



DPC Series

Pre-compensated Load Sensing sectional valves

TECHNICAL CATALOG



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
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WALVOIL IS NOT RESPONSIBLE FOR ANY DAMAGE CAUSED BY AN
INCORRECT USE OF THE PRODUCT.

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The DPC Series

The DPC Series is a family of open/closed center pre-pressure compensated sectional valves designed specifically for Mobile Applications. The DPC series provides exceptional controllability, efficiency and flexibility for applications requiring up to 240 l/min (63.4 US gpm) flow rate. DPC Series is available in two different sizes: DPC130 (DPC130X) and DPC200.

**The Load Sensing technology**

Thanks to the use of specially designed pumps and control valves, the Load Sensing principle can be considered the most comprehensive means of creating a flexible hydraulic circuit that can adapt to the various operating conditions demanded by users. The main feature of this principle is that the flow rate to the user is proportional to the spool position under any operating condition, regardless of the resistance encountered by the user (pressure) and the number of levers activated (exceeding the pump's total flow rate, a condition here in after defined as saturation, is the only limitation).

Therefore, with the LS systems, there is a specific correspondence between the position of the control lever and the movement speed of the user, cylinder or hydraulic motor. This feature is particularly useful in the hydraulic handling machine sector (excavators, cranes, loaders, agricultural and forestry machinery) in which each movement phase has specific sequences that the operator must control by using memorised movements.

Advantages and options

- Energy saving.
- Extension of part service life.
- Lower energy dissipation.
- Noise reduction.
- Available to create a single-pump circuit (compared with the use of multiple-pump circuits in which each pump is dedicated to different actuators to be operated simultaneously).

Real energy savings can be obtained above all when the DPC directional valves operate together with variable displacement Load Sensing pumps. When the DPC valve is utilised with fixed displacement pumps, the previously mentioned movement independence and repeatability features are guaranteed, but energy savings will be limited.

For special options please contact Sales Dept.

The ATEX version

The DPC130X is the DPC Series new valve built according to the ATEX directive for safe use in classified areas, with inflammable and potentially explosive materials.

Hydraulic features and performance remain the same of the DPC130 standard valve.

For more informations see code D1WWED03A catalogue.

Working conditions

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

		DPC130	DPC200
Nominal flow rating (open center circuit)	on inlet port with compensator @ stand-by (margin pressure)	150 l/min - 39.6 US gpm @ 9 bar - 131 ps	260 l/min - 68.7 US gpm @ 11.5 bar - 167 ps
	on working ports with compensator (Q _{in} /Q _{out} >10%) @ stand-by (margin pressure)	100 l/min - 26.4 US gpm @ 7 bar - 102 ps	200 l/min - 52.8 US gpm @ 7 bar - 102 ps
	on working ports without compensator (Q _{in} /Q _{out} >10%) @ stand-by (margin pressure)	130 l/min - 34.3 US gpm @ 9 bar - 131 ps	240 l/min - 63.4 US gpm @ 11.5 bar - 167 ps
Max. pressure	P inlet port	315 bar ⁽²⁾ - 4500 psi ⁽²⁾	350 bar ⁽¹⁾ - 5100 psi ⁽¹⁾
	A and B working ports	315 bar ⁽²⁾ - 4500 psi ⁽²⁾	420 bar ⁽¹⁾ - 6100 psi ⁽¹⁾
Back pressure (max.)	on T outlet port	25 bar - 363 psi	25 bar - 363 psi
	on L drain port	2.5 bar - 36 psi	2.5 bar - 36 psi
Standard internal leakage A(B)->T	Δp=100 bar - 1450 psi	16 cm ³ /min - 0.98 in ³ /min	20 cm ³ /min - 1.22 in ³ /min
	with port valves, Δp=100 bar - 1450 psi	21 cm ³ /min - 1.28 in ³ /min	25 cm ³ /min - 1.53 in ³ /min
Fluid		Mineral oil	
Fluid temperature range	with seals NBR (BUNA-N)	from -20°C to 80°C - from -4°F to 176°F	
	with seals FPM (VITON)	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	
Contamination level	max.	-/18/15 - ISO 4406 - NAS 1638 class 9	
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 electric/electrohydraulic devices	from -20°C to 50°C - from -4°F to 122°F	

NOTES: ⁽¹⁾ According to NFPA T 2.6.1., fatigue rating verified for 1 million cycles on 6 sample valves with test Pressure = 1.23 x Max. pressure indicated - ⁽²⁾ According to NFPA T 2.6.1., fatigue rating verified for 1 million cycles on 8 sample valves with test Pressure = 1.104 x Max. pressure indicated.

Standard threads

REFERENCE STANDARD		BSP	UN-UNF	NPTF	Flange connection
THREAD		ISO 228/1	ISO 263		ISO 6162
ACCORDING TO		BS 2779	ANSI B1.1 unified	ANSI B1.20.3	SAE J518
CAVITY	ISO	1179	11926		
DIMENSION	SAE		J1926	J476a	SAE J518 code 61 ⁽³⁾
ACCORDING TO	DIN	3852-2, X or Y shape			ISO 6162-1 ⁽⁴⁾

NOTES ⁽³⁾: Standard pressure series - ⁽⁴⁾: For pressure up to 350 bar (5100 psi)

PORTS THREADING	DPC130		DPC200			
	BSP	UN-UNF	BSP	UN-UNF	Flange connection (bolts threading)	
					ISO 6162-1 type 1	SAE J518 code 61
P inlet	G 3/4	1 1/16-12 (SAE 12)	G 1	1 5/16-12 (SAE 16)	DN 19 (M10)	3/4 (3/8-16 UNC)
A and B ports	G 1/2	7/8-14 (SAE10)	G 1	1 5/16-12 (SAE 16)	DN 19 (M10)	3/4 (3/8-16 UNC)
T outlet	G 3/4	1 1/16-12 (SAE 12)	G 1-1/4	1 5/8-12 (SAE 20)	DN 25 (M10)	1 (3/8-16 UNC)
LS Load Sensing	G 1/4	9/16-18 (SAE 6)	G 1/4	9/16-18 (SAE 6)		
V1 pilot	G 1/4	9/16-18 (SAE 6)	G 1/4	9/16-18 (SAE 6)		
V2 pilot	depends on inlet section type: see pages from 14 to 17 ⁽⁵⁾		M14x1.5 ⁽⁵⁾		see BSP threading	see UN-UNF threading
L drain	G 1/4	7/16-20 (SAE 4)	G 1/4	7/16-20 (SAE 4)		
M pressure gauge	G 1/4	9/16-18 (SAE 6)	G 1/4	9/16-18 (SAE 6)		
Hydraulic control ports	G 1/4	9/16-18 (SAE 6)	G 1/4	9/16-18 (SAE 6)		

NOTES ⁽⁵⁾: ATTENTION! V2 pilot port requires dedicated joints; please see Inlet section pages.

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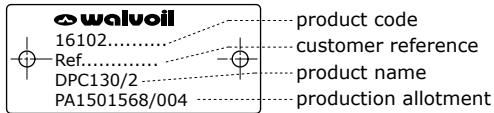
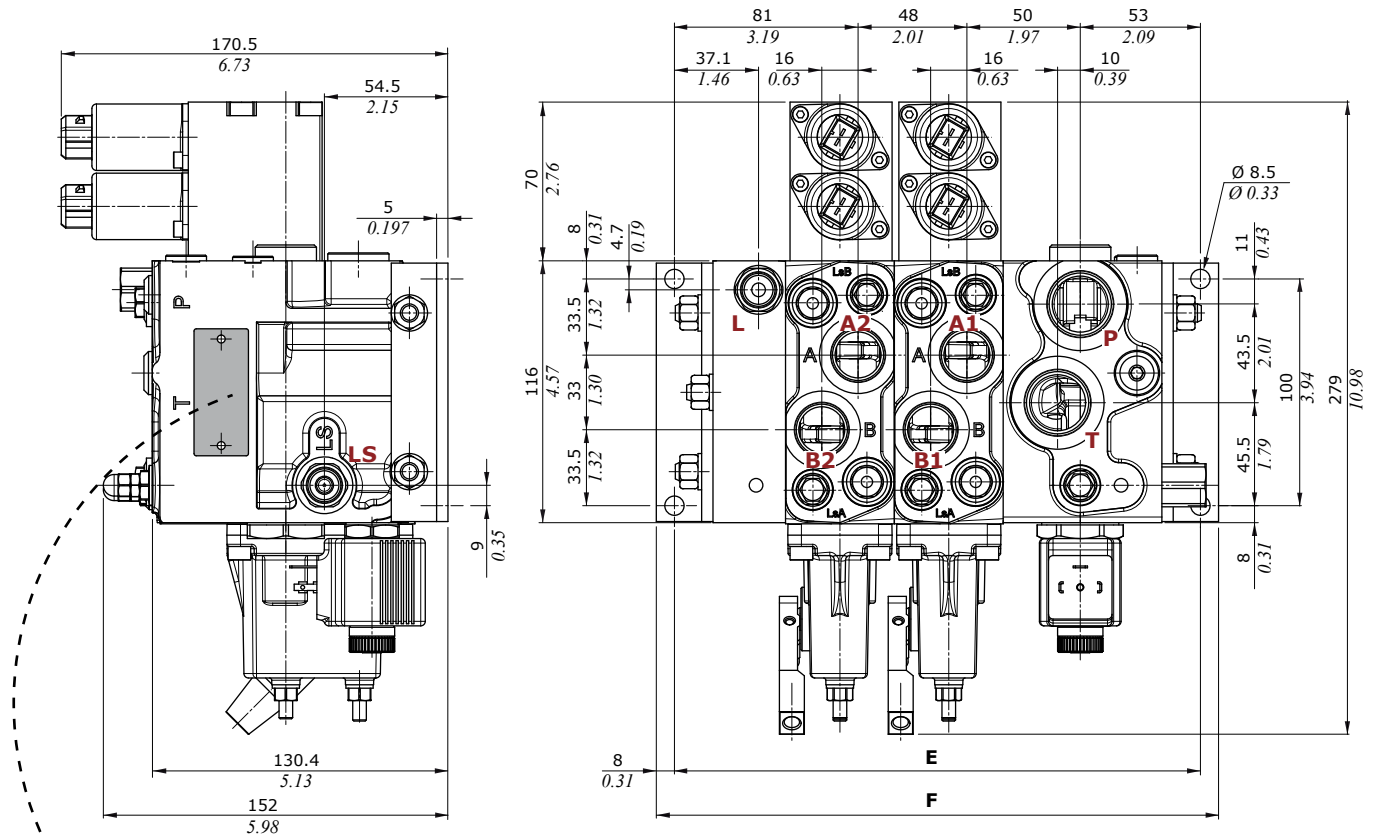
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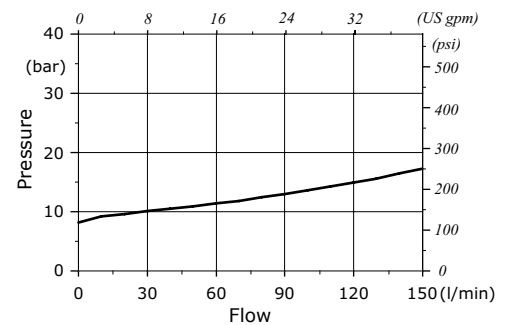
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Dimensional data and performance

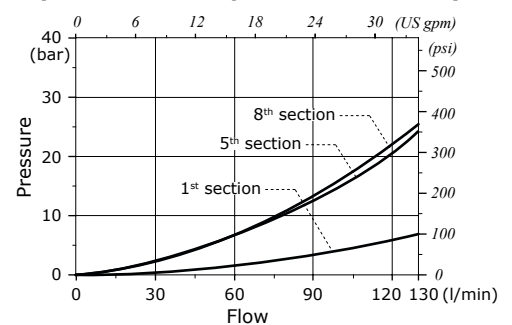


Type	E		F		Weight	
	mm	in	mm	in	Kg	lb
DPC130/1	184	7.24	200	7.87	12.4	27.3
DPC130/2	232	9.13	248	9.76	19.4	42.8
DPC130/3	280	11.02	296	11.65	25.3	55.8
DPC130/4	328	12.91	344	13.54	31.0	68.3
DPC130/5	376	14.80	392	15.43	36.5	80.5
DPC130/6	424	16.69	440	17.32	42.6	93.9
DPC130/7	472	18.58	488	19.21	48.7	107.0
DPC130/8	520	20.47	536	21.10	54.8	121.0
DPC130/9	568	22.36	584	22.99	60.9	134.0
DPC130/10	616	24.25	632	24.88	67.0	148.0

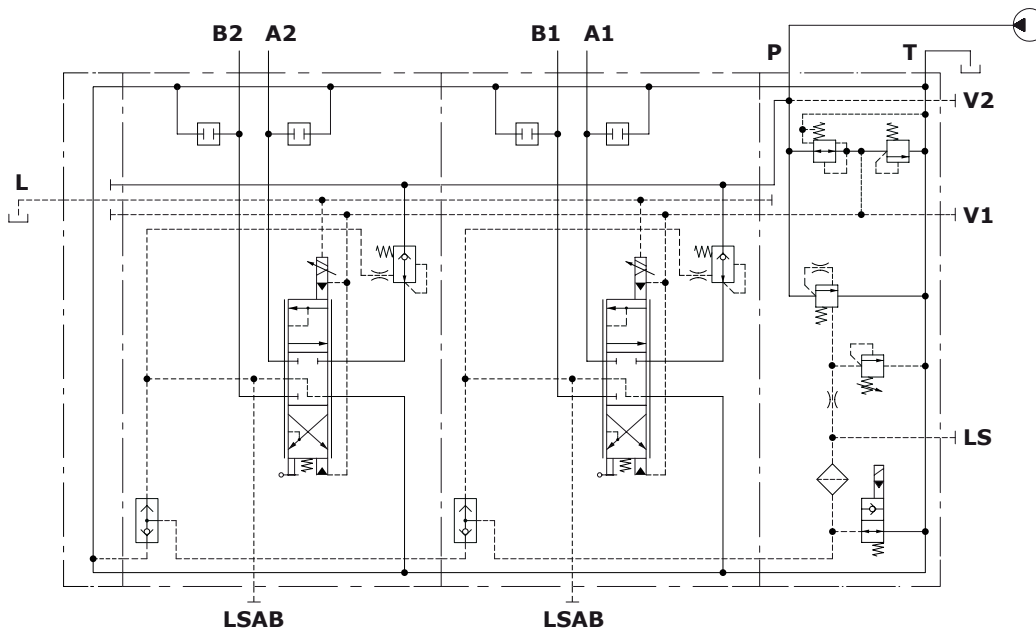
P⇒T Pressure drop inlet compensator (margin pressure)



A(B)⇒T pressure drop (1PN standard spool @ max.stroke)

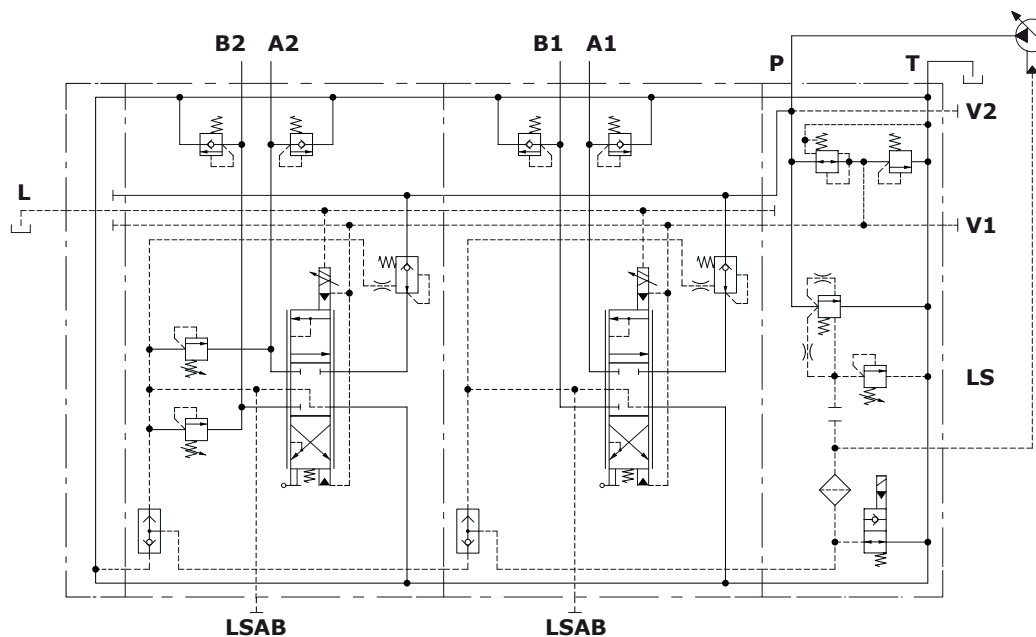


Open center configuration example



Open center circuit and one-side proportional electrohydraulic control with lever, with unloader valve and pressure reducing valve, port valve arrangement on all ports, LSAB port, internal pilot and external drain

