



SDS 140

Sectional directional control valves

TECHNICAL CATALOGUE



Features

SDS140

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

- Working section type Q and P (with direct and pilot port relief valves).
- Flow unloader system.
- Proportional electrohydraulic controls.
- Load Sensing circuit available.
- Spool position sensors option.

Additional information

This catalogue shows the product in the most standard configurations.
Please contact our Sales Dpt. for more detailed information or special requests.

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.

7th edition December 2021

SDS140

- Valve general information
 - Working conditions page 4
 - Standard threads page 4
 - Dimensional data page 5
 - Performance data page 5
 - Hydraulic circuit page 6
 - Complete sections ordering codes page 8
- Inlet section
 - Part ordering codes page 10
 - Dimensional data and hydraulic circuit page 12
 - Main pressure relief valves page 15
 - Pressure reducing valve page 17
 - Inlet valve options page 18
- Working section
 - Part ordering codes page 20
 - Dimensional data and hydraulic circuit page 23
 - Spools page 25
 - Electrohydraulic controls page 27
 - Port valves page 34
- Outlet section
 - Part ordering codes page 36
 - Dimensional data and hydraulic circuit page 37
 - Circuit option page 38

- Installation and maintenance page 39
- Accessories page 40
- Appendix A page 42

Working conditions

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

Nominal flow rating	standard	90 l/min	24 US gpm
	for AN and AM inlet sections	120 l/min	32 US gpm
Max. pressure		315 bar	4600 psi
Back pressure (max.) on T outlet port	with mechanical devices	10 bar	145 psi
	with hydraulic/pneumatic devices	30 bar	435 psi
	with electrohydraulic devices	5 bar	72.5 psi
Internal leakage A(B)⇒T (standard)	Δp = 100 bar / 1450 psi	max. 10 cm ³ /min	max. 0.61 in ³ /min
	With port valves Δp = 100 bar / 1450 psi	max. 15 cm ³ /min	max. 0.91 in ³ /min
Fluid		Mineral base oil	
Fluid temperature	with NBR (BUNA-N) seals	from -20°C to 80°C	from -4°F to 176°F
	with FPM (VITON) seals	from -20°C to 100°C	from -4°F to 212°F
Viscosity	operating range	from 15 to 75 mm ² /s	from 15 to 75 cSt
	min.	12 mm ² s	12 cSt
	max.	400 mm ² s	400 cSt
Max. contamination level		-/19/16 - ISO 4406	NAS 1638 - class 10
Environmental temperature for working conditions	with mechanical devices	from -40°C to 60°C	from -40°F to 140°F
	with hydraulic/pneumatic devices	from -30°C to 60°C	from -22°F to 140°F
	with electrohydraulic devices	from -30°C to 50°C	from -4°F to 122°F
Tie rod tightening torque (wrench 13)		30 Nm	22 lbft

NOTE - For different conditions please contact our Sales Dept.

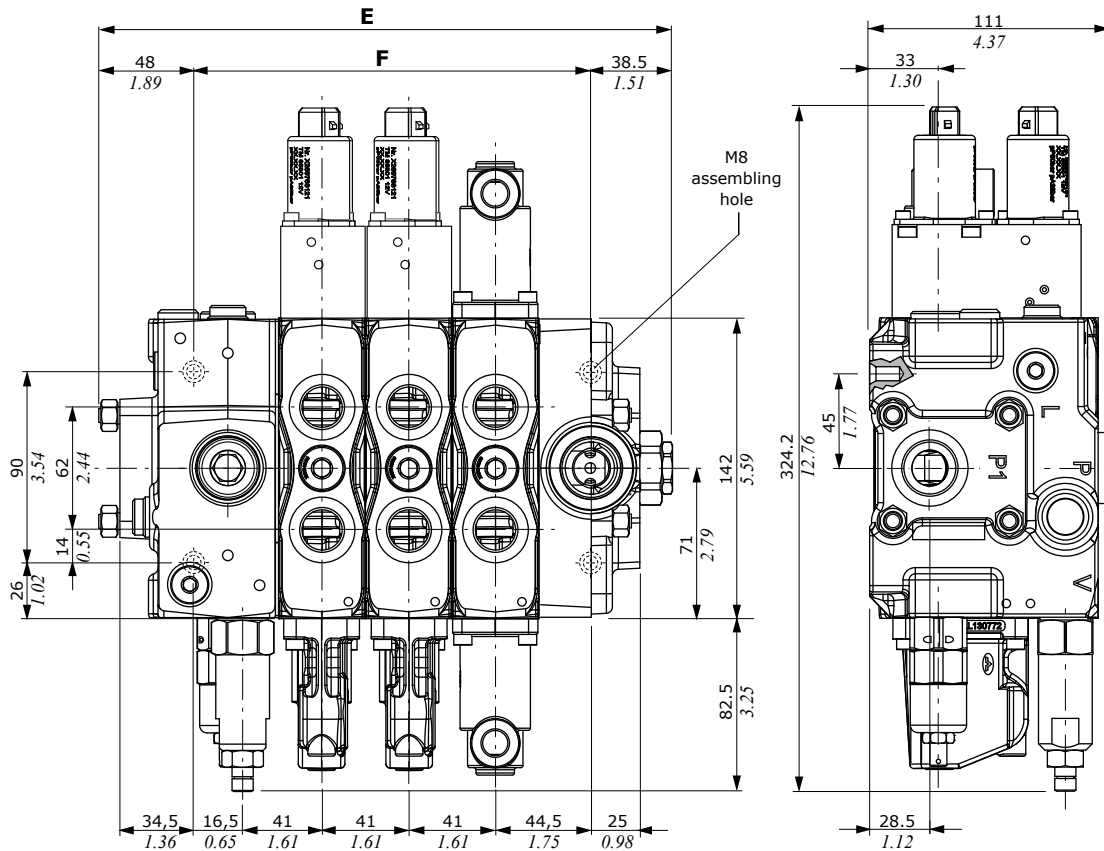
Standard threads

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

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

PORT THREADING			
MAIN PORTS	BSP	UN-UNF	METRIC
P inlet	G 3/4	7/8-14 (SAE 12)	M27x2
A and B ports	G 1/2	3/4-16 (SAE 8)	M22x1.5
T outlet and C carry-over	G 3/4	1 1/6-12 (SAE 12)	M27x2
PILOT PORTS			
Hydraulic	G 1/4	9/16-18 (SAE 6)	G 1/4
Pneumatic	NPTF 1/8-27	NPTF 1/8-27	NPTF 1/8-27

Dimensional data

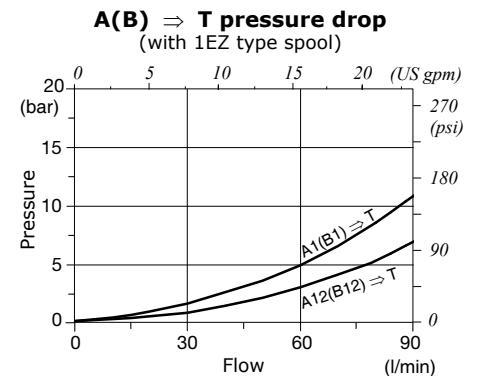
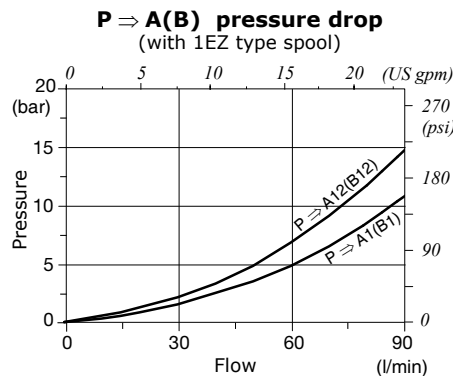
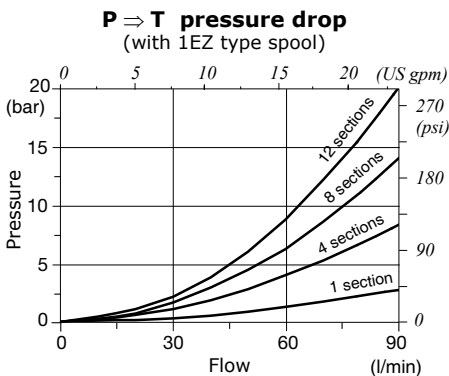


NOTES - Drawings and dimensions are referred to **BSP** thread configuration.
For assembling hole of different inlet sections see related pages.

TYPE	E		F		Weight	
	mm	in	mm	in	Kg	lb
SDS140/1	188.5	7.42	102	4.01	15.2	33.51
SDS140/2	229.5	9.03	143	5.63	19.4	42.77
SDS140/3	270.5	10.65	184	7.24	23.6	52.03
SDS140/4	311.5	12.26	225	8.86	27.8	61.29
SDS140/5	352.5	13.88	266	10.47	32	70.55
SDS140/6	393.5	15.49	307	12.09	36.2	79.81

TYPE	E		F		Weight	
	mm	in	mm	in	Kg	lb
SDS140/7	434.5	17.11	348	13.7	40.4	89.07
SDS140/8	475.5	18.72	389	15.23	44.6	98.33
SDS140/9	516.5	20.33	430	16.93	48.8	107.58
SDS140/10	557.5	21.95	471	18.54	53	116.84
SDS140/11	598.5	23.56	512	20.16	57.2	126.1
SDS140/12	639.5	25.18	553	21.77	61.4	135.36

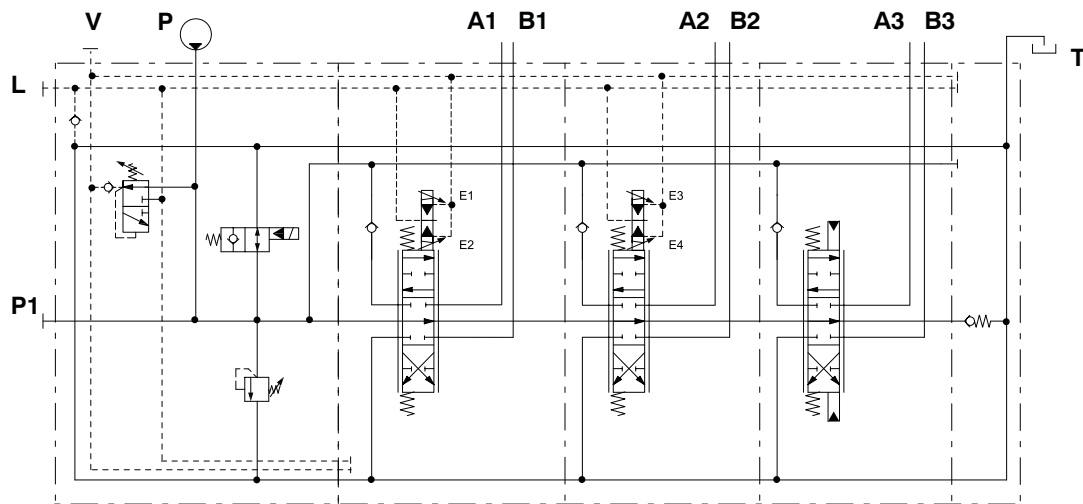
Performance data



Hydraulic circuit

Parallel circuit

Example of configuration, open centre circuit.



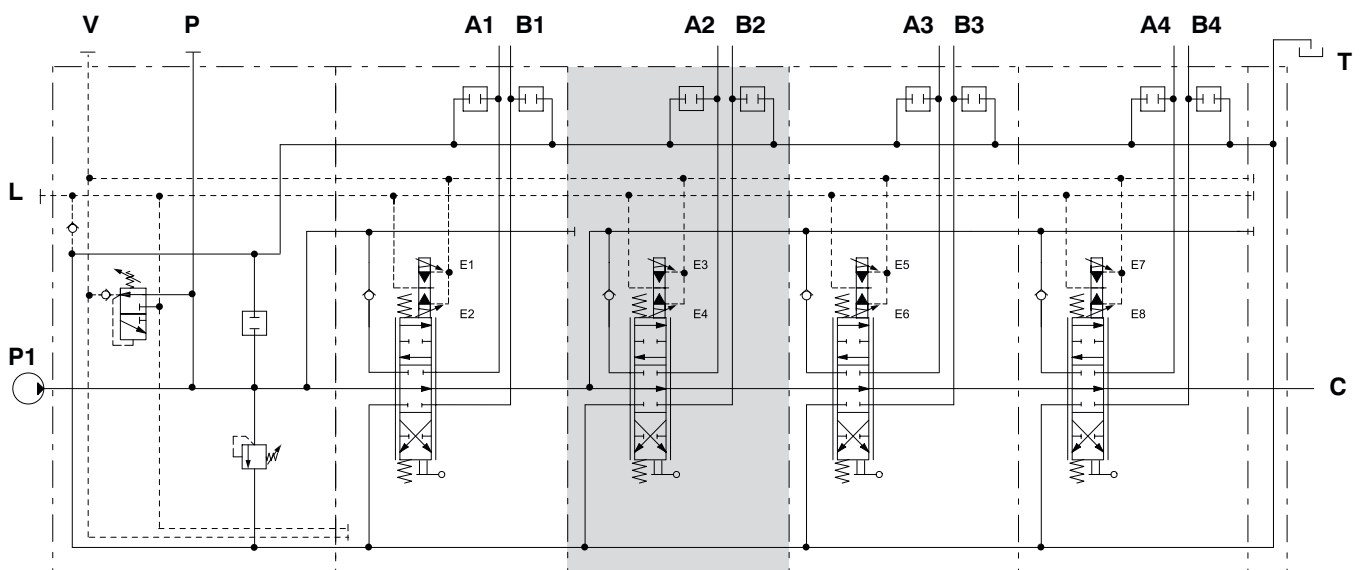
Description example:

SDS140/3/AD(YG3-175/ELNW)/QZ-1EZ8EZH3SLCQ/QZ-1EZ8EZH3SLCQ/QA-1M8IM/RVC-12VDC

Series-parallel (tandem) circuit

A special working section **SPZ** is required.

Tandem section is fed by the free flow pressure line; it is excluded when an upstream section is operated.



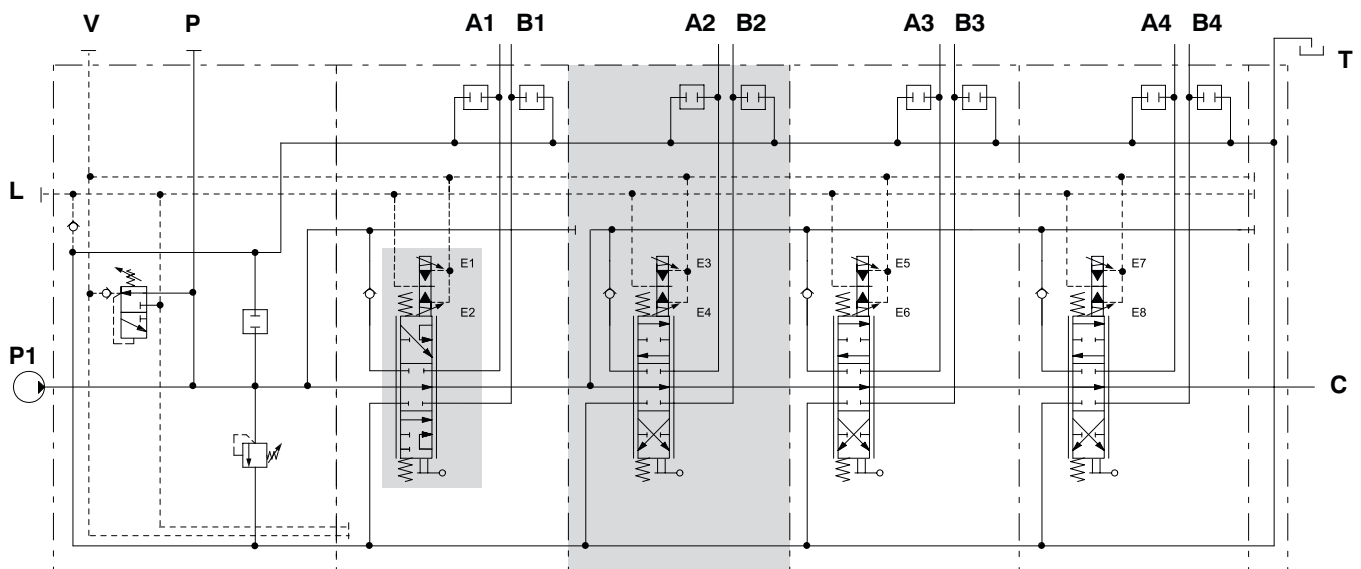
Description example:

SDS140/4/AC(XGA-180)/PZ-1CSGEZ8EZ3LQ(240).U3T/**SPZ-1CSGEZ8EZ3LQ(240)**.U3T/PZ-1CSGEZ8EZ3LQ(240).U3T/PZ-1CSGEZ8EZ3LQ(240).U3T/RE-12VDC

Series circuit

The series version is obtained by mounting a **1SEZ** spool (or 2SEZ, see pages 21 and 26) on a standard parallel working section with special **LQCS** lever, special **8EZHCS3** control or standard type **8EZ3** control.

The next working section must be a **SPZ** one (series-parallel) combined with standard versions of spools, controls and levers.



