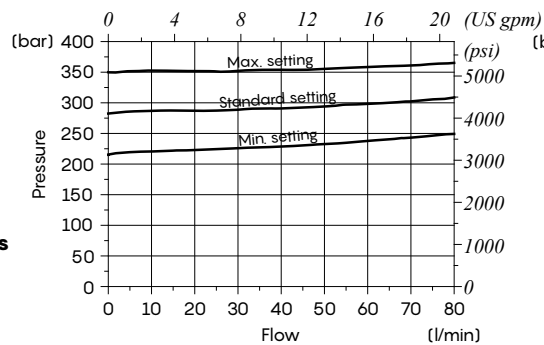
Setting range type TVGW2



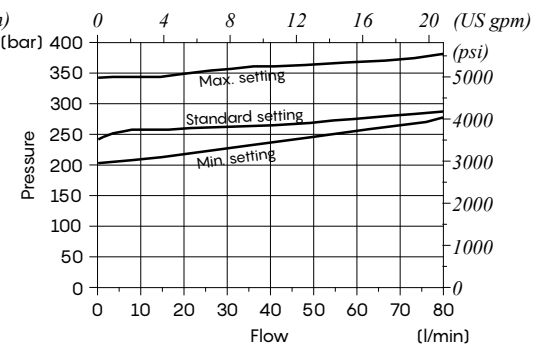
Setting range type TVGW3



Setting range type TVGW4



Setting range type TVGW4



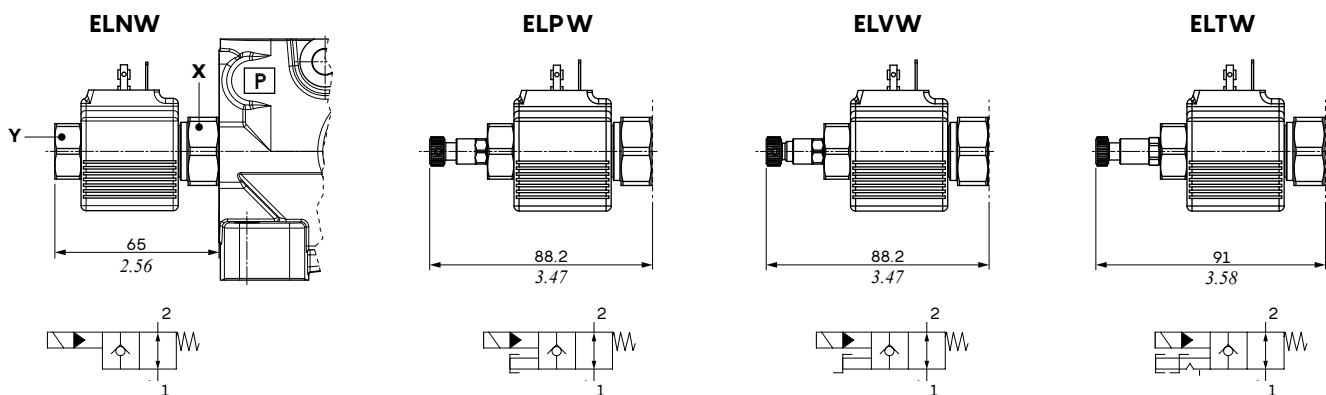
Legenda

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



Legenda

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

Features

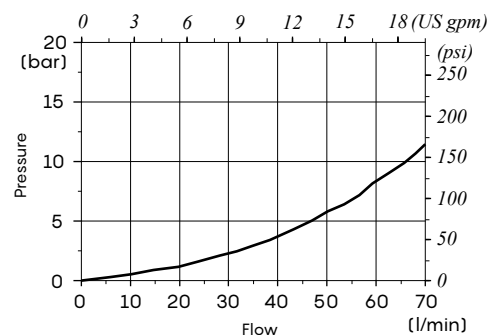
Max. flow.....: 70 l/min (18.49 US gpm)
 Max. pressure.....: 380 bar (5500 psi)
 Internal Leakage.....: 0.50 cm³/min at 210 bar
 (0.030 in³/min @ 3050 psi)

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)

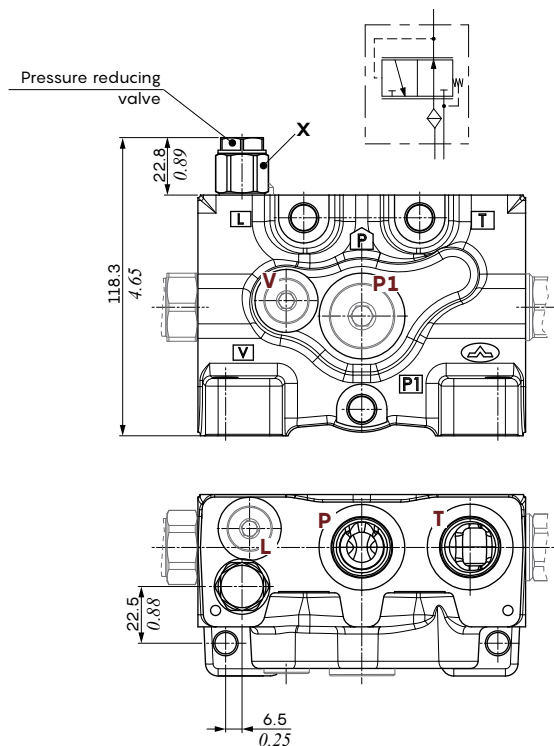
Pressure drops



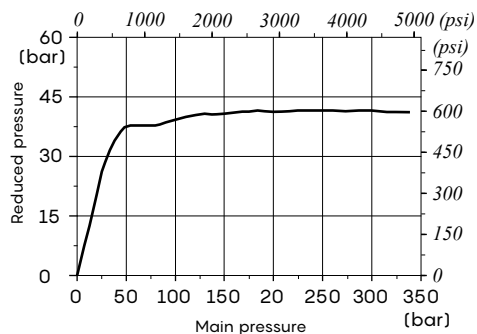
Inlet valve

Pressure reducing valve

Inlet section for valve with electro-hydraulic/mixed controls



Pressure reducing valve type R Inlet pressure vs. reduced pressure



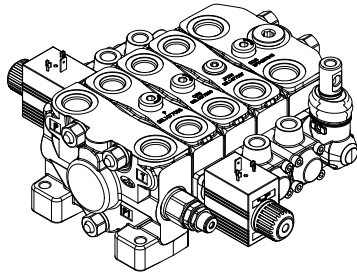
Wrenches and tightening torques

X = wrench 19 - 42 Nm (31 lbft)

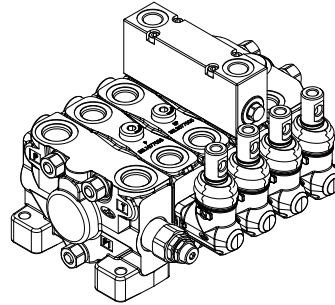
Features

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)

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**

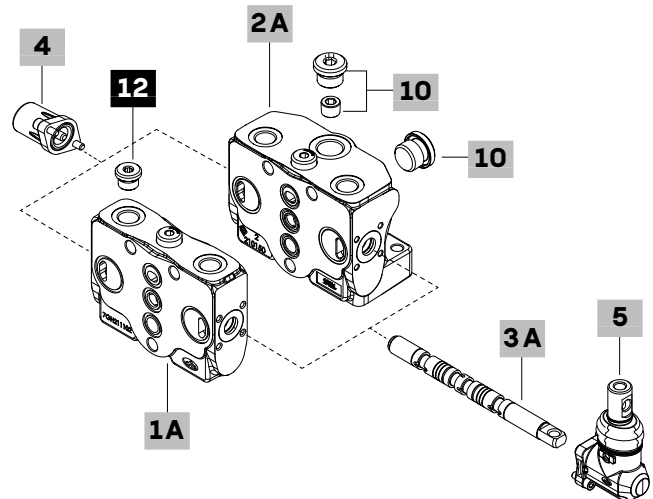
SDS100 / Q - 401 - 8 L - SAE

1A	3A	4	5	11
----	----	---	---	----

Outlet working section

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

2A	3A	4	5	10	11
----	----	---	---	----	----

**Standard section with prop. hydraulic control:****Working section**

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

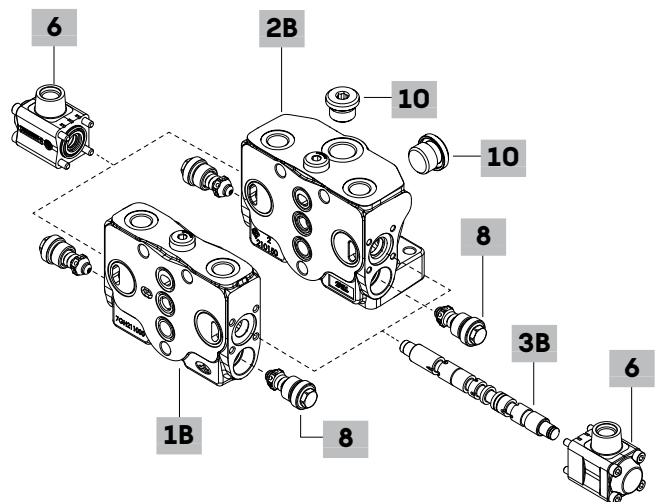
SDS100/P - I112 - 8IM . U100U100 - SAE

1B	3B	6	8	11
----	----	---	---	----

Outlet working section

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

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

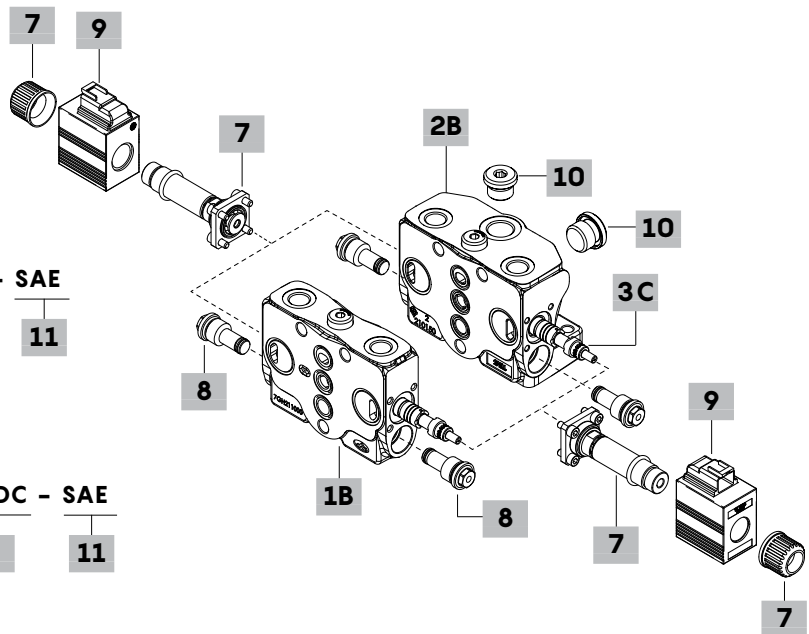
SDS100 / P - S102 - 8ES3 . UTUT - 12VDC - SAE

1B 3C 7 8 9 11

Outlet working section

SDS100/RP - S102 - 8ES3 . UTUT - F - 12VDC - SAE

2B 3C 7 8 10 9 11

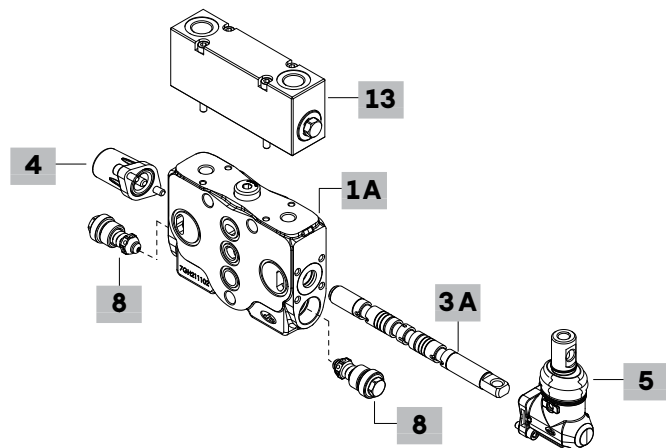


Section with secondary aux valve block arrangement, mechanical control:

Working section

SDS100 / PU - 101 - 8 L . UTUT . BP3A - SAE

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 controlWithout port valve arrangement:

TYPE: **SDS100/Q-SAE8** CODE: 5EL1077010

DESCRIPTION: For parallel circuit

TYPE: **SDS100/Q-SAE6** CODE: 5EL1078010

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/SQ-SAE8** CODE: 5EL3077010

DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/QR-SAE8** CODE: 5EL1577090

DESCRIPTION: For series/parallel-series circuits in combination with

outlet working sections type **RQS** or **RPS**

TYPE: **SDS100/Q5-SAE8** CODE: 5EL1077210

DESCRIPTION: Type Q for floating circuit. Only for standard left inlet

With port valve arrangement:

TYPE: **SDS100/P-SAE8** CODE: 5EL1077005

DESCRIPTION: For parallel circuit

TYPE: **SDS100/P-SAE6** CODE: 5EL1078000

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/PU-SAE8** CODE: 5EL1077040

DESCRIPTION: Type P, with secondary aux valve block arrangement

TYPE: **SDS100/SP-SAE8** CODE: 5EL3077005

DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/PR-SAE8** CODE: 5EL1577096

DESCRIPTION: For series/parallel-series circuits in combination with

outlet working sections type **RQS** or **RPS**

TYPE: **SDS100/P5-SAE8** CODE: 5EL1077200

DESCRIPTION: Type P for floating circuit. Only for standard left inlet

TYPE: **SDS100/P5-SAE6** CODE: 5EL1078200

DESCRIPTION: Type P for floating circuit. Only for standard left inlet with

SAE6 ports

1B Working section* page 28

For proportional hydraulic and ON/OFF electric controlsWithout port valve arrangement:

TYPE: **SDS100/Q-(IM-ES)-SAE8** CODE: 5EL107701A

DESCRIPTION: For parallel circuit

TYPE: **SDS100/Q-(IM-ES)-SAE6** CODE: 5EL1078010A

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/SQ-(IM-ES)-SAE8** CODE: 5EL307701A

DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/QR-(IM-ES)-SAE8** CODE: 5EL1577090A

DESCRIPTION: For series/parallel-series circuits in combination with

outlet working sections type **RQS** or **RPS**

TYPE: **SDS100/Q5-(IM-ES)-SAE8** CODE: 5EL107721A

DESCRIPTION: Type Q for floating circuit. Only for standard left inlet

TYPE: **SDS100/SQ5-(IM)-SAE8** CODE: 5EL307721A

DESCRIPTION: Type SQ for floating circuit. Only for standard left inlet

With port valve arrangement:

TYPE: **SDS100/P-(IM-ES)-SAE8** CODE: 5EL1077005A

DESCRIPTION: For parallel circuit

TYPE: **SDS100/P-(IM-ES)-SAE6** CODE: 5EL1078000A

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/SP-(IM-ES)-SAE8** CODE: 5EL307700A

DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/PR-(IM-ES)-SAE8** CODE: 5EL1577096A

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 controlsWith port valve arrangement:

TYPE: **SDS100/P5-(IM-ES)-SAE8** CODE: 5EL1077200A

DESCRIPTION: Type P for floating circuit. Only for standard left inlet

TYPE: **SDS100/P5-(IM-ES)-SAE6** CODE: 5EL1078220A

DESCRIPTION: Type P for floating circuit. Only for standard left inlet with

SAE6 ports

TYPE: **SDS100/SP5-(IM)-SAE8** CODE: 5EL307720A

DESCRIPTION: Type SP for floating circuit. Only for standard left inlet

2A Outlet working section* page 30

For mechanical controlWithout port valve arrangement:

TYPE: **SDS100/RQ-SAE8** CODE: 5FIA207710

DESCRIPTION: For parallel circuit

TYPE: **SDS100/RQ-SAE6** CODE: 5FIA207910

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/RQS-SAE8** CODE: 5FIA207719

DESCRIPTION: For series/parallel-series circuits. Requires **QR** or **PR** sec-

tion upstream

TYPE: **SDS100/RQ5-SAE8** CODE: 5FIA207715

DESCRIPTION: Type RQ for floating circuit. Only for standard left inlet

With port valve arrangement:

TYPE: **SDS100/RP-SAE8** CODE: 5FIA207700

DESCRIPTION: For parallel circuit

TYPE: **SDS100/RP-SAE6** CODE: 5FIA207812

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/RPS-SAE8** CODE: 5FIA207709

DESCRIPTION: For series/parallel-series circuits. Requires **QR** or **PR**

section upstream

TYPE: **SDS100/RP5-SAE8** CODE: 5FIA207713

DESCRIPTION: Type RP for floating circuit. Only for standard left inlet

TYPE: **SDS100/RP5-SAE6** CODE: 5FIA207813

DESCRIPTION: Type RP for floating circuit, with SAE6 ports. Only for

standard left inlet

2B Outlet working section* page 30

For proportional hydraulic and ON/OFF electric controlsWithout port valve arrangement:

TYPE: **SDS100/RQ-(IM-ES)-SAE8** CODE: 5FIA20771A

DESCRIPTION: For parallel circuit

TYPE: **SDS100/RQ-(IM-ES)-SAE6** CODE: 5FIA207910A

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/RQS-(IM-ES)-SAE8** CODE: 5FIA207719A

DESCRIPTION: For series/parallel-series circuits. Requires **QR** or **PR**

section upstream

TYPE: **SDS100/RQ5-(IM-ES)-SAE8** CODE: 5FIA207715A

DESCRIPTION: Type RQ for floating circuit. Only for standard left inlet

With port valve arrangement:

TYPE: **SDS100/RP-(IM-ES)-SAE8** CODE: 5FIA20770A

DESCRIPTION: For parallel circuit

TYPE: **SDS100/RPS-(IM-ES)-SAE8** CODE: 5FIA207709A

DESCRIPTION: For series/parallel-series circuits. Requires **QR** or **PR**

section upstream

TYPE: **SDS100/RP5-(IM-ES)-SAE8** CODE: 5FIA207705A

DESCRIPTION: Type RP for floating circuit. Only for standard left inlet

Note (*) - Codes are referred to **UN-UNF** thread

Parts ordering codes

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

3A Spool for mechanical control page 32

TYPE	CODE	DESCRIPTION
<u>Double acting with A and B closed in neutral position:</u>		
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 series circuit, 20÷40 l/min (5.3÷10.5 US gpm) flow
1S02	3CU6212100	For series circuit, 40÷60 l/min (10.5÷16 US gpm) flow
<u>Double acting with A and B closed in neutral position, regenerative:</u>		
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
<u>Double acting with A and B to tank in neutral position:</u>		
201	3CU6225130	40 l/min (10.5 US gpm) flow
2S01	3CU6226130	For series circuit, 40 l/min (10.5 US gpm) flow
<u>Double acting with A and B partially to tank in neutral position:</u>		
2H01	3CU6225102	40 l/min (10.5 US gpm) flow
2SH01	3CU6226140	For series circuit, 40 l/min (10.5 US gpm) flow
<u>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</u>		
503	3CU6242111	60 l/min (16 US gpm) flow
501	3CU6242100	40 l/min (10.5 US gpm) flow
<u>Single acting on A, B plugged: SAE6 or SAE8 plug is required</u>		
301	3CU6231100	40 l/min (10.5 US gpm) flow
<u>Single acting on B, A plugged: SAE6 or SAE8 plug is required</u>		
401	3CU6235100	40 l/min (10.5 US gpm) flow