Closed center configuration example



Closed center circuit and one-side proportional electrohydraulic control with lever, with unloader valve and pressure reducing valve, antishock and anticavitation valves on all ports, L.S. relief valves on 2nd section, LSAB ports, internal pilot and external drain

Complete sections ordering codes

DPC130/2/BR21-S220-ELP/C10-1S8EZ3L1/C22-1S8EZ3L1.UTUTSTST/RF30-.....-12VDC-<SB20-CVN>

Valve type

1

2

2

3

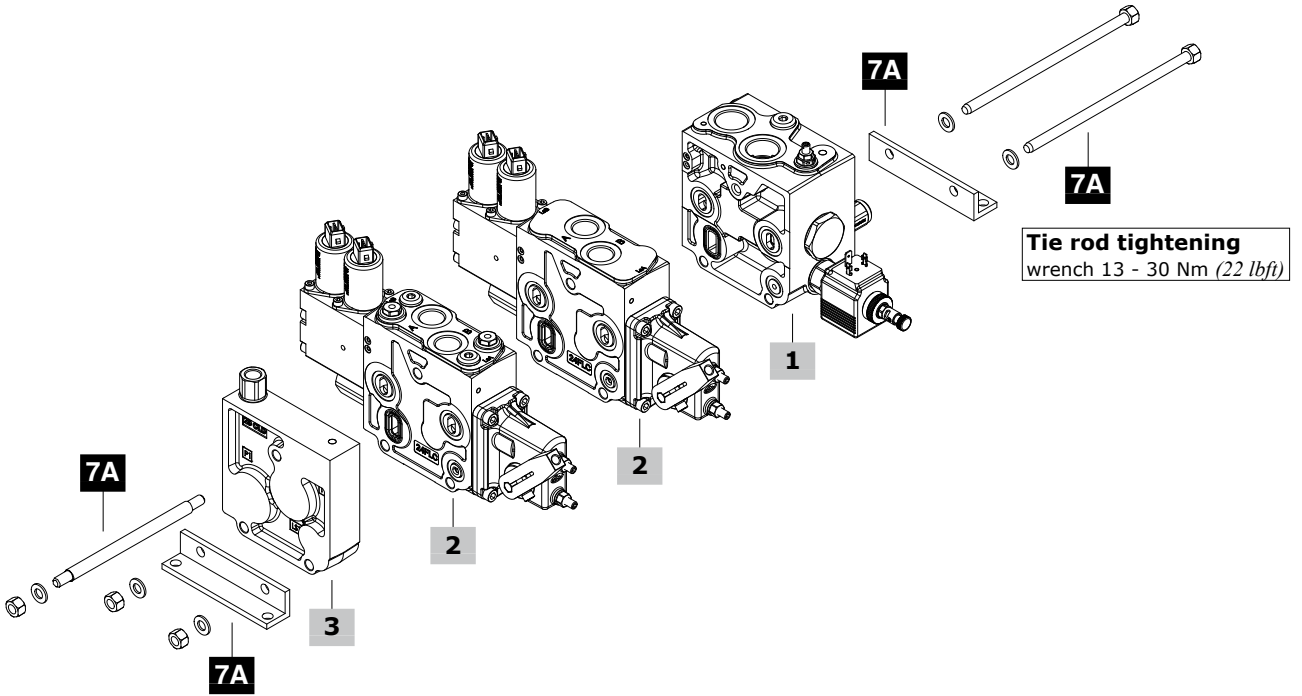
4

5

6

The valve is supplied painted, as standard, with one coat of Primer black antirust paint

Nr. of working sections



DPC130/2/BRF21-S250/C10-1S8EZ3L1/C22-1S8EZ3L1.UTUTSTST/RF30-.....-12VDC-<SB20-CVN>

1

2

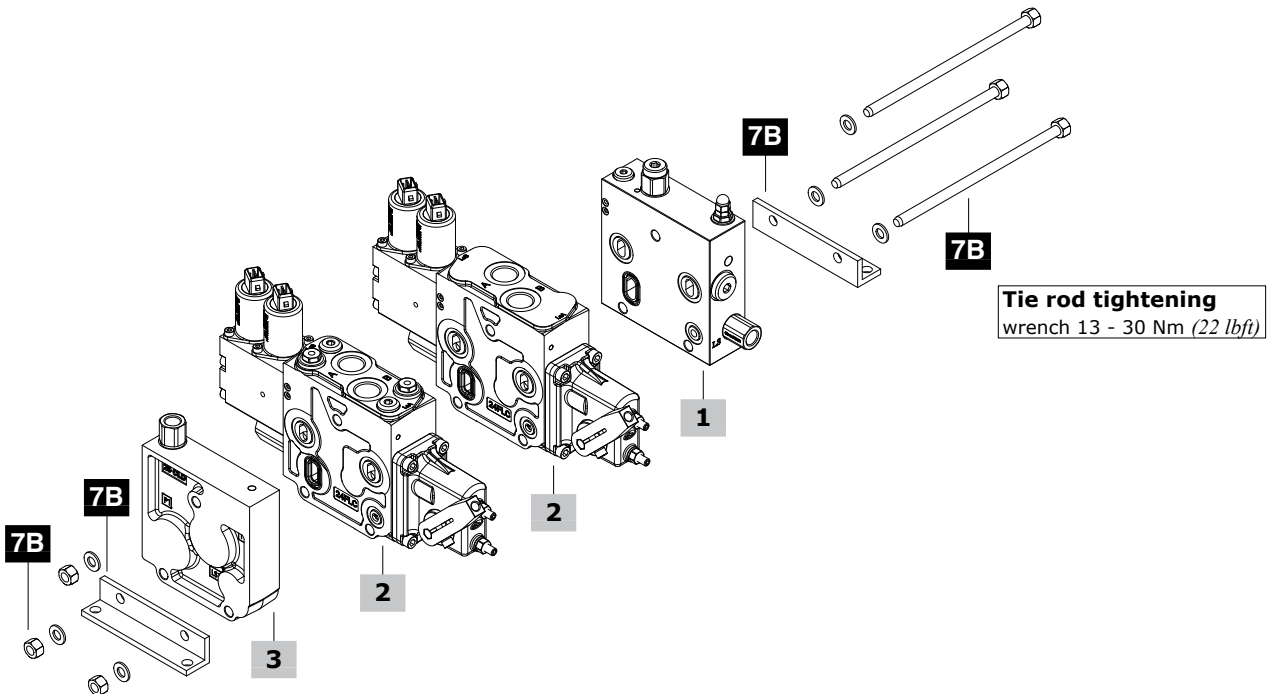
2

3

4

5

6



Complete sections ordering codes

1 Inlet section * **page 12**

TYPE: **DPC130/BR-S200-DSK-SAE** CODE: 63425H000
 DESCRIPTION: With 3-way compensator, L.S. pressure relief valve, pressure reducing valve and selector for open/closed center circuit

Closed Center circuit

TYPE: **DPC130/BN21-S220-SAE** CODE: 63422H001
 DESCRIPTION: With secondary pressure control system and pressure reducing valve, with L.S. pressure relief valve.

TYPE: **DPC130/BR21-S220-ELP-SAE-12VDC** CODE: 63421H003
 DESCRIPTION: As previous one, with pressure reducing valve, and 12VDC solenoid operated unloader valve

TYPE: **DPC130/BRF21-S250-SAE** CODE: 634250901
 DESCRIPTION: With pressure reducing valve and L.S. pressure relief valve

TYPE: **DPC130/BRSOG21(SF)-S220-ELN3-SAE-12VDC**
 CODE: 63425H006
 DESCRIPTION: Shut-off configuration, with pressure reducing valve and L.S. pressure relief valve

TYPE: **DPC130/BRS21-S220-ELP-SAE-12VDC** CODE: 63425H002
 DESCRIPTION: Copy-Spool with dumper configuration, with secondary pressure control system, with pressure reducing valve, L.S. pressure relief valve and 12VDC solenoid operated unloader valve

Open Center circuit

TYPE: **DPC130/BN11-S220-SAE** CODE: 63422H002
 DESCRIPTION: With 3-way compensator and L.S. pressure relief valve, without pressure reducing valve

TYPE: **DPC130/BR11-S220-ELP-SAE-12VDC** CODE: 63421H004
 DESCRIPTION: As previous one, with pressure reducing valve, and 12VDC solenoid operated unloader valve

TYPE: **DPC130/BRS11-S220-ELP-SAE-12VDC** CODE: 63425H004
 DESCRIPTION: Copy-Spool with dumper configuration, with 3-way compensator, pressure reducing valve, L.S. pressure relief valve and 12VDC solenoid operated unloader valve

2 Working section * **page 22**

With 2-way compensator

TYPE: **DPC130/C10-1S8EZ3TL1-SAE-12VDC** CODE: 63411H002
 DESCRIPTION: With double acting spool for 60 l/min (16 US gpm), proportional electrohydraulic control with lever

TYPE: **DPC130/C22-1S8EZ3TL1.UTUTSTST-SAE-12VDC**
 CODE: 63411H004
 DESCRIPTION: As previous one, arranged for port valves and L.S. relief valves

Without compensator

TYPE: **DPC130/D10-1S8EZ3TL1-SAE-12VDC** CODE: 63412H002
 DESCRIPTION: With double acting spool for 60 l/min (16 US gpm), proportional electrohydraulic control with lever

TYPE: **DPC130/D20-1S8EZ3TL1.UTUT-SAE-12VDC**
 CODE: 63412H004
 DESCRIPTION: As previous one, arranged for port valves

TYPE: **DPC130/CV10-1S8EZ3TL1-SAE-12VDC** CODE: 63413H002
 DESCRIPTION: With load check valve, double acting spool for 60 l/min (16 US gpm), proportional electrohydraulic control, with lever

TYPE: **DPC130/CV22-1S8EZ3TFL1.UTUTSTST-SAE-12VDC**
 CODE: 63413H004
 DESCRIPTION: With load check valve, double acting spool for 60 l/min (16 US gpm), proportional electrohydraulic control, with lever, arranged for port valves and L.S. relief valves

3 Outlet section * **page 49**

For valve with mechanical control

TYPE: **DPC130/RF10** CODE: 634310001
 DESCRIPTION: Without ports

For valve with hydraulic control

TYPE: **DPC130/RF20** CODE: 634310024
 DESCRIPTION: Without ports, internal drain

For valve with electrohydraulic control

TYPE: **DPC130/RF30-SAE** CODE: 634310003
 DESCRIPTION: Without ports, L external drain

TYPE: **DPC130/RC31-SAE** CODE: 634310005
 DESCRIPTION: With P1 and T1 (plugged) ports, L external drain

TYPE: **DPC130/RD31-SAE** CODE: 634310007
 DESCRIPTION: With P1 and T1 ports (plugged), LS1 port, external drain L

4 Valve threading

Specify only if it is different from BSP standard (see page 5).

5 Voltage

Specify the voltage of electric device

6 Pump stand-by

This option must be specified only if valve is configured for Closed Center circuit, without local compensation and if the value is different from 9 bar (131 psi)

7A Assembling kit**For valve with BR-BN-BRS-BRSO inlet sections**

CODE	DESCRIPTION
5TIR108185	For 1 working section valve
5TIR108232	For 2 working sections valve
5TIR108281	For 3 working sections valve
5TIR108328	For 4 working sections valve
5TIR108376	For 5 working sections valve
5TIR108425	For 6 working sections valve
5TIR108472	For 7 working sections valve
5TIR108520	For 8 working sections valve
5TIR108568	For 9 working sections valve
5TIR108616	For 10 working sections valve

7B Assembling kit**For valve with BRF inlet section**

CODE	DESCRIPTION
5TIR108153	For 1 working section valve
5TIR108201	For 2 working sections valve
5TIR108249	For 3 working sections valve
5TIR108297	For 4 working sections valve
5TIR108339	For 5 working sections valve
5TIR108393	For 6 working sections valve
5TIR108440	For 7 working sections valve
5TIR108488	For 8 working sections valve
5TIR108536	For 9 working sections valve
5TIR108584	For 10 working sections valve

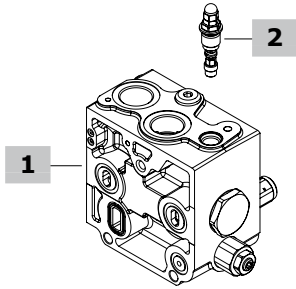
NOTE (*): Codes are referred to **UN-UNF** thread.

Inlet section part ordering codes

Valve setting (bar)

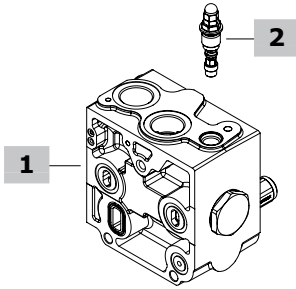
DPC130 / BR - S200 - DSK -.....

1 2 1 5



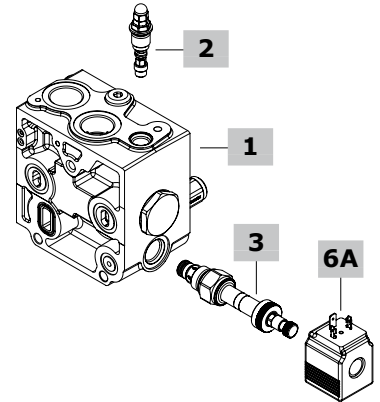
DPC130 / BN21 - S220 -

1 2 5



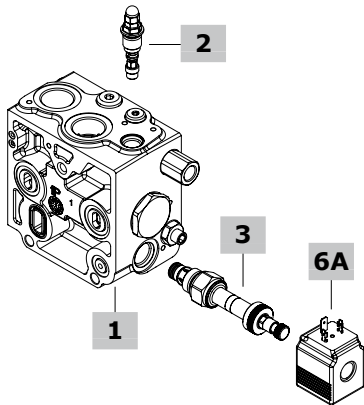
DPC130 / BR21 - S220 - ELP - - 12VDC

1 2 3 5 6A



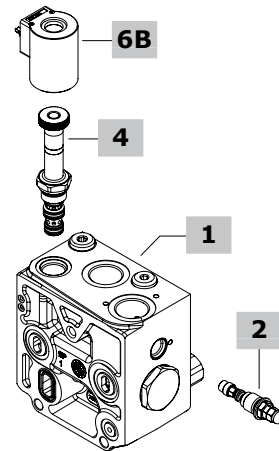
DPC130 / BRS21 - S220 - ELP - - 12VDC

1 2 3 5 6A



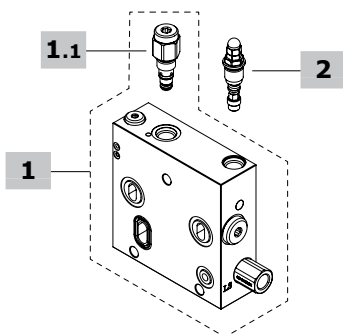
DPC130 / BR SOG21(SF) - S220 - ELN3 - - 12VDC

1 2 4 5 6B

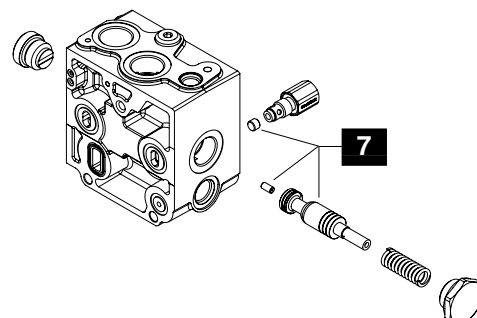


DPC130 / BR F21 - S250 - BSP

1 2 5



Circuit conversion kit



Inlet section part ordering codes

1 Inlet section kit* page 14

TYPE: **DPC130/BR-DSK-SAE** CODE: 5FIA631750
 DESCRIPTION: With compensator, pressure reducing valve and selector for open/closed center circuit.