Description example:

SDS140/4/AC(XGA-180)/PZ-**1SEZ**8EZ3LQCS(240).U3T/**SPZ-1CSGEZ8EZ3LQ(240)**.U3T/PZ-1CSGEZ8EZ3LQ(240).
U3T/PZ-1CSGEZ8EZ3LQ(240).U3T/RE-12VDC

Complete section ordering codes

SDS140 / 3 / AC(YG3-175) / PZ-1EZ8EZ3LQ.U3T / PZ-1EZ8EZ3SLCQ.U3T / PA1M8IM.U3T / RVC - - 12VDC

Nr. of working sections

1

2

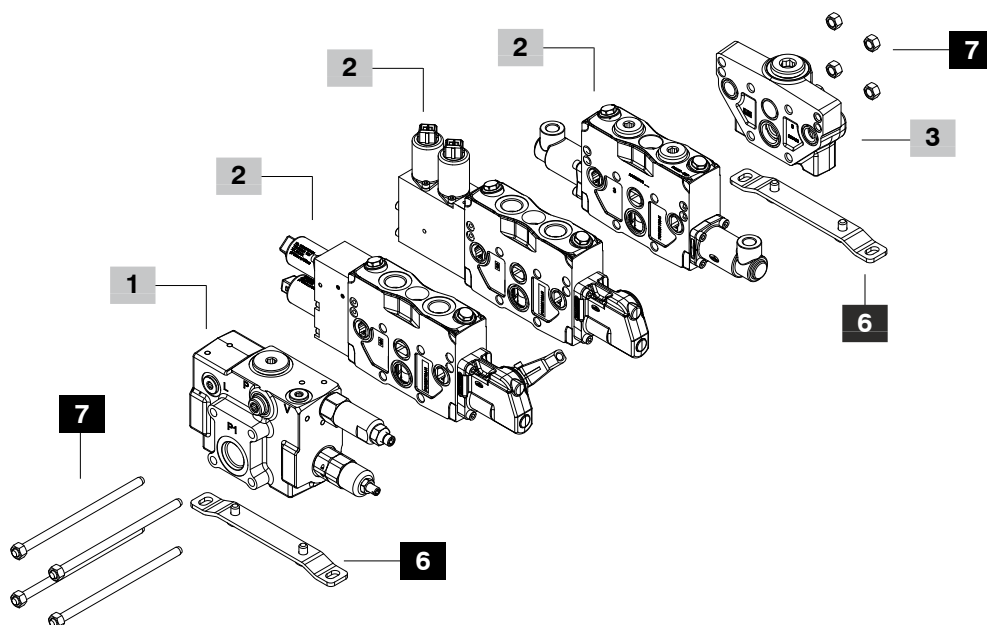
2

2

3

4

5



Complete section ordering codes

1	Inlet section *	page 10
<p>TYPE: AC(YG3-175) CODE: 61D201000 DESCRIPTION: Side inlet port, with direct pressure relief valve and pressure reducing valve, pilot V and drain L ports plugged TYPE: ADT(SV) CODE: 61D201001 DESCRIPTION: With upper inlet and side outlet ports, without pressure relief valve, with pressure reducing valve, pilot V and drain L ports plugged TYPE: AP-D(0.7)-SB8-Q40(XGA-270\ELNW)-12VDC CODE: 61D201012 DESCRIPTION: With LS priority valve, pilot pressure relief valve, pressure reducing valve, unloading valve, upper inlet port and LS port open, pilot V and drain L ports plugged TYPE: AM(TGW3-175\ESFPW(NC))-12VDC CODE: 61D201013 DESCRIPTION: With compensator for open centre circuit, upper inlet and outlet port open, with LS relief valve, pressure reducing valve, unloading valve, pilot V and drain L ports plugged</p>		

2	Working section *	page 20
<p>TYPE: PZ-1EZ8EZH3LQ.U3T-12VDC CODE: 61D101000 DESCRIPTION: Parallel circuit arranged for port valves, horizontal electrohydraulic control, with lever TYPE: QZ-1EZ8EZH3SLCQ-12VDC CODE: 61D101001 DESCRIPTION: Parallel circuit, without port valves, horizontal electrohydraulic control, without lever TYPE: PZ-1EZ8EZ3SLCQ.U3T-12VDC CODE: 61D101002 DESCRIPTION: Parallel circuit arranged for port valves, vertical electrohydraulic control, without lever TYPE: PA-1M8IM.U3T CODE: 61D101003 DESCRIPTION: Parallel circuit arranged for port valves, proportional hydraulic control TYPE: SPZ-1EZ8EZ3LQ.U3T-12VDC CODE: 61D121000 DESCRIPTION: Series-Parallel circuit arranged for antishock valves, vertical electrohydraulic control</p>		

3	Outlet section *	page 36																					
<table border="0"> <thead> <tr> <th>TYPE</th> <th>CODE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>RF</td> <td>61D301000</td> <td>With side and upper outlet ports plugged</td> </tr> <tr> <td>RFC</td> <td>61D301004</td> <td>As RF for M inlet section</td> </tr> <tr> <td>RC</td> <td>61D301001</td> <td>With side port open, upper port plugged</td> </tr> <tr> <td>RVC</td> <td>61D301002</td> <td>With back pressure valve, upper port open</td> </tr> <tr> <td>RE</td> <td>61D301006</td> <td>With upper outlet and side carry-over sleeve</td> </tr> <tr> <td>RVE</td> <td>61D301003</td> <td>With back pressure valve, side carry-over sleeve and upper outlet</td> </tr> </tbody> </table>			TYPE	CODE	DESCRIPTION	RF	61D301000	With side and upper outlet ports plugged	RFC	61D301004	As RF for M inlet section	RC	61D301001	With side port open, upper port plugged	RVC	61D301002	With back pressure valve, upper port open	RE	61D301006	With upper outlet and side carry-over sleeve	RVE	61D301003	With back pressure valve, side carry-over sleeve and upper outlet
TYPE	CODE	DESCRIPTION																					
RF	61D301000	With side and upper outlet ports plugged																					
RFC	61D301004	As RF for M inlet section																					
RC	61D301001	With side port open, upper port plugged																					
RVC	61D301002	With back pressure valve, upper port open																					
RE	61D301006	With upper outlet and side carry-over sleeve																					
RVE	61D301003	With back pressure valve, side carry-over sleeve and upper outlet																					

4 Valve threading

Specify only if it is different from BSP standard (see page 4)

5 Voltage **page 40**

Coils voltage specification; for list of available coils see related pages

6 Fixing bracket **page 42**

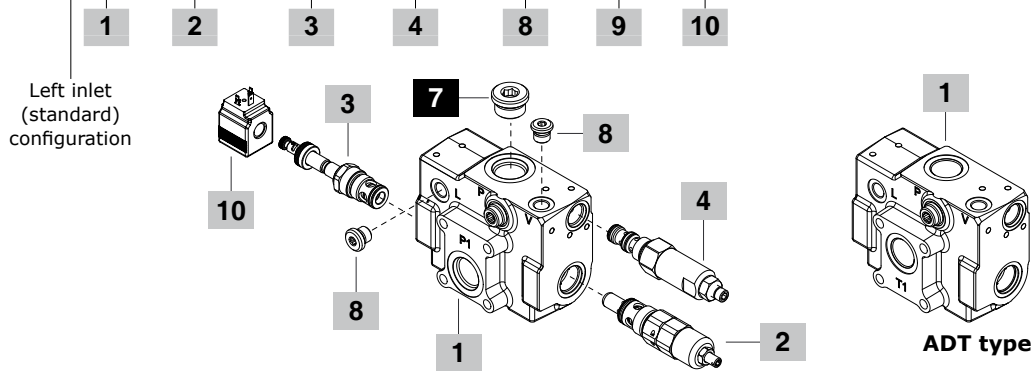
TYPE	CODE	DESCRIPTION
STAF	5STA125190	For inlet sections, with fixing screws

7	Assembling kit	
CODE	DESCRIPTION	CODE DESCRIPTION
For AD, AC, ADT, AN and AM inlet sections		
5TIR108169	For 1 section valve	5TIR108415 For 7 sections valve
5TIR108210	For 2 sections valve	5TIR108456 For 8 sections valve
5TIR108251	For 3 sections valve	5TIR108497 For 9 sections valve
5TIR108292	For 4 sections valve	5TIR108538 For 10 sections valve
5TIR108333	For 5 sections valve	5TIR108579 For 11 sections valve
5TIR108374	For 6 sections valve	5TIR108620 For 12 sections valve
For AP inlet section		
5TIR108138	For 1 section valve	5TIR108382 For 7 sections valve
5TIR108177	For 2 sections valve	5TIR108424 For 8 sections valve
5TIR108220	For 3 sections valve	5TIR108465 For 9 sections valve
5TIR108262	For 4 sections valve	5TIR108506 For 10 sections valve
5TIR108301	For 5 sections valve	5TIR108547 For 11 sections valve
5TIR108342	For 6 sections valve	5TIR108588 For 12 sections valve

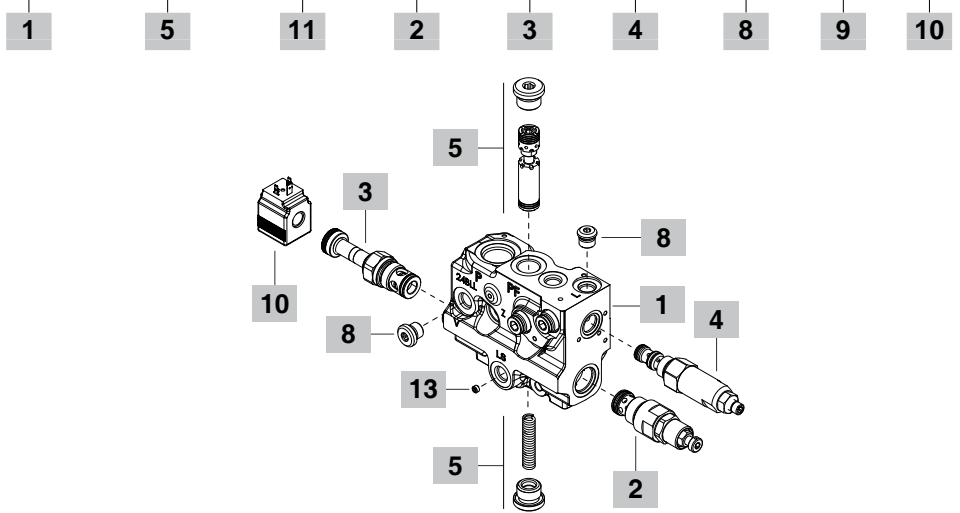
NOTES (*) - Codes are referred to **BSP** thread.
 For right inlet section please contact our Sales Dpt.

Part ordering codes

FE SDS140 / A C (YG3-175 \ ELTW) - R(32) - TAP(VL) - - 12VDC

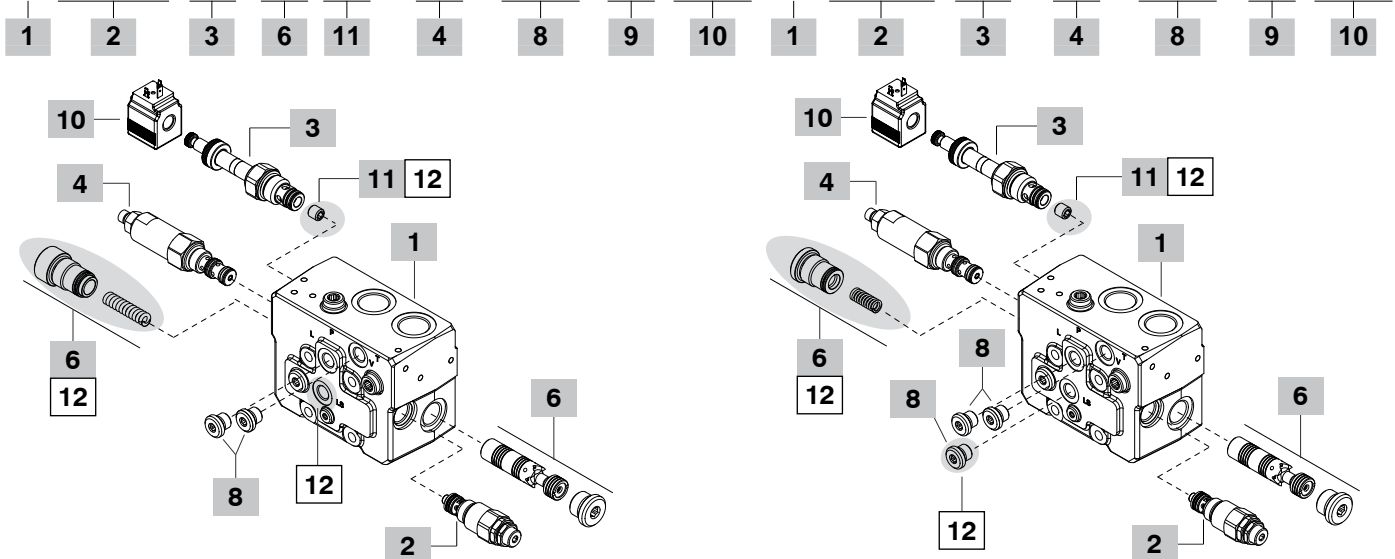


FE SDS140 / A P - D(0.7)-SB8-Q40-LS(1) (XGM-270 / ELNW) - R(32) - TAP(VL) - - 12VDC



FE SDS140 / A N (TGW3-175/ESFP/SB20/FC3) - R(32) - TAP(VL) - - 12VDC

FE SDS140 / A M (TGW3-175/ESFF) - R(32) - TAP(VL) - - 12VDC



1	Inlet section body kit*	page 12
TYPE:	SDS140/C-D	CODE: 5FIA113300
DESCRIPTION: With side and upper inlet ports, V pilot and L drain ports, arranged for pressure relief valve, unloading valve, pressure reducing valve		
TYPE:	SDS140/DT	CODE: 5FIA113301
DESCRIPTION: As previous one, with upper inlet and side outlet ports		
TYPE:	SDS140/P	CODE: 5FIA113302
DESCRIPTION: With upper inlet port, V pilot, L drain and LS ports, arranged for priority valve, pressure relief valve, unloading valve, pressure reducing valve		
TYPE:	SDS140/M-N	CODE: 5FIA1133A0
DESCRIPTION: With upper inlet and outlet port, V pilot, L drain and LS ports, arranged for LS pressure relief valve, unloading valve, pressure reducing valve		

2	Main pressure relief valve	page 15
For C, D, DT inlet sections		
Standard setting is referred to 10 l/min (2.6 US gpm).		
TYPE	CODE	DESCRIPTION
SV	XTAP526340	Relief valve blanking plug
<u>Y type direct operated</u>		
(YG2-125)	3XCAR110212	Range 80-160 bar (1160-2300 psi) standard setting 125 bar (1800 psi)
(YG3-175)	3XCAR110213	Range 100-250 bar (1450-3600 psi) standard setting 175 bar (2500)
(YG4-250)	3XCAR110214	Range 200-315 bar (2900-4600 psi) standard setting 250 bar (3600 psi)
<u>X type pilot operated</u>		
(XGA-200)	X006211350	Range 20-315 bar (290-4600 psi) standard setting 200 bar (2900 psi)

For M, N inlet sections		
Valves standard setting is referred to 5 l/min (1.3 US gpm) flow.		
TYPE	CODE	DESCRIPTION
SV	XTAP526340	Relief valve blanking plug
<u>Pilot operated type</u>		
(TGW2-80)	OMC09002000	Range 10-120 bar (145-1750 psi) std setting 80 bar (1160 psi)
(TGW3-175)	OMC09002001	Range 40-220 bar (580-3200 psi) std setting 175 bar (2550 psi)
(TGW4-250)	OMC09002002	Range 200-350 bar (2900-5100 psi) std setting 250 bar (3600 psi)
(TGW5-300)	OMC09002003	Range 290-385 bar (4200-5600 psi) std setting 300 bar (4350 psi)

7	Plug*
CODE	DESCRIPTION
3XTAP732200	G3/4 plug for C, D and DT section

8	Plug*
CODE	DESCRIPTION
3XTAP719150	G1/4 plug for V, L and LS ports
For V pilot and L drain ports description are:	
TYPE	DESCRIPTION
TAP(VL)	Plugs (2 pieces), standard: omitted in description
NOTAP(L)	Plug (1 piece)
NOTAP(V)	Plug (1 piece)
NOTAP(VL)	Without plugs

12	Circuit conversion kit
CODE	DESCRIPTION
5KIT530000	Circuit conversion from closed center to open center
5KIT530001	Circuit conversion from open center to closed center

3	Inlet valve options	page 18
For C, D, DT inlet sections		
TYPE	CODE	DESCRIPTION
LT	XTAP526340	Valve blanking plug
F	3XCAR410200	Inlet anti-cavitation valve
L	XCAR410311	Hydraulic operated unloader valve
<u>Solenoid operated unloading valve</u>		
ELNW	0EFW0062001	Without emergency
ELTW	0EFW0062000	Push & twist type with detent emergency
ELPW	0EFW0062002	Push-button emergency
For P inlet section		
TYPE	CODE	DESCRIPTION
<u>Solenoid operated unloading valve</u>		
ELNW	0EFW0062001	Without emergency
ELTW	0EFW0062000	Push & twist type with detent emergency
ELPW	0EFW0062002	With push-button emergency
For N and M inlet section		
TYPE	CODE	DESCRIPTION
LT	3XTAP826160	Valve blanking plug for M type with external pilot source or N type
<u>Solenoid operated unloading valve (NC)</u>		
ESFNW(NC)	0EF10002011	Without emergency
ESFTW(NC)	0EF10002013	Pull & twist with detent emergency
ESFVW(NC)	0EF10002012	With screw emergency
ESFPW(NC)	0EF10002010	With pull-button emergency

4	Pressure reducing valve	page 17
TYPE	CODE	DESCRIPTION
R(32)	4AC9539900A	Valve with standard setting @ 32 bar (464 psi). Type omitted in description; specify only if it different from standard
(RT)	XTAP324541	Valve blanking plug (SAE 8/3)

5	Priority valve kit	
TYPE:	D(0.7)-SB8-Q40	CODE: 5KIT440370
DESCRIPTION: Stand-by 8 bar (116 psi), regulated flow = 40 l/min (10.5 US gpm)		

6	Compensator kit	
TYPE	CODE	DESCRIPTION
SB4	5CAS318083	Standard 4 bar (58 psi) for M inlet section
SB25	5CAS318084	Standard 25 bar (362 psi) for N inlet section
Specify in description when it is different from standard.		