3B Spool for prop. hydraulic control page 32

TYPE	CODE	DESCRIPTION
<u>Double acting with A and B closed in neutral position:</u>		
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
<u>Double acting with A and B to tank in neutral position:</u>		
I203	3CU6225420	40 l/min (10.5 US gpm) flow
<u>Double acting with A and B closed in neutral pos., 4 pos. floating in 4th pos. with spool in; type 13IMS positioner is required</u>		
I504	3CU6442504	40 l/min (10.5 US gpm) flow
<u>Single acting on A, B plugged: SAE6 or SAE8 plug is required</u>		
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
<u>For without emergency lever control</u>		
<u>Double acting with A and B closed in neutral position:</u>		
S102	3CU6810102	40 l/min (10.5 US gpm) flow
<u>Double acting with A and B closed in neutral position, regenerative:</u>		
S801	3CU6861000	Regenerative in pos. 1, with spool in; 40 l/min (10.5 US gpm) flow
<u>Double acting with A and B to tank in neutral position:</u>		
S201	3CU6825201	40 l/min (10.5 US gpm) flow
<u>For with emergency lever control</u>		
<u>Double acting with A and B closed in neutral position:</u>		
SHC102	3CU6810102HC	40 l/min (10.5 US gpm) flow
<u>Double acting with A and B to tank in neutral position:</u>		
SHC201	3CU6825201HC	40 l/min (10.5 US gpm) flow
<u>Double acting with A and B partially to tank in neutral position:</u>		
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 positions 1 and 2, NO contact
8MG3(NC)	5V08107662	With micro in positions 1 and 2, NC contact
8MG1(NO)	5V08107670	With micro in position 1, NO contact
8MG2(NO)	5V08107680	With micro in position 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	As previous one
8K-12VDC	5V08707112	Solenoid detent in neutral position
8K-24VDC	5V08707124	Solenoid detent in neutral position
9B	5V09207000	Detent in position 1
10B	5V10207000	Detent in position 2
11B	5V11207000	Detent in positions 1 and 2
<u>For floating circuit (spool type 501/503)</u>		
13N	5V13307005	4 positions, detent in 4 th 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-SAE	5IDR207700	With upper ports, spring return to neutral position
8IMS-SAE	5IDR207720	As type 8IM, with side ports
8IMF3-SAE	5IDR207710	AS type 8IM, with spool stroke limiter
<u>For floating circuit (spool type I504)</u>		
13IMS-SAE	5IDR207750	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 UN-UNF thread

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	3XTAP826160	T1 side and T upper ports plugged; require n. 2 SAE10 plugs
TA	3XTAP826160	T side open and T1 side ports plugged; require n. 1 SAE10 plug
TL	3XTAP826160	T1 side open and T upper ports plugged; require n. 1 SAE10 plug
AE	3XTAP826160 +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 SAE10 plug on T1 side port
AEK	3XTAP826160 +4TAP314010	Closed center; T1 side and T upper ports plugged, require nr. 1 M14x1,5 conic plug + nr. 1 SAE10 plug on T upper port and nr. 1 SAE10 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
3XTAP817130	SAE 6 plug
3XTAP822150	SAE 8 plug

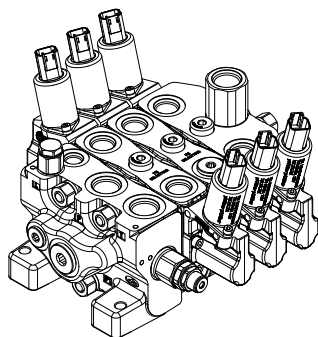
13 Secondary aux valve block* page 53

TYPE: BP3A-SAE8	CODE: 611007102
DESCRIPTION: Double valve block on A and B ports	
TYPE: BP1A-BP2A-SAE8	CODE: 611007111
DESCRIPTION: Single valve block on A or B ports	

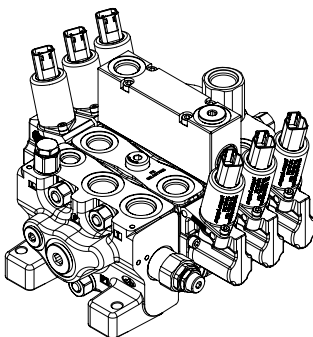
Note (*) - Codes are referred to **UN-UNF** thread

Parts ordering codes

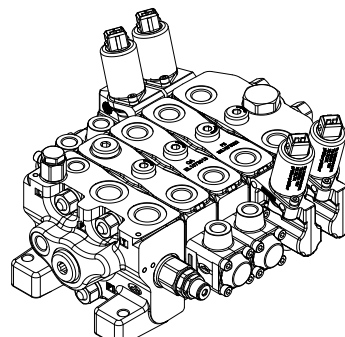
For valve with electro-hydraulic/mixed controls



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

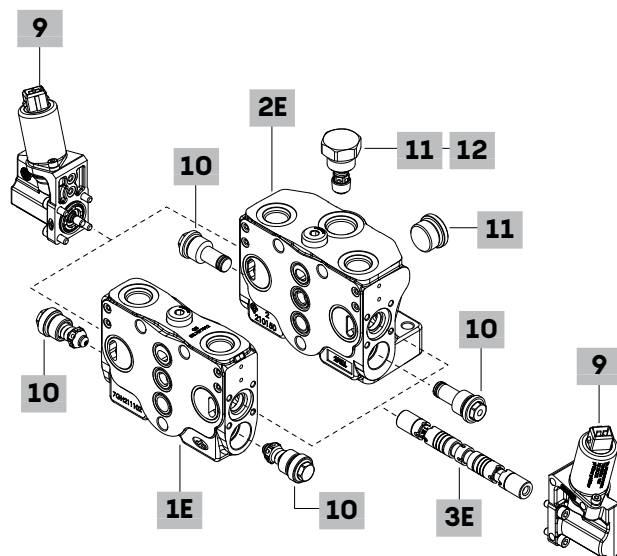
SDS100/PE-ET101-8EB3T.U100U100-12VDC-SAE

1E 3E 9 10 9 13

Outlet working section

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

2E 3E 9 10 12 11 9 13



Standard section with cross pilot lines, mechanical control:

Working section

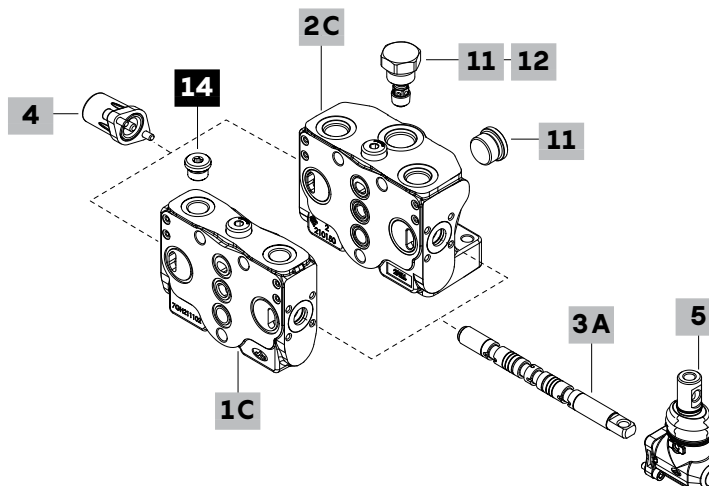
SDS100 / QA - 401 - 8 L - SAE

1C 3A 4 5 13

Outlet working section

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

2C 3A 4 5 12 11 13



For valve with electro-hydraulic/mixed controls

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

Working section

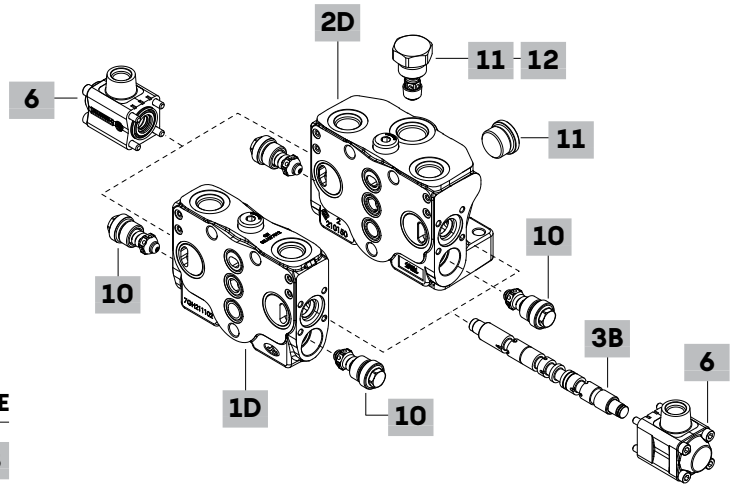
SDS100 / PA - I112 - 8IM . U100U100 - SAE

1D 3B 6 10 13

Outlet working section

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

2D 3B 6 10 12 11 13



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

Working section

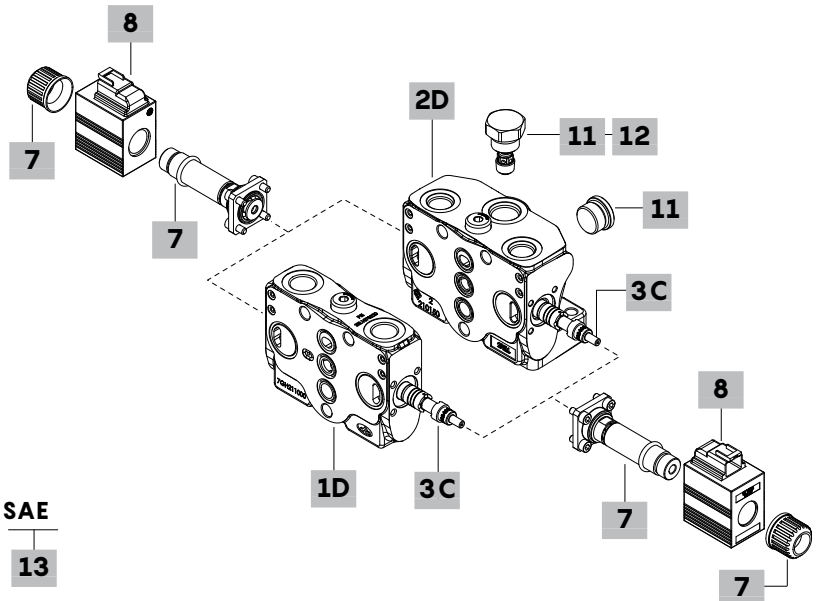
SDS100 / PA - S102 - 8ES3 - 12VDC - SAE

1D 3C 7 8 13

Outlet working section

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

2D 3C 7 12 11 8 13

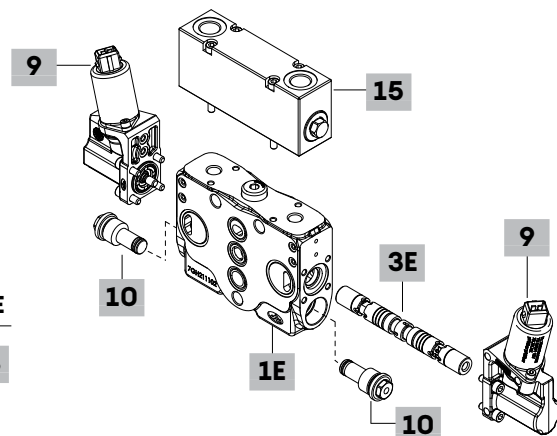


Section with secondary aux valve block
arrangement, electro-hydraulic control:

Working section

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

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-SAE8** CODE: 5EL1077013

DESCRIPTION: For parallel circuit

TYPE: **SDS100/QA-SAE6** CODE: 5EL1078011

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/SQA-SAE8** CODE: 5EL3077013

DESCRIPTION: For series/parallel-series circuits

With port valve arrangement:

TYPE: **SDS100/PA-SAE8** CODE: 5EL1077003

DESCRIPTION: For parallel circuit

TYPE: **SDS100/PA-SAE6** CODE: 5EL1078012

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/SPA-SAE8** CODE: 5EL3077003

DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/P5A-SAE8** CODE: 5EL1077203

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)-SAE8** CODE: 5EL1077013A

DESCRIPTION: For parallel circuit

TYPE: **SDS100/QA-(IM-ES)-SAE6** CODE: 5EL1078011A

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/SQA-(IM-ES)-SAE8** CODE: 5EL3077013A

DESCRIPTION: For series/parallel-series circuits

With port valve arrangement:

TYPE: **SDS100/PA-(IM-ES)-SAE8** CODE: 5EL1077003A

DESCRIPTION: For parallel circuit

TYPE: **SDS100/PA-(IM-ES)-SAE6** CODE: 5EL1078012A

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/SPA-(IM-ES)-SAE8** CODE: 5EL3077003A

DESCRIPTION: For series/parallel-series circuits

1E Working section* page 29

For electro-hydraulic control

Without port valve arrangement:

TYPE: **SDS100/QE-SAE8** CODE: 5EL1077012

DESCRIPTION: For parallel circuit

TYPE: **SDS100/QE-SAE6** CODE: 5EL1078013

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/SQE-SAE8** CODE: 5EL3077012

DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/Q5E-SAE8** CODE: 5EL1077212

DESCRIPTION: Type Q for floating circuit. Only for standard left inlet

With port valve arrangement:

TYPE: **SDS100/PE-SAE8** CODE: 5EL1077002

DESCRIPTION: For parallel circuit

TYPE: **SDS100/PE-SAE6** CODE: 5EL1078014

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/PE-PU-SAE8** CODE: 5EL1079001

DESCRIPTION: Type P, with secondary aux valve block arrangement

TYPE: **SDS100/SPE-SAE8** CODE: 5EL3077002

DESCRIPTION: For series/parallel-series circuits

TYPE: **SDS100/PRE-SAE6** CODE: 5EL1578001

DESCRIPTION: For series/parallel-series circuits, in combination with outlet working sections type RQS or RPS, with SAE6 ports

TYPE: **SDS100/P5E-SAE8** CODE: 5EL1077202

DESCRIPTION: Type PE for floating circuit. Only for standard left inlet

TYPE: **SDS100/P5E-SAE6** CODE: 3EL1078201

DESCRIPTION: Type PE for floating circuit. Only for right inlet, with SAE6 ports

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

For mechanical control

Without port valve arrangement:

TYPE: **SDS100/RQA-SAE8** CODE: 5FIA207714

DESCRIPTION: For parallel circuit

With port valve arrangement:

TYPE: **SDS100/RPA-SAE8** CODE: 5FIA207706

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)-SAE8** CODE: 5FIA207716A

DESCRIPTION: For parallel circuit

With port valve arrangement:

TYPE: **SDS100/RPA-(IM-ES)-SAE8** CODE: 5FIA207706A

DESCRIPTION: For parallel circuit8

2E Outlet working section* page 31

For electro-hydraulic control

Without port valve arrangement:

TYPE: **SDS100/RQE-SAE** CODE: 5FIA207712

DESCRIPTION: For parallel circuit

TYPE: **SDS100/RQE-SAE6** CODE: 5FIA207814

DESCRIPTION: For parallel circuit with SAE6 ports

With port valve arrangement:

TYPE: **SDS100/RPE-SAE8** CODE: 5FIA207702

DESCRIPTION: For parallel circuit

TYPE: **SDS100/RPE-SAE6** CODE: 5FIA207815

DESCRIPTION: For parallel circuit with SAE6 ports

TYPE: **SDS100/RPSE-SAE8** CODE: 5FIA207708

DESCRIPTION: For series/parallel-series circuits. Requires QRE or PRE section upstream

TYPE: **SDS100/RP5E-SAE8** CODE: 5FIA207707

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 UN-UNF thread

Parts ordering codes

For valve with electro-hydraulic/mixed controls

3E Spool for electro-hydraulic control page 32

TYPE	CODE	DESCRIPTION
<u>Double acting with A and B closed in neutral position:</u>		
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 series circuit, 20÷40 l/min (5.3÷10.5 US gpm) flow
ET1S02	3CU6712002	For series 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
<u>Double acting with A and B to tank in neutral position:</u>		
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
<u>Double acting with A and B partially to tank in neutral position:</u>		
ET2H03	3CU672E211	60 l/min (16 US gpm) flow
ET2H01	3CU672E209	40 l/min (10.5 US gpm) flow
<u>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</u>		
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
<u>Single acting on A, B plugged; SAE6 or SAE8 plug is required</u>		
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
3XTAP817130	SAE6 plug
3XTAP822150	SAE8 plug

15 Secondary aux valve block*

For available valve list, see page 23

9 Electro-hydraulic control page 46

TYPE	CODE	DESCRIPTION
<u>Without lever control:</u>		
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
<u>Without lever control, with spool position sensor:</u>		
8EB3TSPSD-12VDC	5IDR904233	With AMP conn. and digital sensor 12VDC
8EB3TSPSD-24VDC	5IDR904226	As previous one, 24VDC
<u>Without lever control: for floating circuit (spool type ET5.):</u>		
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
<u>With lever control:</u>		
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
<u>With lever control and spool position sensor:</u>		
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
<u>With lever control: for floating circuit (spool type ET5.):</u>		
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	3XTAP826160	T1 side and T upper ports plugged; require n. 2 SAE10 plugs

12 Back pressure valve* page 55

TYPE	CODE	DESCRIPTION
VRC-SAE10	5GIU511380	Back pressure valve, 12 bar (174 psi)
VRC(21)-SAE10	5GIU511381	Back pressure valve, 21 bar (304.5 psi)
VRE-SAE10	5GIU532610	Back pressure valve, 8 bar (117 psi) Continuation of the pressure line (carry-over)

13 Section threading

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

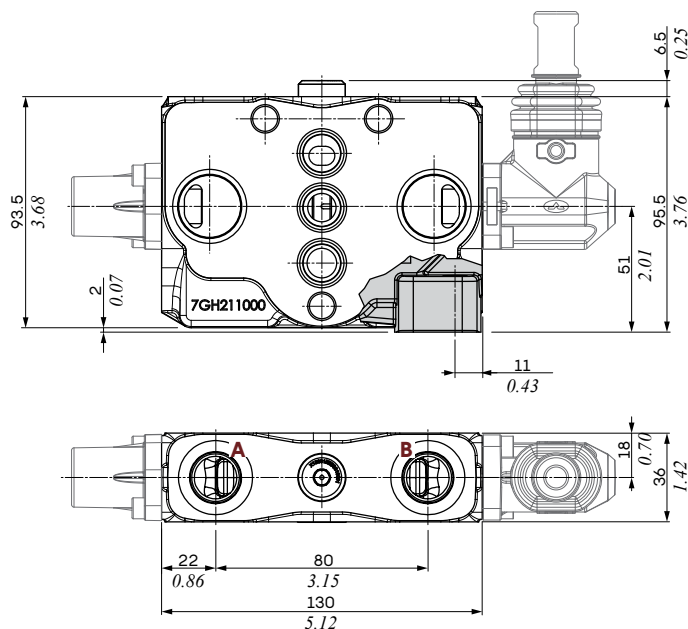
Note (*) - Codes are referred to UN-UNF thread