Closed Center circuit

TYPE: **DPC130/BN21-SAE** CODE: 5FIA631702
 DESCRIPTION: With secondary pressure control system, without pressure reducing valve

TYPE: **DPC130/BR21-SAE** CODE: 5FIA631700
 DESCRIPTION: As previous one, with pressure reducing valve

TYPE: **DPC130/BRSOG21(SF)-SAE** CODE: 5FIA631772G
 DESCRIPTION: Shut-Off type, with secondary pressure control system and pressure reducing valve (L.S. joint without filter)

TYPE: **DPC130/BRS21-SAE** CODE: 5FIA631760
 DESCRIPTION: Copy-Spool type, with secondary pressure control system and pressure reducing valve

TYPE: **DPC130/BRF21-SAE** CODE: 5FIA630706
 DESCRIPTION: With pressure reducing valve

Open Center circuit

TYPE: **DPC130/BN11-SAE** CODE: 5FIA631703
 DESCRIPTION: With compensator, without pressure reducing valve

TYPE: **DPC130/BR11-SAE** CODE: 5FIA631701
 DESCRIPTION: With compensator and pressure reducing valve

TYPE: **DPC130/BRS11-SAE** CODE: 5FIA631761
 DESCRIPTION: Copy-Spool type, with compensator and pressure reducing valve

2 L.S. pressure relief valves page 19

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

TYPE	INITIAL	CODE	DESCRIPTION
LSD	S	XCAR126215	With blind nut, range 40-180 bar (580-2600 psi), std. setting 90 bar (1300 psi)
		XCAR126213	As previous one, range 180-350 bar (2600-5100 psi), std. setting 180 bar (2600 psi)
LSH	H	XCAR126216	With locked arrangement, range 40-180 bar (580-2600 psi), std. setting 90 bar (1300 psi)
		XCAR126217	As previous one, range 180-350 bar (2600-5100 psi), std. setting 180 bar (2600 psi)
LSZ	Z	5CAR126221	With anti-tamper cap, range 40-180 bar (580-2600 psi), std. setting 90 bar (1300 psi)
		5CAR126219	As previous one, range 180-350 bar (2600-5100 psi), std. setting 180 bar (2600 psi)
ST	ST	5KIT126210	Relief valve blanking plug

3 Solenoid operated unloading valve page 19

Needs coil type BER: see chapter 6

TYPE	CODE	DESCRIPTION
ELN	0EC08002031	Without emergency override
ELP	0EC08002033	With push-button emergency override
ELT	0EC08002035	With "twist & push" emergency override
ELV	0EC08002034	With screw type emergency override
LT	XTAP510320	Unloading valve blanking plug

4 Solenoid operated Shut-off pilot valve page 20

Needs coil type BT: see chapter 6

TYPE	CODE	DESCRIPTION
ELN3	0EJ08002035	Without emergency override
ELT3	0EJ08002042	With screw emergency override

5 Section threading

Specify only if it is different from BSP standard (see page 5).

6A Coil

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200A	12VDC BER type coil, ISO4400 connector (for unloading valve)

For complete available coil list see page 82.

6B Coil

TYPE	CODE	DESCRIPTION
12VDC	4SL3000120	12VDC BT type coil, ISO4400 connector (for Shut-Off pilot valve)

For complete available coil list see page 82.

7 Circuit conversion kit

CODE DESCRIPTION

For BR and BN inlet sections

5KIT130300	Circuit conversion kit: from Open Center to Closed Center
5KIT130310	Circuit conversion kit: from Closed Center to Open Center

For BRS inlet section

5KIT130301	Circuit conversion kit: from Open Center to Closed Center
5KIT130320	Circuit conversion kit: from Closed Center to Open Center

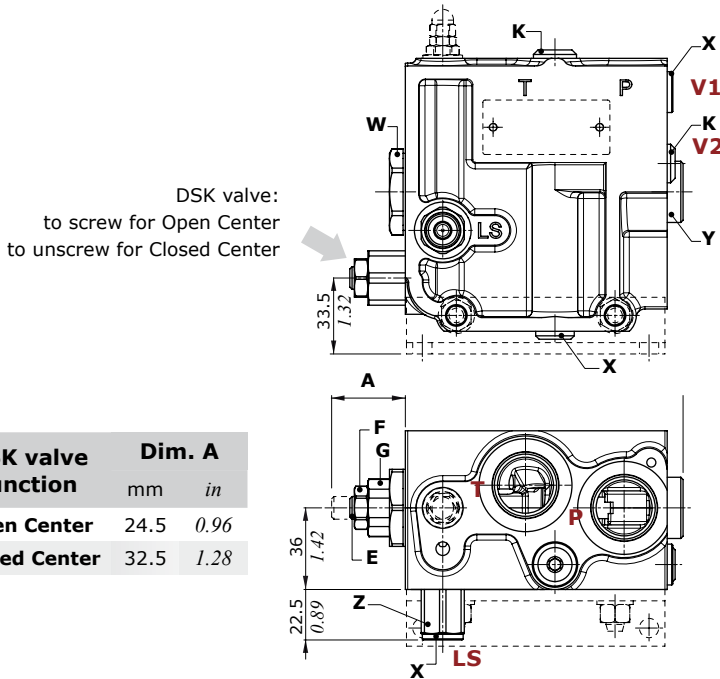
NOTE (*): Codes are referred to **UN-UNF** thread.

Inlet section

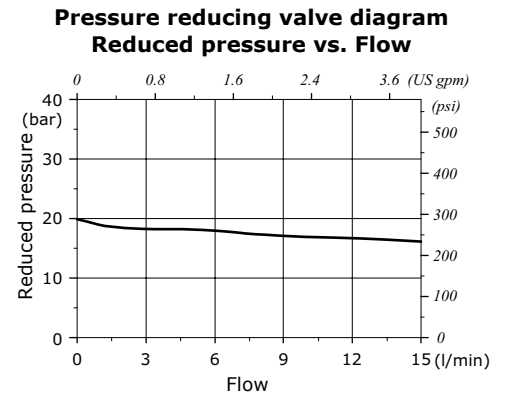
Dimensions and hydraulic circuit

Example of BR-DSK inlet section

Configuration with pressure reducing valve and selector for Open/Closed center circuit.
For complete dimensions see BN type inlet section on the next page.



DSK valve function	Dim. A	
	mm	in
Open Center	24.5	0.96
Closed Center	32.5	1.28



Auxiliary port specification

V1 = SAE6 pilot pressure port ($P_{max} = 30 \text{ bar} / 435 \text{ psi}$) for hydraulic pilot control valves feeding ($P \Rightarrow \text{OUT}$)

V2 = M14x1.5 pilot pressure port for:

- electrohydraulic controls optional feeding ($P_{max} = 315 \text{ bar} / 4600 \text{ psi}$) ($P \Rightarrow \text{IN}$); SAE6 joint is required, code 5GIU519612
- pressure gauge connection; SAE6 joint is required, code 5GIU620331.

Wrenches and tightening torque

E = allen wrench 4

F = wrench 17 - 24 Nm (17.7 lbft)

G = wrench 24 - 42 Nm (31 lbft)

K = allen wrench 5 - 24 Nm (17.7 lbft)

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

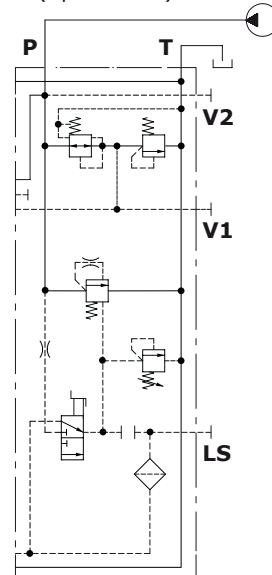
Y = allen wrench 10 - 24 Nm (17.7 lbft)

Z = wrench 19 - 24 Nm (17.7 lbft)

W = wrench 34 - 42 Nm (31 lbft)

NOTE: for relief valve and solenoid valve wrench and torque please see page 21.

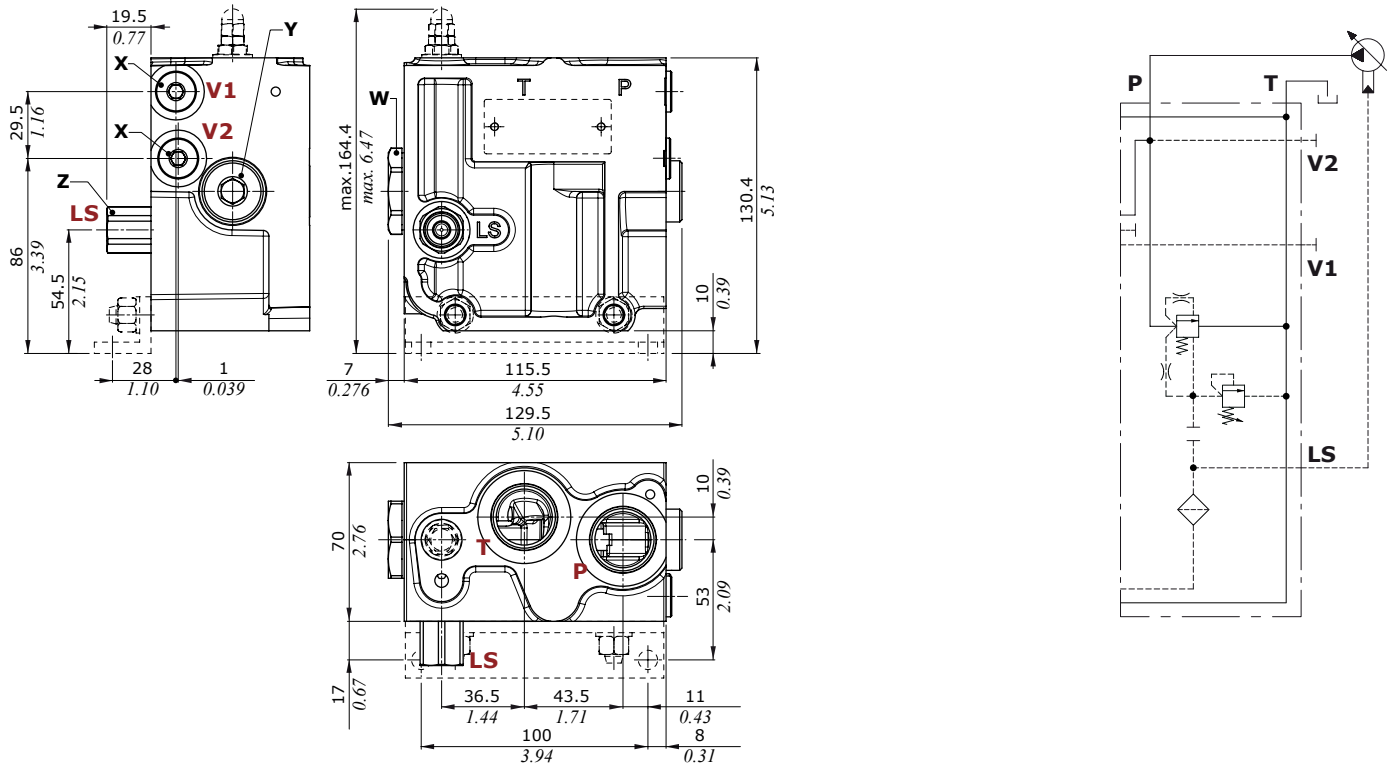
BR-DSK type (Open Center)



Dimensions and hydraulic circuit

Standard inlet section for Closed Center circuit: BN21 type

Configuration without pressure reducing valve.



Auxiliary port specification

V1 = SAE6 pilot pressure port for electrohydraulic control feeding (Pmax = 30 bar - 435 psi) (P⇒IN)

V2 = SAE6 pressure gauge connection

Wrenches and tightening torque

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

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

Z = wrench 19 - 24 Nm (17.7 lbft)

W = wrench 34 - 42 Nm (31 lbft)

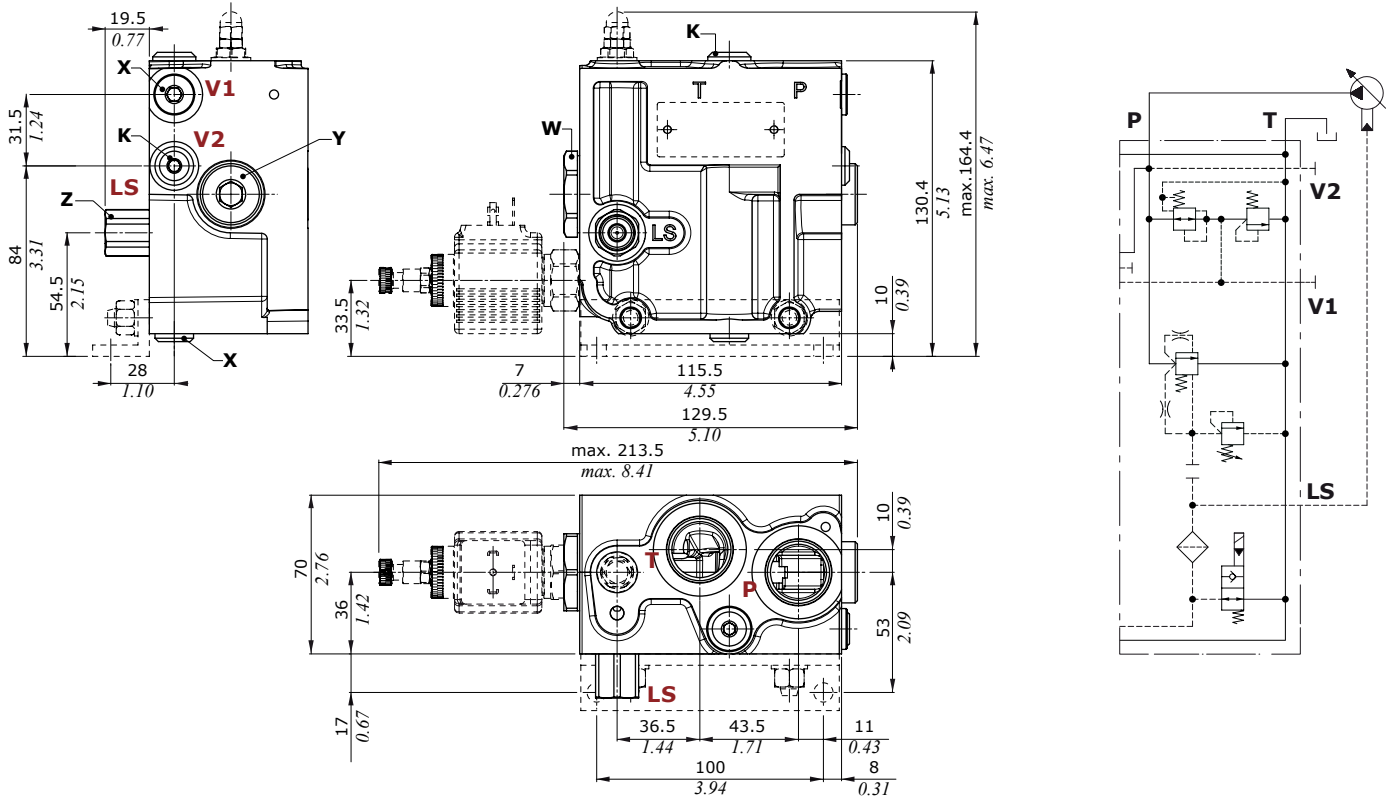
NOTE: for relief valve wrench and torque please see page 21

Inlet section

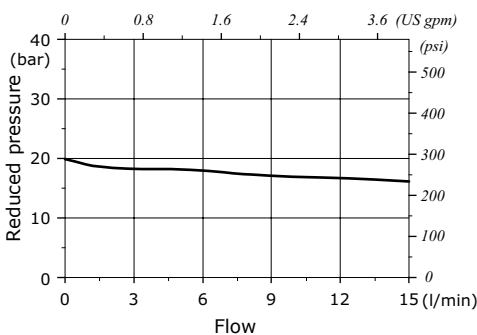
Dimensions and hydraulic circuit

Standard inlet section for Closed Center circuit: BR21 type

Configuration with pressure reducing valve.