9	Section threading
Specify threading always when it is different from BSP standard (see page 4).	

10	Coils	page 40
TYPE	CODE	DESCRIPTION
12VDC	4SLE001200A	BER type , 12 VDC, ISO4400 connector
For complete available coil list please see page 33.		

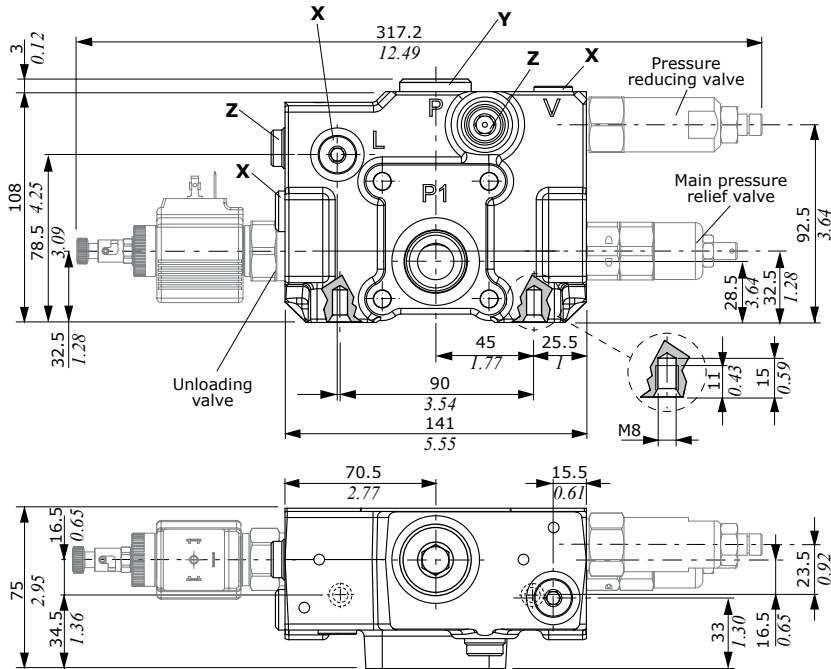
11	Metering hole	
TYPE	CODE	DESCRIPTION
FC3.9	3VT2710108	Standard for N inlet section
FC5	3VT2710106	Standard for M inlet section
Specify in description when it is different from standard.		

13	LS restrictor	
TYPE	CODE	DESCRIPTION
NFC	-	Without restrictor (omitted in description)
LS(1)	3VT2700065	Restrictor 1 mm diameter on LS port
Specify in description when it is different from standard. Different diameter are available, please contact our Sales Dpt.		
NOTE (*) – Codes are referred to BSP thread.		

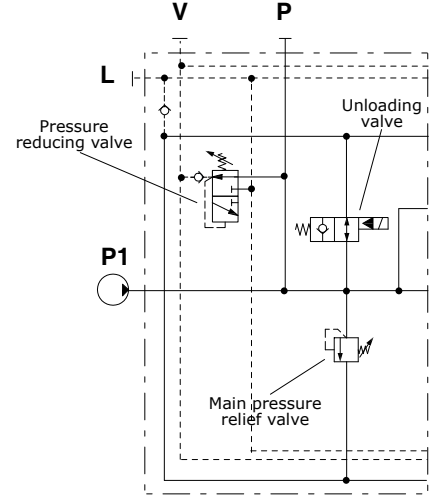
Dimensional data and hydraulic circuit

Standard inlet cover configuration

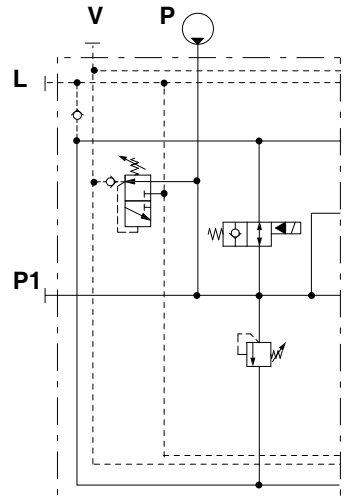
AC inlet section
dimensions are the same for AD inlet section



AC inlet section with side inlet



AD inlet section with upper inlet



Wrenches and tightening torques

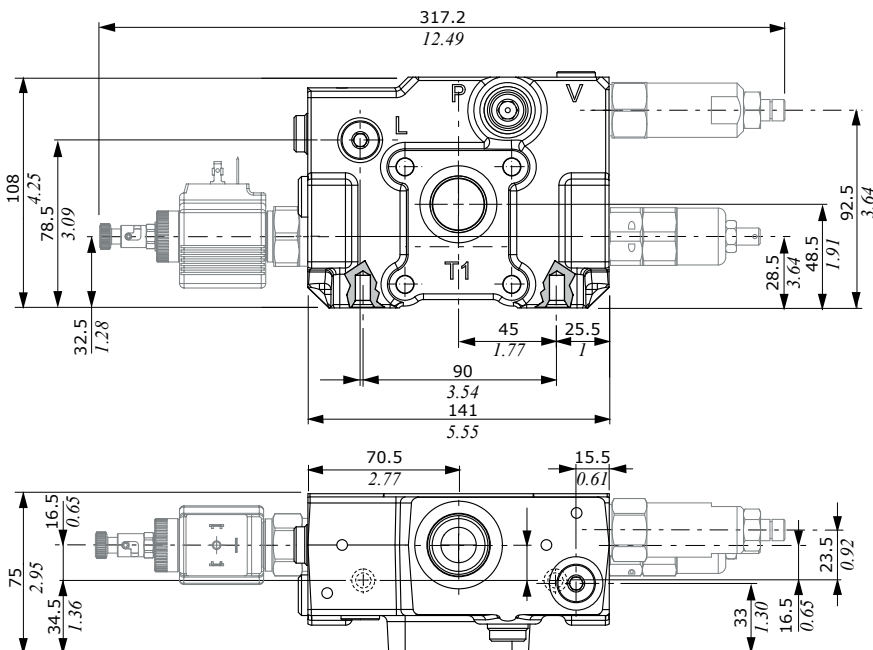
X = allen wrench 6 - 24 Nm (17.7 lbft)

Y = allen wrench 12 - 42 Nm (31 lbft)

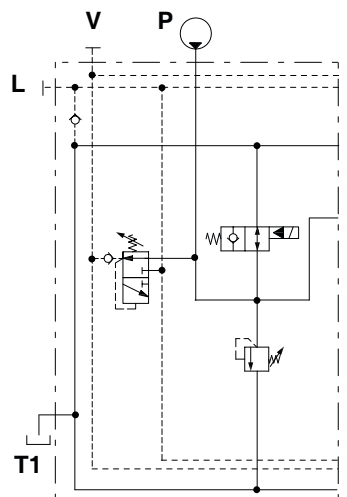
Z = wrench 8 - 42 Nm (31 lbft)

NOTE - for wrenches and tightening torques about valves, please see dedicated pages.

ADT inlet section

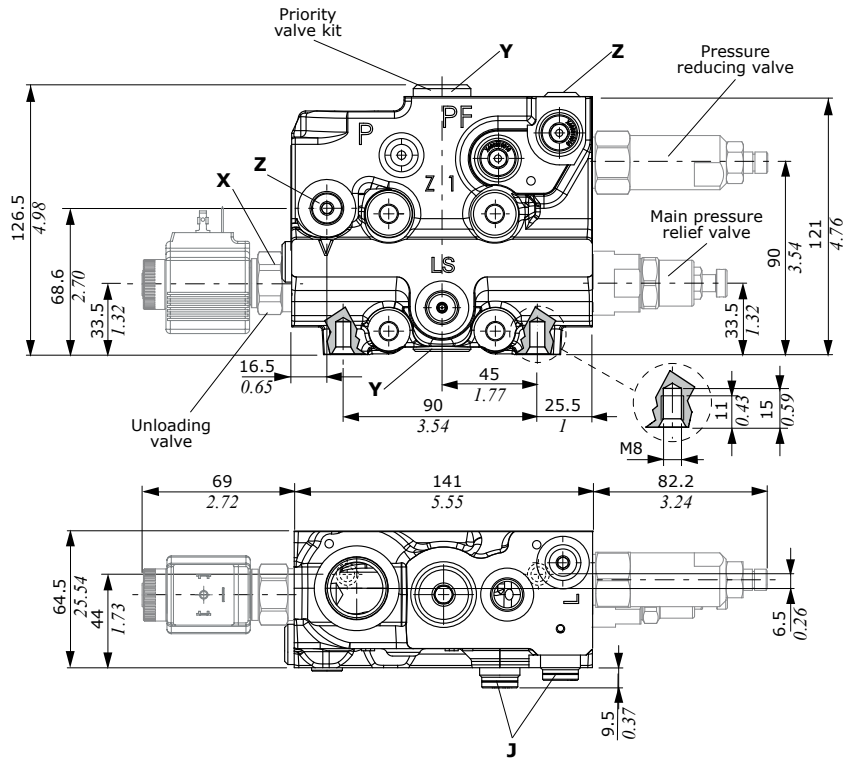


ADT inlet section with upper inlet and side outlet



Dimensional data and hydraulic circuit

Configuration with priority valve



Wrenches and tightening torques

X = allen wrench 6 - 24 Nm (17.7 lbft)

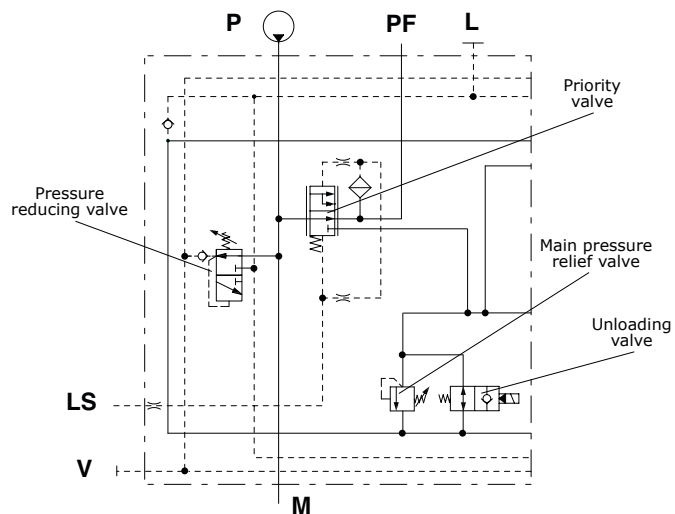
Y = allen wrench 8 - 24 Nm (17.7 lbft)

Z = allen wrench 6 - 24 Nm (17.7 lbft)

J = wrench 8 - 42 Nm (31 lbft)

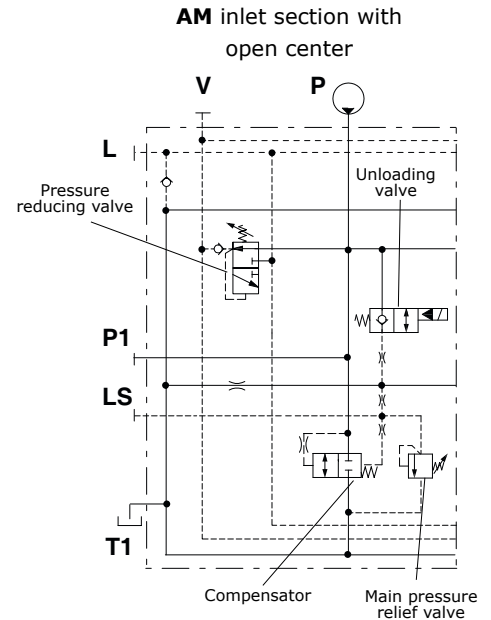
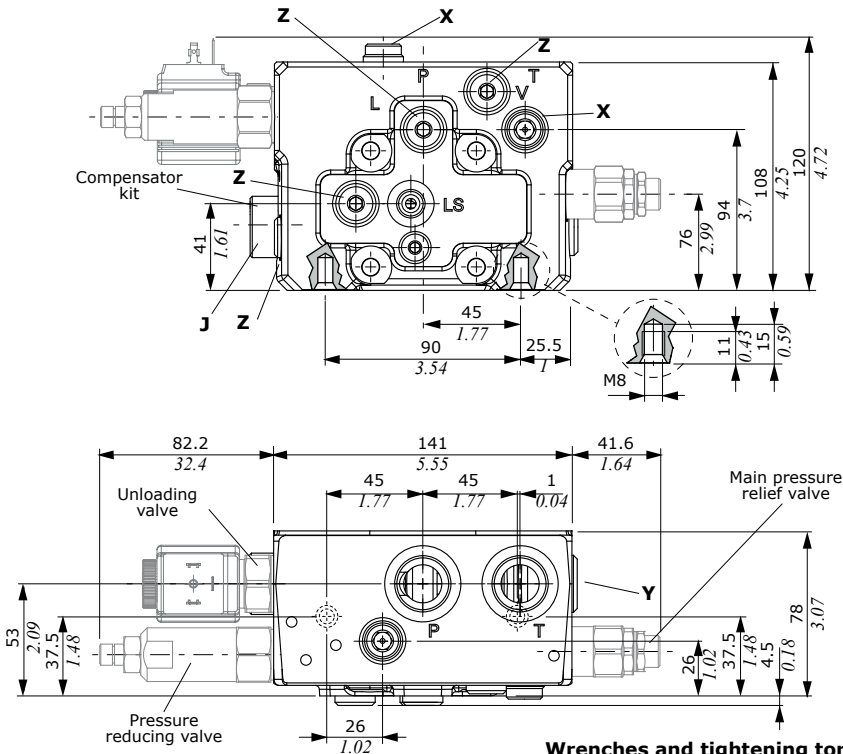
NOTE - for wrenches and tightening torques about valves, please see dedicated pages.

AP inlet section with priority valve



Dimensional data and hydraulic circuit

Inlet section configuration with flow unloader option

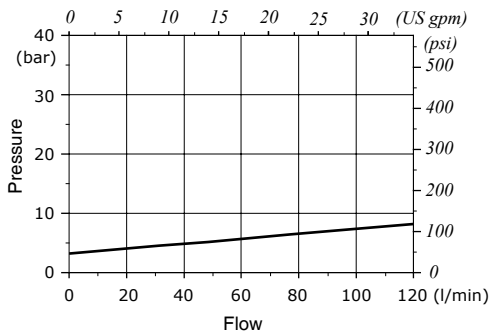


Wrenches and tightening torques

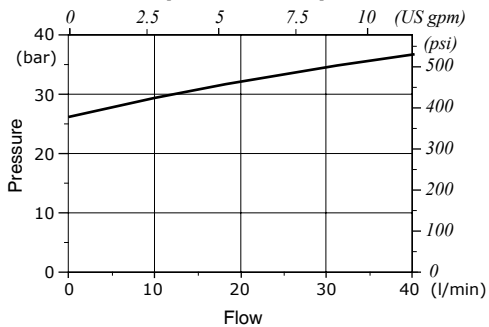
- X = wrench 8 - 42 Nm (31 lbft)
- Y = allen wrench 8 - 24 Nm (17.7 lbft)
- Z = allen wrench 6 - 24 Nm (17.7 lbft)
- J = allen wrench 10 - 42 Nm (31 lbft)

NOTE - for wrenches and tightening torques about valves, please see dedicated pages.

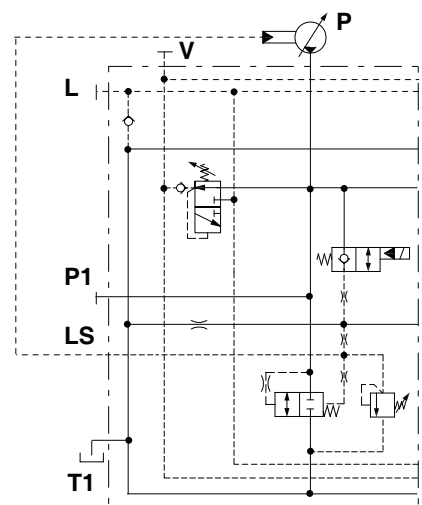
M compensator kit with unloading pressure drop



N compensator kit with unloading pressure drop



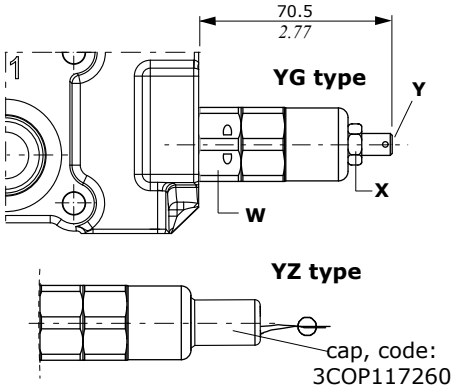
AN inlet section with closed center



Main pressure relief valves

Y.. type direct operated

Configuration type:



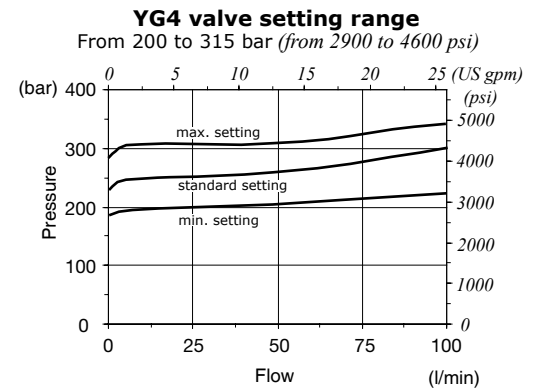
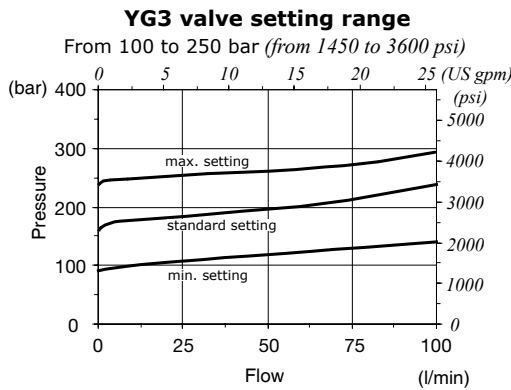
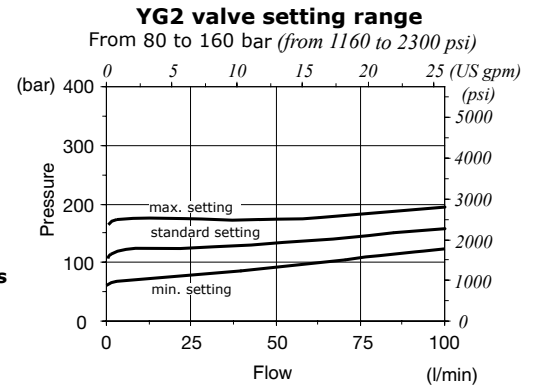
Legenda

G: adjustable with screw
Z: valve set and locked with tamper proof cap

Wrenches and tightening torques

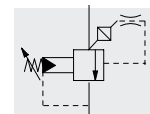
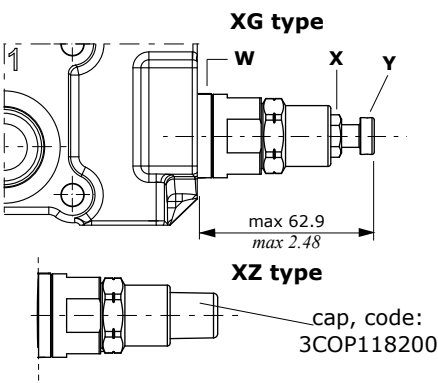
X = wrench 13 - 24 Nm (17.7 lbft)
Y = allen wrench 4
W = wrench 27 - 42 Nm (31 lbft)

NOTE - Not for N and M inlet section.