Dimensional data and hydraulic circuit

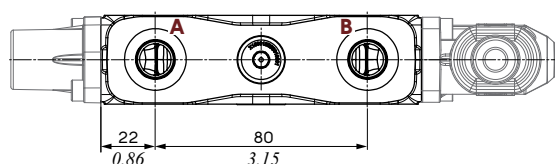
Working section for mechanical, proportional hydraulic, ON/OFF electric controls

Type Q/P-SAE

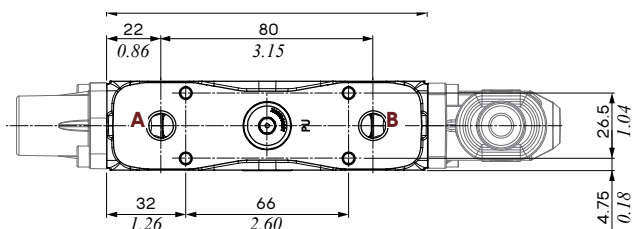
(counterbore side)



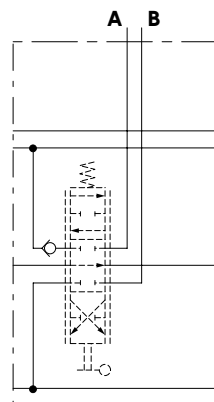
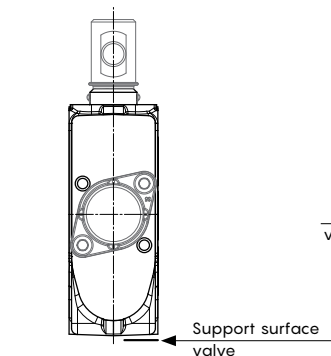
With SAE6 ports



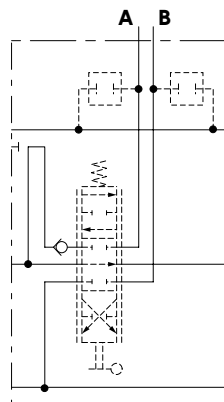
Type P with secondary aux valve block arrangement(*)



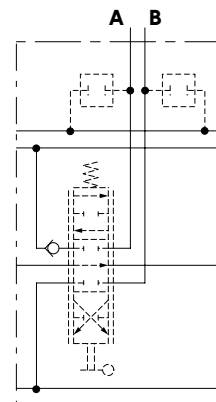
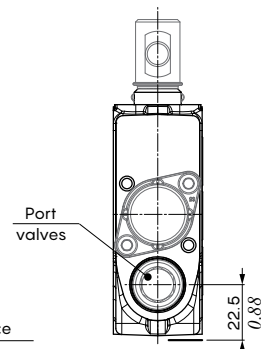
Type Q/Q5-SAE Without port valves arrangement (type Q5 for floating circuit)



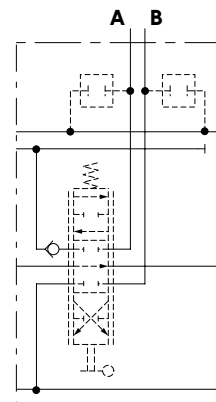
Type SQ/SP-SAE As Q/P, for series or tandem circuits



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



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



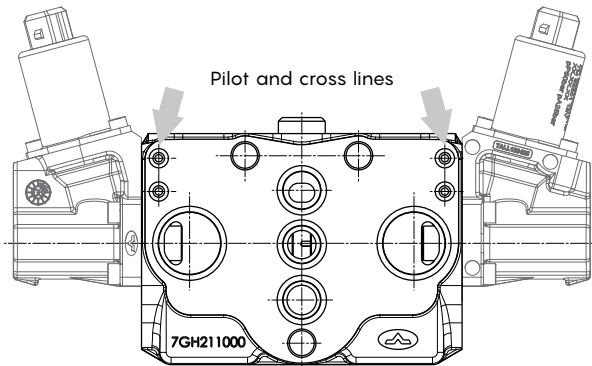
Note (*) - For dimensions and circuits of valve block, see page 53

Dimensional data and hydraulic circuit

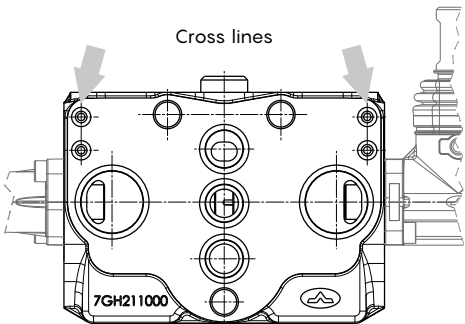
Working section for electro-hydraulic/mixed controls

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

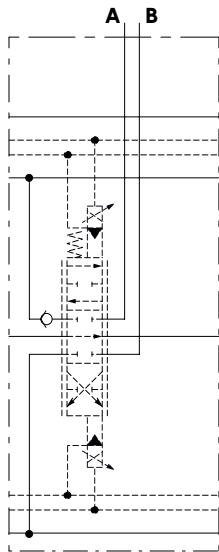
Type QE/PE-SAE
(counterbore side)



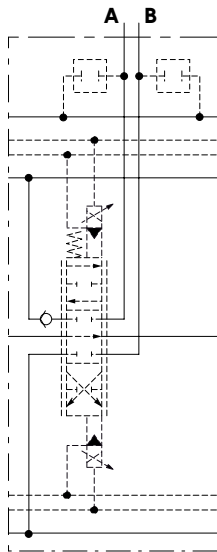
With cross lines, type QA/PA-SAE
and mechanical control
(counterbore side)



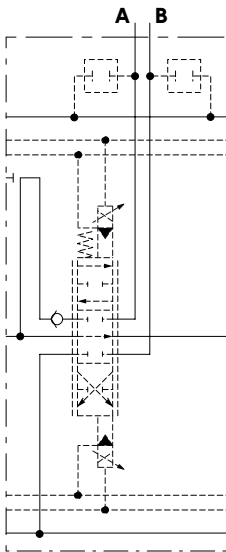
Type QE/Q5E-SAE
Without port valves
arrangement
(type Q5E for floating circuit)



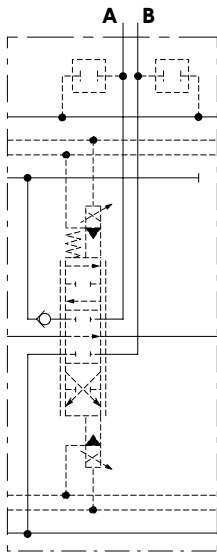
Type PE/P5E-SAE
With port valves
arrangement
(type P5E for floating circuit)



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



Type PRE-SAE
For series or tandem circuits on
penultimate section

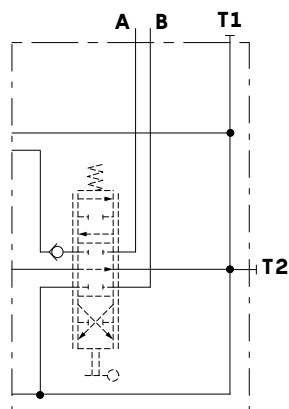
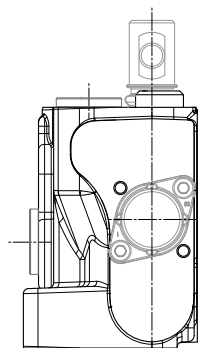


Dimensional data and hydraulic circuit

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

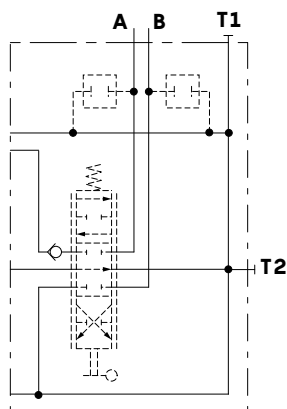
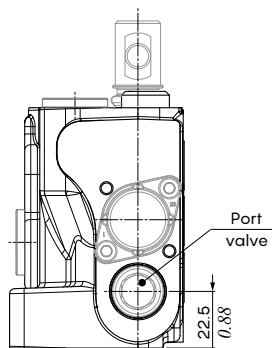
Type RQ/RQ5 - SAE

Without port valves
arrangement
(type RQ5 for floating circuit)

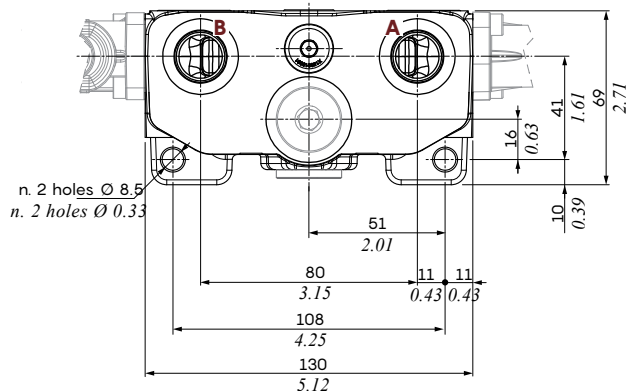
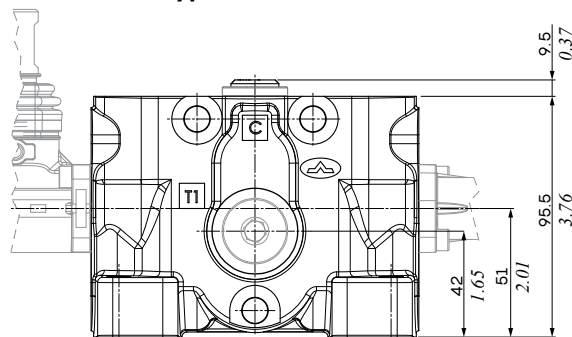


Type RP/RP5 - SAE

With port valves
arrangement
(type RP5 for floating circuit)

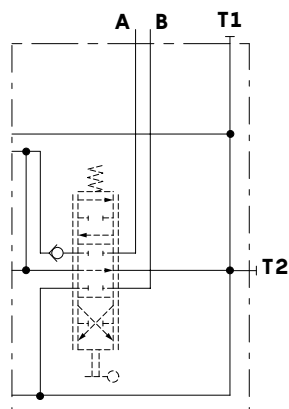


Type RQ/RP - SAE



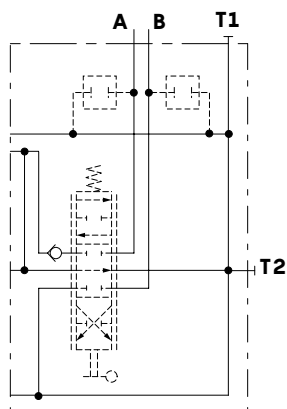
Type RQS - SAE

As RQ, for series or
tandem circuits

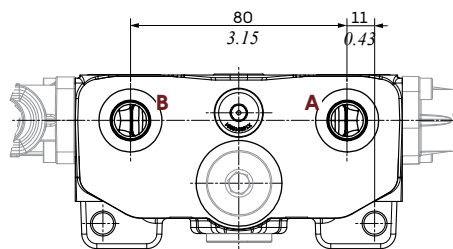


Type RPS - SAE

As RP, for series or
tandem circuits



With SAE6 ports

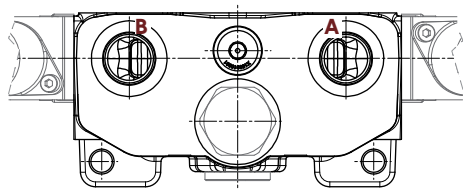
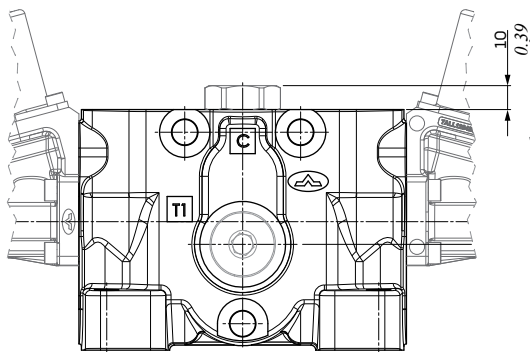


Dimensional data and hydraulic circuit

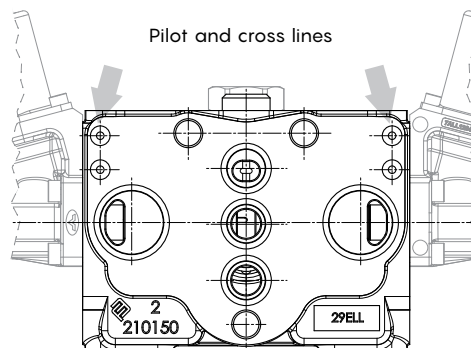
Outlet working section for electro-hydraulic/mixed controls

Type RQE/RPE/RP5E – SAE

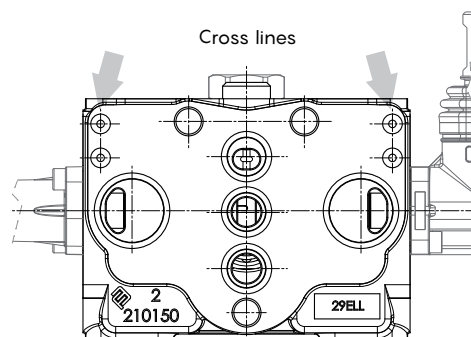
Unlisted dimensions are the same as
inlet section type RQ/RP
(type RP5E for floating circuit)

**Type RQE/RPE – SAE**

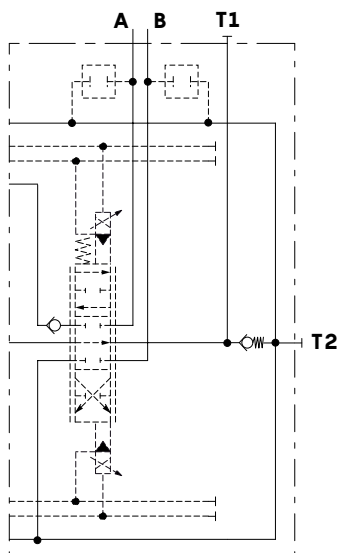
(counterbore side)

**With cross lines, type RQA/RPA – SAE
and mechanical control**

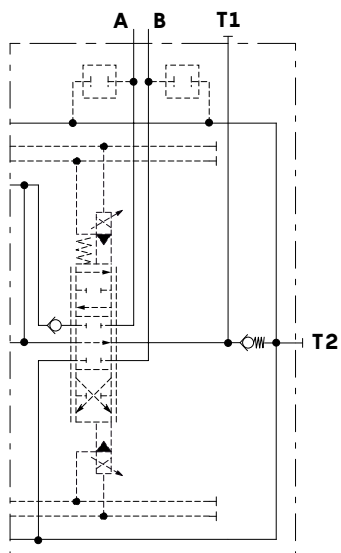
(counterbore side)

**Type RQE/RPE/RP5E – SAE**

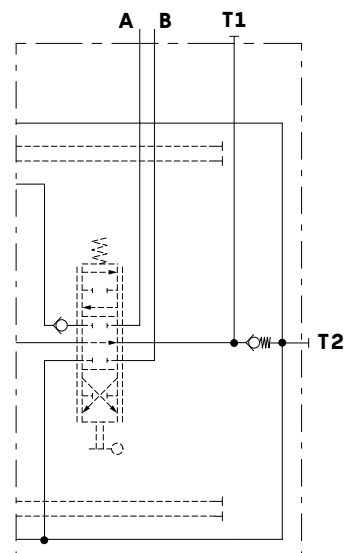
As RQ/RP/RP5
(type RP5E for floating circuit)

**Type RPSE – SAE**

As RPE, for series or
tandem circuits

**Type RQA/RPA – SAE**

As RQ/RP,
for cross lines circuits

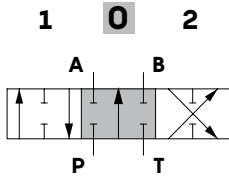


Spool

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)

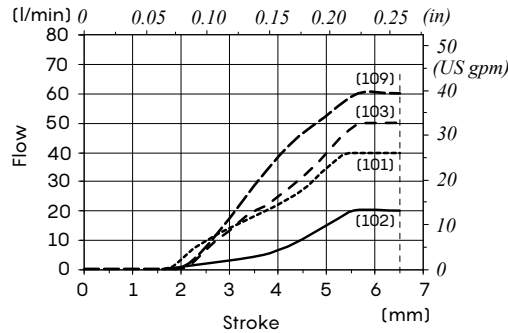
position 1: + 3,3 mm (+ 0.13 in)
position 2: - 3,3 mm (- 0.13 in)

(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

$Q_{in} = 15 \text{ l/min (3.96 US gpm)}$

$P_{(on ports)} = 100 \text{ bar (1450 psi)}$

Spool type 101/I112/ET101

$Q_{in} = 40 \text{ l/min (10.5 US gpm)}$

$P_{(on ports)} = 100 \text{ bar (1450 psi)}$

Spool type 102/I118/ET102

$Q_{in} = 20 \text{ l/min (5.28 US gpm)}$

$P_{(on ports)} = 100 \text{ bar (1450 psi)}$

Spool type 103

$Q_{in} = 50 \text{ l/min (13.2 gpm)}$

$P_{(on ports)} = 100 \text{ bar (1450 psi)}$

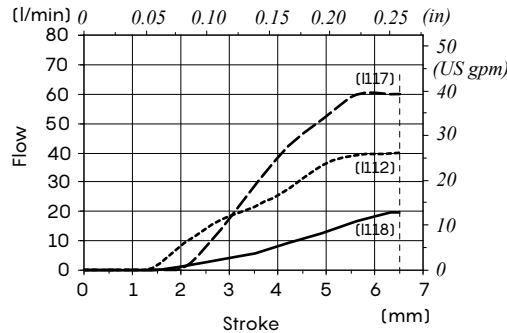
Spool type 109/I117/ET103

$Q_{in} = 60 \text{ l/min (15.8 US gpm)}$

$P_{(on ports)} = 100 \text{ bar (1450 psi)}$

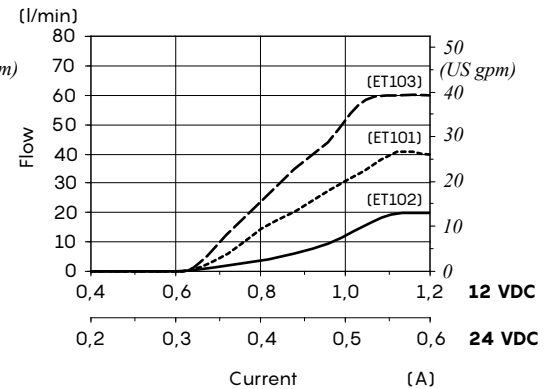
Metering spool type I1

P→A(B)→B(A)→T



Metering spool type ET1

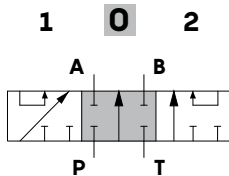
P→A(B)→B(A)→T



Type 1S-ET1S

(1S01/1S02/ET1S01/ET1S02)