Pressure reducing valve diagram
Reduced pressure vs. Flow



Wrenches and tightening torque

E = allen wrench 4

F = wrench 17 - 24 Nm (17.7 lbft)

G = wrench 24 - 42 Nm (31 lbft)

K = allen wrench 5 - 24 Nm (17.7 lbft)

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

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

Z = wrench 19 - 24 Nm (17.7 lbft)

W = wrench 34 - 42 Nm (31 lbft)

NOTE: for relief valve and solenoid valve wrench and torque please see page 21.

Auxiliary port specification

V1 = SAE6 pilot pressure port (Pmax = 30 bar / 435 psi) for hydraulic pilot control valves feeding (P⇒OUT)

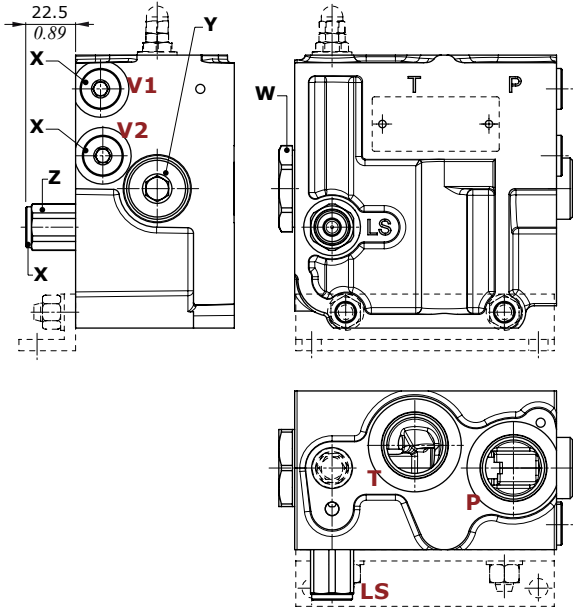
V2 = M14x1.5 pilot pressure port for:

- electrohydraulic controls optional feeding (Pmax = 315 bar / 4600 psi) (P⇒IN); SAE6 joint is required, code 5GIU519612
- pressure gauge connection; SAE6 joint is required, code 5GIU620331.

Dimensions and hydraulic circuit

Standard inlet section for Open Center circuit: BN11 type

Configuration without pressure reducing valve: dimensions are the same of BN21 type



Auxiliary port specification

V1 = SAE6 pilot pressure port for electrohydraulic control feeding ($P_{max} = 30 \text{ bar} - 435 \text{ psi}$) ($P \Rightarrow IN$)

V2 = SAE6 pressure gauge connection

Wrenches and tightening torque

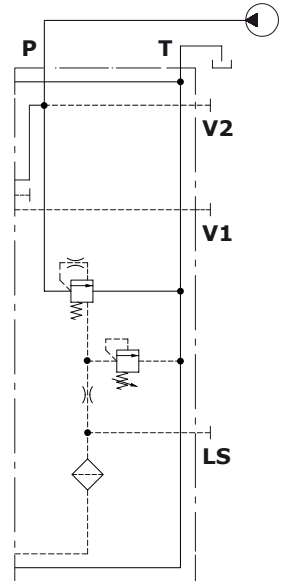
X = allen wrench 6 - 24 Nm (17.7 lbft)

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

Z = wrench 19 - 24 Nm (17.7 lbft)

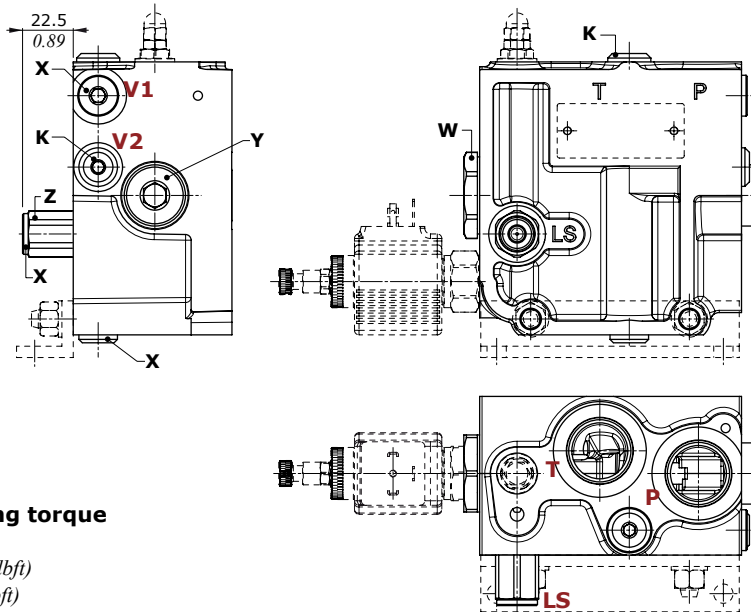
W = wrench 34 - 42 Nm (31 lbft)

NOTE: for relief valve wrench and torque please see page 21



Standard inlet section for Open Center circuit: BR11 type

Configuration with pressure reducing valve: dimensions are the same of BR21 type



Wrenches and tightening torque

E = allen wrench 4

F = wrench 17 - 24 Nm (17.7 lbft)

G = wrench 24 - 42 Nm (31 lbft)

K = allen wrench 5 - 24 Nm (17.7 lbft)

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

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

Z = wrench 19 - 24 Nm (17.7 lbft)

W = wrench 34 - 42 Nm (31 lbft)

NOTE: for relief valve and solenoid valve wrench and torque please see page 21.

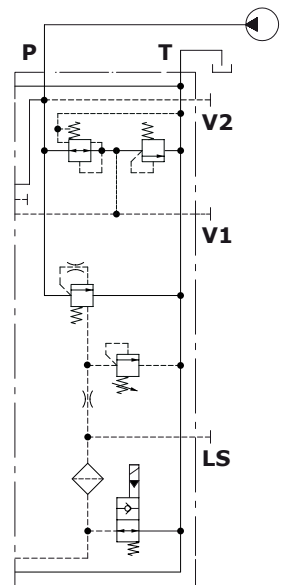
Auxiliary port specification

V1 = G1/4 pilot pressure port ($P_{max} = 30 \text{ bar} - 435 \text{ psi}$) for hydraulic pilot control valve feeding ($P \Rightarrow OUT$)

V2 = M14x1.5 pilot pressure port for:

- electrohydraulic control optional feeding ($P_{max} = 315 \text{ bar} - 4600 \text{ psi}$) ($P \Rightarrow IN$); G1/4 joint is required, code 5GIU519611

- pressure gauge connection; G1/4 joint is required, code 5GIU620330.

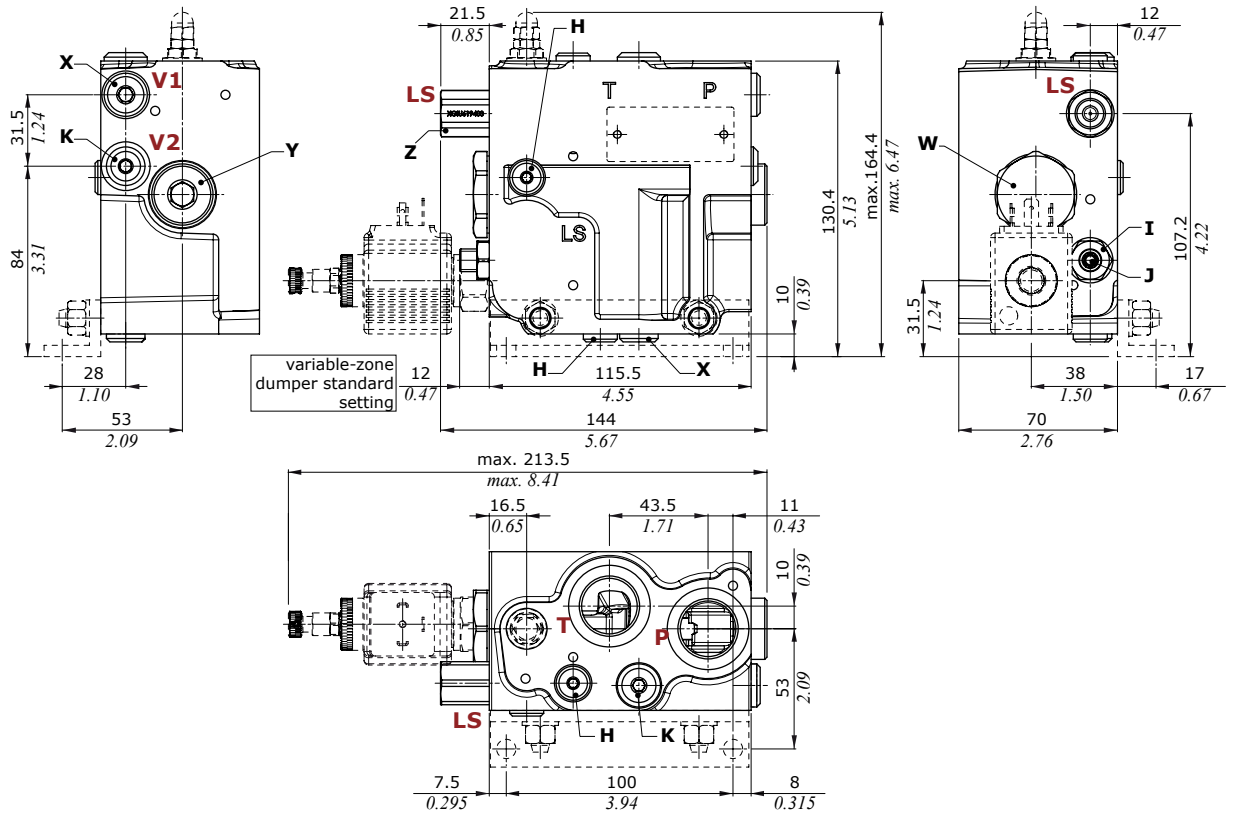


Dimensions and hydraulic circuit

Inlet section with Copy Spool function: BRS type

Configuration with variable-zone damper.

For pressure reducing valve features, please see page 16.



Auxiliary port specification

V1 = SAE6 pilot pressure port (Pmax = 30 bar - 435 psi) for hydraulic pilot control valve feeding (P⇒OUT)

V2 = M14x1.5 pilot pressure port for:

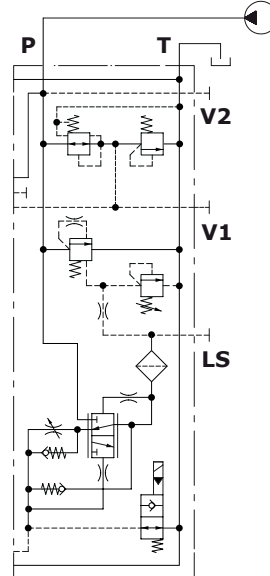
- electrohydraulic control optional feeding (Pmax = 315 bar - 4600 psi) (P⇒IN); SAE6 joint is required, code 5GIU519612
- pressure gauge connection; SAE6 joint, is required code 5GIU620331.

Wrenches and tightening torque

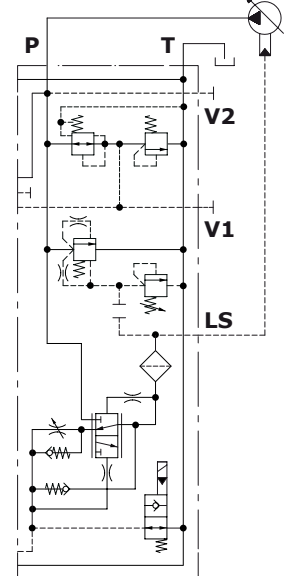
- I = wrench 17 - 24 Nm (17.7 lbft)
- H = allen wrench 4 - 9.8 Nm (7.2 lbft)
- J = allen wrench 6
- K = allen wrench 5 - 24 Nm (17.7 lbft)
- X = allen wrench 6 - 24 Nm (17.7 lbft)
- Y = allen wrench 10 - 24 Nm (17.7 lbft)
- Z = wrench 19 - 24 Nm (17.7 lbft)
- W = wrench 34 - 42 Nm (31 lbft)

NOTE: for relief valve and solenoid valve wrench and torque please see page 21.

BRS11 type
(Open Center)



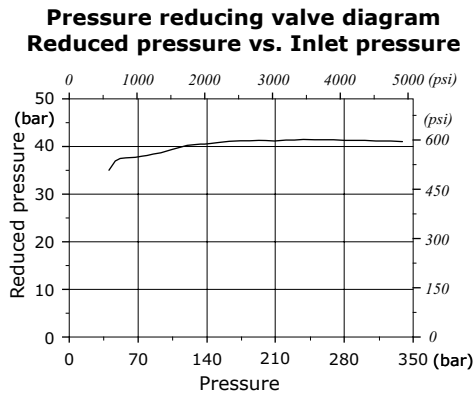
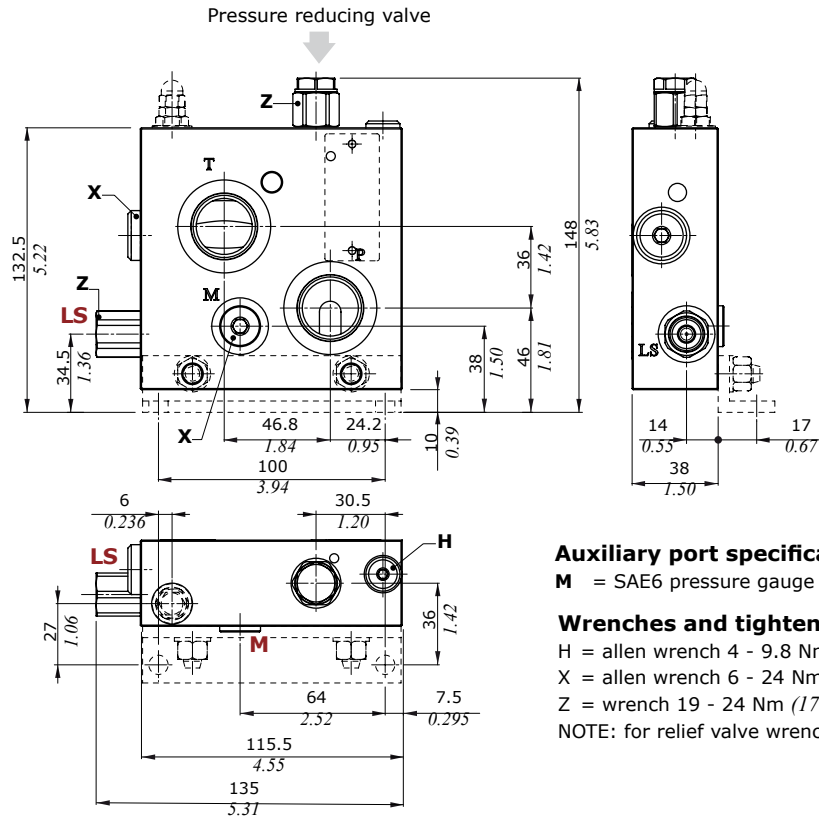
BRS21 type
(Closed Center)



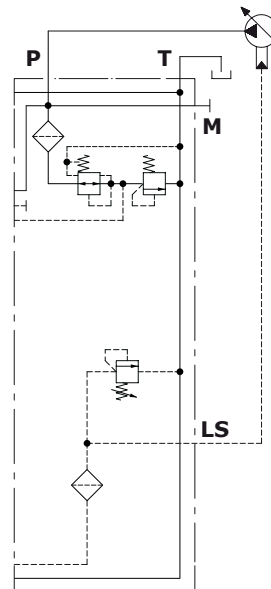
Inlet section

Dimensions and hydraulic circuit

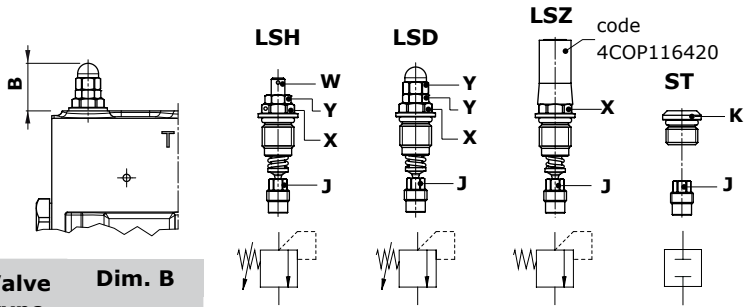
Inlet section with secondary pressure control system: BRF type