X..A type pilot operated

Configuration type:

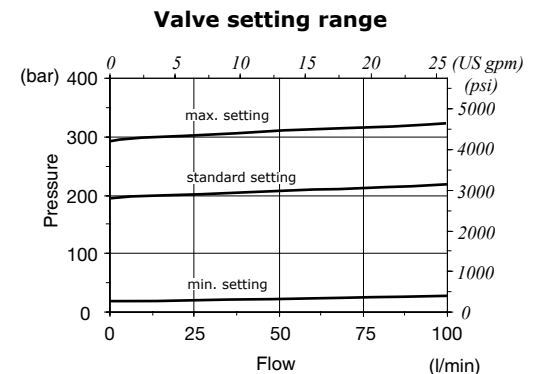


Legenda

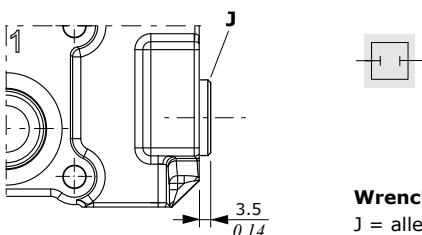
G: adjustable with screw
Z: valve set, with tamper proof cap

Wrenches and tightening torques

X = wrench 13 - 24 Nm (17.7 lbft)
Y = wrench 6
W = wrench 27 - 42 Nm (31 lbft)



SV relief valve blanking plug



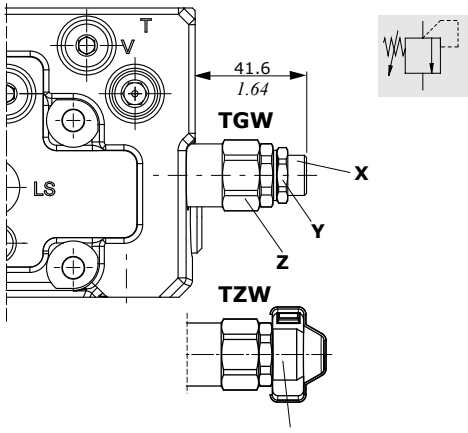
Wrenches and tightening torques

J = allen wrench 10 - 24 Nm (17.7 lbft)

Main pressure relief valves

T type pilot operated

For AM and AN inlet sections setting types



Legenda

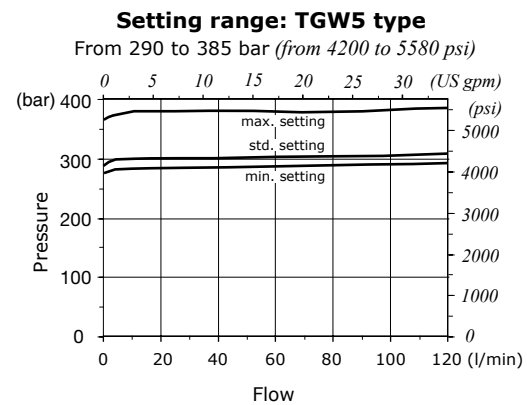
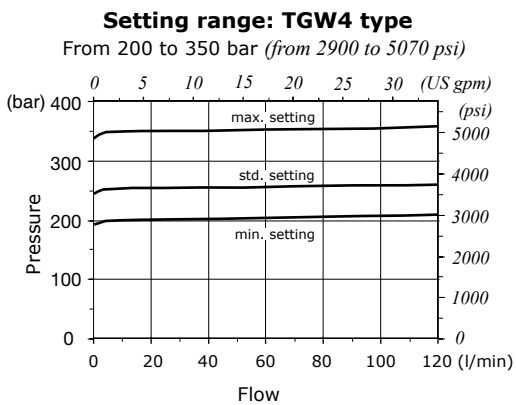
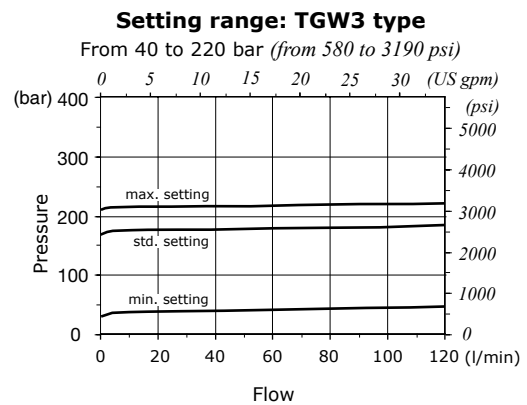
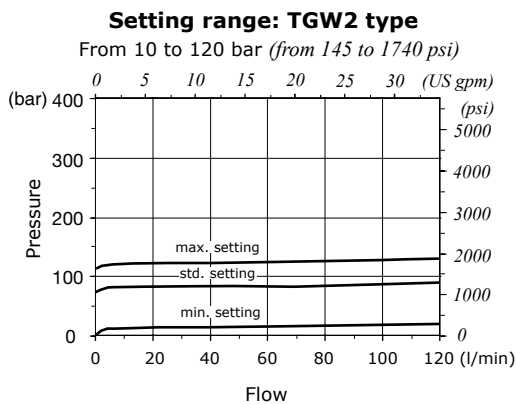
- TGW: free setting
- TZW: valve set with tamper proof cap

Wrenches and tightening torques

- X = allen wrench 5
- Y = wrench 19 - 20 Nm (14.7 lbf)
- Z = wrench 24 - 42 Nm (31 lbf)

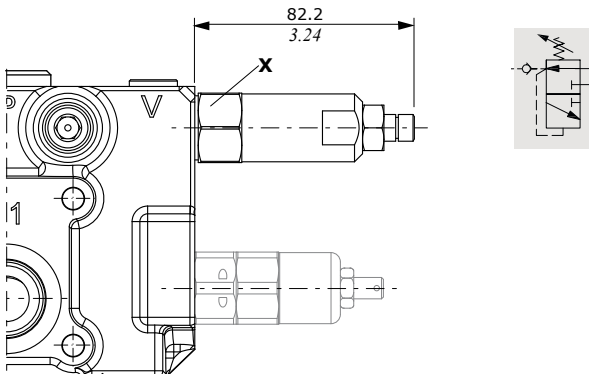
cap, code:
4COP126301, n.2 pcs
RAL3003 pigmented

Pressure relief valve setting example on type M inlet section



Pressure reducing valve

R(32) type



Wrenches and tightening torques

X = wrench 24 - 30 Nm (22 lbft)

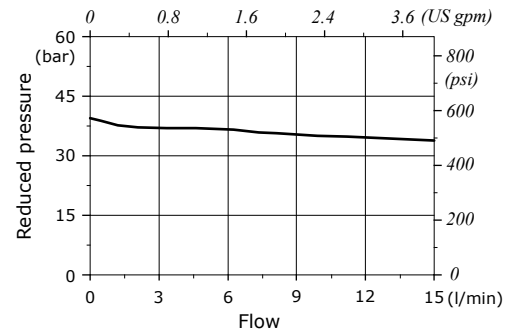
Pressure reducing valve features

Reduced press. range . . : from 3.5 to 35 bar
(from 50 to 500 psi)

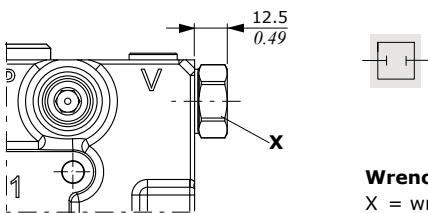
Max. inlet pressure . . . : 420 bar (5500 psi)

Nominal flow : 15 l/min (4 US gpm)

**Pressure reducing valve diagram
Reduced pressure vs. Flow**



RT valve blanking plug

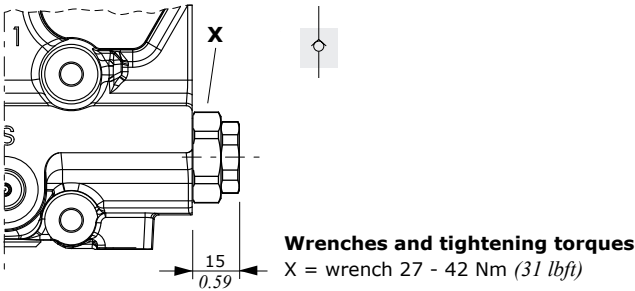


Wrenches and tightening torques

X = wrench 24 - 30 Nm (22 lbft)

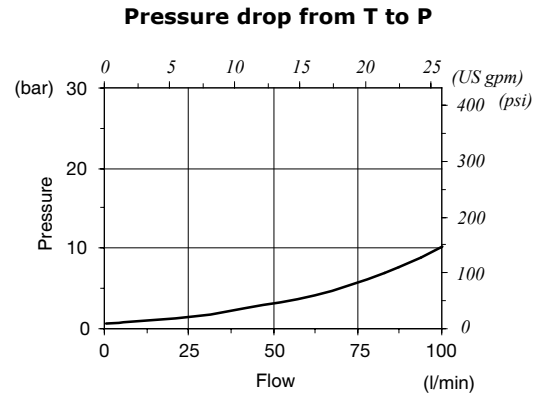
Inlet valve options

F anti-cavitation valve



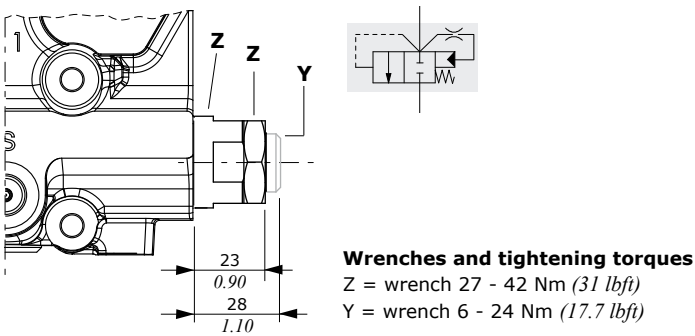
Features

Nominal flow: 90 l/min (23.77 US gpm)
 Internal leakage: 2 cm³/min @ 100 bar (0.122 in³/mm @ 1450 psi)

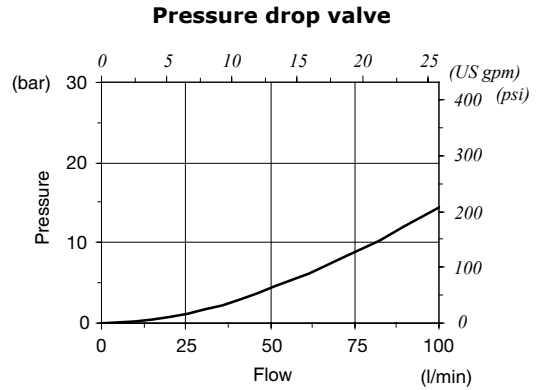


Unloading valves

Hydraulic operated



NOTE - For safety reasons the valve is supplied with blanking plug



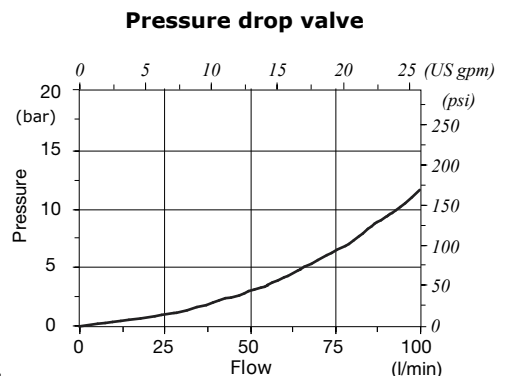
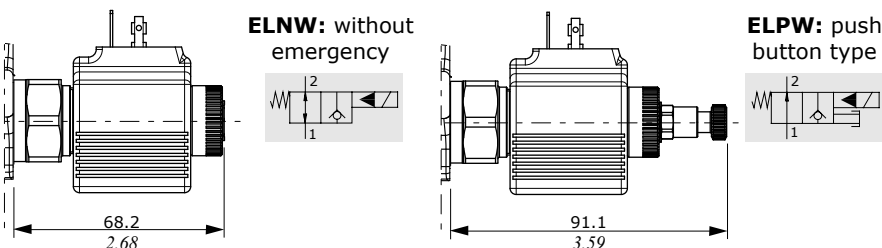
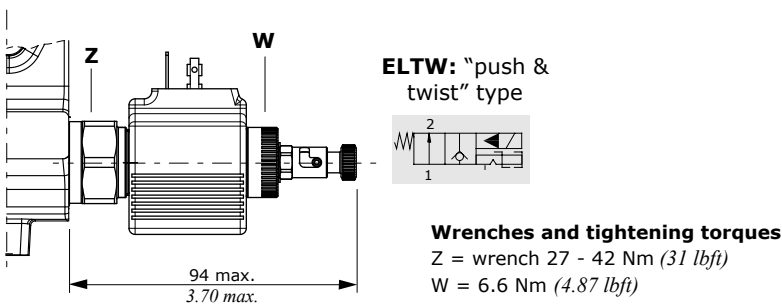
Valve L type features

Nominal flow: 90 l/min (24 US gpm)
 Internal leakage.. . . .: 18 cm³/min @ 100 bar (1.1 in³/mm @ 1450 psi)

Solenoid operated

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

WARNING: the manual override option is only for emergency operation, not for continuative operation.



Features

Nominal flow: 100 l/min (26.4 US gpm)
 Max. pressure.: 315 bar (4600 psi)
 Internal leakage.. . . .: 1 cm³/min @ 100 bar (0.061 in³/mm @ 1450 psi)

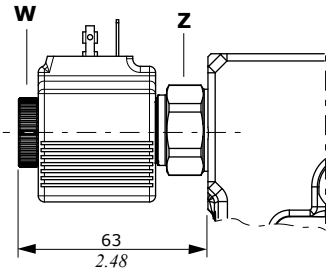
For **BER** coils features and options see page 41

Unloading valves

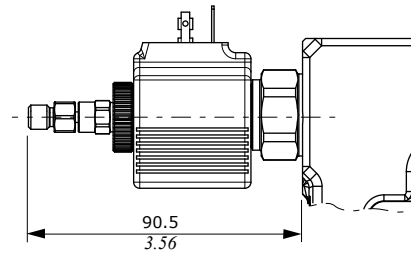
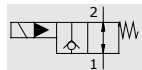
Solenoid operated for M and N inlet sections

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

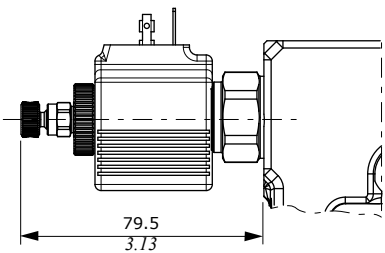
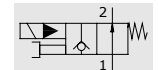
WARNING: the manual override option is intended for emergency use, not for continuous duty operation.