A and B closed in neutral position,
for series circuit

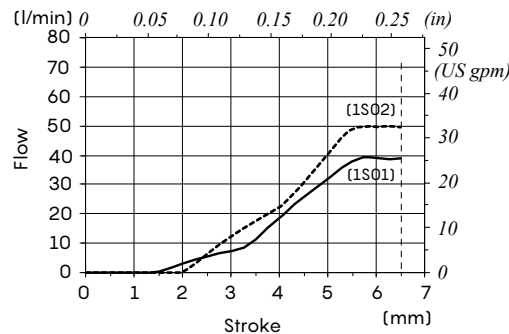


Stroke

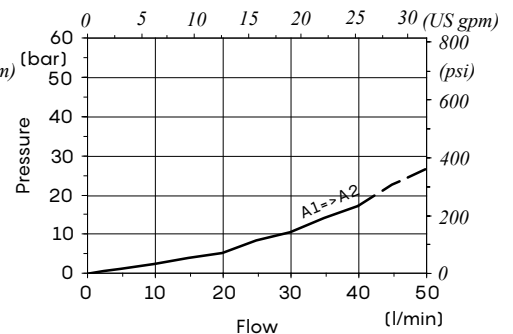
position 1: + 6,5 mm (+ 0.26 in)
position 2: - 6,5 mm (- 0.26 in)

Metering spool type 1S

P→A(B)→B(A)→T



Pressure drop spool type 1S (1S02)



Spool type 1S01/ET1S01

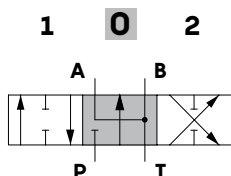
$Q_{in} = 20+40 \text{ l/min (5.28+10.5 US gpm)} - P_{(on port)} = 100 \text{ bar (1450 psi)}$

Spool type 1S02/ET1S02

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

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)

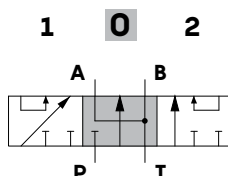
(SHC201)

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



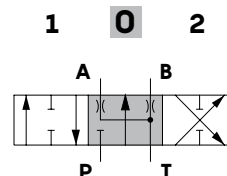
Stroke

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)

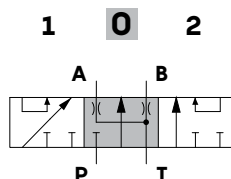
(SHC2H01)

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



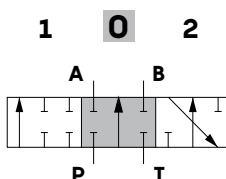
Stroke

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



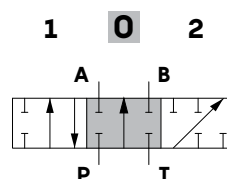
Stroke

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

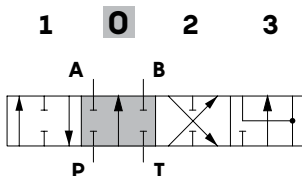
position 1: + 6,5 mm (+ 0.26 in)

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)

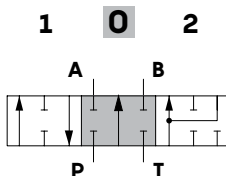
position 2: - 6 mm (- 0.23 in)

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)

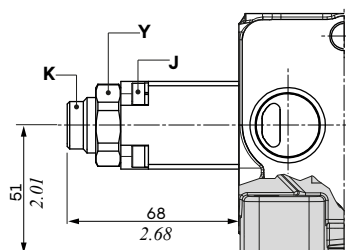
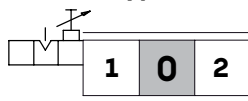
position 2: - 6,5 mm (- 0.26 in)

Mechanical control

"A" side control kit

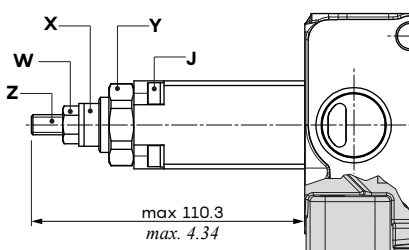
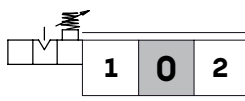
With friction

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

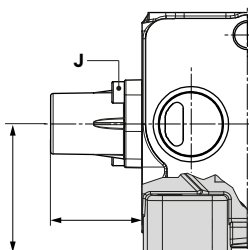
Z = allen wrench 4

W = wrench 13 - 24 Nm (17.7 lbft)

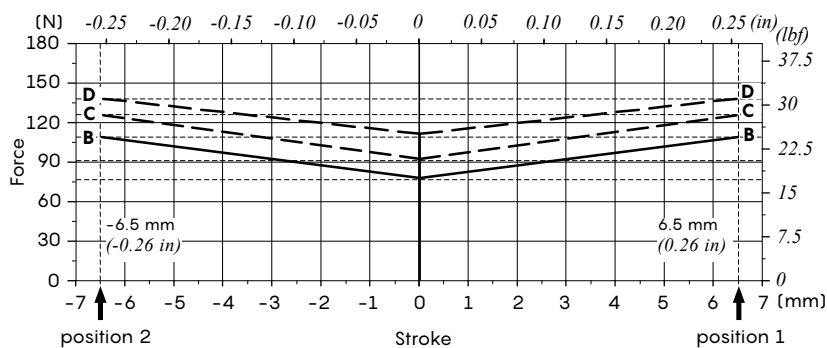
With spring return in neutral position

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)

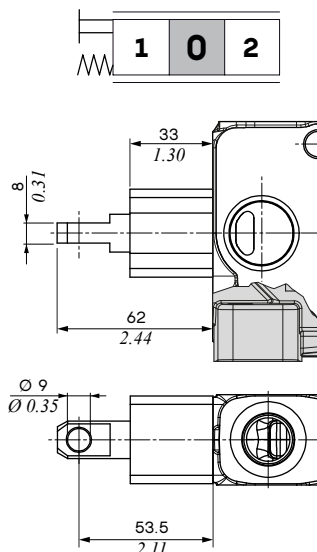
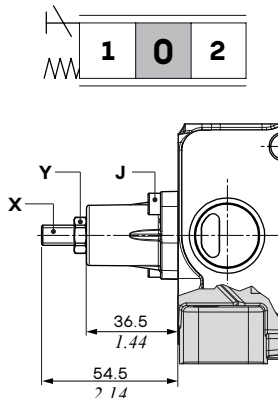
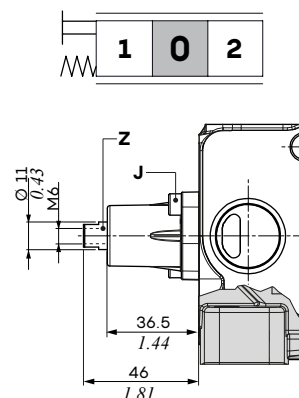
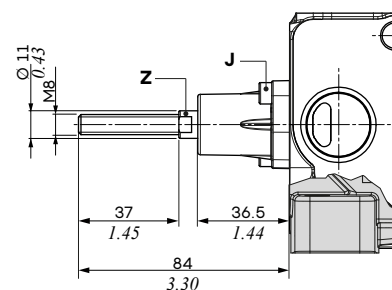
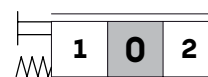
Spring type C: from 91 N to 126 N (20.4 lbf to 28.3 lbf)

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**Type 8D2**External pin with M8
male 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.

Wrenches and tightening torques

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

X = allen wrench 4

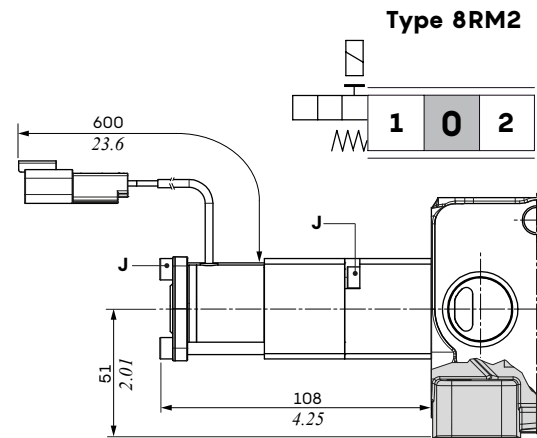
Y = wrench 13 - 24 Nm (17.7 lbft)

Z = wrench 9

Mechanical control

"A" side control kit

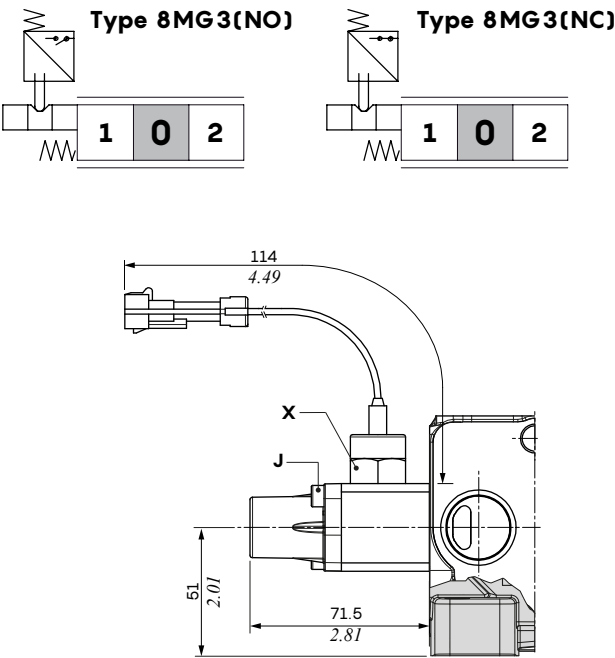
With electromagnetic detent in position 2



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



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.....: 5x10⁵ cycles
 - Switch electric life.....: 10⁵ cycles @ 7 A - 13.5 VDC, resistive load
5x10⁴ cycles @ 10 A - 12 VDC, resistive load
5x10⁴ cycles @ 3 A - 28 VDC, resistive load
 - Connctor.....: Packard Weather-Pack
 - Mating connector.....: Packard Weather-Pack, code 5CON001

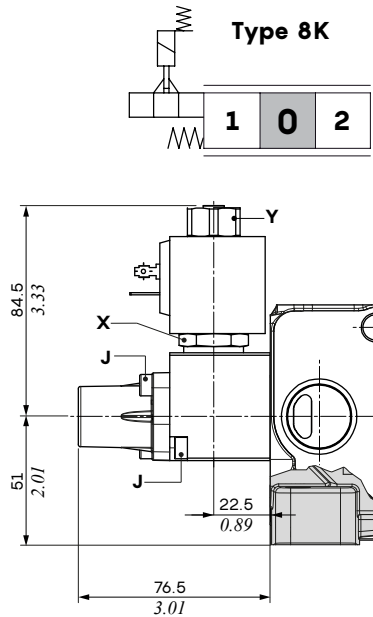
Complete controls			
Microswitch operation			
	position 1	position 2	position 1, 2
Circuit	8MG1	8MG2	8MG3
(NO)	5V08107670	5V08107680	5V08107660
(NC)	-	-	5V08107662 (*)

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 lbf ft)
 X = wrench 24 - 9.8 Nm (7.2 lbf ft)
 Y = wrench 21 - 6.6 Nm (4.9 lbf ft)

Complete controls

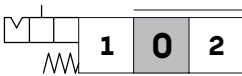
Voltage	Coil connector		
	ISO 4400	Packard M-Mack	Deutsch DT04
12 VDC	5V08707112	5V08707613	5V08707412
24 VDC	5V08707124	5V08707124	5V08707424

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

With detent and spring return in neutral position

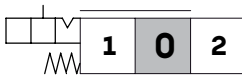
Type 9B

Detent in position 1
 (A curve)



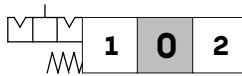
Type 10B

Detent in position 2
 (B curve)



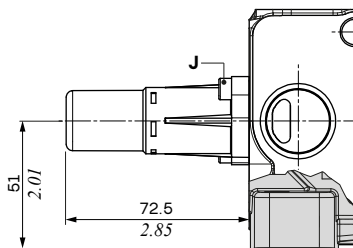
Type 11B

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

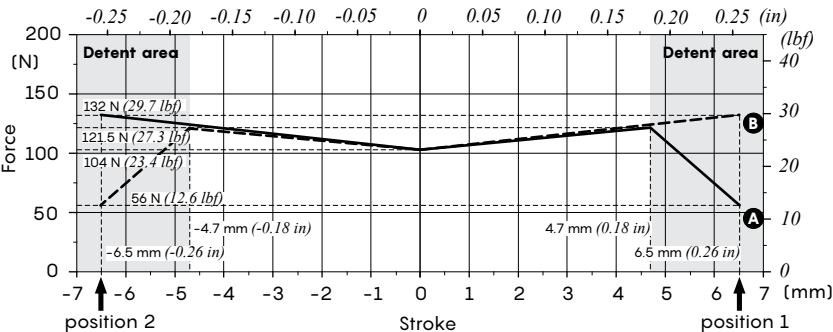


Wrenches and tightening torques

J = allen wrench 4 - 6.6 Nm (4.9 lbf ft)



Force vs. Stroke diagram

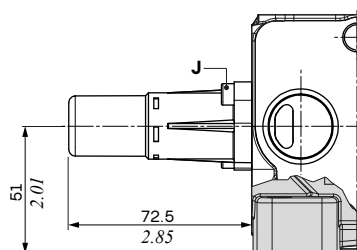
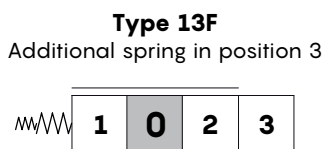
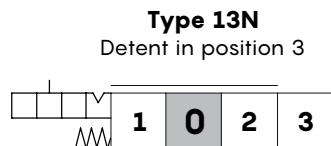


Release force 160 N ± 10 N (36 lbf ± 2.2 lbf)

Mechanical control

"A" side control kit

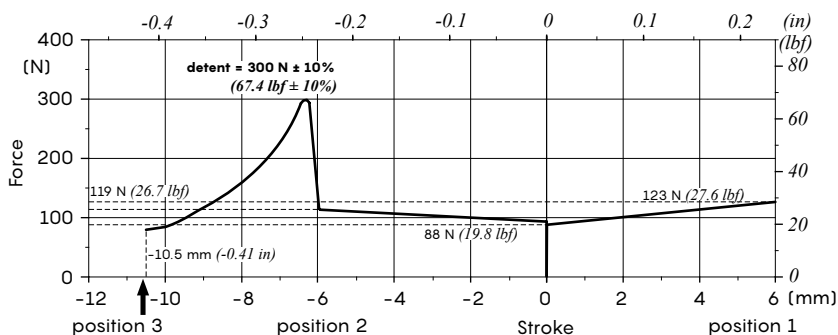
With detent and spring return in neutral position, for floating circuit



Wrenches and tightening torques

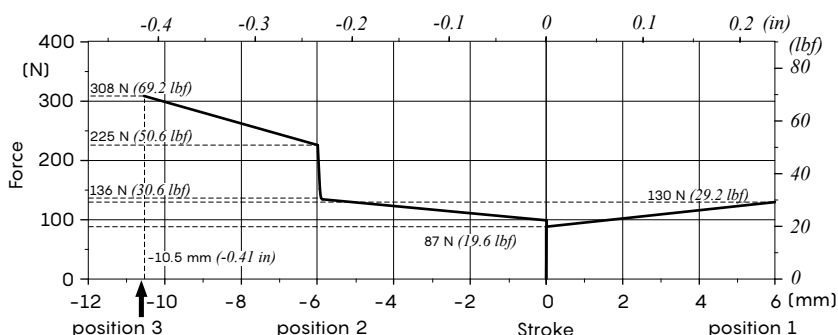
J = allen wrench 4 - 6.6 Nm (4.9 lbf ft)

Type 13N: Force vs. Stroke diagram

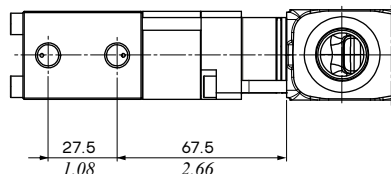
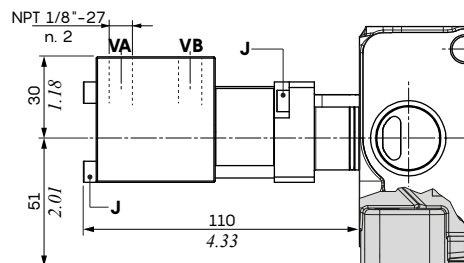
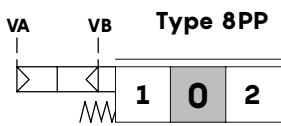


Release force from position 3: 250 N $\pm$ 10% (56.2 lbf $\pm$ 10 %)

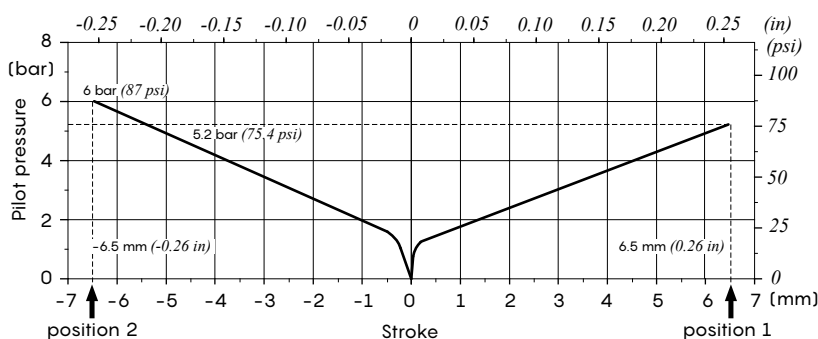
Type 13F: Force vs. Stroke diagram



Proportional pneumatic control



Stroke vs. Pilot pressure(*)