Pressure reducing valve features
 Max. inlet pressure : 380 bar (5550 psi)
 Reduced pressure range . . . : from 30 to 45 bar
 (from 435 to 650 psi)
 Max. back pressure : 25 bar (363 psi)



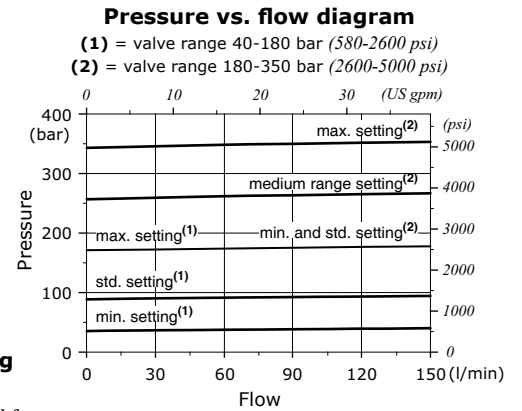
L.S. pressure relief valve



Valve type	Dim. B	
	mm	in
LSD	21.5	0.85
LSH	17	0.67
LSZ	34	1.34

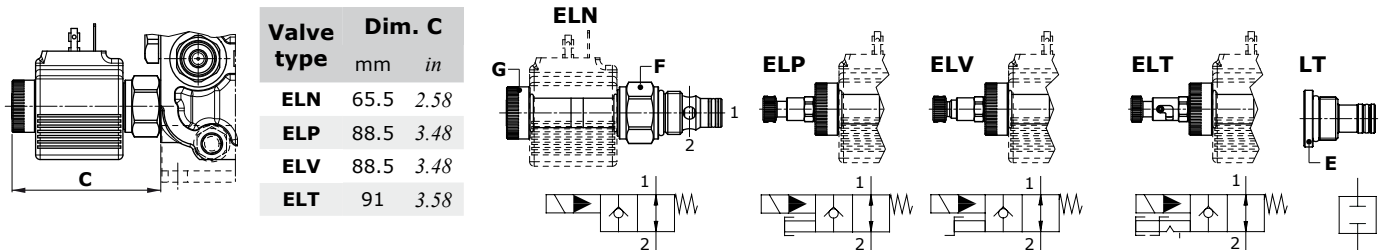
Legenda
LSH: with lock arrangement
LSD: with blind nut
LSZ: with anti-tamper cap
ST: valve blanking plug

Wrenches and tightening torques
 X = wrench 13 - 24 Nm (17.7 lbf)
 Y = wrench 10 - 9.8 Nm (7.2 lbf)
 W = allen wrench 3
 J = wrench 7 - 24 Nm (17.7 lbf)
 K = allen wrench 5 - 24 Nm (17.7 lbf)



Solenoid operated L.S. unloading valve

Available on BR and BRS inlet sections.



Valve type	Dim. C	
	mm	in
ELN	65.5	2.58
ELP	88.5	3.48
ELV	88.5	3.48
ELT	91	3.58

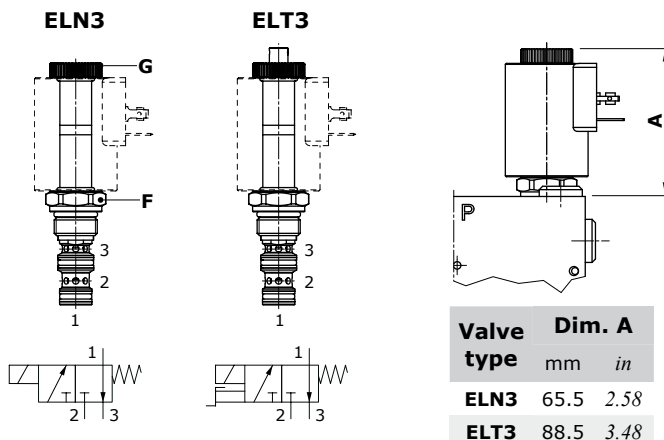
Features
 Max. flow 40 l/min (10.6 US gpm)
 Max. pressure 380 bar (5500 psi)
 Internal leakage 0.25 cm³/min @ 210 bar
 (0.015 in³/min @ 3050 psi)
 For coil features and **BER** type coil options please see page 83.

Legenda
ELN: without emergency
ELP: push button emergency override
ELV: screw emergency override
ELT: "push&twist" emergency override
LT: valve blanking plug

Wrenches and tightening torques
 F = wrench 24 - 30 Nm (22 lbf)
 G = manual tightening
 E = wrench 10 - 24 Nm (17.7 lbf)

Solenoid operated Shut-Off pilot valve

Available on BRSO inlet section

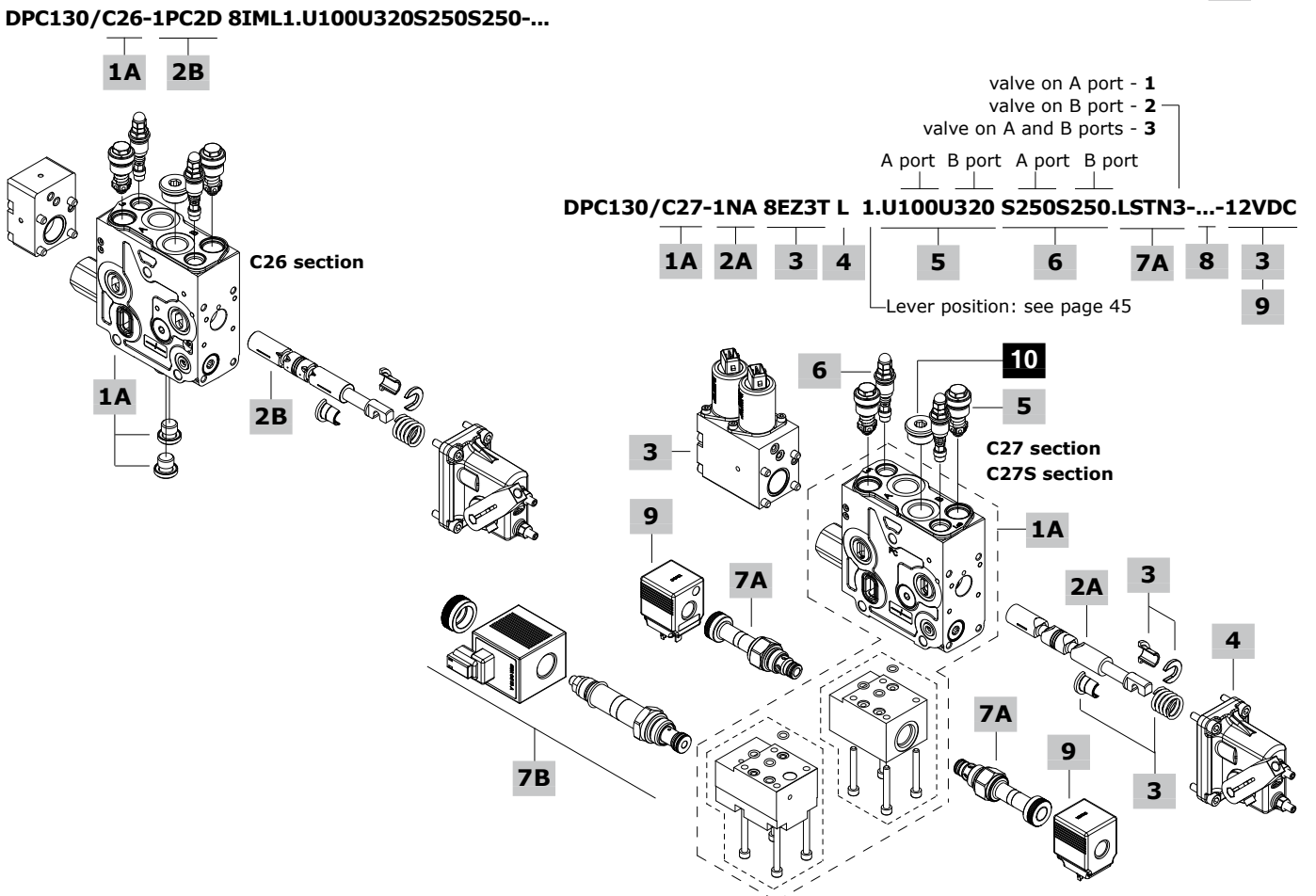
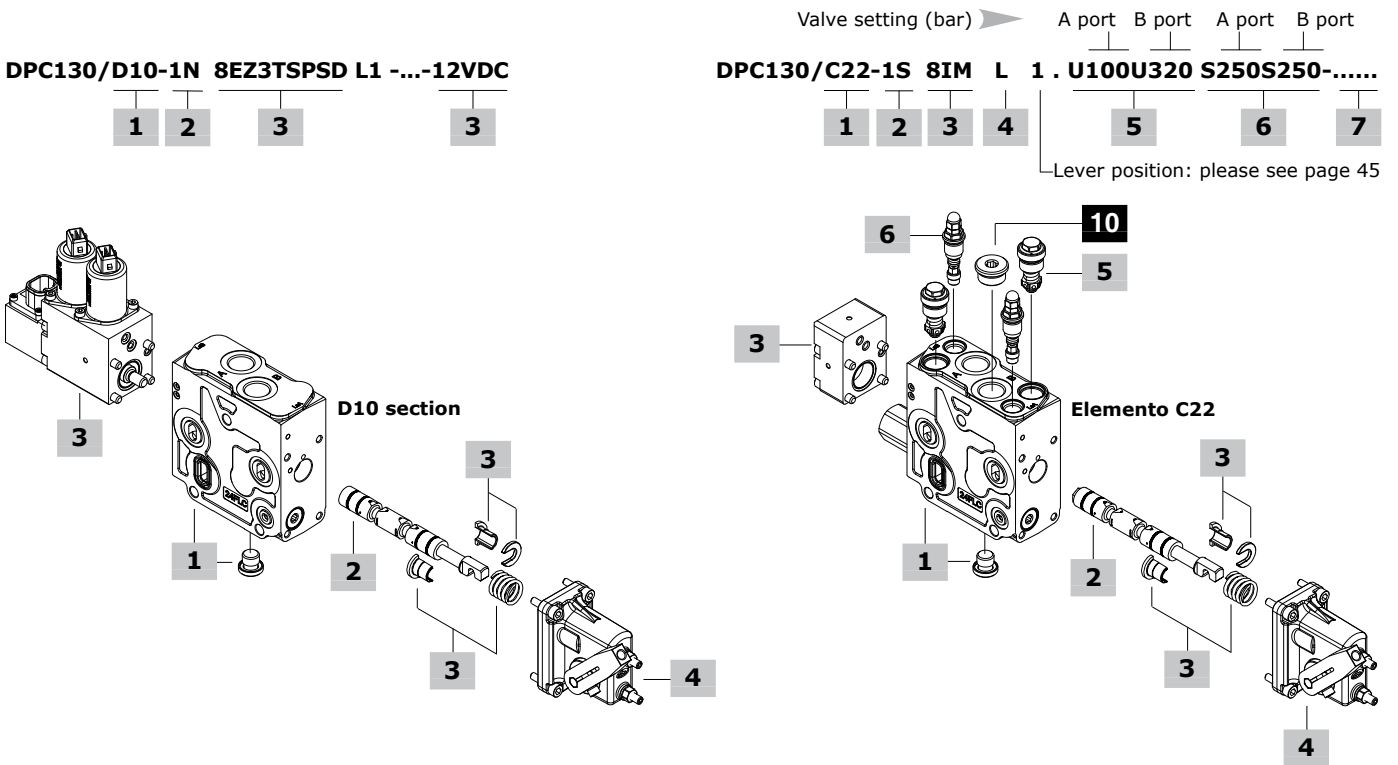


Valve type	Dim. A	
	mm	in
ELN3	65.5	2.58
ELT3	88.5	3.48

Legenda
ELN3: without emergency
ELT3: screw emergency override
Wrenches and tightening torques
 F = wrench 24 - 30 Nm (22 lbf)
 G = manual tightening

Features
 Max. flow 3 l/min (0.80 US gpm)
 Max. pressure 350 bar (5100 psi)
 Internal leakage 10 cm³/min @ 210 bar
 (0.61 in³/min @ 3050 psi)
 For coil features and **BT** type coil options please see page 84.

Working section part ordering codes



Working section parts ordering codes

1 Working section kit* page 26**With compensator**

TYPE: DPC130/C10-SAE	CODE: 5EL6311710
DESCRIPTION: Without valve arrangement	
TYPE: DPC130/C13-SAE	CODE: 5EL6311713
DESCRIPTION: As previous with additional L.S. upper port	
TYPE: DPC130/C20-SAE	CODE: 5EL6311720
DESCRIPTION: With port valve arrangement	
TYPE: DPC130/C24-SAE	CODE: 5EL6311730
DESCRIPTION: As previous with additional L.S. upper port	
TYPE: DPC130/C21-SAE	CODE: 5EL6311721
DESCRIPTION: Arranged for port valve and one L.S. relief valve	
TYPE: DPC130/C23-SAE	CODE: 5EL6311723
DESCRIPTION: As previous with additional L.S. upper port	
TYPE: DPC130/C22-SAE	CODE: 5EL6311722
DESCRIPTION: Arranged for port valve and two L.S. relief valves	
TYPE: DPC130/F10-SAE	CODE: 5EL6314710
DESCRIPTION: For floating circuit, without port valve arrangement	
TYPE: DPC130/F20-SAE	CODE: 5EL6314720
DESCRIPTION: For floating circuit, with port valve arrangement	
TYPE: DPC130/CM23-SAE	CODE: 5EL6311729
DESCRIPTION: For regenerative circuit, arranged for port valve and one L.S. relief valve	

Without compensator

TYPE: DPC130/D10-SAE	CODE: 5EL6312710
DESCRIPTION: Without valve arrangement	
TYPE: DPC130/D20-SAE	CODE: 5EL6312720
DESCRIPTION: With port valve arrangement	
TYPE: DPC130/D21-SAE	CODE: 5EL6312721
DESCRIPTION: Arranged for port valve and one L.S. relief valve	
TYPE: DPC130/G20-SAE	CODE: 5EL6315720
DESCRIPTION: For floating circuit, with port valve arrangement	
TYPE: DPC130/DM23-SAE	CODE: 5EL6312750
DESCRIPTION: For regenerative circuit, arranged for port valves and one L.S. relief valve	

Without compensator, with check valve

TYPE: DPC130/CV10-SAE	CODE: 5EL6311710A
DESCRIPTION: Without valve arrangement	
TYPE: DPC130/CV13-SAE	CODE: 5EL6311726
DESCRIPTION: As previous with additional L.S. upper port	
TYPE: DPC130/CV20-SAE	CODE: 5EL6311724
DESCRIPTION: With port valves arrangement	
TYPE: DPC130/CV21-SAE	CODE: 5EL6311727
DESCRIPTION: Arranged for port valves and one L.S. relief valve	
TYPE: DPC130/CV23-SAE	CODE: 5EL6311728
DESCRIPTION: As previous with additional L.S. upper port	
TYPE: DPC130/CV22-SAE	CODE: 5EL6311722A
DESCRIPTION: Arranged for port valves and two L.S. relief valves	
TYPE: DPC130/FV20-SAE	CODE: 5EL6314725
DESCRIPTION: For floating circuit, with port valve arrangement	
TYPE: DPC130/CVM23-SAE	CODE: 5EL6311750
DESCRIPTION: For regenerative circuit, arranged for port valves and one L.S. relief valve	

NOTE (*): Codes are referred to **UN-UNF** thread.**1A Special working section kit* page 31**

Sections with compensator, arranged for L.S. relief with independent drain and pressure control spools	
Dedicated spools are requested (see chapter 2A and 2B)	
TYPE: DPC130/C26	CODE: 5EL6327000
DESCRIPTION: Arranged for port valves and two L.S. relief with independent drain	
TIPO: DPC130/C27	CODE: 5EL6327100
DESCRIPTION: As previous one, with lower block for L.S. signal on/off unloader valve arrangement	
TYPE: DPC130/C27SA	CODE: 5EL6327100B
DESCRIPTION: As type C26, with lower block for proportional unloader valve arrangement on port A L.S. signal	
TYPE: DPC130/C27SB	CODE: 5EL6327100C
DESCRIPTION: As type C26, with lower block for proportional unloader valve arrangement on port B L.S. signal	