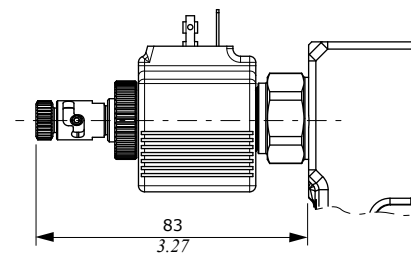
ESFNW(NC):
without emergency



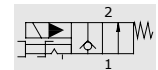
ESFPW(NC): pull button type



ESFVW(NC):
screw type



ESFTW(NC):
"pull & twist" type

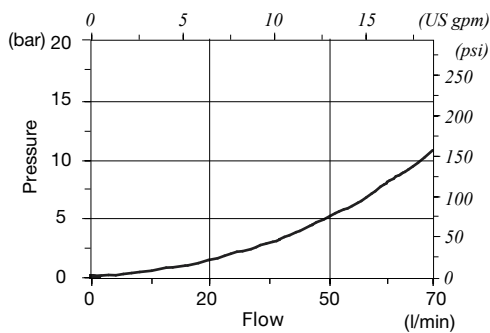


Wrenches and tightening torques

Z = wrench 27 - 42 Nm (31 lbf_t)

W = 6.6 Nm (4.87 lbf_t)

Pressure drop valve



Features

Nominal flow 70 l/min (78 US gpm)

Max. pressure. 350 bar (5100 psi)

Internal leakage 25 cm³/min @ 210 bar
(0.015 in³/min @ 3050 psi)

For **BER** coils features and options see page 41

Part ordering codes

Standard: omitted in description valve setting (bar)

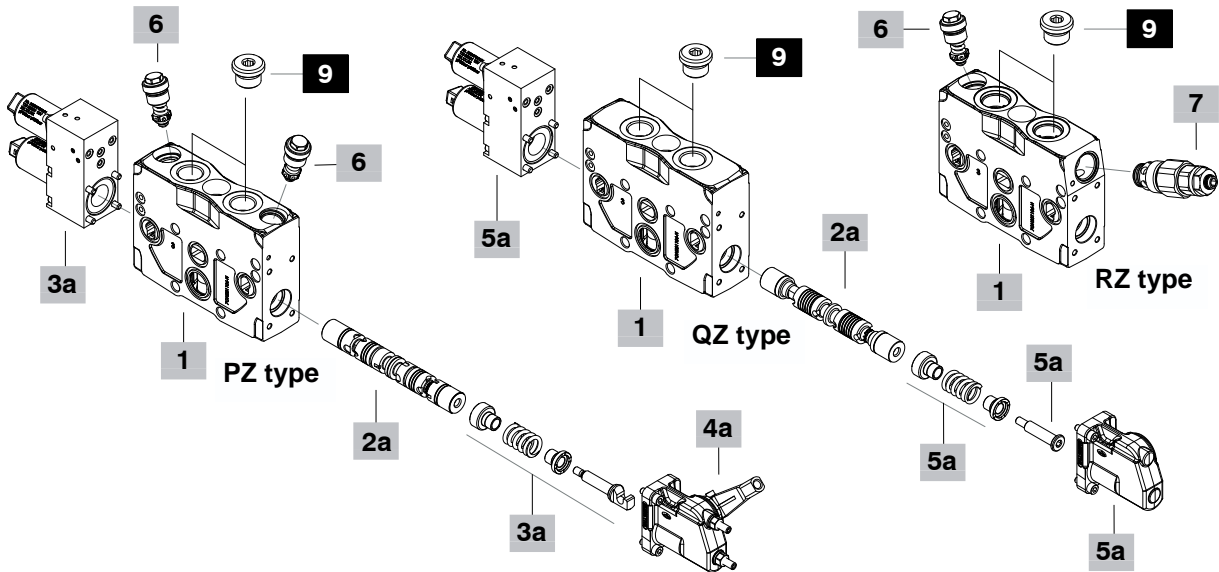
EL SDS140 / PZ - 1EZ 8EZH3 LQF3(20) . U3(220) - - 12VDC

1 - on port A
2 - on port B
3 - on ports A and B

1 2a 3a 4a 3a 6 8 3a

EL SDS140 / QZ - 1EZ 8EZH3SLCQ - - 12VDC

1 2a 5a 8 5a



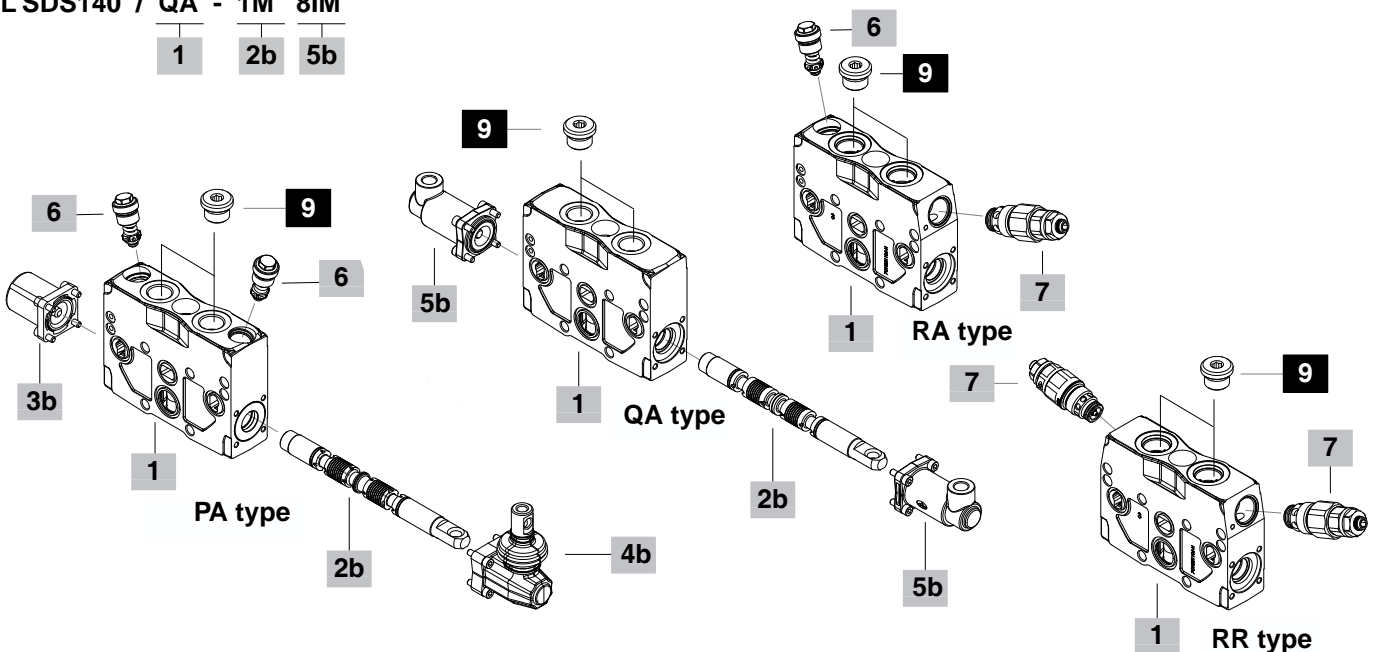
EL SDS140 / PA - 1 8 L . U3 (200) - -

1 - on port A
2 - on port B
3 - on ports A and B

1 2 3b 4b 6 8

EL SDS140 / QA - 1M 8IM

1 2b 5b



Part ordering codes

1 Working section kit * page 23

TYPE	CODE	DESCRIPTION
For electrohydraulic controls		
QZ	5EL1133010	Parallel circuit without port valves arrangement
PZ	5EL1133005	Parallel circuit arranged for antishock valves
RZ	5EL1133006	As PZ with pilot operated antishock and anticavitation valve (on B side)
Q5Z	5EL1133210	As QZ type: for 5EZ spool and 13EZH3SLC control
SPZ	5EL3133000	Series-Parallel circuit arranged for antishock valves it requires standard spools, controls and levers

For mechanical controls

QA	5EL1133014	Parallel circuit without port valves arrangement
PA	5EL1133004	Parallel circuit arranged for antishock valves
RA	5EL1133003	As PA arranged for pilot operated antishock and anti-cavitation valve (on B side)
RR	5EL1133015	Parallel circuit arranged with 2 ports for anti-shock and anticavitation valves, without pilot lines: must be positioned as last electrohydraulic control section

For proportional hydraulic controls

QA-IM	5EL1133014A	Parallel circuit without port valves arrangement
PA-IM	5EL1133004A	Parallel circuit arranged for antishock valves
RA-IM	5EL1133003A	As PA arranged for pilot operated antishock and anticavitation valve (on B side)
RR-IM	5EL1133015A	Parallel circuit arranged with 2 ports for antishock and anticavitation valves, without pilot lines: must be positioned as the last electrohydraulic control section

2b Spools page 25

TYPE	CODE	DESCRIPTION
For mechanical and proportional hydraulic controls		
1	3CU2310100	Double acting, 3 positions, with A and B closed in neutral position
1CSG	3CU2310250	As type 1, with fine metering suggested for flow up to 70 l/min (18.5 US gpm)
1M	3CU2310130	As type 1 with metering suggested for flow rates above to 70 l/min (18.5 US gpm)
1A	3CU2321100	Double acting, 3 positions, with A open to tank in neutral position
1B	3CU2322100	Double acting, 3 positions, with B open to tank in neutral position
2	3CU2325100	Double acting, with A and B open to tank in neutral position
2CSG	3CU2325255	As type 2, with fine metering suggested for flow up to 70 l/min (18.5 US gpm)
2H	3CU2325225	Double acting, with A and B partially open to tank in neutral position
3	3CU2331110	Single acting on A, 3 positions, B plugged, G1/2 plug is required
4	3CU2335100	Single acting on B, 3 positions, A plugged, G1/2 plug is required
4M	3CU2335110	As type 4 with metering suggested for flow rates above to 70 l/min (18.5 US gpm), G1/2 plug is required

3b "A" side spool positioners

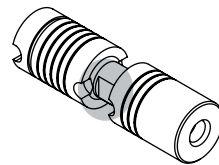
See SD8 catalogue, code D1WWEB05E.

4b "B" side spool control kit

See SD8 catalogue, code D1WWEB05E.

2a Spools page 25

TYPE	CODE	DESCRIPTION
For electrohydraulic controls		
1EZ	3CU2910004	Double acting, 3 positions, with A and B closed in neutral position
1SEZ	3CU2911000	As type 1, for series circuit, used with 8EZHCS3 special control or 8EZ3 standard control and LQCS special lever; to be used on standard section with SPZ working section assembled downstream
2SEZ	3CU2927000	As type 2, for series circuit, used with 8EZHCS3 special control or 8EZ3 standard control and LQCS special lever; to be used on standard section with SPZ working section assembled downstream
1CSG EZ	3CU2910003	As type 1, with fine metering suggested for flow up to 70 l/min (18.5 US gpm)
1MEZ	3CU2910001	Double acting, 3 positions, with A and B closed in neutral position with metering suggested for flow rates above to 70 l/min (18.5 US gpm)
2MEZ	3CU2925000	Double acting, with A and B open to tank in neutral position, with metering suggested for flow rates above to 70 l/min (18.5 US gpm)
2CSG EZ	3CU2925003	As type 2, with fine metering suggested for flow up to 70 l/min (18.5 US gpm)
5EZ	3CU2943100	Double acting, 4 positions, floating in, Q5Z working section are required
3MEZ/4MEZ	3CU2925001	Single acting on A or B (according to the orientation*), with metering suggested for flow rates above to 70 l/min (18.5 US gpm), G1/2 plug is required



(*) When the "spool key" is oriented towards B side, the spool is single acting on B (4MEZ), when the "spool key" is oriented towards A side the spool is single acting on A (3MEZ).

3a One-side electrohydraulic control page 29**Combine to "B" side options**

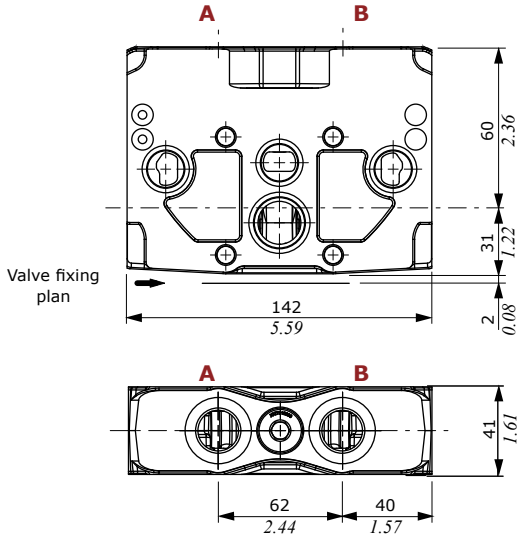
TYPE	CODE	DESCRIPTION
8EZH3(20)-12VDC	5IDR601302	With AMP connector, horizontal configuration
8EZH3(20)-24VDC	5IDR601303	With AMP connector, horizontal configuration
8EZH34(20)-12VDC	5IDR601308	With Deutsch connector, horizontal configuration
8EZH34(20)-24VDC	5IDR601309	With Deutsch connector, horizontal configuration
8EZ3(20)-12VDC	5IDR601304	With AMP connector, vertical configuration
8EZ3(20)-24VDC	5IDR601305	With AMP connector, vertical configuration
8EZ34(20)-12VDC	5IDR601306	With Deutsch connector, vertical configuration
8EZ34(20)-24VDC	5IDR601307	With Deutsch connector, vertical configuration

(Continue. See the next page)

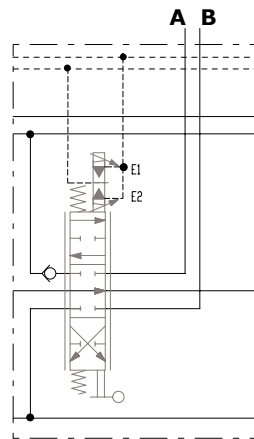
NOTE (*) – Codes are referred to **BSP** thread

Dimensional data and hydraulic circuit

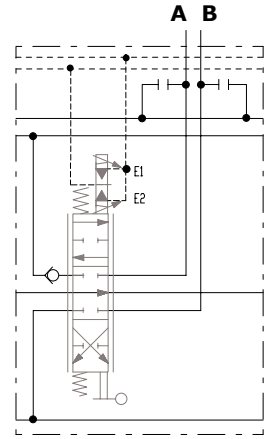
Q type
(Dimensions are the same for QZ and QA)



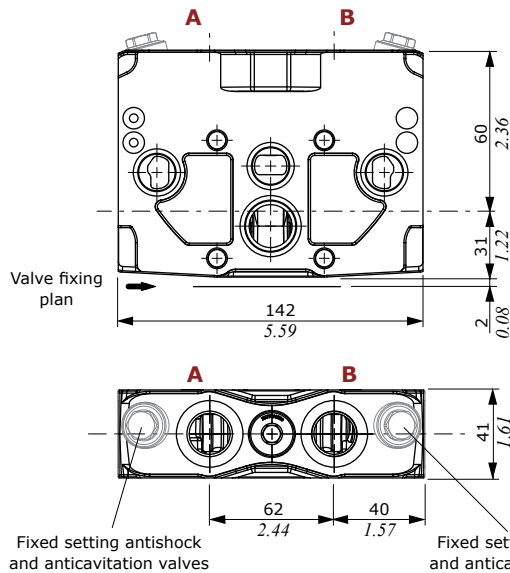
QZ type



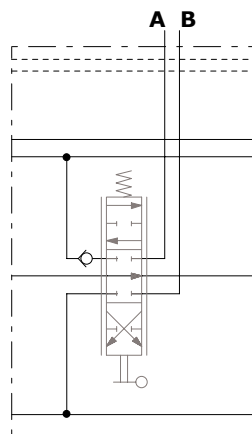
PZ type



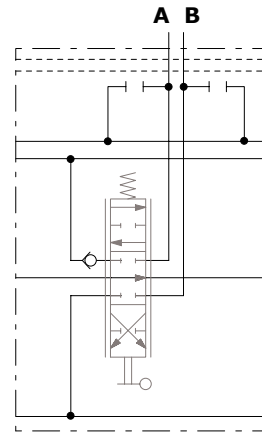
P type
(Dimensions are the same for PZ and PA)



QA type

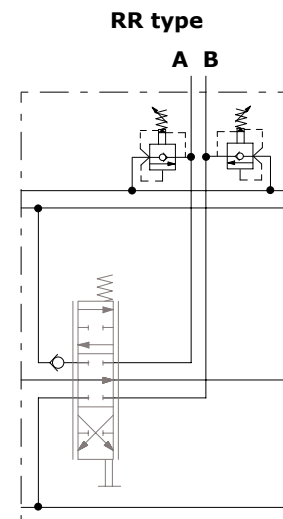
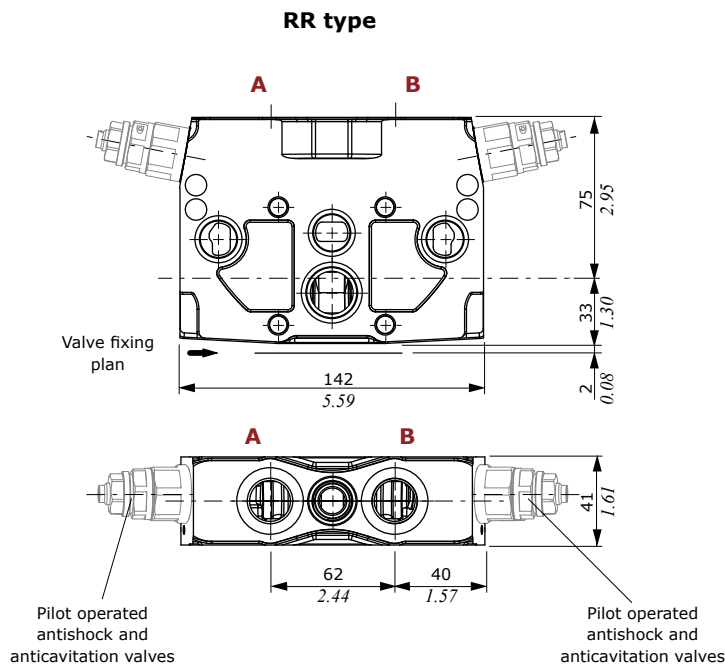
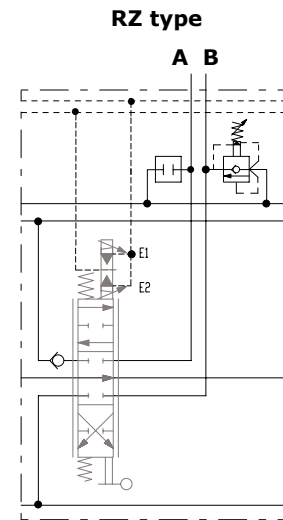
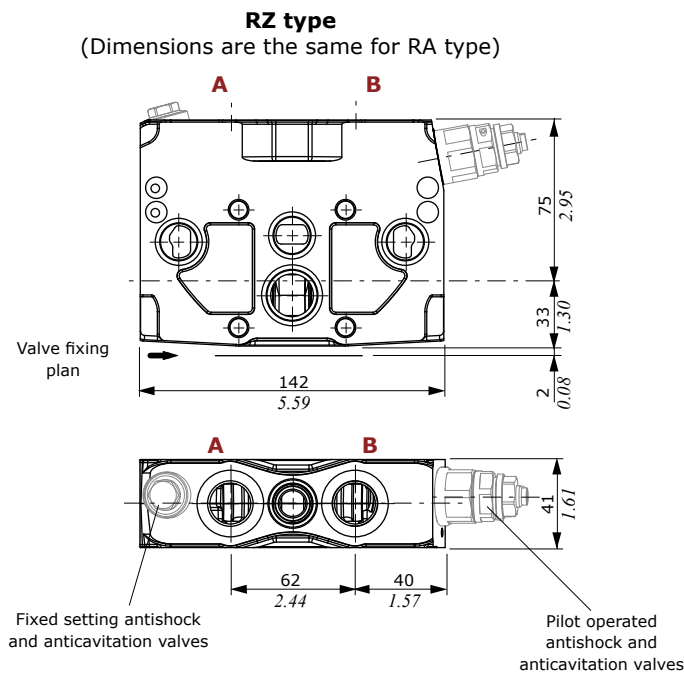


PA type



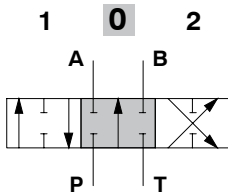
Dimensional data and hydraulic circuit

Without pilot lines; must be positioned after all electrohydraulic elements.