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

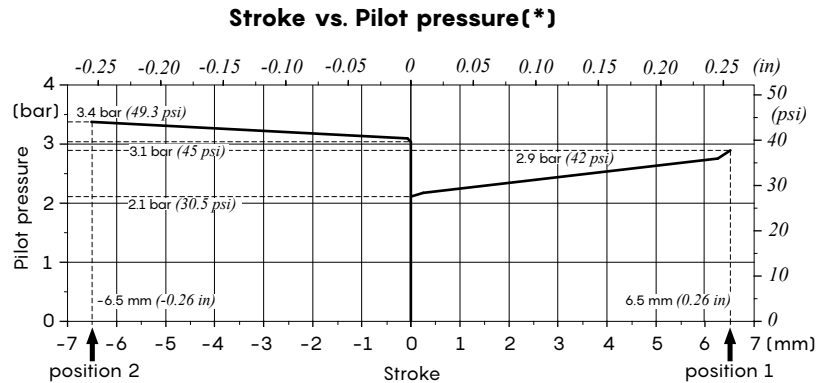
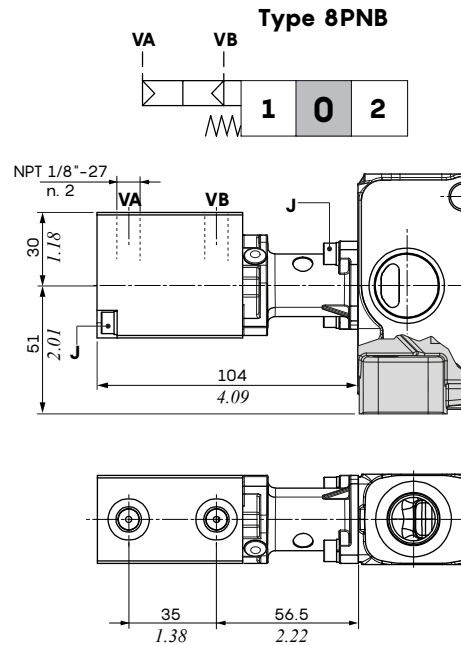
Wrenches and tightening torques

J = allen wrench 4 - 6.6 Nm (4.9 lbf ft)

Mechanical control

"A" side control kit

ON/OFF pneumatic control

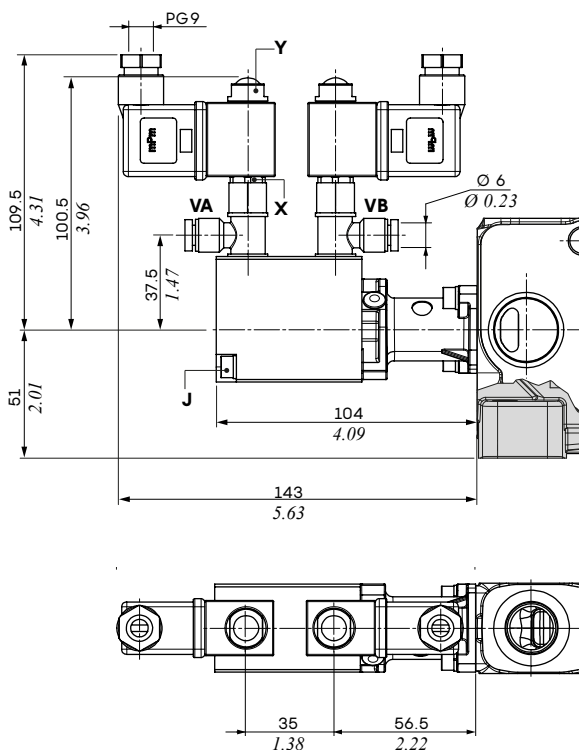


(*) The curves are performed without the passage of oil.

Wrenches and tightening torques

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

ON/OFF electropneumatic control

**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)

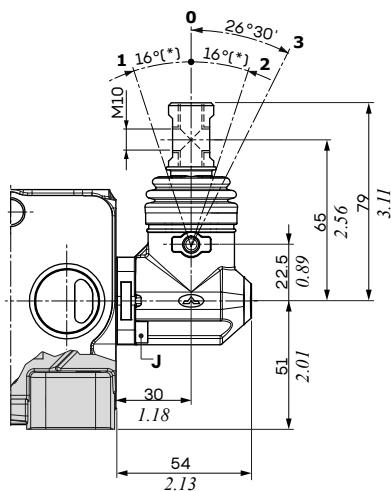
Y = wrench 13 - manual tightening

Mechanical control

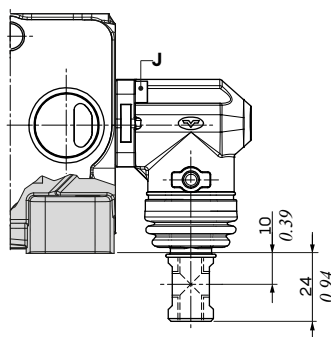
"B" side control kit

With lever box

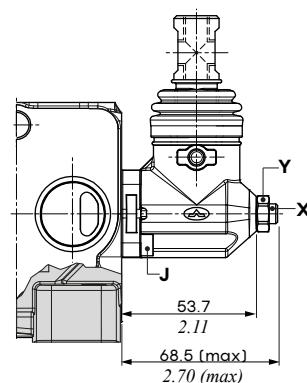
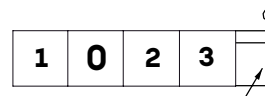
Type L



L180 configuration



Type LF1
Spool stroke limiter
on A port

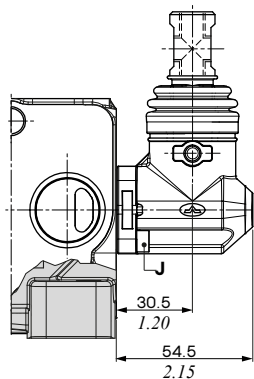
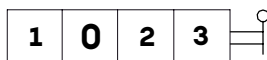


Angle (°)

16° with type 8.. controls
15° with type 13.. controls

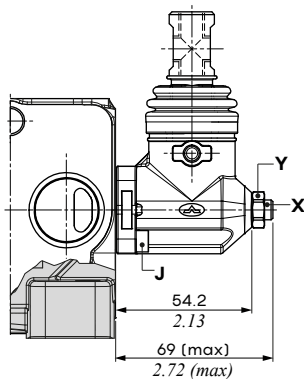
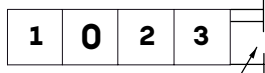
Type LSG

As type L, water-proof



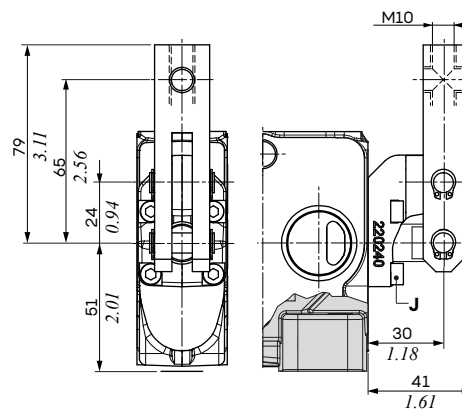
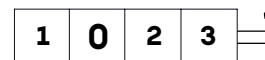
Type LSGF1

As type LF1, water-proof



Type LB3

Open lever



Wrenches and tightening torques

J = allen wrench 4 - 6.6 Nm (4.9 lbf ft)

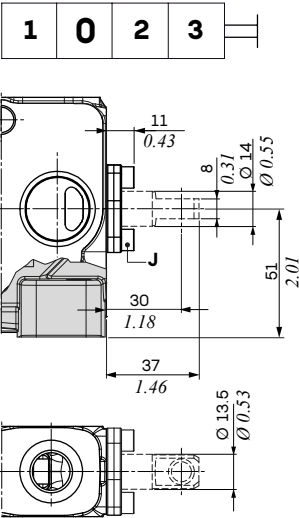
X = allen wrench 4

Y = wrench 13 - 24 Nm (17.7 lbf ft)

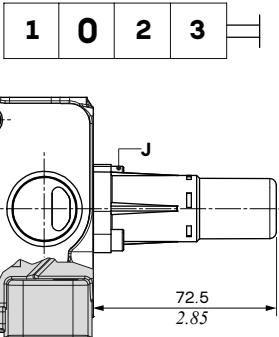
"B" side control kit

Without lever box

Type SLP
With dust-proof plate

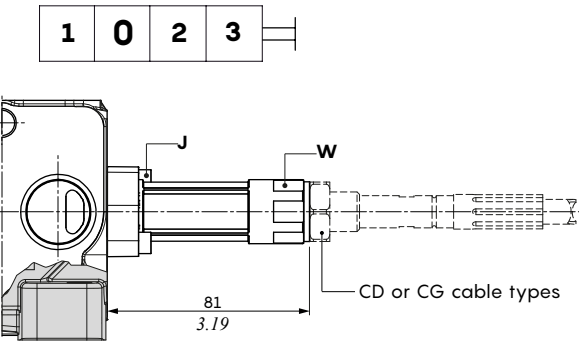


Type SLC
With endcap



Wrenches and tightening torques
J = allen wrench 4 - 6.6 Nm (4.9 lbf·ft)
W = wrench 24

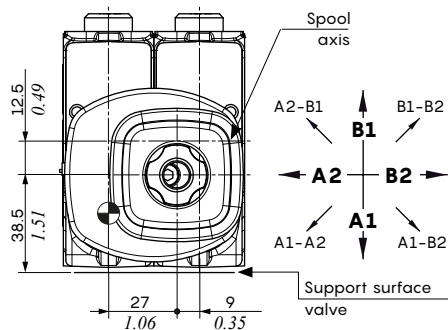
Type TQ
Flexible cable connection



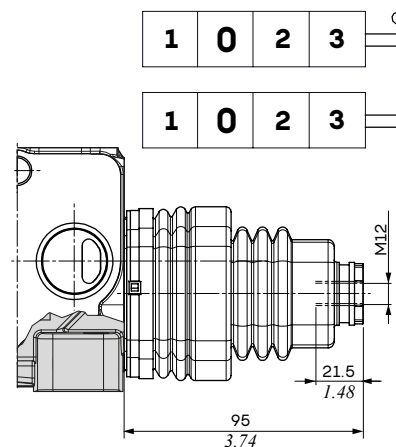
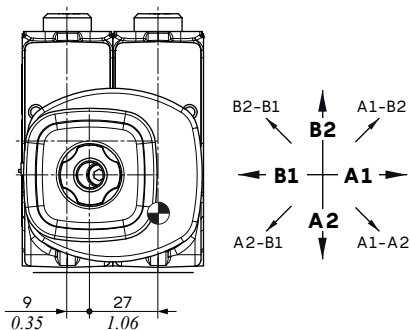
Proportional hydraulic control

With spring return in neutral position, for floating circuit

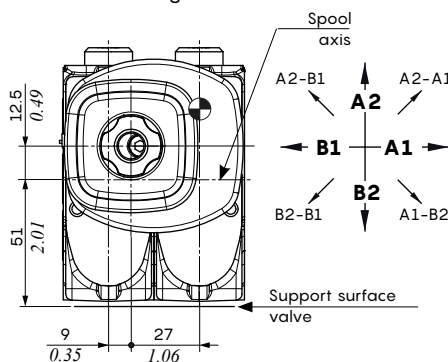
Type LCA1-4
LCA1 configuration



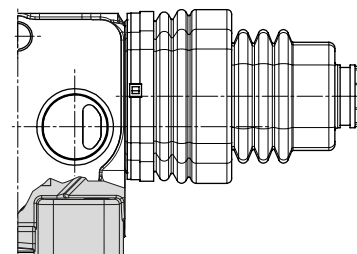
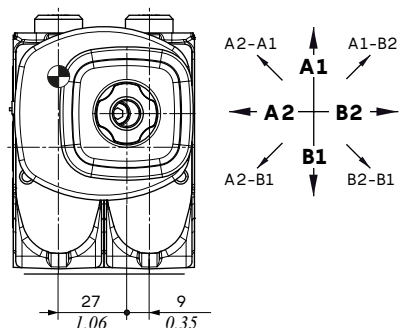
Type LCA2-3
LCA2 configuration



LCA4 configuration



LCA3 configuration

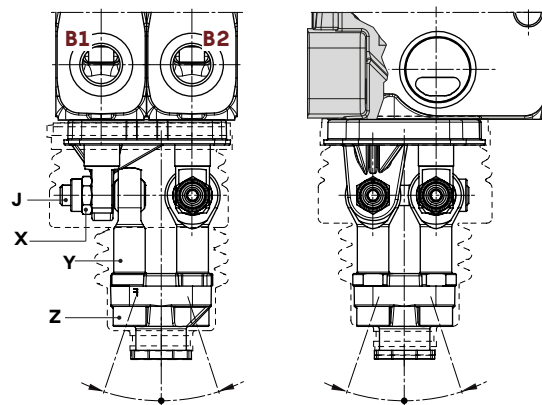
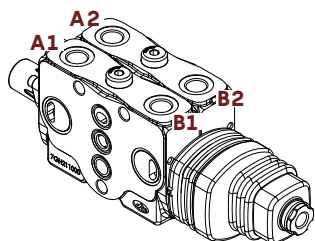


Working angles

Horizontal axis

Vertical axis

LCA1 configuration example



Wrenches and tightening torques

J = allen wrench 4 - 9.8 Nm (7.2 lbft)

Y = wrench 24

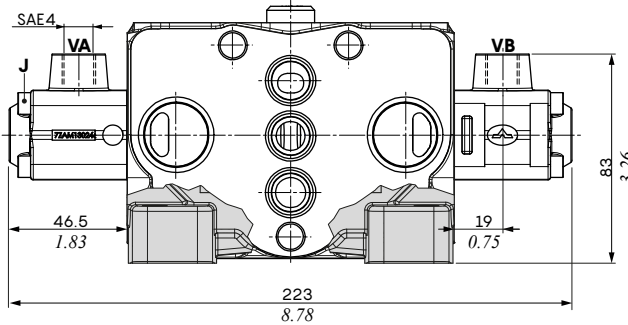
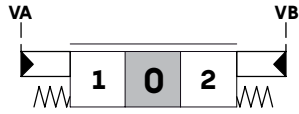
X = wrench 13 - 9.8 Nm (7.2 lbft)

Z = allen wrench 6 - 9.8 Nm (7.2 lbft)

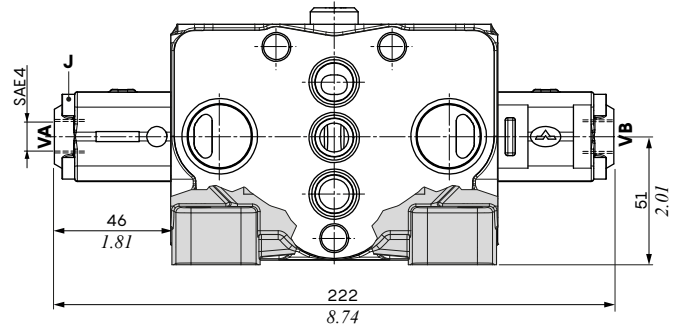
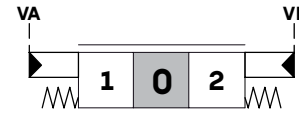
Max. working angles	Horizontal axis	Vertical axis
Single action operation	15°4'	15°4'
Single action operation with floating	25°2'	25°2'
Two section operation	15°52'	15°52'
Two section operation with floating	18°3'	18°3'

With spring return in neutral position

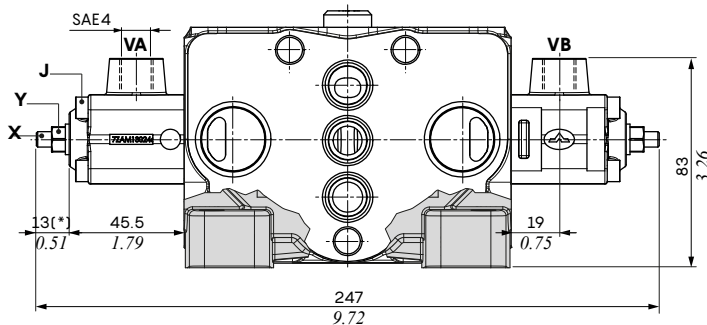
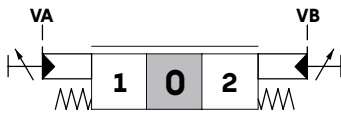
Type 8IM
With upper port



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)

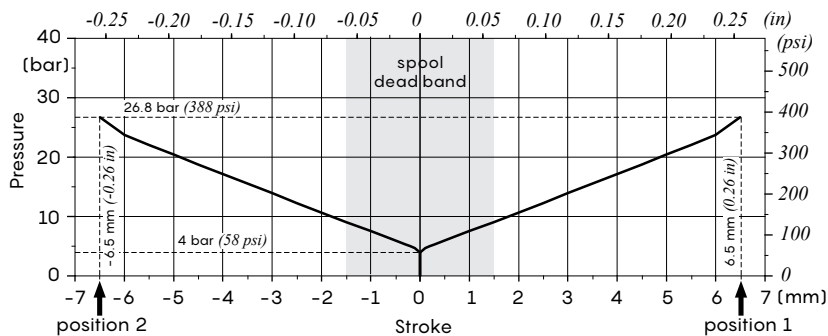
Wrenches and tightening torques

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

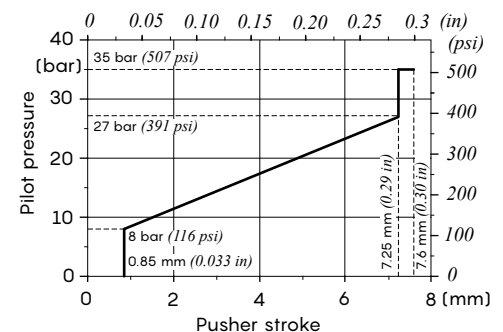
Y = wrench 10 - 9.8 Nm (7.2 lbft)

X = allen wrench 3

Pressure vs. Stroke diagram



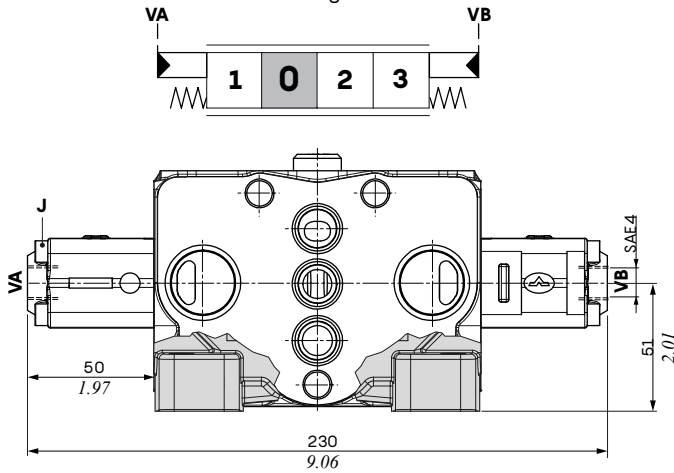
Suggested pressure control curve: type 088