2 Standard spool page 34

Flow is referred to 7 bar (102 psi) stand-by (margin pressure)

TYPE	CODE	DESCRIPTION
<u>Double acting with A and B closed in neutral position</u>		
1C	3CU4010005	5 l/min (1.3 US gpm) flow
1D	3CU4010010	10 l/min (2.6 US gpm) flow
1V	3CU4010025	25 l/min (6.6 US gpm) flow
1Q	3CU4010040	40 l/min (10.6 US gpm) flow
1S	3CU4010060	60 l/min (15.9 US gpm) flow
1N	3CU4010080	80 l/min (21.1 US gpm) flow
1PN	3CU4010103	100 l/min (26.4 US gpm) flow
<u>Double acting with A and B to tank in neutral position</u>		
2C	3CU4024005	5 l/min (1.3 US gpm) flow
2D	3CU4024010	10 l/min (2.6 US gpm) flow
2V	3CU4024025	25 l/min (6.6 US gpm) flow
2Q	3CU4024040	40 l/min (10.6 US gpm) flow
2S	3CU4024060	60 l/min (15.9 US gpm) flow
2N	3CU4024080	80 l/min (21.1 US gpm) flow
2P	3CU4024100	100 l/min (26.4 US gpm) flow
<u>Double acting with A and B partially to tank in neutral position</u>		
2HC	3CU4025006	5 l/min (1.3 US gpm) flow
2HD	3CU4025011	10 l/min (2.6 US gpm) flow
2HV	3CU4025034	25 l/min (6.6 US gpm) flow
2HQ	3CU4025047	40 l/min (10.6 US gpm) flow
2HS	3CU4025061	60 l/min (15.9 US gpm) flow
2HN	3CU4025081	80 l/min (21.1 US gpm) flow
2HP	3CU4025102	100 l/min (26.4 US gpm) flow
<u>Single acting on A, B plugged: SAE10 plug is required</u>		
3Q	3CU4031040	40 l/min (10.6 US gpm) flow
3S	3CU4031060	60 l/min (15.9 US gpm) flow
3N	3CU4031080	80 l/min (21.1 US gpm) flow
3PN	3CU4031100	100 l/min (26.4 US gpm) flow
<u>Double acting with A and B closed in neutral position, 4 positions, floating in 4th pos. with spool out: F, G or FV type section and 13 type positioner or control are required</u>		
5Q	3CU4041040	40 l/min (10.6 US gpm) flow
5S	3CU4041060	60 l/min (15.9 US gpm) flow
5N	3CU4041080	80 l/min (21.1 US gpm) flow
<u>Double acting with A and B closed in neutral position, 3 positions, regenerative in 3rd pos. with spool out: CM, DM or CVM type section, and 8 type dedicated control, with reduced stroke, are required</u>		
8F	3CU4033070	50-70 l/min flow (port A-port B) (13.2-18.5 US gpm)
<u>Double acting with A and B closed in neutral position, 4 positions, regenerative in 4th pos. with spool out: CM, DM or CVM type section and dedicated 13 type positioner or control are required</u>		
8Y	3CU4044070	70 l/min (18.5 US gpm) flow

Working section parts ordering codes

2A Spool for independent drain page 34

Only for C26 - C27 - C27S type working sections

Flow is referred to 7 bar (102 psi) stand-by (margin pressure)

TYPE	CODE	DESCRIPTION
<u>Double acting with A and B closed in neutral position</u>		
1VA	3CU4010025A	25 l/min (6.6 US gpm) flow
1QA	3CU4010040A	40 l/min (10.6 US gpm) flow
1SA	3CU4010060A	60 l/min (15.9 US gpm) flow
1NA	3CU4010080A	80 l/min (21.1 US gpm) flow
<u>Double acting with A and B partially to tank in neutral position</u>		
2HV	3CU4025034A	25 l/min (6.6 US gpm) flow
2HQ	3CU4025047A	40 l/min (10.6 US gpm) flow
2HN	3CU4025081A	80 l/min (21.1 US gpm) flow

2B Pressure control spool page 36

Only for C26 - C27 type working section

Flow is referred to 7 bar (102 psi) stand-by (margin pressure)

TYPE	CODE	DESCRIPTION
<u>Doppio effetto con A e B chiusi in posizione centrale</u>		
1PCD	3CU401P010	10 l/min (2.6 US gpm); pressure control on A and B
1PCV	3CU401P025	As previous one, for 25 l/min (6.6 US gpm)
1PC2D	3CU401P010A	10 l/min (2.6 US gpm); pressure control on A and flow control on B
1PC2V	3CU401P025A	As previous one, for 25 l/min (6.6 US gpm)
1PC2Q	3CU401P040A	As previous one, for 40 l/min (10.6 US gpm)
<u>Doppio effetto con A e B parz. a scarico in posizione centrale</u>		
2HPCD	3CU402P010	10 l/min (2.6 US gpm); pressure control on A and B
2HPCV	3CU402P025	As previous one, for 25 l/min (6.6 US gpm)
2HPC2D	3CU402P010A	10 l/min (2.6 US gpm); pressure control on A and flow control on B
2HPC2V	3CU402P025A	As previous one, for 25 l/min (6.6 US gpm)
2HPC2Q	3CU402P040A	As previous one, for 40 l/min (10.6 US gpm)

3 "A" side spool control kit page 38

TYPE	CODE	DESCRIPTION
Mechanical positioners		
7FT#	5V07130000	With friction and center pos. feeling
8	5V08130000	3 position, spring return to neutral position
13	5V13130000	For floating circuit (type 5 spool), 4 pos., detent in 4 th position, with spring return to neutral position

NOTE (*): This control requires modification to the standard spool: for spool replacement see page 32.

Proportional hydraulic controls

8IM	5V08130870*	Range 5-15 bar (73-218 psi)
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3A Electrohydraulic controls page 40

TYPE	CODE	DESCRIPTION
<u>Standard types</u>		
8EZ3-12VDC	5V08130780	With ISO4400 connector
8EZ3-24VDC	5V08130781	With ISO4400 connector
8EZ4-12VDC	5V08130880	With flying leads
8EZ4-24VDC	5V08130881	With flying leads
8EZ4D-12VDC	5V08130886	With Deutsch connector
8EZ4D-24VDC	5V08130887	With Deutsch connector
8EZ3T-12VDC	5V08130874	With AMP integrated conn.
8EZ3T-24VDC	5V08130875	With AMP integrated conn.
8EZ3T4-12VDC	5V08130872	With Deutsch integrated conn.
8EZ3T4-24VDC	5V08130873	With Deutsch integrated conn.
<u>With digital spool position sensor*</u>		
8EZ3TSPSD-12VDC	5V0813087A	With AMP integrated connector
8EZ3TSPSD-24VDC	5V08130876	With AMP integrated connector
8EZ3T4SPSD-12VDC	5V0813087C	With Deutsch integrated conn.
8EZ3T4SPSD-24VDC	5V0813087D	With Deutsch integrated conn.
<u>With analog spool position sensor*</u>		
8EZ3TSPSL-12VDC	5V0813087B	With AMP integrated connector
8EZ3TSPSL-24VDC	5V08130878	With AMP integrated connector
8EZ3T4SPSL-12VDC	5V0813087E	With Deutsch integrated conn.
8EZ3T4SPSL-24VDC	5V0813087F	With Deutsch integrated conn.
<u>For floating circuit: type 5 spool is required</u>		
13EZ3-12VDC	5V13130780	With ISO4400 connector
13EZ3-24VDC	5V13130781	With ISO4400 connector
<u>For 3 position regenerative circuit: type 8F spool is required</u>		
8EZ3CR-12VDC	5V08130798	With ISO4400 connector
8EZ3CR-24VDC	5V08130799	With ISO4400 connector
<u>For 4 position regenerative circuit: type 8Y spool is required</u>		
13EZ3-12VDC	5V13130783	With ISO4400 connector
13EZ3-24VDC	5V13130784	With ISO4400 connector
13EZ3T-12VDC	5V13130786	With AMP integrated connector
13EZ3T-24VDC	5V13130785	With AMP integrated connector

NOTE (*): These control require modification to the standard spool: for spool replacement see page 38.

4 "B" side spool control kit page 45

TYPE	CODE	DESCRIPTION
L	5LEV130712	Aluminium lever box
LN	5LEV130701	As previous one, without lever
LZ	5LEV130731	As L type, with anti-tamper screw caps
LG	5LEV130806	Cast iron lever box

5 Port valves page 46

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: U 100	CODE: 5KIT330 100	
└ setting (bar)		└ setting (bar)
SETTING:		
50 bar (725 psi)	63 bar (914 psi)	80 bar (1150 psi)
110 bar (1590 psi)	125 bar (1800 psi)	140 bar (2050 psi)
160 bar (2300 psi)	175 bar (2550 psi)	190 bar (2750 psi)
210 bar (3050 psi)	230 bar (3350 psi)	240 bar (3500 psi)
260 bar (3750 psi)	270 bar (3900 psi)	280 bar (4050 psi)
300 bar (4350 psi)	310 bar (4500 psi)	320 bar (4650 psi)
360 bar (5200 psi)	400 bar (5800 psi)	420 bar (6100 psi)

NOTE (*): Codes are referred to UN-UNF thread.

Working section parts ordering codes

6 L.S. port relief valves page 46

Standard setting is referred to 10 l/min (2.6 US gpm) flow.

TYPE	ID	CODE	DESCRIPTION
LSD	S	XCAR126215	With blind nut, range 40-180 bar (580-2600 psi), standard setting 90 bar (1300 psi)
		XCAR126213	Range 180-350 bar (2600-5100 psi), standard setting 180 bar (2600 psi)
LSH	H	XCAR126216	With locked arrangement, range 40-180 bar (580-2600 psi), std setting 90 bar (1300 psi)
		XCAR126217	Range 180-350 bar (2600-5100 psi), standard setting 180 bar (2600 psi)
LSZ	Z	5CAR126221	With anti-tamper cap, range 40-180 bar (580-2600 psi), std setting 90 bar (1300 psi)
		5CAR126219	Range 180-350 bar (2600-5100 psi), standard setting 180 bar (2600 psi)
ST	ST	5KIT126210	Relief valve blanking plug

7A Solenoid operated L.S. unloading valve page 47**On/off type for C27 section**

BER coil is required: see chapter 9

TYPE	CODE	DESCRIPTION
LST3T	XTAP510320	Valve blanking plug

Normally open circuit (NO)

LSTN(NA)	0EC08002031	Without manual emergency
LSTV(NA)	0EC08002034	With screw type emergency
LSTP(NA)	0EC08002033	With push-button emergency
LSTT(NA)	0EC08002035	With "push & twist" emergency

Normally closed circuit (NC)

LSTN(NC)	0EC08002032	Without manual emergency
LSTV(NC)	0EC08002037	With screw type emergency
LSTP(NC)	0EC08002036	With pull-button emergency
LSTT(NC)	0EC08002038	With "pull & twist" emergency

7B Solenoid operated L.S. unloading valve page 48**Proportional type for C27SA - C27SB sections**

Valvole ordering code is inclusive of coil

TYPE	CODE	DESCRIPTION
MC10T/031B	0MC10002019	Range from 15 to 130 bar (217 to 1890 psi), 12VDC coil, ISO4400 connector
MC10T/032B	0MC10002020	Range from 15 to 170 bar (217 to 2470 psi), 12VDC coil, ISO4400 connector
MC10T/033B	0MC10002021	Range from 15 to 210 bar (217 to 3050 psi), 12VDC coil, ISO4400 connector
MC10T/034B	0MC10002031	Range from 15 to 280 bar (217 to 4050 psi), 12VDC coil, Deutsch DT04 connector

8 Section threading

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

9 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200A	12VDC BER type coil, ISO4400 connector (for unloading valve)

For complete available coil list please see page 82.

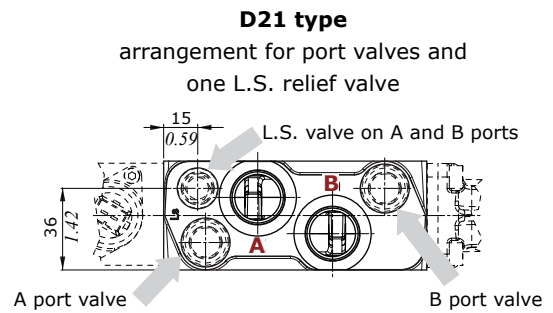
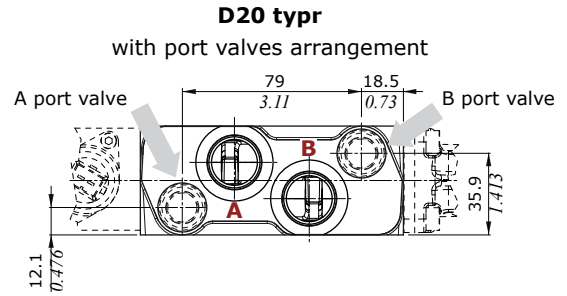
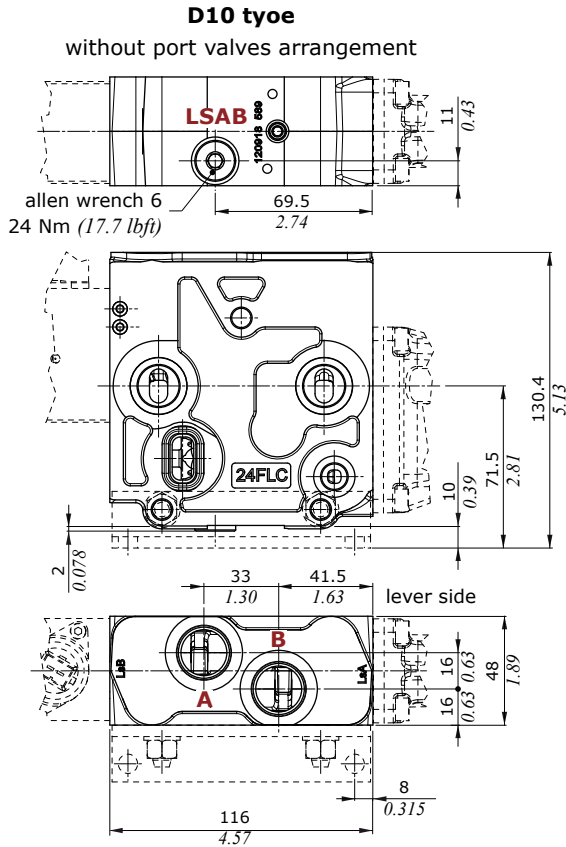
10 Plug for single acting spool*

CODE	DESCRIPTION
3XTAP727180	G1/2 plug

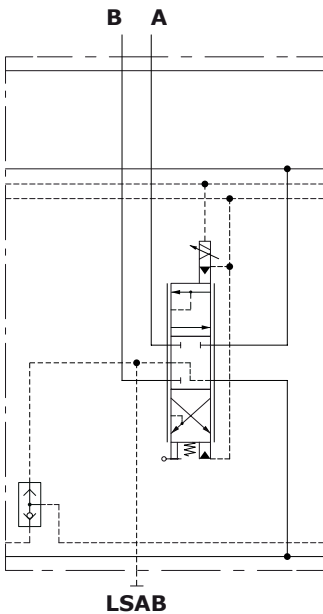
Working section

Dimensions and hydraulic circuit

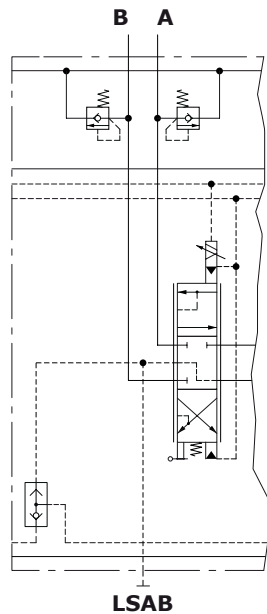
Without compensator



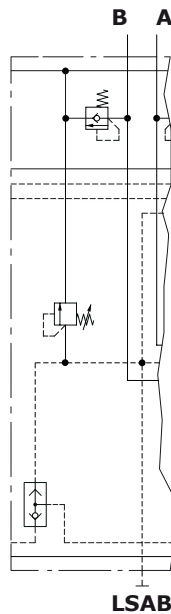
D10 type
without port valve arrangement



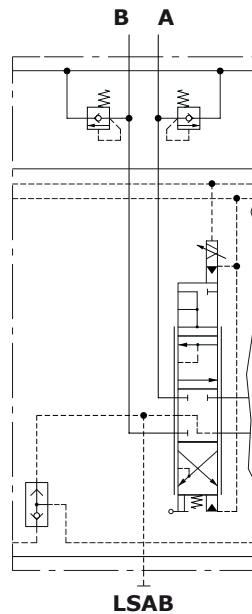
D20 type
with port valve arrangement



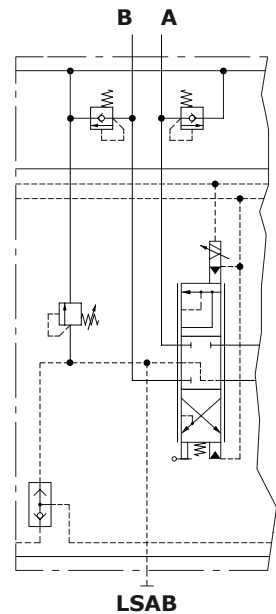
D21 type
as D20, arrangement for one L.S. relief valve