**1 (1CSG/1M/
1CSGEZ/1MEZ) type spool**

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

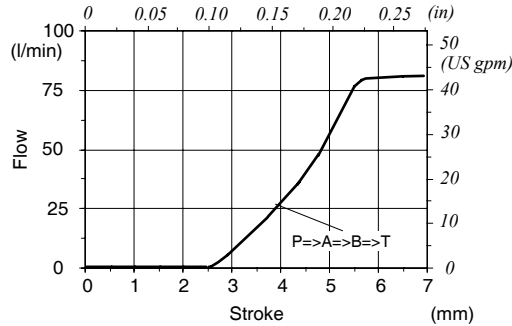


Spool stroke
position 1: + 7 mm (+ 0.28 in)
position 2: - 7 mm (- 0.28 in)

1 type spool metering

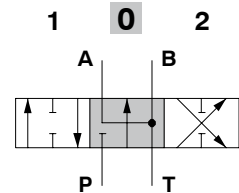
$Q_{in} = 80 \text{ l/min (21 US gpm)}$

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



**2 (2CSG/2CSGEZ/2MEZ)
type spool**

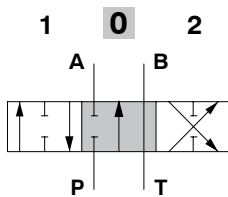
Double acting, 3 positions, with A and B open to tank in neutral position



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

1B type spool

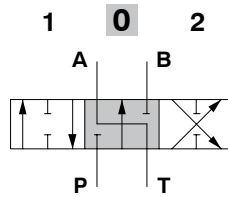
Double acting, 3 positions, with B open to tank in neutral position



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

1A type spool

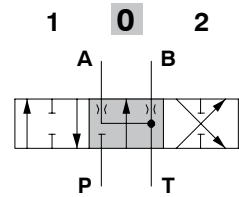
Double acting, 3 positions, with A open to tank in neutral position



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

2H type spool

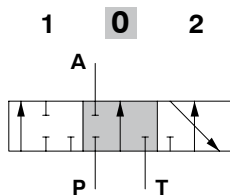
Double acting, 3 positions, with A and B partially open to tank in neutral position



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

3 (3MEZ) type spool

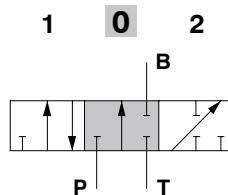
Single acting on A, 3 positions, B plugged, needs G1/2 plug



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

4 (4M/4MEZ) type spool

Single acting on B, 3 positions, A plugged, needs G1/2 plug

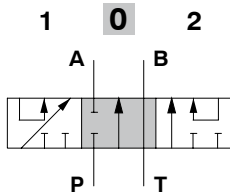


Spool stroke
position 1: + 7 mm (+ 0.28 in)
position 2: - 7 mm (- 0.28 in)

Spools

1SEZ type spool

Double acting, 3 positions, with A and B closed in neutral position, for series circuit



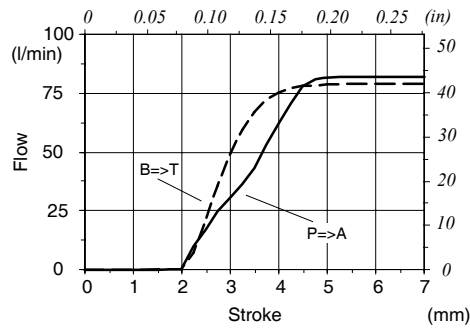
Spool stroke

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

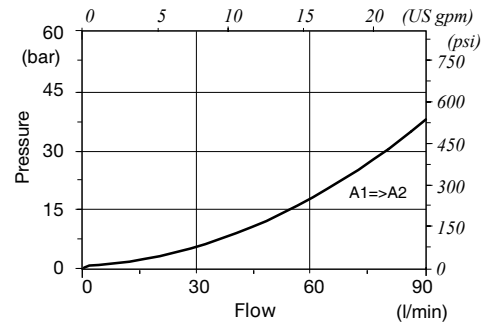
1SEZ type spool metering

$Q_{in} = 80 \text{ l/min (21 US gpm)}$

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

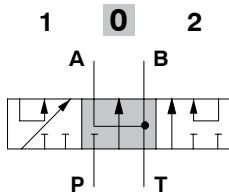


Pressure drop on series connection



2SEZ type spool

Double acting, 3 positions, with A and B connected to tank in neutral position, for series circuit

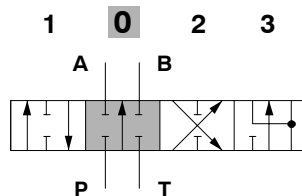


Spool stroke

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

5EZ type spool

Double acting, with A and B closed in neutral position, 4 positions, floating in position 3



Spool stroke

position 1: + 7 mm (+ 0.28 in)
position 2: - 7 mm (- 0.28 in)
position 3: - 12 mm (+ 0.47 in)

Performance data

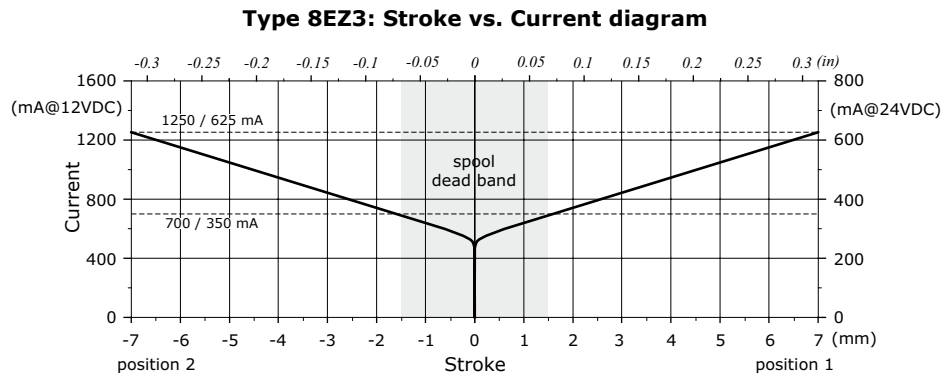
Following specifications are measured with:

- 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 tolerance ± 10%.

Following electrohydraulic controls need CED100X or CED400X electronic unit; for information contact Sales Department.

Specifications		
Electric specifications	8EZ3	
Coil impedance	12 VDC	4.72 Ω
	24 VDC	20.8 Ω
Max. operating current	12 VDC	1.5 A
	24 VDC	0.75 A
No load current consumption	0	
<u>Controls configured with lever box</u>		
Hysteresis max. ⁽¹⁾	external drain	7%
	internal drain	9%
Time response	from 0 ⇒ 100% and from 100% ⇒ 0 of stroke	< 50 ms
Min. flow control signal	12 VDC	700 mA
	24 VDC	350 mA
Flow control signal	12 VDC	1250 mA
	24 VDC	625 mA
Dither frequency	low frequency	150 Hz
	high frequency	180 Hz - 200 mA
Insertion	100%	
Coil insulation	Class H (180°C - 356°F)	
Connector type	AMP JPT - Deutsch DT	
Weather protection (connector)	IP65 (type JPT) - IP69K (type DT)	
Hydraulic specifications		
Max. pressure	50 bar (725 psi)	
Max. back pressure	5 bar (72.5 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, please see "Appendix A" on page 42.



Electrohydraulic controls

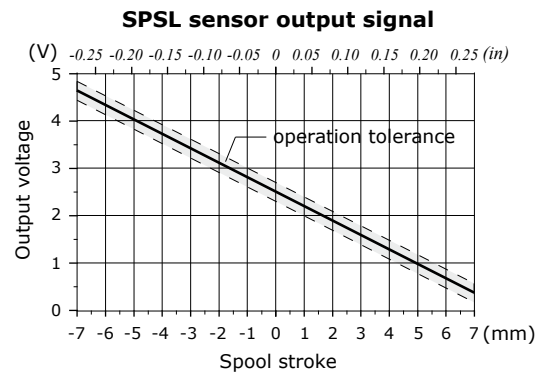
Spool position sensor

The sensor can be ordered exclusively through the EZ type electrohydraulic controls; please see page 22 for available control list.

SPSL sensor

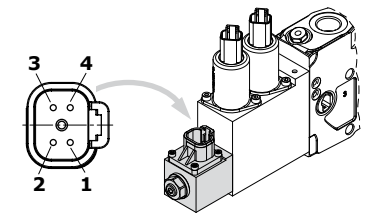
The SPSL position sensor converts the spool movements into a voltage linear signal.

Working conditions	
Voltage supply	5 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	DT04-4P Deutsch
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



Deutsch DT04-4P connector

Pin	Function
1	+ 5V
2	not connected
3	GND
4	signal OUT

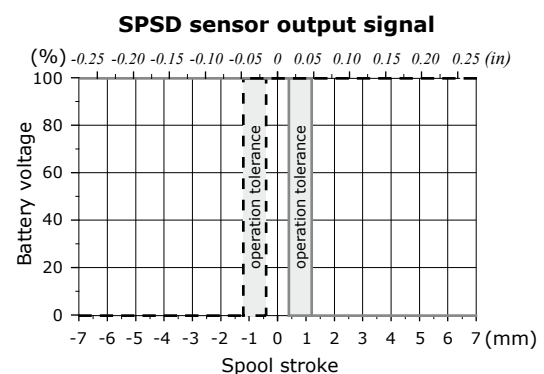


Deutsch DT06-4S mating connector, code 5CON140072

SPSD sensor

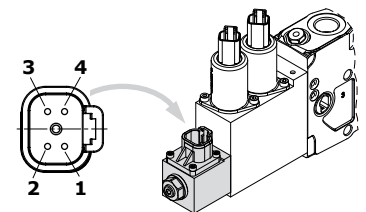
The SPSP position sensor converts the spool movements into an electric digital signal.

Working conditions	
Voltage supply	from 9 to 32 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	DT04-4P Deutsch
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



Deutsch DT04-4P connector

Pin	Function
1	Out A
2	GND
3	VB +
4	Out B



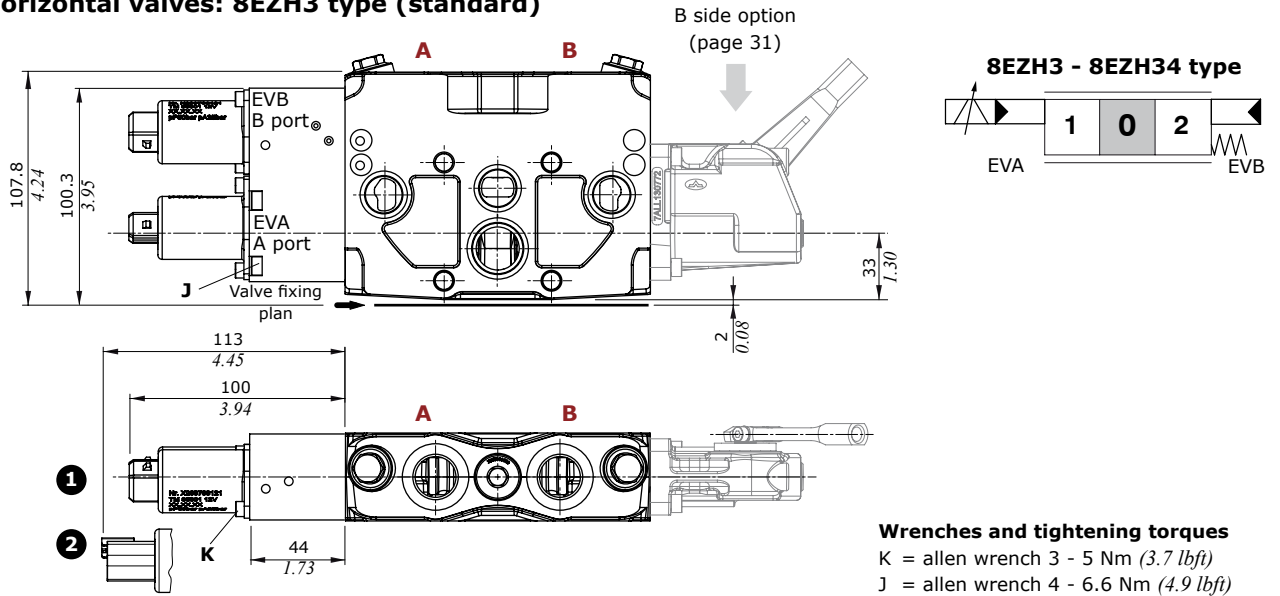
Deutsch DT06-4S mating connector, code 5CON140072

One-side electrohydraulic control

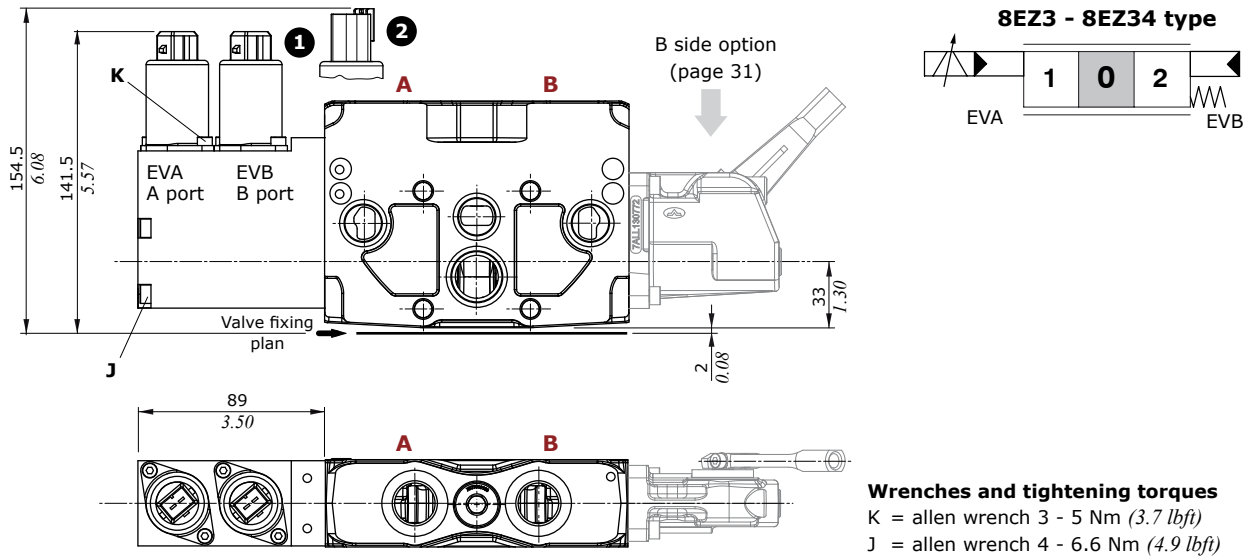
Control type

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

With horizontal valves: 8EZH3 type (standard)



With vertical valves: 8EZ3 type



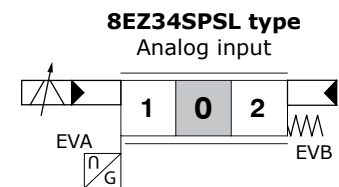
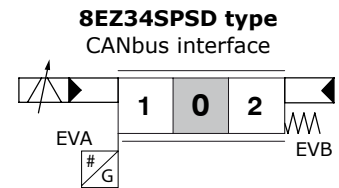
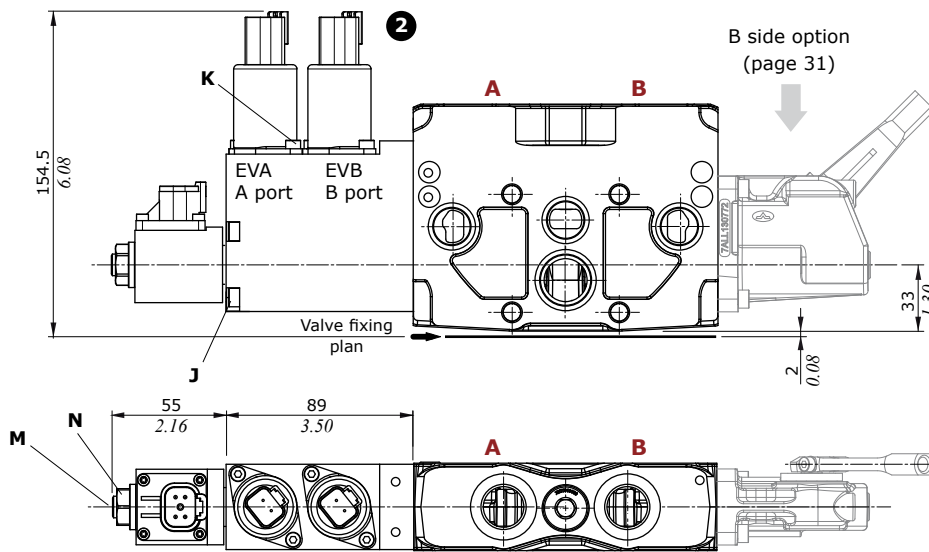
Electrohydraulic controls