Proportional hydraulic control

With spring return in neutral position, for floating circuit

Type 13IMS
With side port
for floating circuit



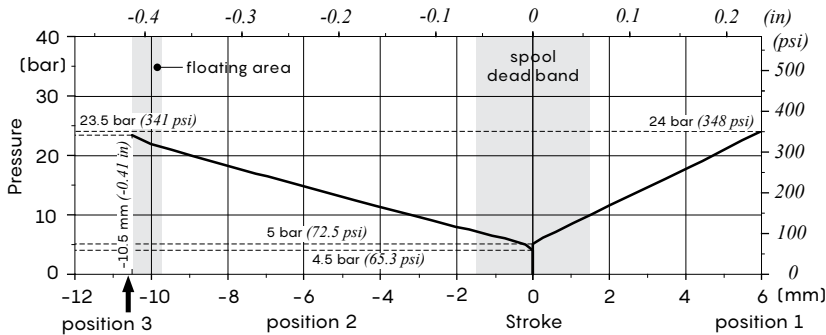
Features

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

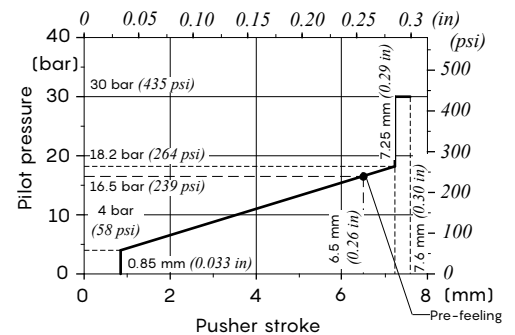
Wrenches and tightening torques

J = allen wrench 4 - 6.6 Nm (4.9 lbf ft)

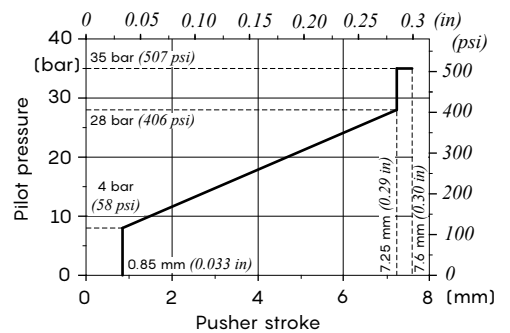
Pressure vs. Stroke diagram



**Suggested pressure control curve
on VB port: type 086**

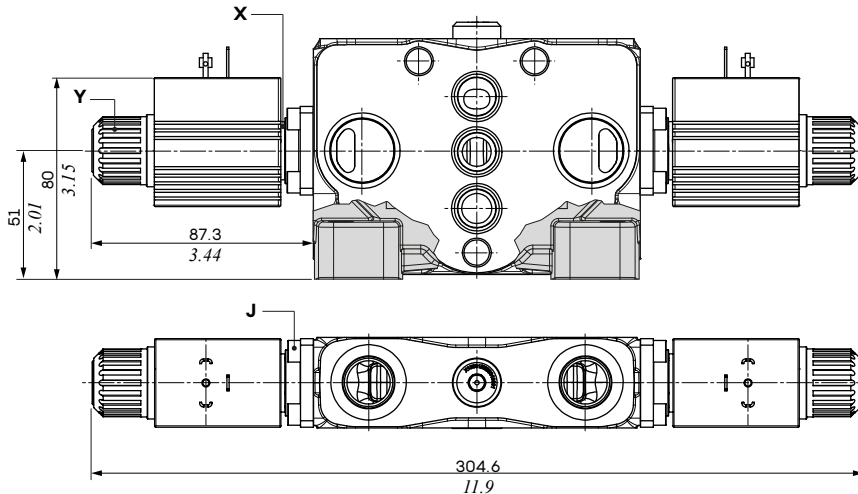
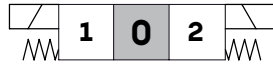
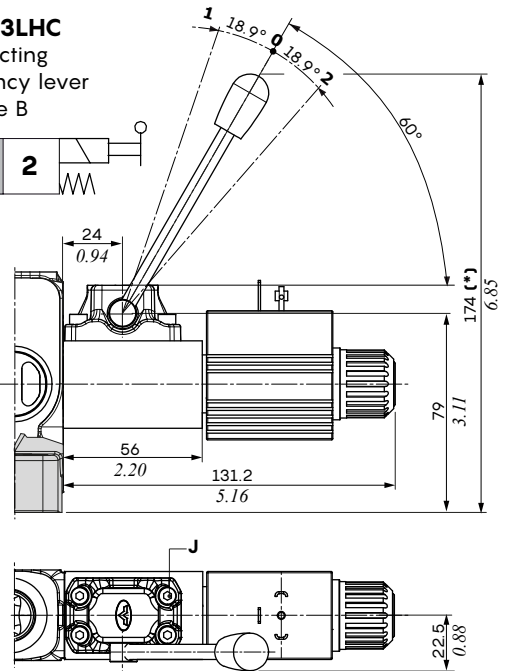
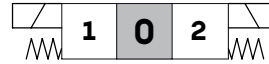


**Suggested pressure control curve
on VA port: type 089**



ON/OFF electric control

With spring return in neutral position

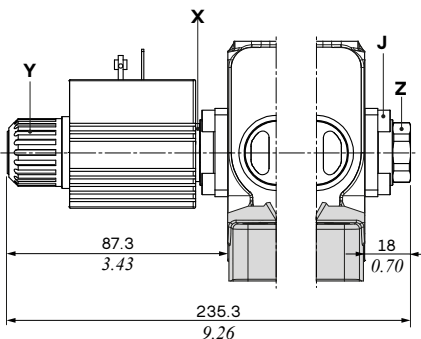
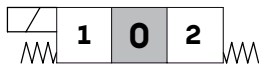
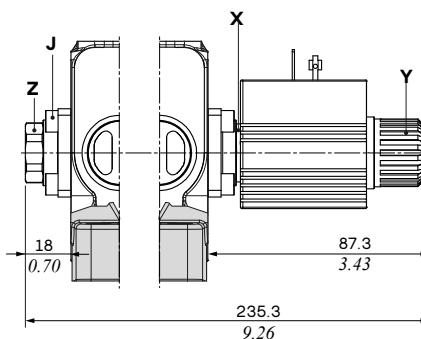
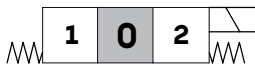
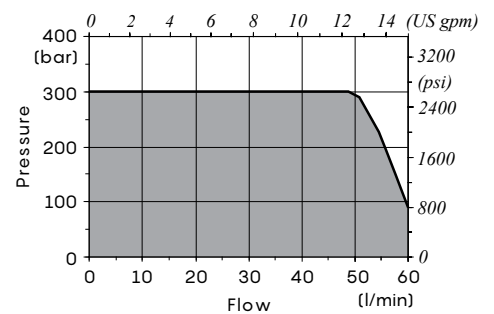
Type 8ES3
Double acting**Type 8ES3LHC**
Double acting
with emergency lever
on side B**Features**

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	Lever lengths	Dimension (*)
	mm - in	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.

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.

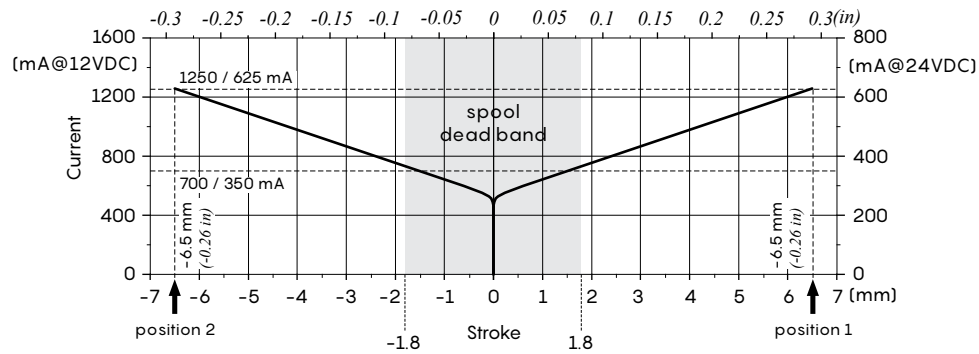
Following electrohydraulic controls need CED400W electronic unit; for information please contact Sales Department.

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)		IP 65 (JPT type) - IP 69K (DT type)	
Hydraulic specifications			
Max. pressure		40 bar (580 psi)	
Max. back pressure		10 bar (145 psi)	

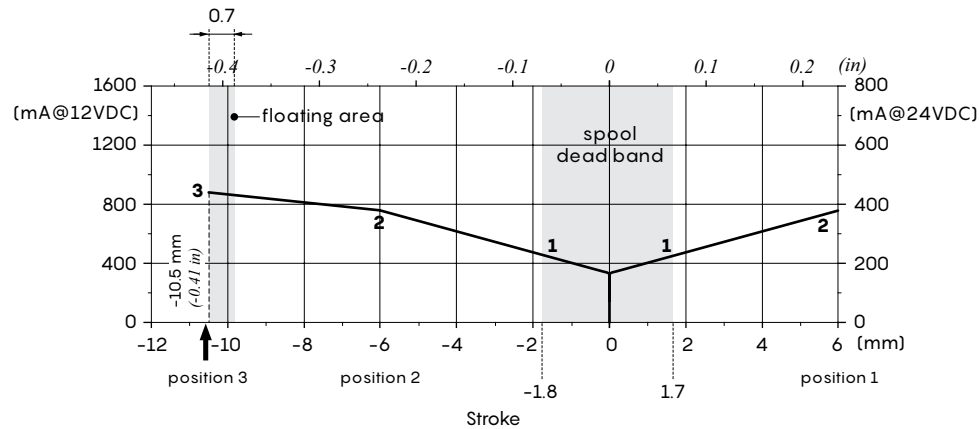
Note (1): Hysteresis is indicated at nominal supply voltage and f = 0.008 Hz for one cycle (one cycle = neutral ⇒ full A ⇒ neutral ⇒ full B ⇒ neutral). For the calculation rules see "Appendix A" on page 62

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.

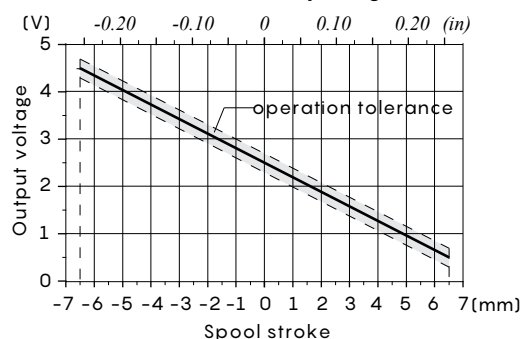
SPSL sensor

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

Working conditions

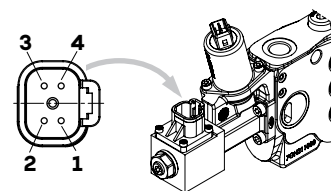
Voltage supply	5 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	Deutsch DT04-4P
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke	±10 mm (±0.39 in)
Max. mechanical stroke	±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

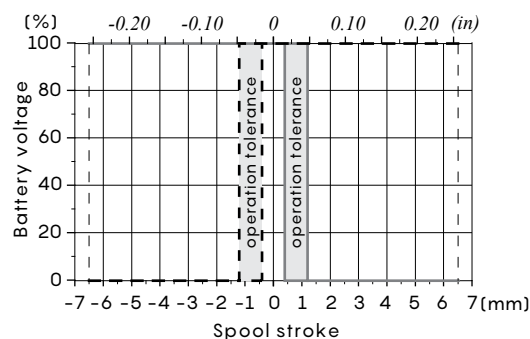
SPSD sensor

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

Working conditions

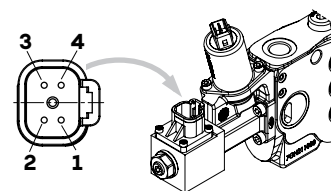
Voltage supply	from 9 to 32 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	Deutsch DT04-4P
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke	±10 mm (±0.39 in)
Max. mechanical 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

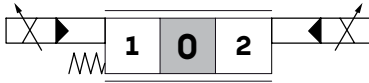
Electro-hydraulic control

Type controls

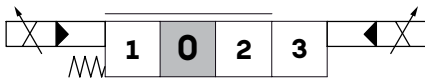
- ① : With AMP JPT connector - AMP JPT mating connector, code: 5CON003
 ② : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

Without lever control, spring return in neutral position

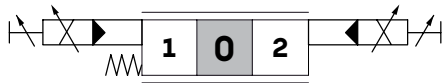
Type 8EB3T **Type 8EB34T**
 With AMP connector With Deutsch connector



Type 13EB3T **Type 13EB34T**
 With AMP connector for floating circuit With Deutsch connector for floating circuit



Type 8EB3TF3 **Type 8EB34TF3**
 With AMP connector and spool stroke limiter With Deutsch connector and spool stroke limiter



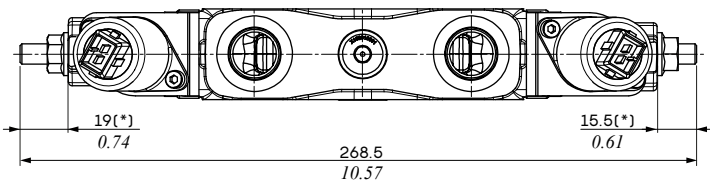
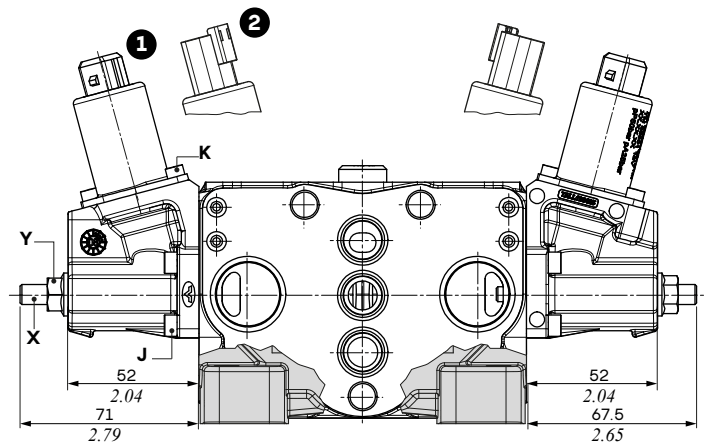
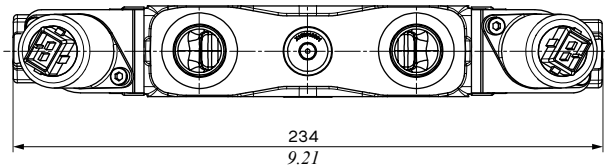
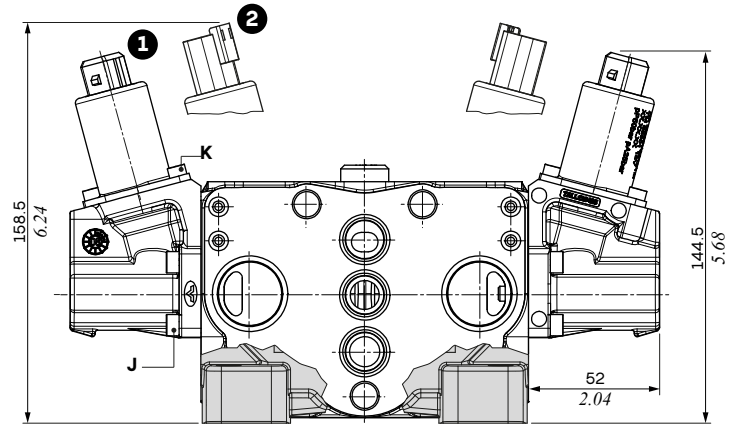
Wrenches and tightening torques

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

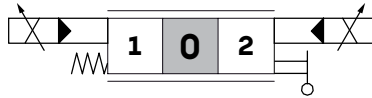
Electro-hydraulic control

Type controls

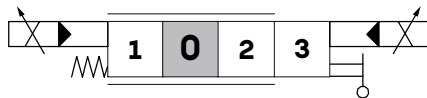
- ① : With AMP JPT connector - AMP JPT mating connector, code: 5CON003
- ② : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

With lever control, spring return in neutral position

Type 8EB3TLH **Type 8EB34TLH**
With AMP connector With Deutsch connector

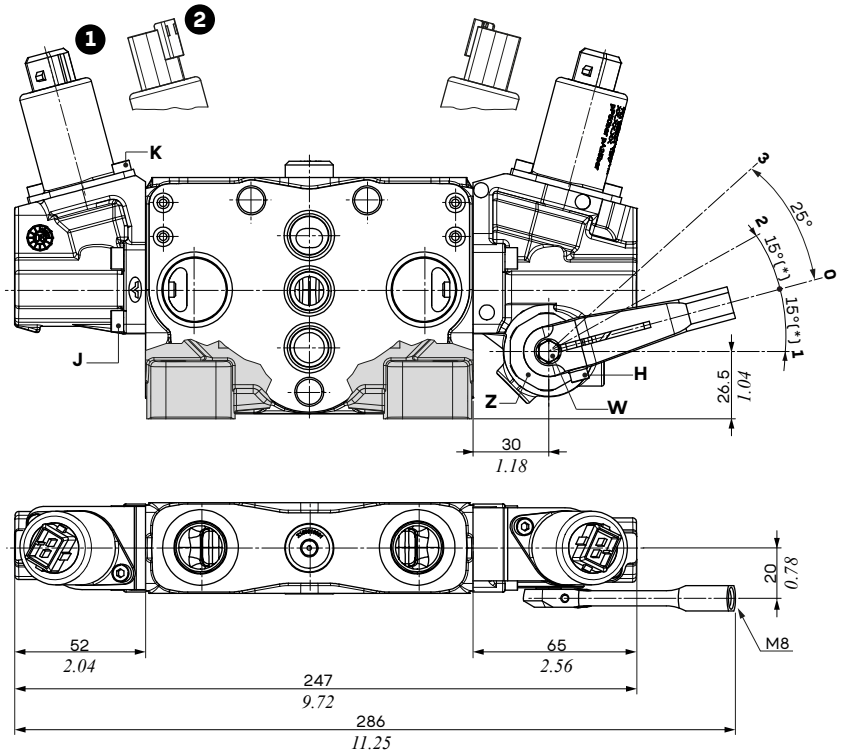


Type 13EB3TLH **Type 13EB34TLH**
With AMP connector With Deutsch connector
for floating circuit for floating circuit

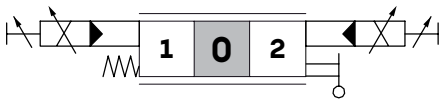


Angle (°)

15° with 8EB3.. type controls
14° with 13EB3.. type controls

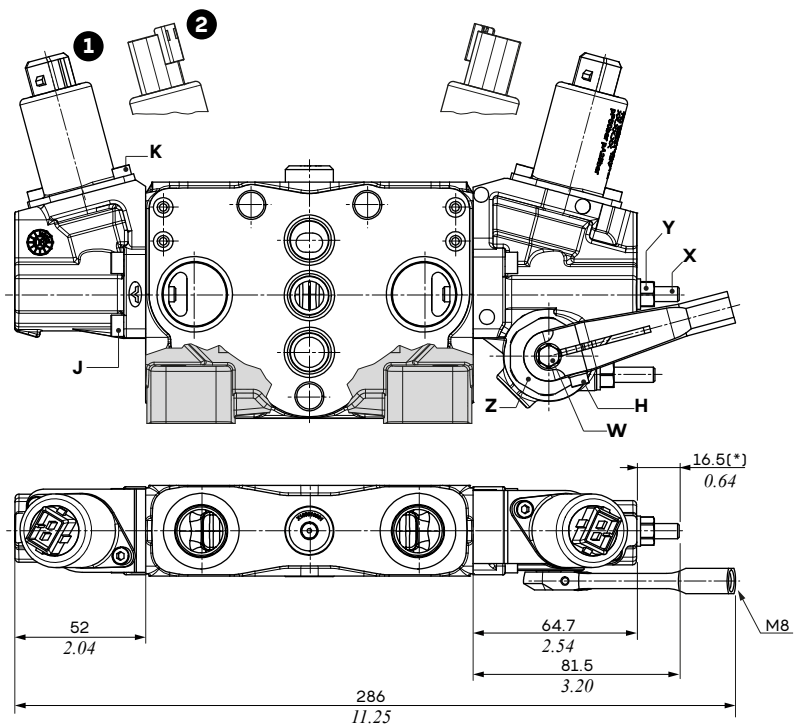


Type 8EB3TLHF3 **Type 8EB34TLHF3**
With AMP connector With Deutsch connector
and spool stroke limiter and spool stroke limiter