G20 type
as D20, for floating circuit



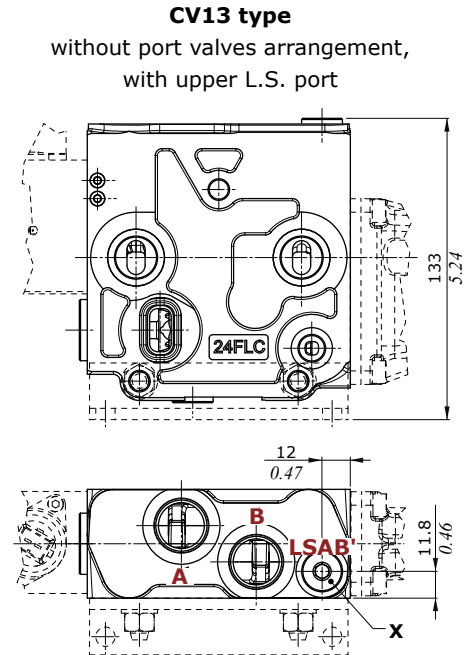
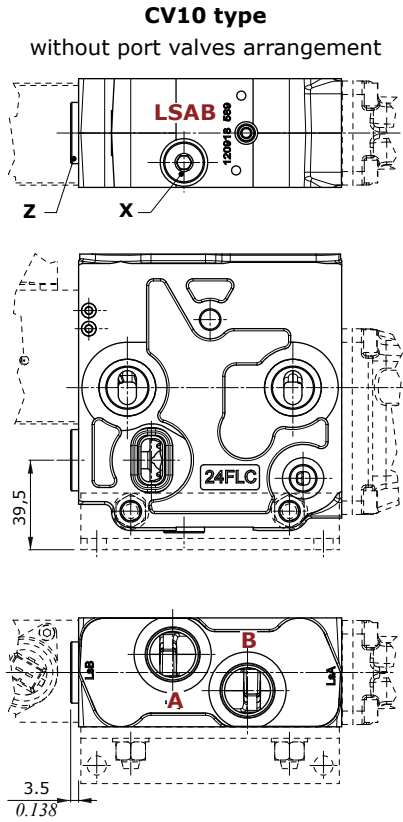
DM23 type
as D21, for regenerative circuit



Dimensions and hydraulic circuit

Without compensator with check valve

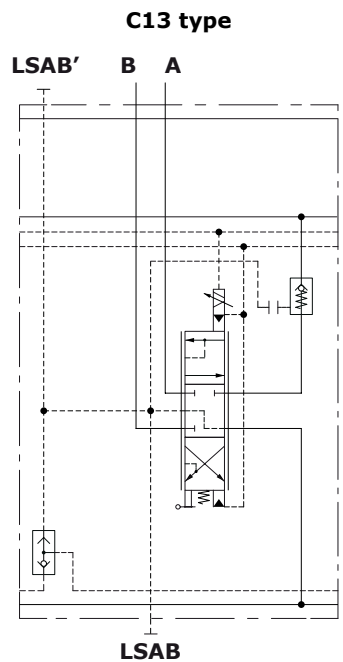
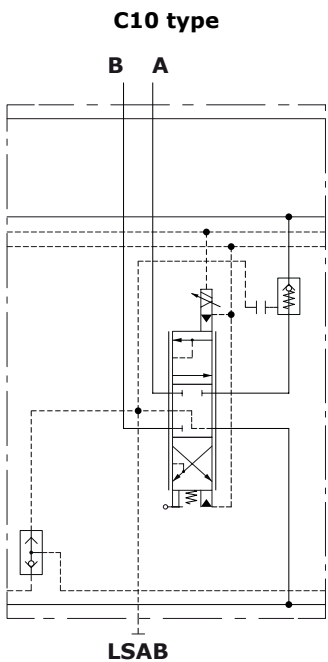
The unlisted dimensions are the same of section without compensator.



Wrenches and tightening torque

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

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



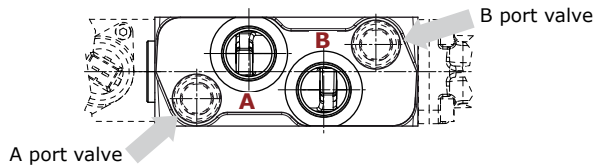
Working section

Dimensions and hydraulic circuit

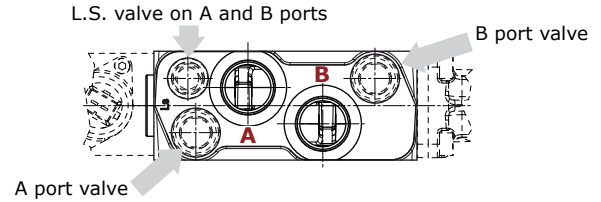
Without compensator with check valve

The unlisted dimensions are the same of section without compensator.

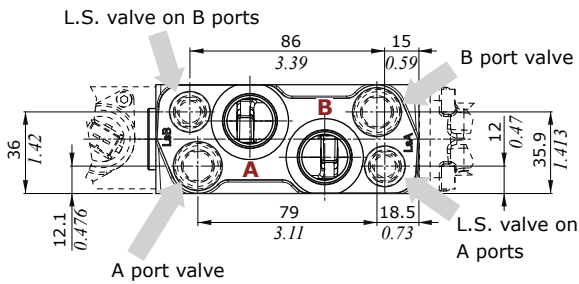
CV20 type
with port valves arrangement



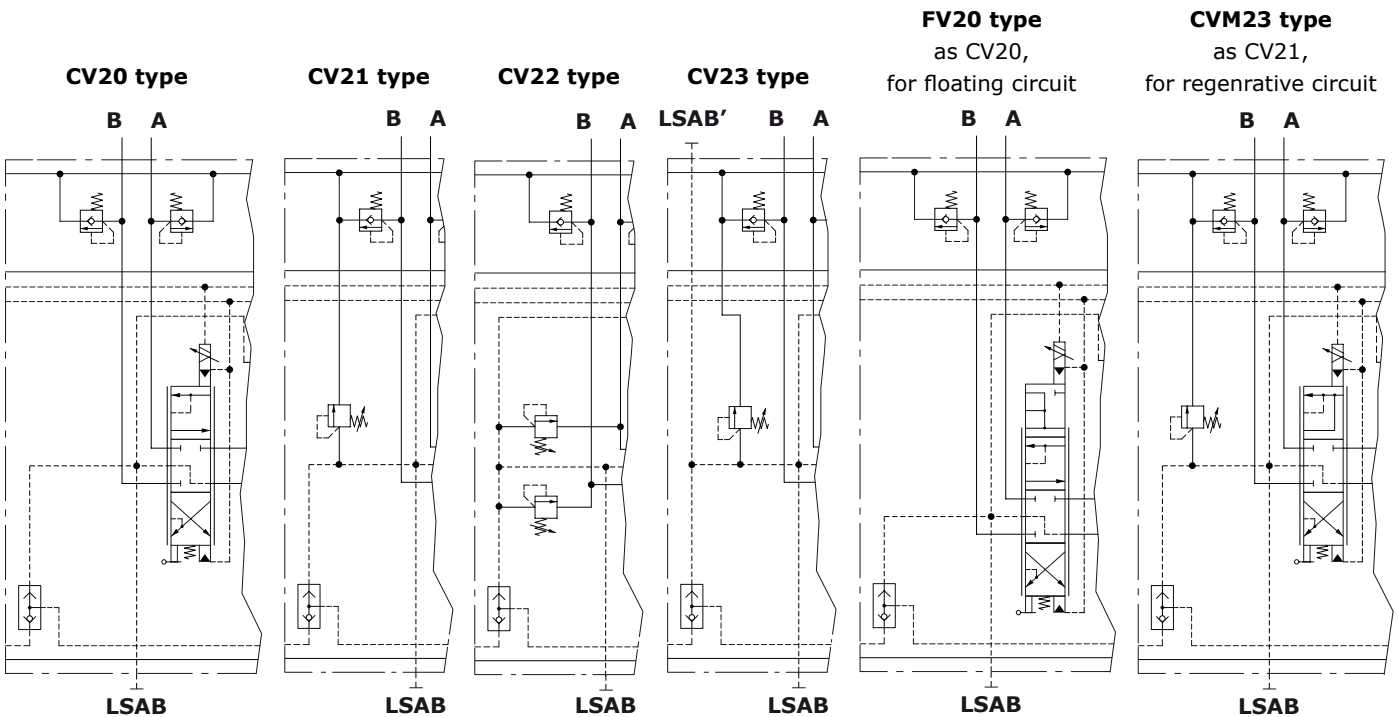
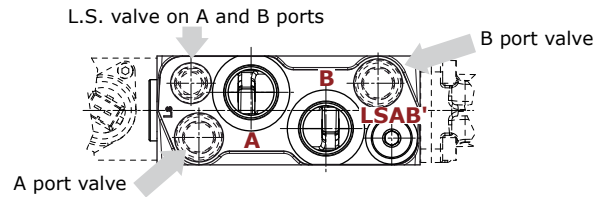
CV21 type
arrangement for port valves and one L.S. relief valve



CV22 type
arrangement for port valves and L.S. relief valves



CV23 type
arrangement for port valves and one L.S. relief valve, with upper L.S. port



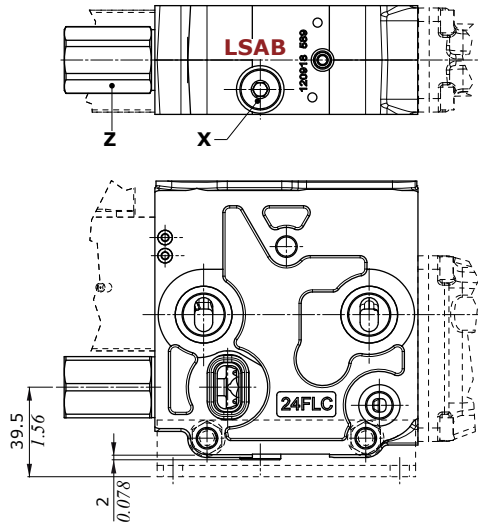
Dimensions and hydraulic circuit

With compensator

The unlisted dimensions are the same of previous sections.

C10 type

without port valves arrangement



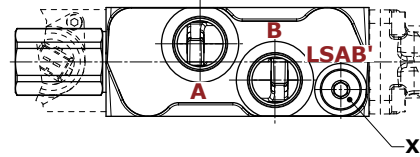
Wrenches and tightening torque

X = allen wrench 6 - 24 Nm (17.7 lbf^t)

Z = wrench 19 - 50 Nm (36.9 lbf^t)

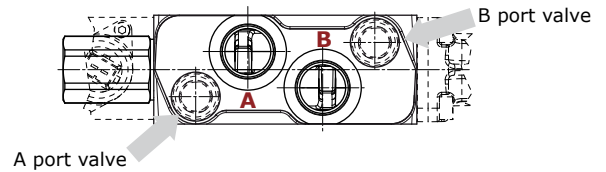
C13 type

without port valves arrangement,
with upper L.S. port



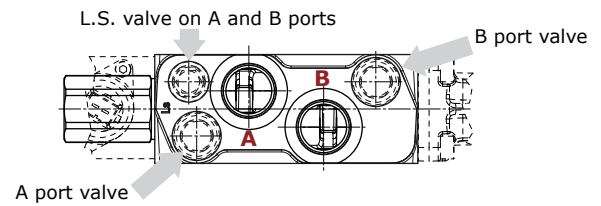
C20 type

with port valves arrangement

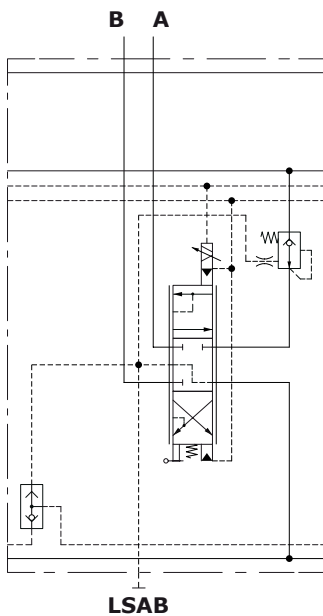


C21 type

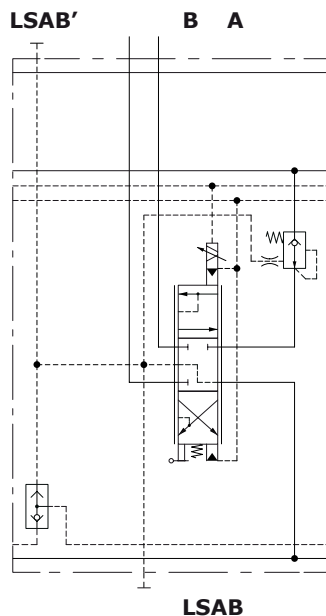
arrangement for port valves and
one L.S. relief valve



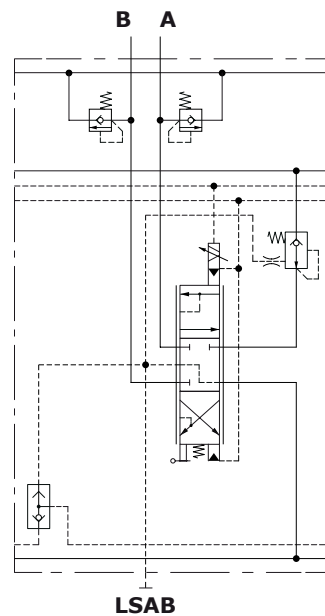
C10 type



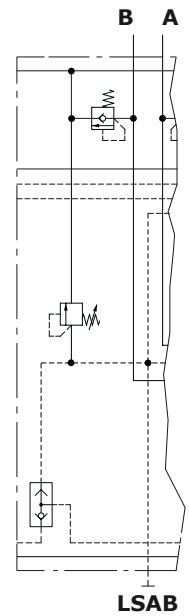
C13 type



C20 type



C21 type



Working section

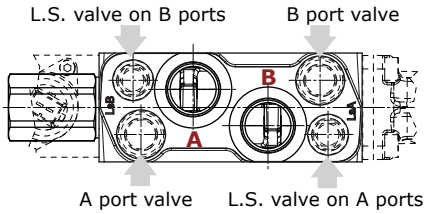
Dimensions and hydraulic circuit

With compensator

The unlisted dimensions are the same of previous sections.