One-side electrohydraulic control

Control type

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

With spool position sensor: 8EZ34SPSD type

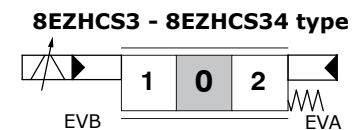
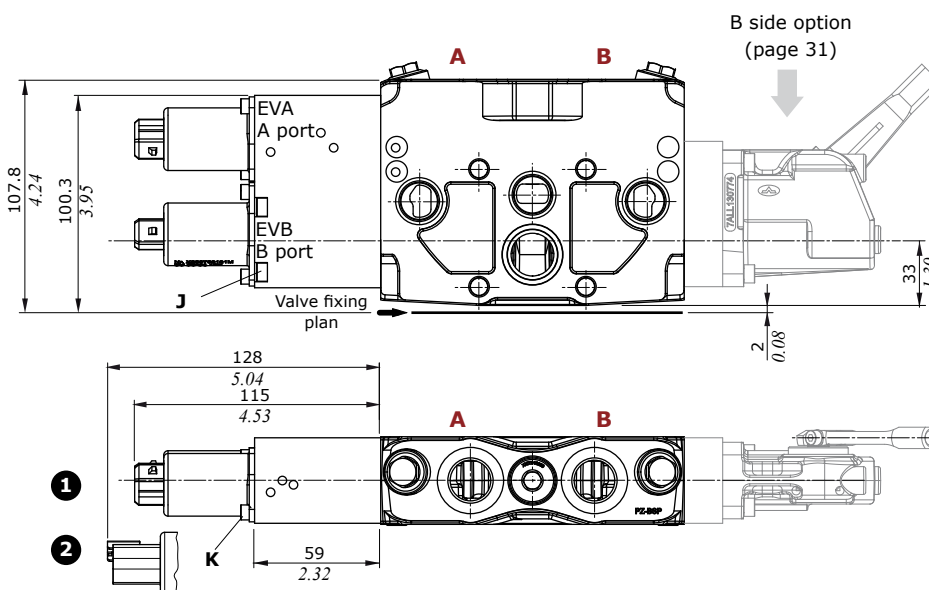


Wrenches and tightening torques

- K = allen wrench 3 - 5 Nm (3.7 lbf_t)
- J = allen wrench 4 - 6.6 Nm (4.9 lbf_t)
- M = wrench 4 - 9.8 Nm (7.2 lbf_t)
- N = wrench 17 - 9.8 Nm (7.2 lbf_t)

For series circuit: 8EZHCS3 type

For using with 1SEZ, 2SEZ spools type and LQCS lever type.



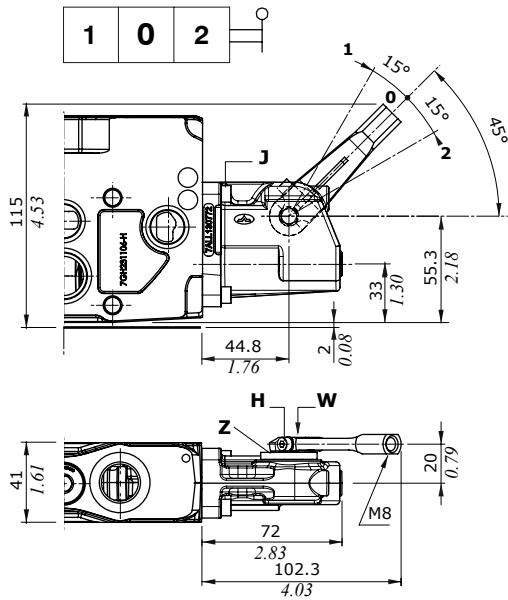
Wrenches and tightening torques

- K = allen wrench 3 - 5 Nm (3.7 lbf_t)
- J = allen wrench 4 - 6.6 Nm (4.9 lbf_t)

"B" side options

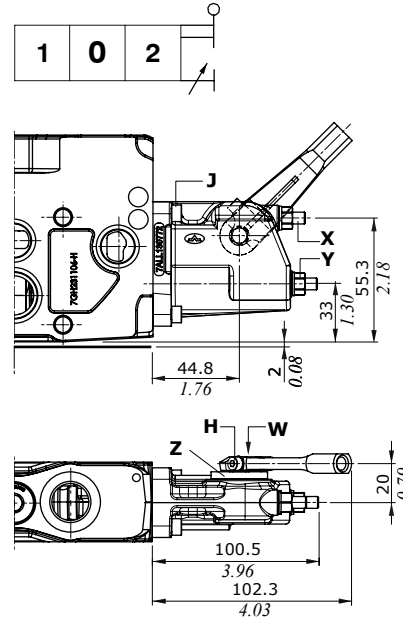
These options are available for one-side electrohydraulic controls only.

LQ type



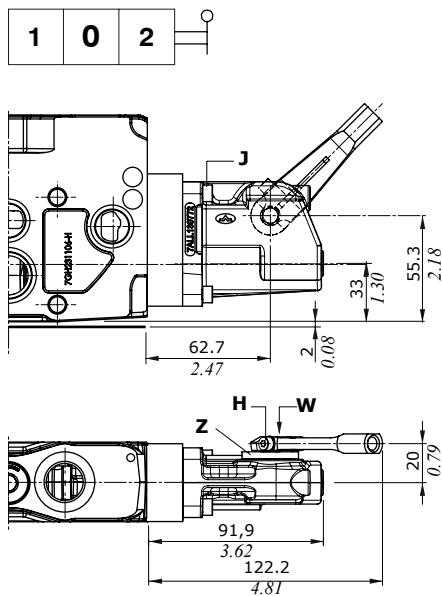
LQF3 type

Spool stroke limiter on ports A and B



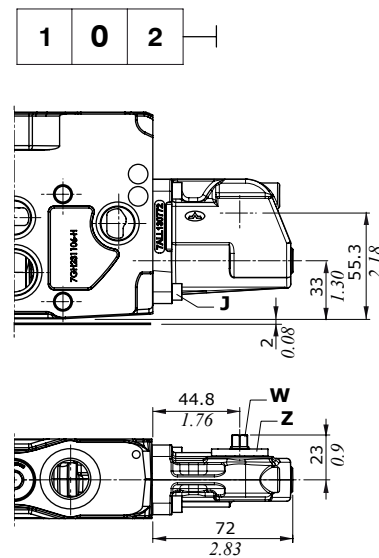
LQCS type

For using with 1SEZ, 2SEZ spools type and 8EZHC3 control type



LQSL type

Without lever



Wrenches and tightening torques

- H = allen wrench 3 - 6.6 Nm (4.9 lbf)
- J = allen wrench 4 - 6.6 Nm (4.9 lbf)
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbf)
- Z = 24 Nm (17.7 lbf)
- W = wrench 8

Electrohydraulic controls

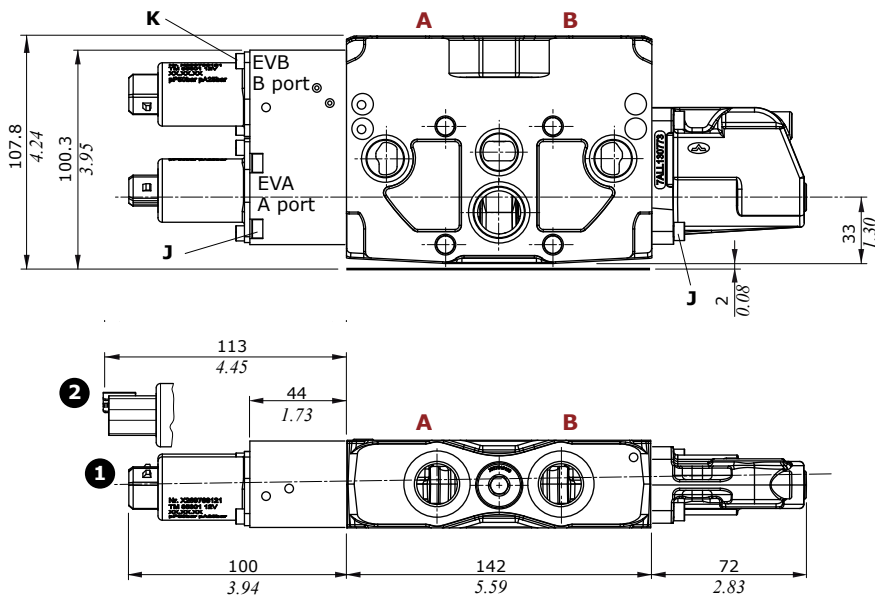
Complete one-side electrohydraulic control

Controls are comprehensive of endcap on B side.

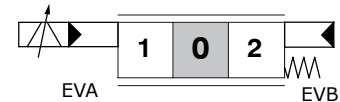
Control type

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

With horizontal valves: 8EZH3SLCQ type (standard)



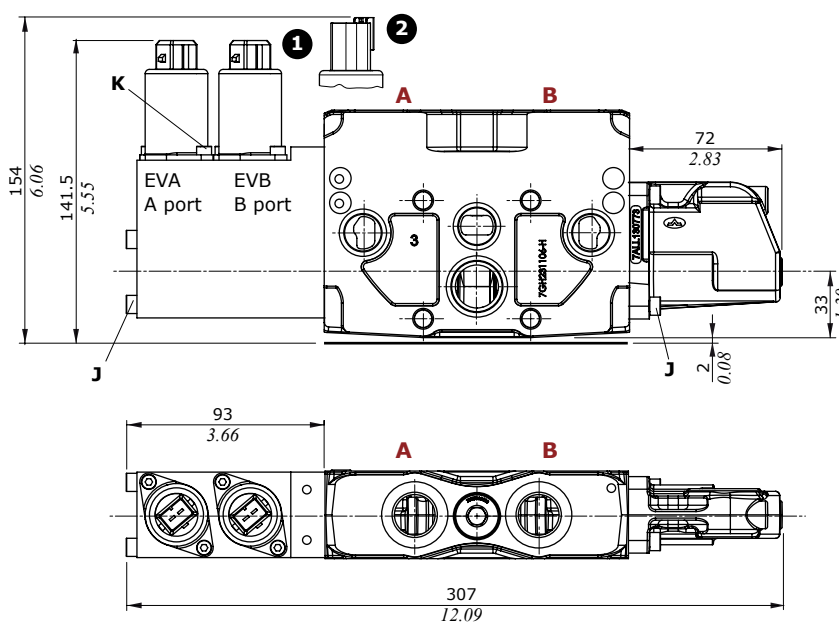
8EZH3SLCQ - 8EZH34SLCQ type



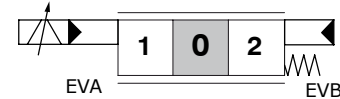
Wrenches and tightening torques

- K = allen wrench 3 - 5 Nm (3.7 lbft)
- J = allen wrench 4 - 6.6 Nm (4.9 lbft)

With vertical valves: 8EZ3SLCQ type



8EZ3SLCQ - 8EZ34SLCQ type



Wrenches and tightening torques

- J = allen wrench 4 - 6.6 Nm (4.9 lbft)
- K = allen wrench 3 - 5 Nm (3.7 lbft)

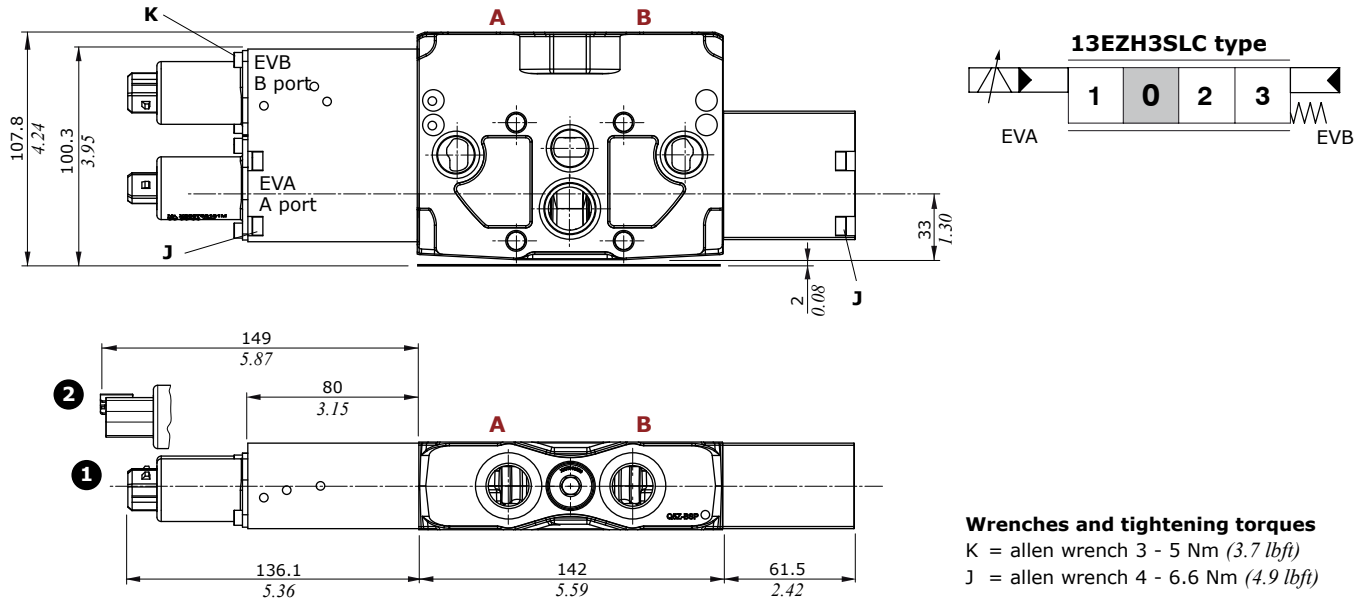
Complete one-side electrohydraulic control

Controls are comprehensive of endcap on B side.

Control type

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

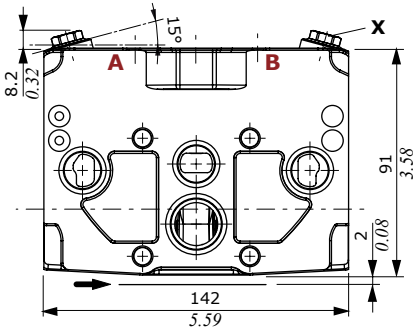
For floating circuit: 13EZH3SLC type



Port valves

Anti-shock and anti-cavitation valves

For flow rates up to 60 l/min (16 US gpm) and higher valve setting.



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

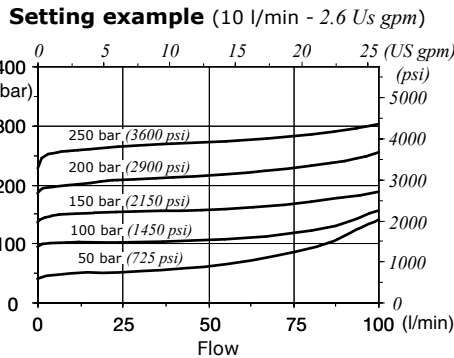
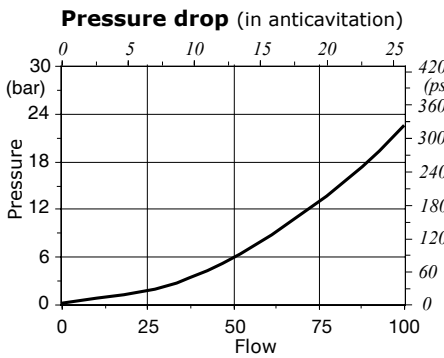
U type



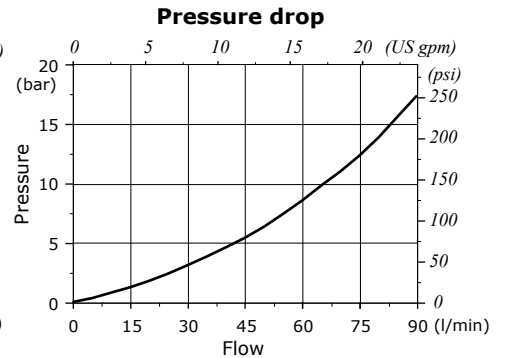
C type



U type: antishock valves with prefill

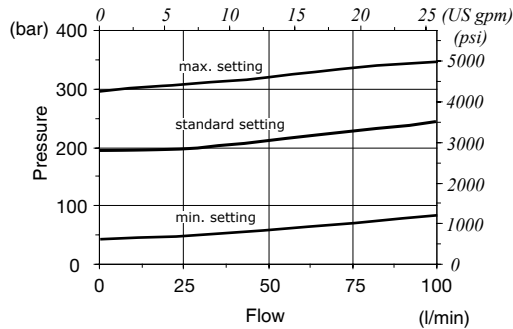


C type: anticavitation valves

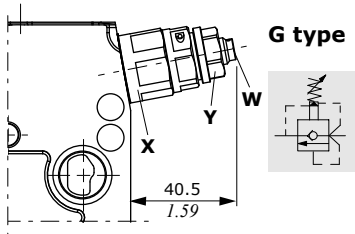
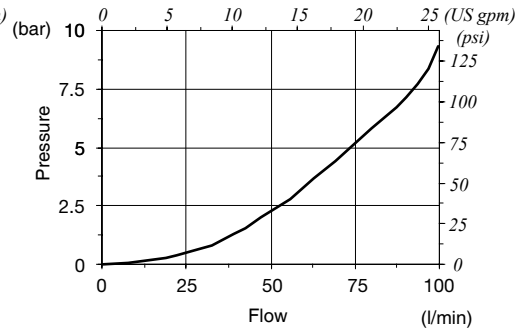


Pilot operated anti-shock and anti-cavitation valve UXW type

Range setting



Pressure drop in anticavitation



Legenda

G: adjustable with screw

Wrenches and tightening torques

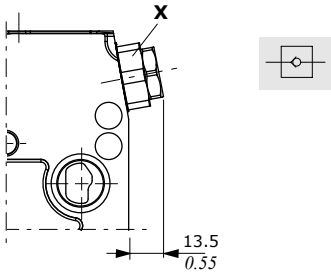
X = wrench 24 - 42 Nm (31 lbf)

Y = wrench 17 - 24 Nm (17.7 lbf)

W = wrench 5

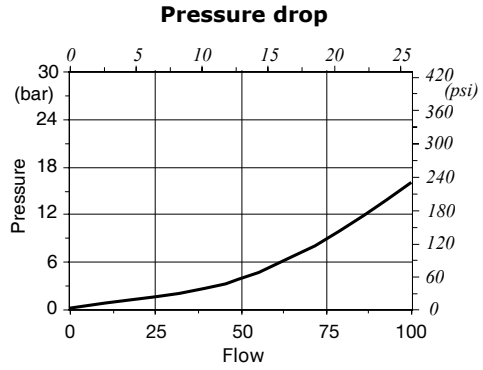
NOTE - It can not be used with mechanical controls with lever.