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



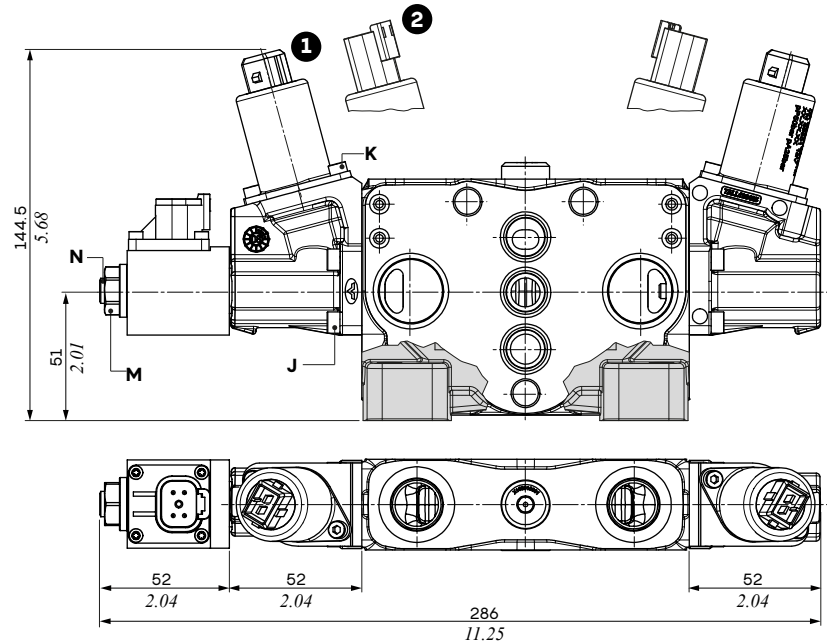
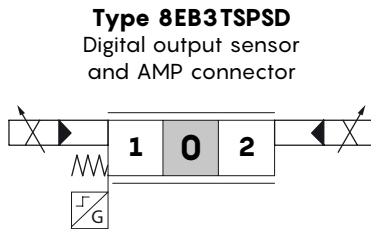
(*): Minimum distance for no adjustment

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

Without lever control, with spool position sensor



Wrenches and tightening torques

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

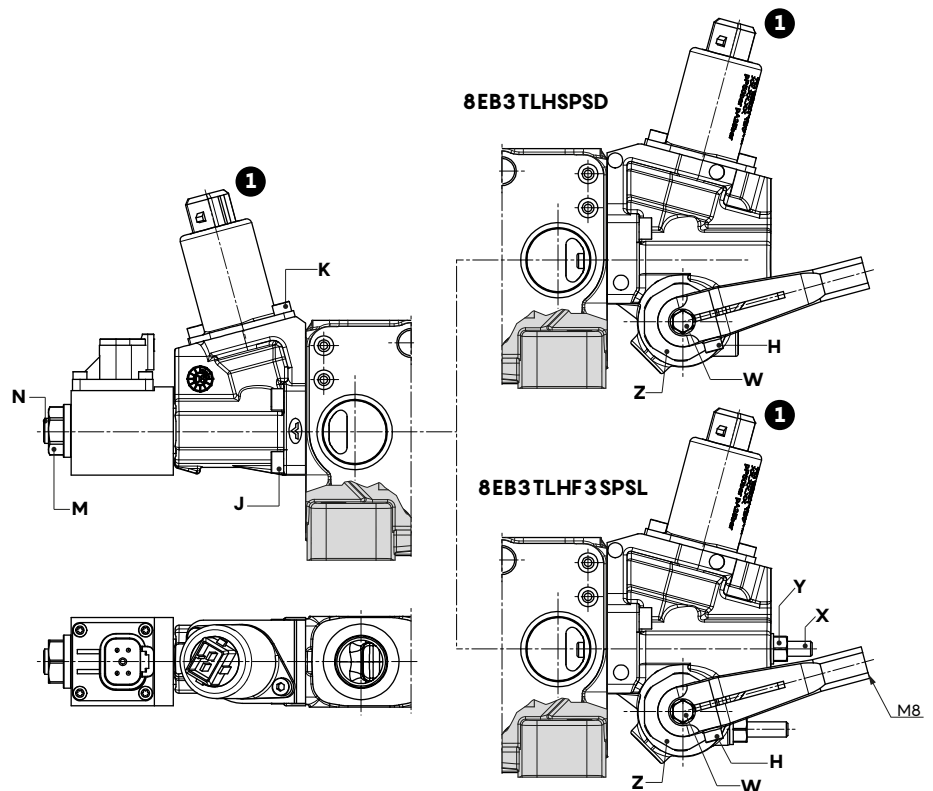
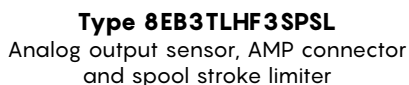
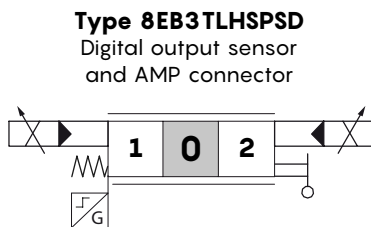
K = allen wrench 3 - 5 Nm (3.7 lbft)

M = wrench 4 - 9.8 Nm (7.2 lbft)

N = wrench 10 - 9.8 Nm (7.2 lbft)

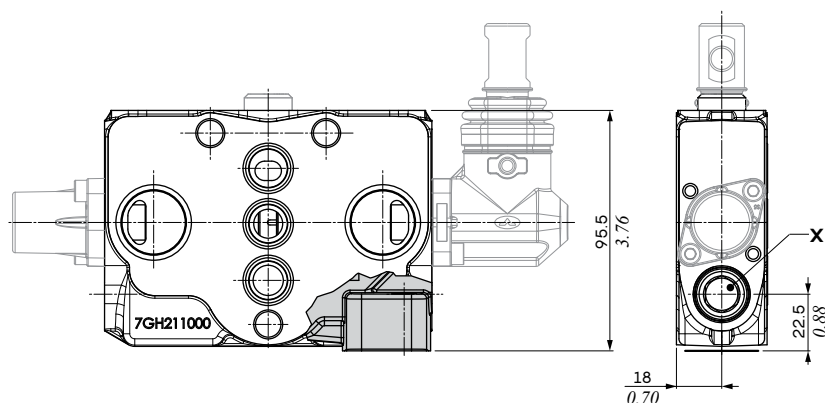
With lever control, with spool position sensor

Note - For more dimensions
see previous pages



Port valves

Dimensional data, hydraulic circuit and performance data



Wrenches and tightening torques

X = wrench 13 - 24 Nm (17.7 lbft)

Type U

Antishock valves with prefill



Type C

Anticavitation valves



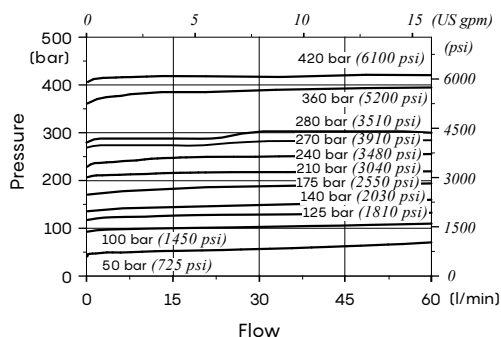
Type UT

Valve blanking plug



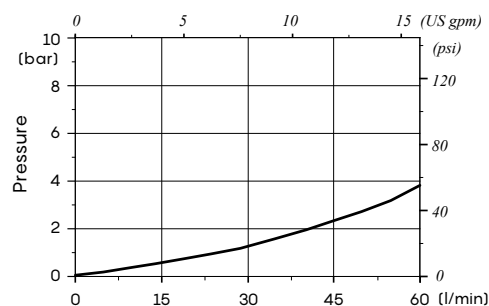
Type U: antishock valves with prefill

Setting example
(10 l/min - 2.6 US gpm)

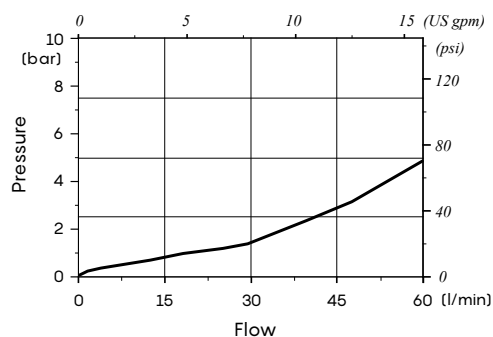


Type C: anticavitation valves

Pressure drop

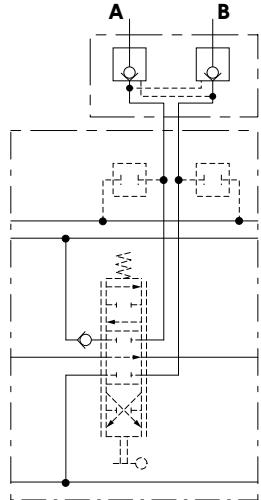
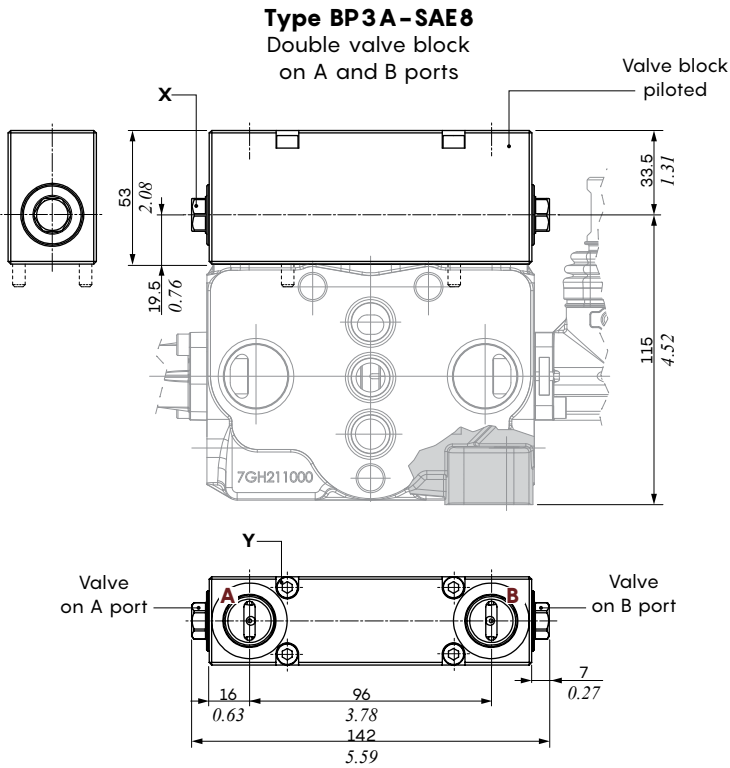


Pressure drop (in anticavitation)



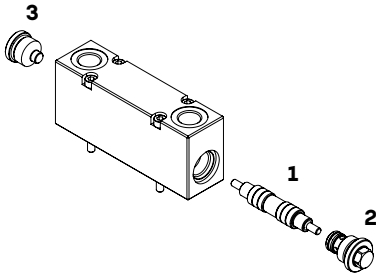
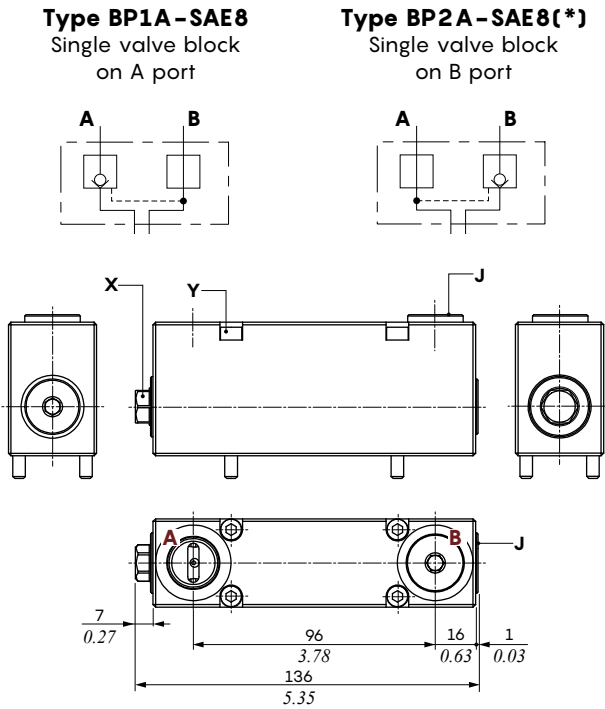
Secondary aux valve block

Dimensional data and hydraulic circuit



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)



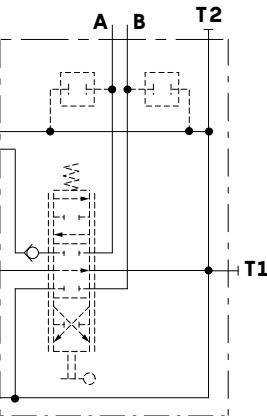
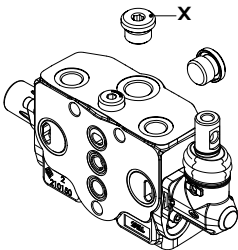
Spare parts		
	Description	Code
1	Piston	3PIS214820
2	BP Cartridge	X209310000
3	Valve blanking plug	XTAP822220

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

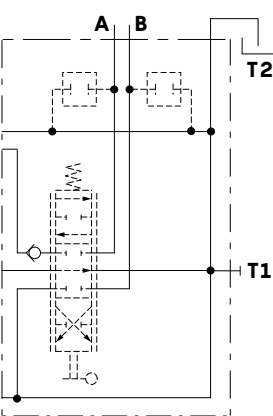
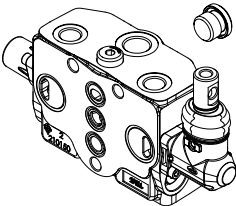
Outlet circuit

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

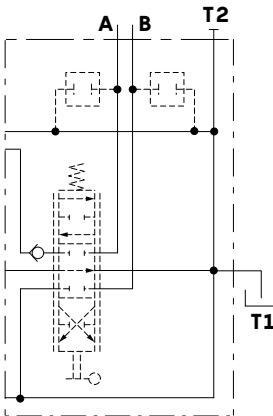
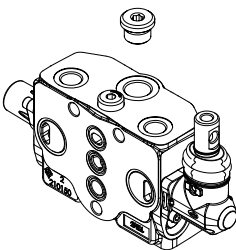
Type F
T2 and T1 ports plugged



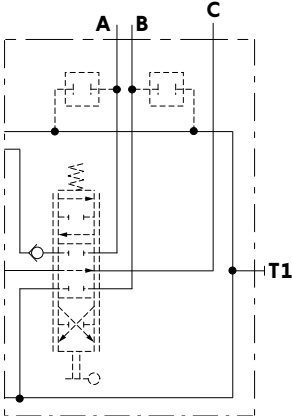
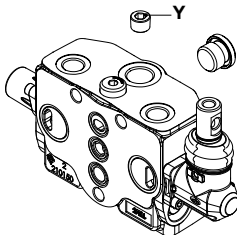
Type TA
T2 port open and
T1 port plugged



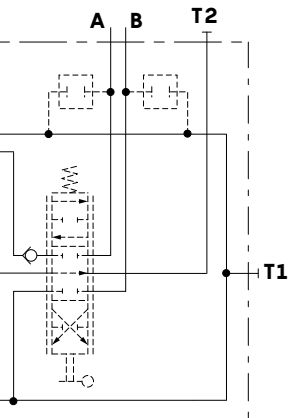
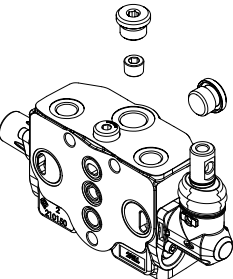
Type TL
T2 port plugged and
T1 port open



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



Type AEK
T2 and T1 ports plugged
for closed circuit



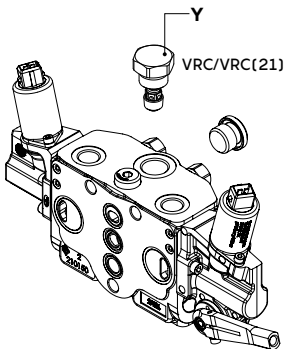
Circuit configuration				
Type	T2 port	T1 port	Carry-over	Note
F	plugged	plugged	-	outlet is on port T of inlet section
TA	open	plugged	-	it's necessary to plug T port on inlet section
TL	plugged	open	-	it's necessary to plug T port on inlet section
AE	open	plugged	open	outlet is on port T of inlet section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

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

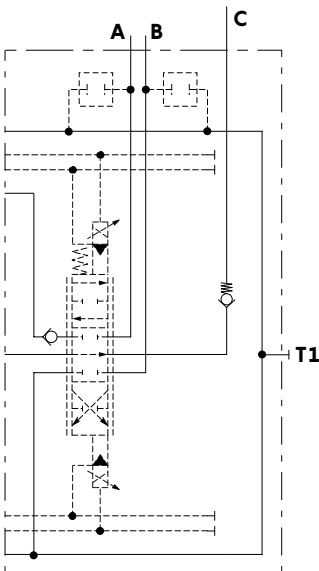
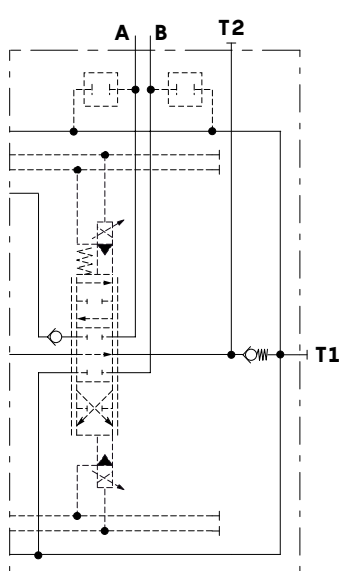
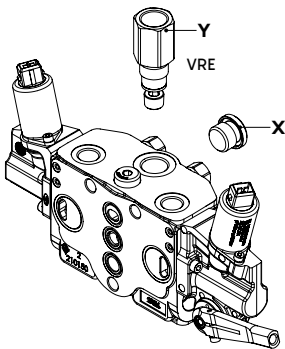
Outlet working section for electrohydraulic/mixed controls

Type F
T2 and T1 ports plugged

With back pressure valve
VRC/VRC21



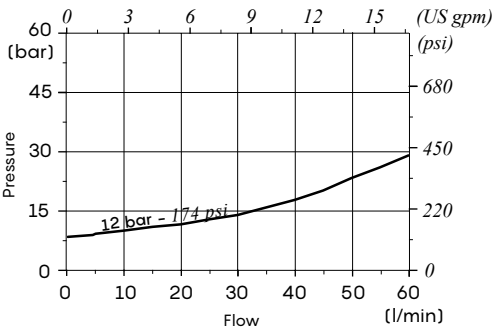
With back pressure valve
VRE (carry-over function)



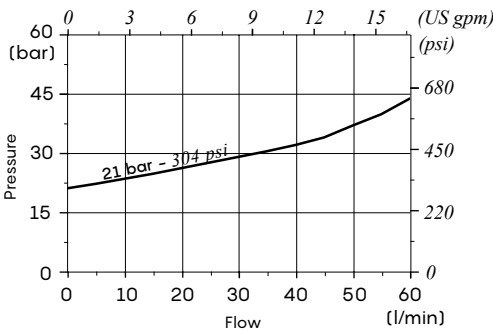
Wrenches and tightening torques

X = allen wrench 8 - 42 Nm (31 lbft)
Y = wrench 27 - 24 Nm (17.7 lbft)

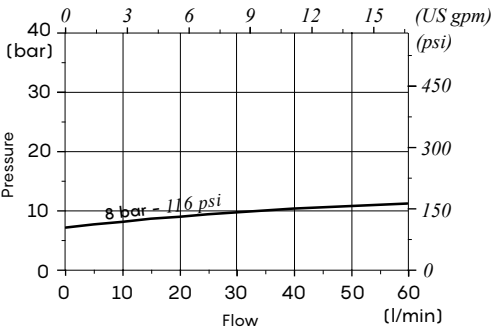
Valve type VRC
Pressure drop



Valve type VRC(21)
Pressure drop



Valve type VRE
Pressure drop



Intermediate inlet section type EI2

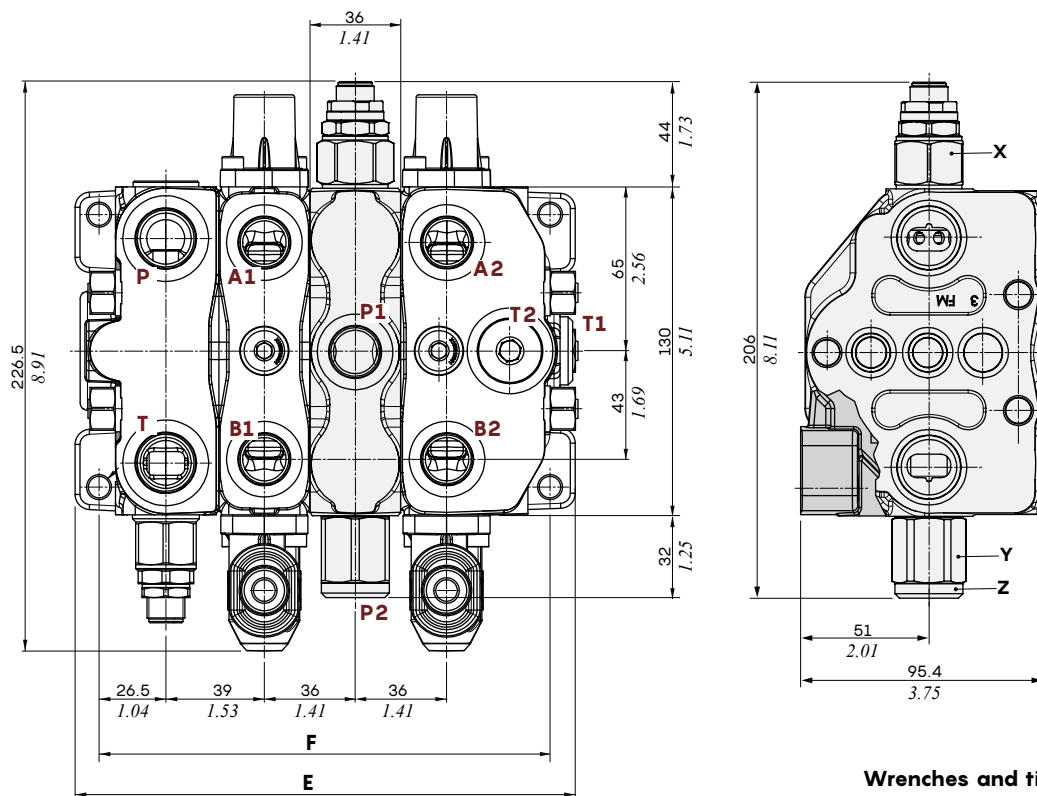
Dimensional data and hydraulic circuit

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



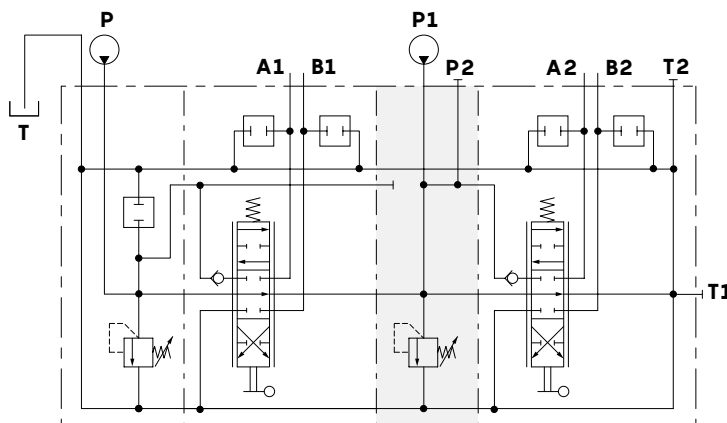
Wrenches and tightening torques

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 UN-UNF thread

Intermediate outlet manifold type CS1

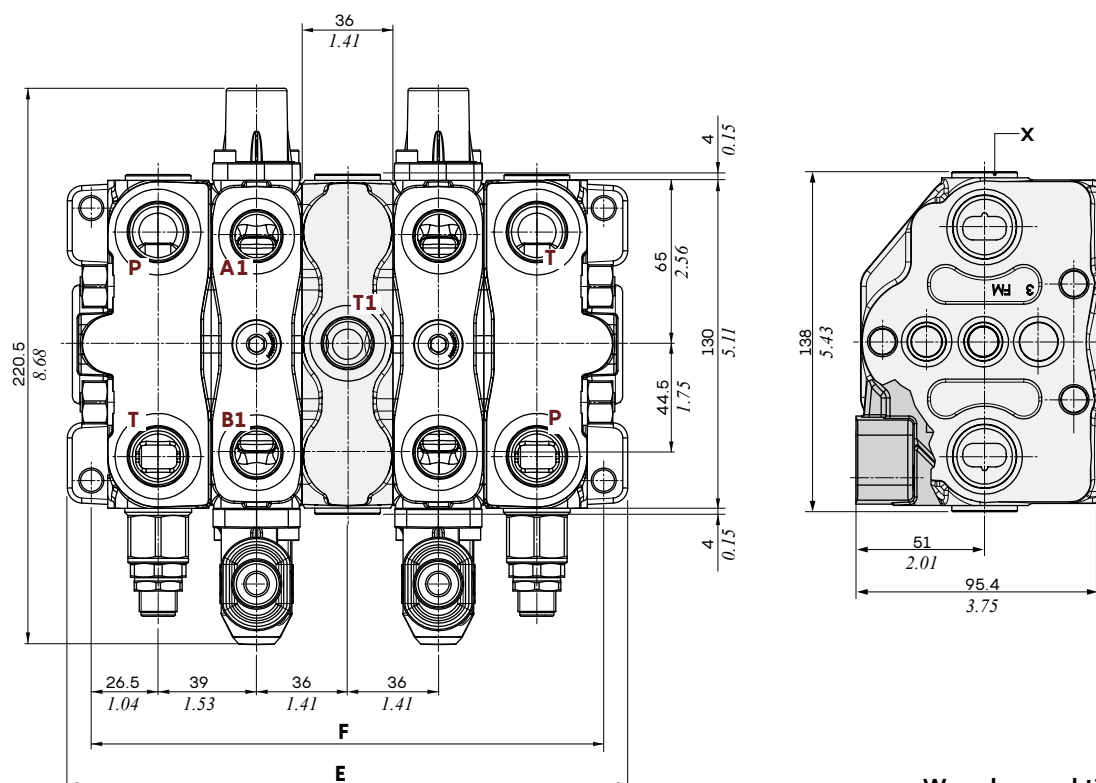
Dimensional data and hydraulic circuit

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

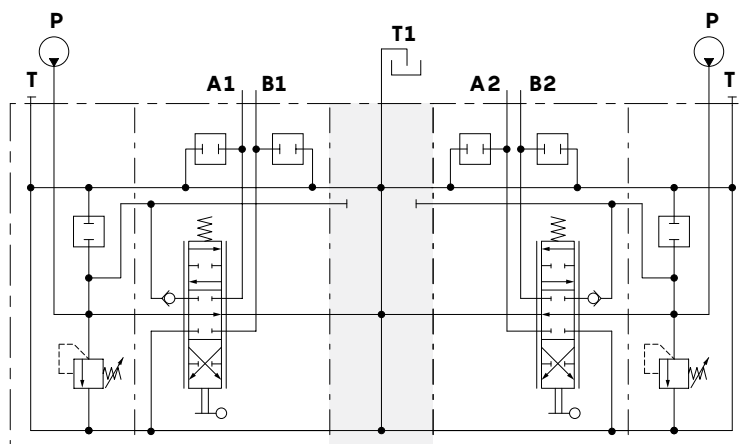


Wrenches and tightening torques

X = allen wrench 8 - 24 Nm (17.7 lbf ft)

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 UN-UNF 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 ⁽³⁻⁶⁾	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⁾	-	-	-	-	-
	12 VDC	4SLA001200	-	-	-	-	-
	24 VDC	4SLA002403	-	-	-	-	-
BPV	12 VDC	4SL1000120A	4SL1000123B ⁽⁶⁾ 4SL1000140 ⁽³⁻⁶⁾ 4SL1000123B ⁽²⁾	-	-	-	4SL1000122B
	24 VDC	4SL1000240B 4SL1030240 ⁽¹⁾	4SL1002401 ⁽⁶⁾	-	-	-	-
BE	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

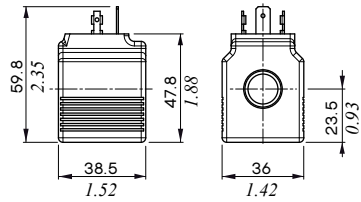
Voltage	ISO 4400 mating connector with rectifier			
	type BER coil	type BE coil	type BPV coil	type D12 coil
24 VDC	4CN1010240	4CN3010240	-	-
48 VDC	4CN1010480	4CN3010480	-	-
110 VDC	4CN1011100	4CN3011100	-	-
220 VDC	4CN1012200	4CN3012200	-	-

Coil and connector

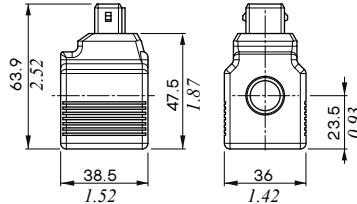
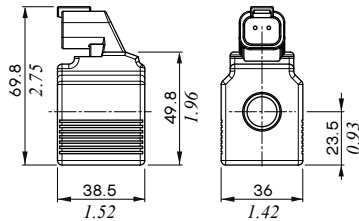
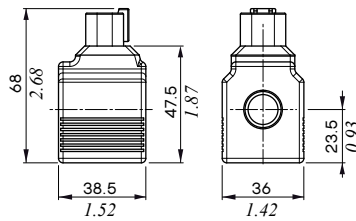
Dimensional data and features

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: $\pm 10\%$

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 insulation.....: Class H (180°C - 356°F)

Weather protection.....: IP65 - ISO4400

: IP69K - Deutsch DT

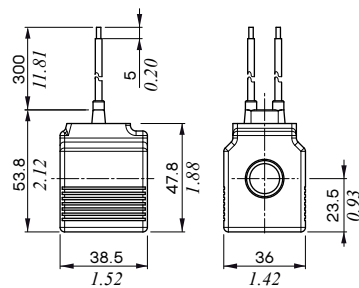
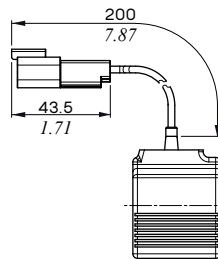
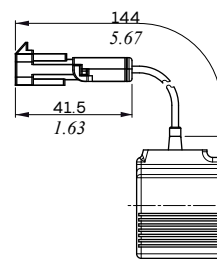
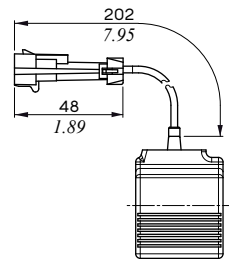
: IP65 - AMP JPT

: IP67 - Weatherpack

: IP67 - Metri-pack

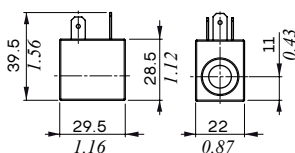
Insertion.....: 100%

With flying leads

With flying leads and
DEUTSCH DT04 connectorWith flying leads and
PACKARD WEATHER-PACK
connectorWith flying leads and
PACKARD METRI-PACK
connector

Type BPV

With ISO4400 connector



Features

Nominal voltage tolerance: $\pm 10\%$

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

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

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

Weather protection.....: IP65 - ISO4400

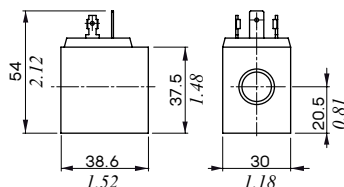
Insertion.....: 100%

Coil and connector

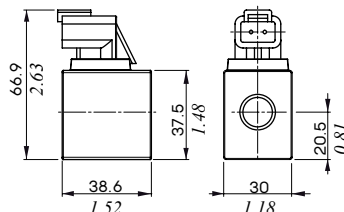
Dimensional data and features

Type BE

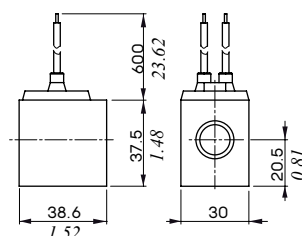
With ISO4400 connector



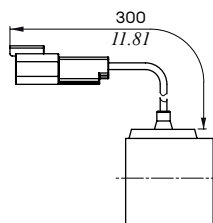
With DEUTSCH DT04 connector (parallel type)



With flying leads



With flying leads and DEUTSCH DT04 connector



Features

Nominal voltage tolerance: $\pm 10\%$

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 insulation.....: Classe F (155°C)

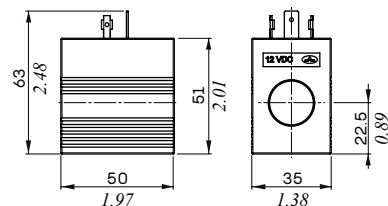
Weather protection.....: IP65 - ISO4400

: IP69K - Deutsch DT

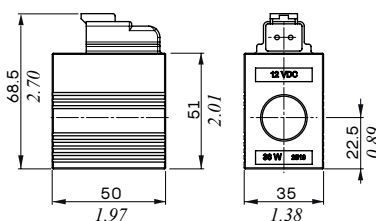
Insertion.....: 100%

Type D12

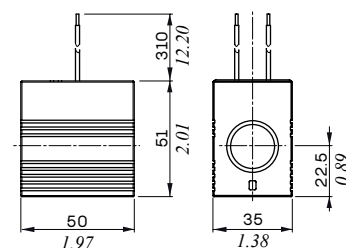
With ISO4400 connector



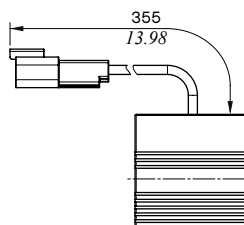
With DEUTSCH DT04 connector (parallel type)



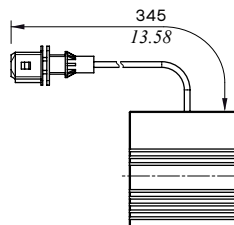
With flying leads



With flying leads and DEUTSCH DT04 connector



With flying leads and AMP JPT connector



Features

Nominal voltage tolerance: $\pm 10\%$

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 insulation.....: Classe H (180°C)

Weather protection.....: IP65 - ISO4400

: IP69K - Deutsch DT

: IP65 - AMP JPT

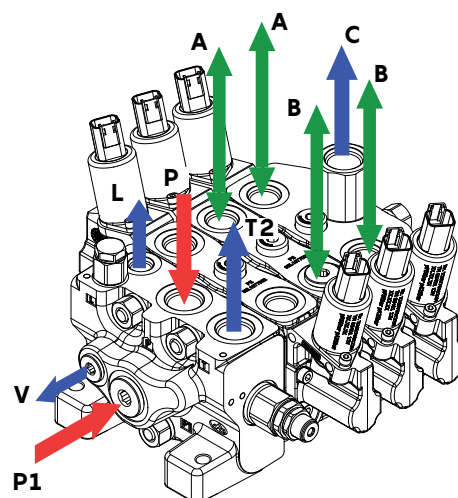
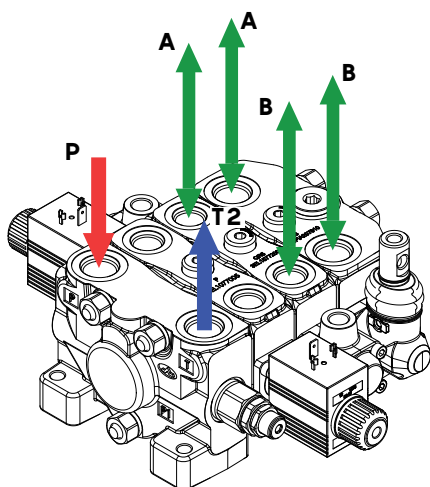
Insertion.....: 100%

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.

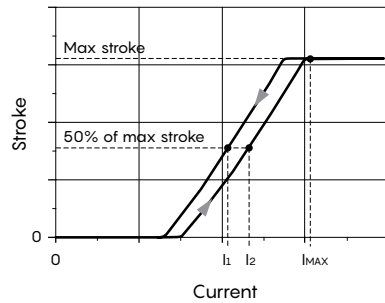
Appendix A

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 I_{MAX} , needed to reach 100% of spool stroke.

I_2 is determined on spool stroke increase line, I_1 is determined on spool stroke decrease line.

Example diagram for data detection



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

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D2VWEB01A
1st edition July 2025