Anti-cavitation valve C type

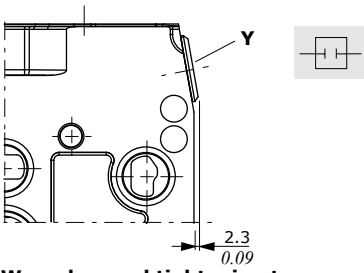


Wrenches and tightening torques

X = wrench 24 - 42 Nm (31 lbft)



Valve blanking plug



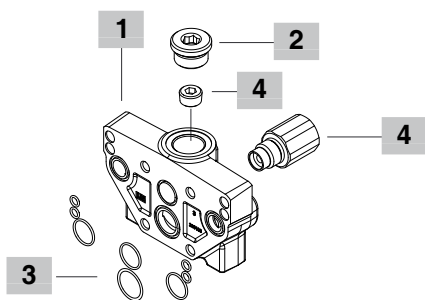
Wrenches and tightening torques

Y = allen wrench 10 - 42 Nm (31 lbft)

Part ordering codes

FS SDS140 / RC

- RC** With side outlet: **requires external pilot source**
- RD** With upper outlet: **requires external pilot source**
- RE** With upper outlet and side carry-over sleeve: **for external pilot circuit**
- RVC** With back pressure valve: **for electrohydraulic controls with internal pilot**
- RVE** With back pressure valve, carry-over sleeve and upper outlet: **for electrohydraulic controls with internal pilot**
- RF** With side and upper ports plugged for N, DT type inlet section and for M type inlet section, **for external pilot circuit**
- RFC** As RF with tapered plug with metering hole for M type inlet sections, **for electrohydraulic controls with internal pilot**
- RDC** As RD with tapered plug with metering hole for M type inlet section, **for electrohydraulic controls with internal pilot**



1 Outlet section *

CODE	DESCRIPTION
3FIA213300	Outlet section body

2 Plug *

CODE	DESCRIPTION
3XTAP732200	G 3/4 plug

3 O-ring seals

CODE	DESCRIPTION
4GUA118818	O-ring 18.77x1.78 NBR 70 SH (3 pieces)
4GUA125118	O-ring 25.12x1.78 NBR 70 SH (1 piece)
4GUA106818	O-ring 6.75x1.78 NBR 70 SH (4 pieces)

4 Circuit option* page 31

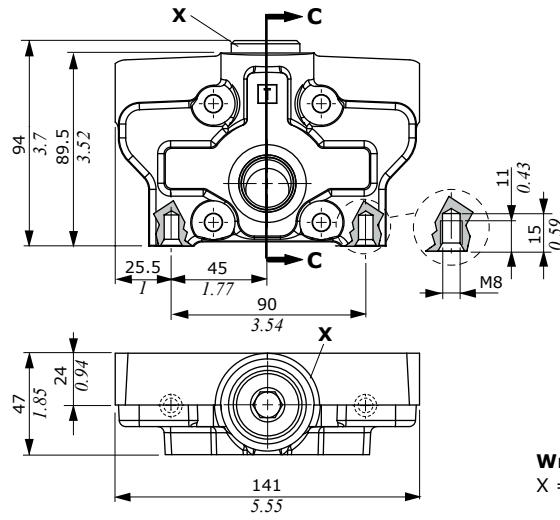
CODE	DESCRIPTION
XGIU536695	Junction for carry-over (RE)
X147600007(*)	VRC back pressure valve for RVC configuration
X147700010(*)	VRE back pressure valve for RVE configuration
3VT2730100	FC5 plug with metering hole for RFC and RDC

5 Section threading

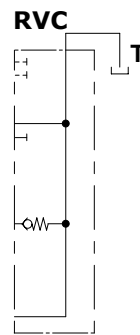
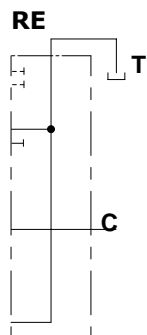
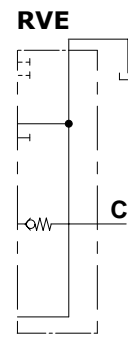
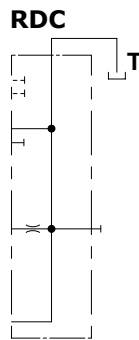
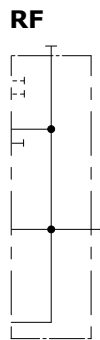
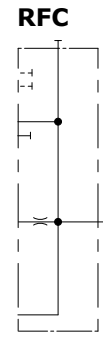
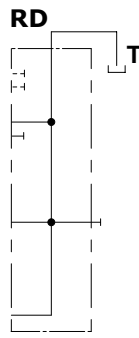
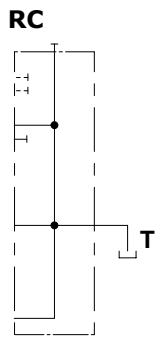
Specify threading always when it is different from BSP standard (see page 4).

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

Dimensional data and hydraulic circuit



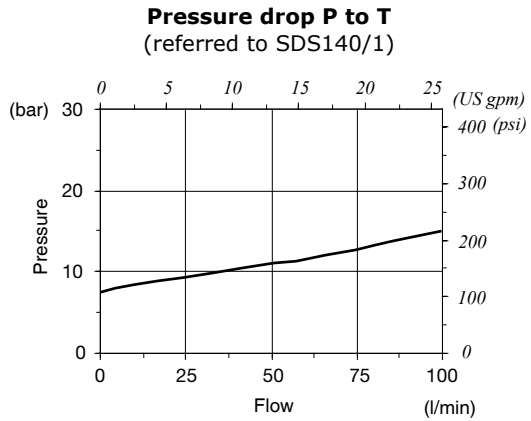
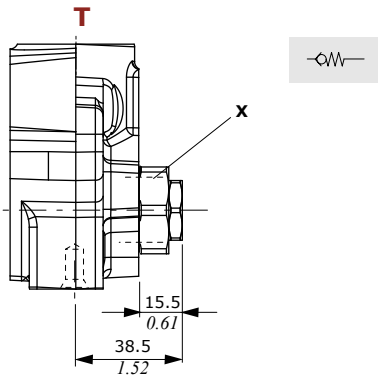
Wrenches and tightening torques
 X = wrench 12 - 42 Nm (31 lbf^t)



Circuit option

VRC back pressure valve

The VRC valve is assembled on flow through passage of outlet cover. It's used when the directional valve is configured with electrohydraulic controls and it provides the necessary pilot pressure.

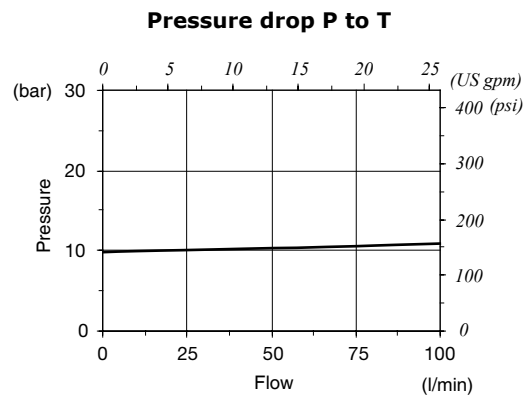
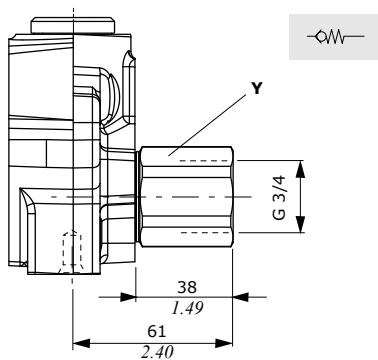


Wrenches and tightening torques

X = wrench 32 - 42 Nm (31 lbft)

VRE back pressure valve

It's assembled and used as VRC valve type, with carry-over port.



Wrenches and tightening torques

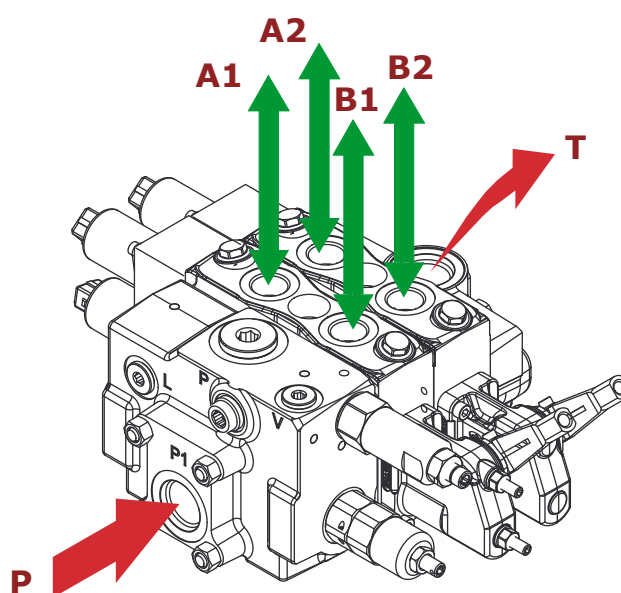
Y = wrench 36 - 42 Nm (31 lbft)

Installation and maintenance

The SDS140 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 working section deformation and spool sticking, mount the product on a flat surface;
- in order to prevent the possibility of water entering the lever box and spool control kit, do not use high pressure washdown directly on the valve;
- prior to painting, ensure plastic port plugs are tightly in place.



Fitting tightening torque - Nm (*lbft*)

THREAD TYPE	P port	A, B ports	T, C ports	LS signal
BSP	G 3/4	G 1/2	G 3/4	G 1/4
With O-Ring seal	90 - 66.4	50 - 36.9	90 - 66.4	20 - 14.7
With copper washer	90 - 66.4	60 - 44.3	90 - 66.4	25 - 18.4
With steel and rubber washer	70 - 51.6	60 - 44.3	70 - 51.6	16 - 11.8
UN-UNF	7/8-14 (SAE 12)	3/4-16 (SAE 8)	7/8-14 (SAE 12)	9/16-18 (SAE 6)
With O-Ring seal	90 - 66.4	60 - 44.3	90 - 66.4	30 - 22.1
METRIC	M27x2	M22x1.5	M27x2	M14x1.5
With O-Ring seal	100 - 73.7	60 - 44.3	100 - 73.7	35 - 25.8

NOTE – This torque is recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish. The manufacturer has to be consulted.

Coils

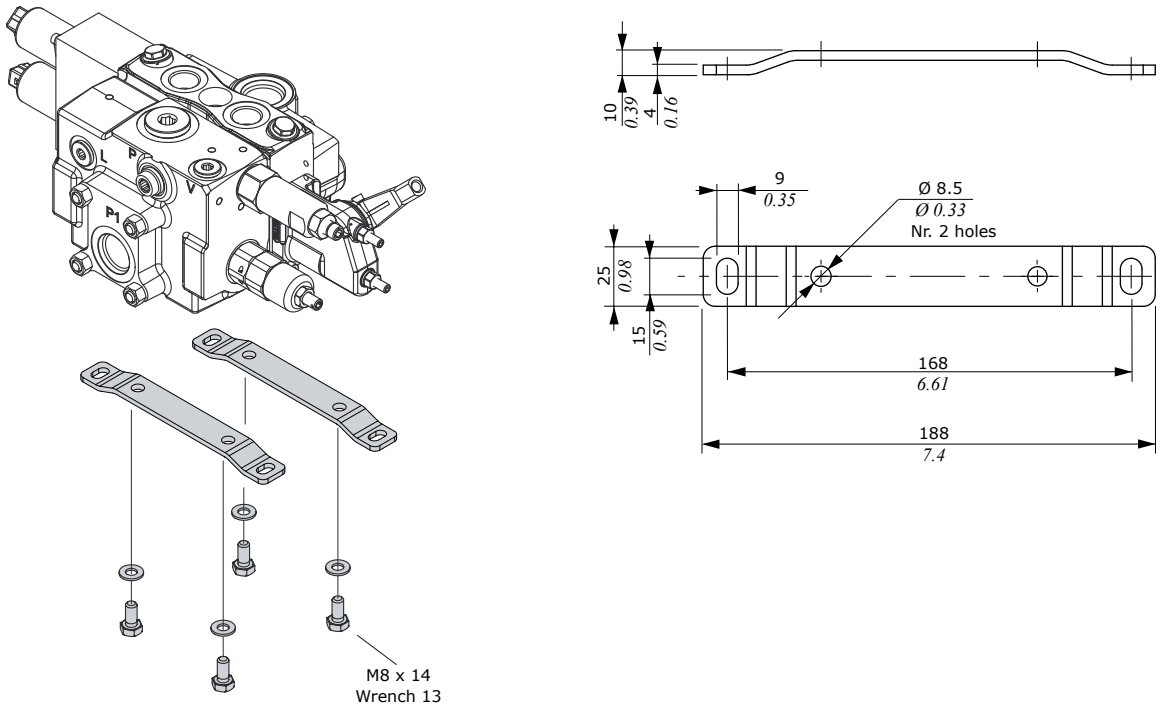
Types and ordering codes

Coil type	Voltage	Connectors					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
BER	10 VDC	4SLE001000A	-	-	-	-	-
	12 VDC	4SLE001200A	4SLE001201A ⁽⁵⁾	4SLE001203A ⁽⁴⁾	4SLE001210A ⁽²⁾	4SLE001214A ⁽²⁾	4SLE001207A
		4SLE001217A ⁽³⁾	4SLE001209A ⁽³⁻⁴⁾	4SLE001211A ⁽³⁻⁴⁾	-	-	-
		-	4SLE001202A ⁽⁵⁾	-	-	-	-
		-	4SLE001216A ⁽³⁻⁵⁾	-	-	-	-
	14 VDC	-	4SLE001400A ⁽⁵⁾	4SLE001403A ⁽³⁻⁴⁾	-	-	-
		-	4SLE001401A ⁽³⁻⁵⁾	-	-	-	-
	24 VDC	4SLE002400A	4SLE002401A ⁽⁴⁾	4SLE002403A ⁽⁴⁾	-	-	4SLE002404A
		4SLE002408A ⁽³⁾	4SLE002407A ⁽³⁻⁴⁾	-	-	-	-
	28 VDC	-	4SLE002402A ⁽⁵⁾	4SLE002800A ⁽⁴⁾	-	-	-
48 VDC	4SLE004800A	-	-	-	-	-	
	4SLE304800A ⁽¹⁾	-	-	-	-	-	
110VDC	4SLE011000A	-	-	-	-	-	
	4SLE311000A ⁽¹⁾	-	-	-	-	-	
220 VDC	4SLE022000A	-	-	-	-	-	
	4SLE322000A ⁽¹⁾	-	-	-	-	-	
Mating connectors (for connector with rectifier see following table)		4CN1009995	5CON140031	5CON003	5CON001	5CON017	-

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

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

Fixing brackets



NOTE - For fixing bracket code please see page 9.

Painting

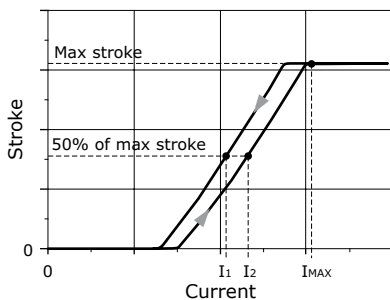
SDS140 valve can be supplied with one coat of black paint (CVN configuration).
 Description example: SDS140/2/AC(YG3-175)-R(32)/PZ-1EZ8EZH3LQ.U3T/RD-<CVN>
 NOTE - For different colour please contact our Sales Dpt.

Appendix A

Electrohydraulic controls: hysteresis calculation rule

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

Example diagram for data detection




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



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