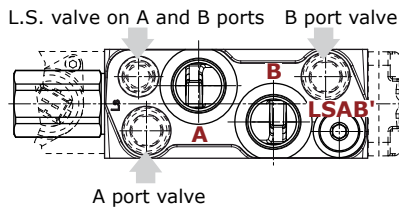
C22 type

arrangement for port valves and L.S. relief valves



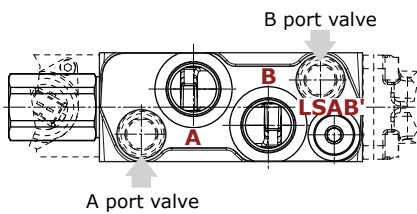
C23 type

arrangement for port valves and one L.S. relief valve, with upper L.S. port

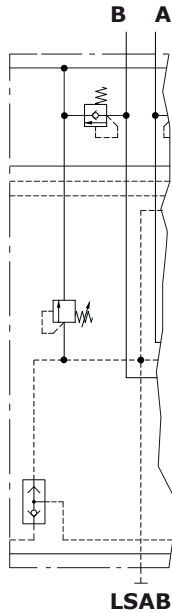


C24 type

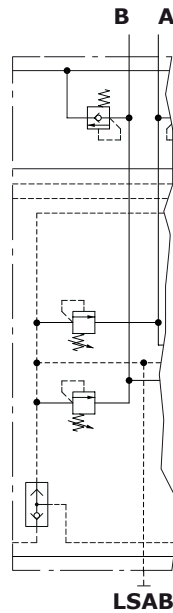
with port valves arrangement and upper L.S. port



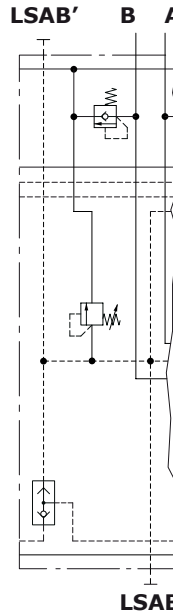
C21 type



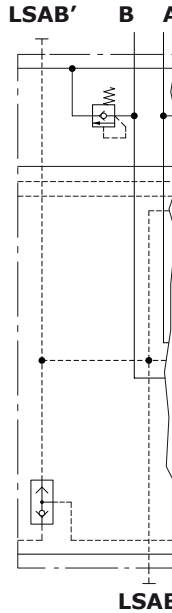
C22 type



C23 type

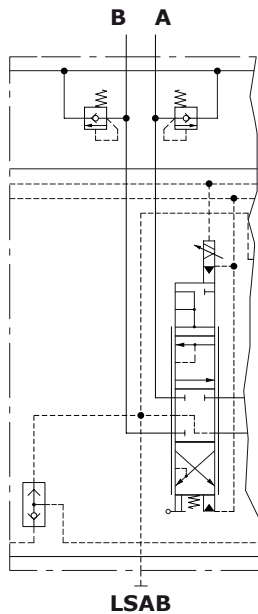


C24 type



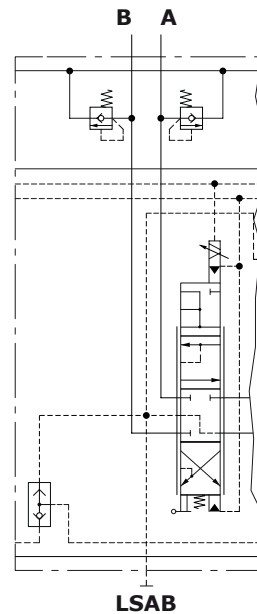
F10 type

as C10,
for floating circuit



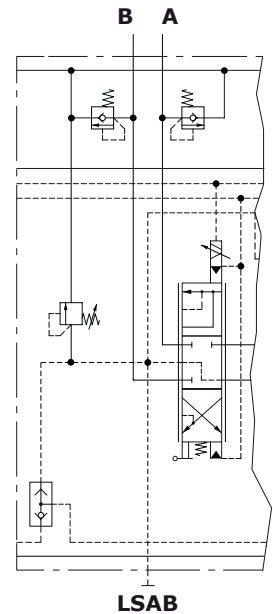
F20 type

as C20,
for floating circuit



CM23 type

as C21,
for regenerative circuit



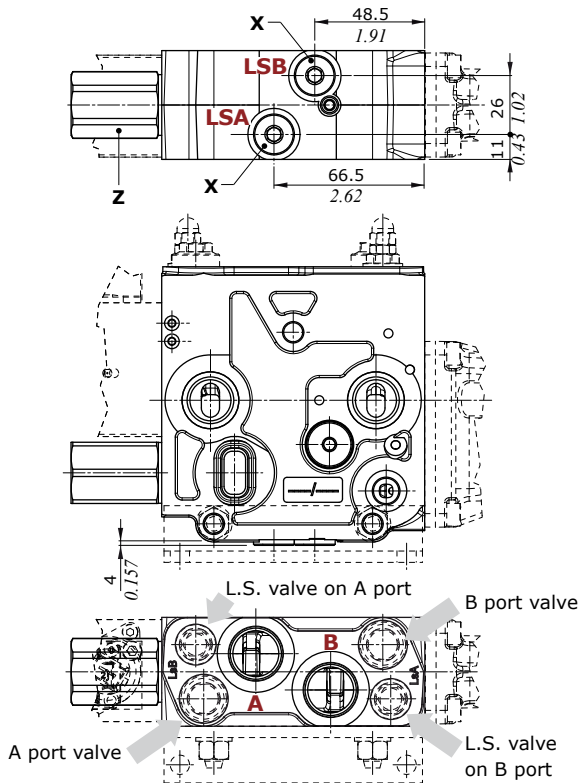
Dimensions and hydraulic circuit

With compensator

Special sections with L.S. signal independent drain; to be use with dedicated spools or pressure control spools.
The unlisted dimensions are the same of previous sections.

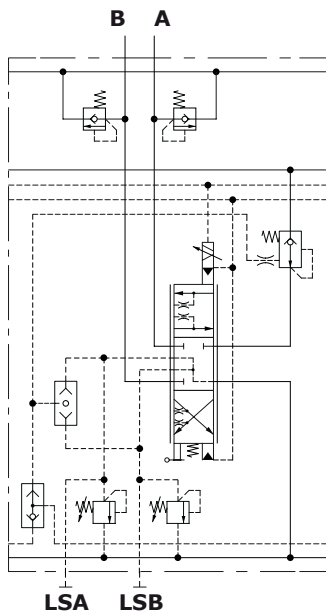
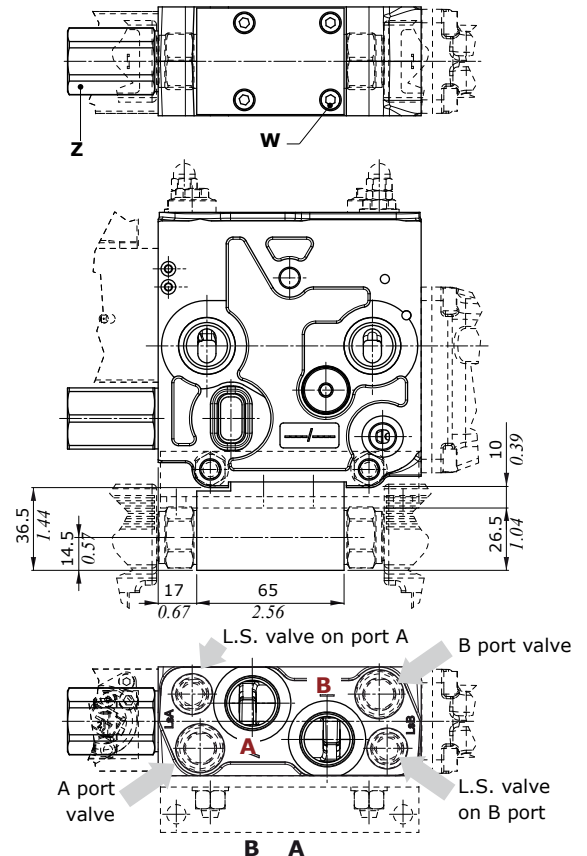
C26 type

arrangement for port valves and L.S. relief valves with independent drain



C27 type

as C26 with arrangement for L.S. signal on/off unloader valves

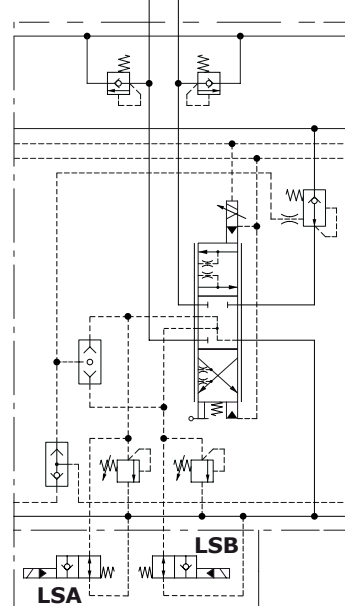


Wrenches and tightening torque

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

Z = wrench 19 - 50 Nm (36.9 lbft)

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



Working section

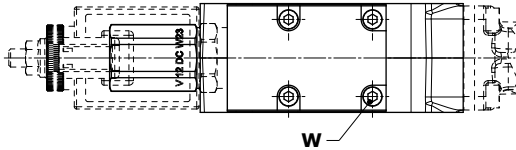
Dimensions and hydraulic circuit

With compensator

Special sections with L.S. signal independent drain; to be use with dedicated spools or pressure control spools.
The unlisted dimensions are the same of previous sections.

C27A type

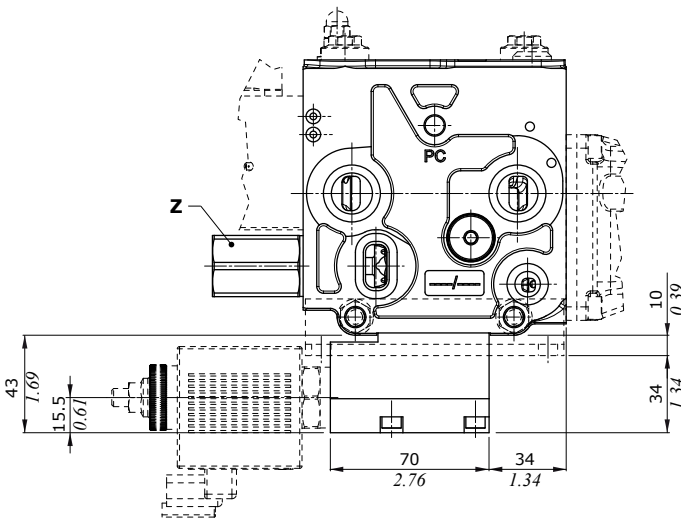
as C26 with proportional unloader
valve arrangement on port A L.S. signal



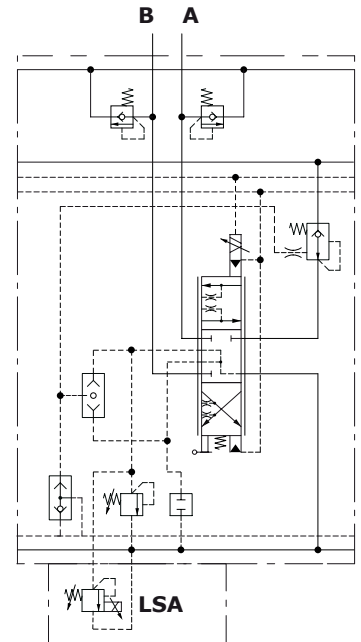
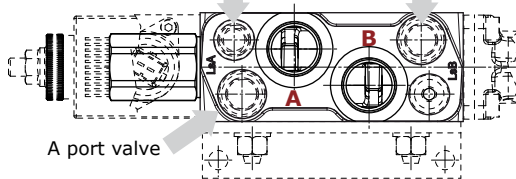
Wrenches and tightening torque

Z = wrench 19 - 50 Nm (36.9 lbf^t)

W = allen wrench 4 - 6.6 Nm (4.9 lbf^t)



L.S. valve on A ports B port valve



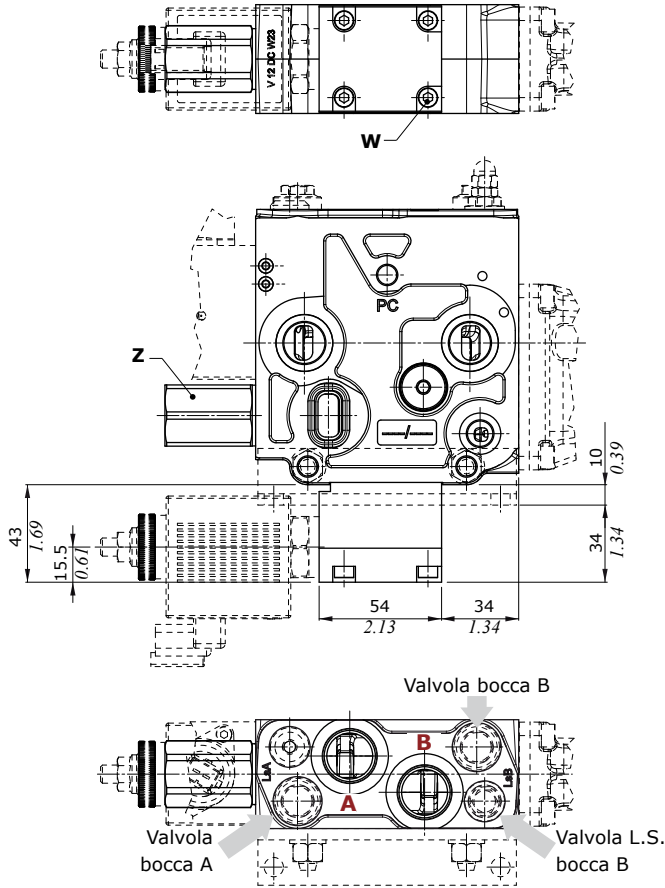
Dimensions and hydraulic circuit

With compensator

Special sections with L.S.signal independent drain; to be use with dedicated spools or pressure control spools.
The unlisted dimensions are the same of previous sections.

C27B type

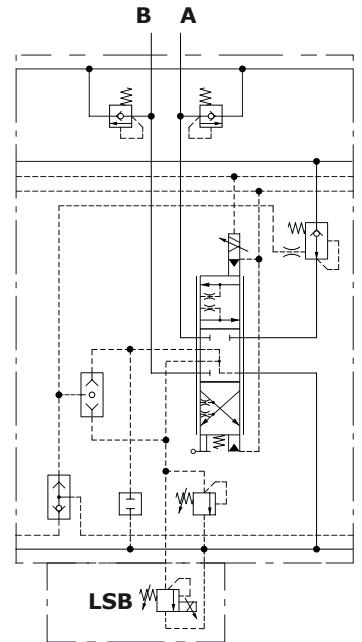
as C26 with proportional unloader
valve arrangement on port B L.S. signal



Wrenches and tightening torque

Z = wrench 19 - 50 Nm (36.9 lbf^t)

W = allen wrench 4 - 6.6 Nm (4.9 lbf^t)



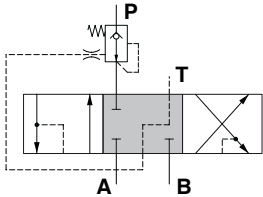
Working section

Standard spools

1 type spool

A, B closed in neutral position

1 0 2



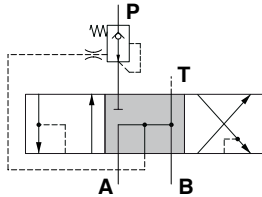
Spool stroke

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

2 type spool

A, B open to tank in neutral position

1 0 2



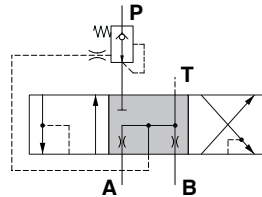
Spool stroke

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

2H type spool

A, B partially to tank in neutral position

1 0 2

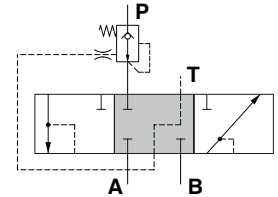


Spool stroke

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

3 type spool
single acting on A

1 0 2



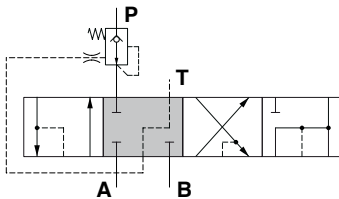
Spool stroke

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

5 type spool

floating in 4th position (pos.3)

1 0 2 3



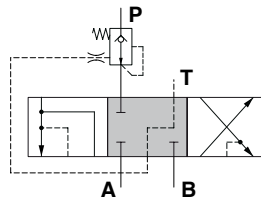
Spool stroke

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

8F type spool

regenerative in
2nd position (pos.1)

1 0 2



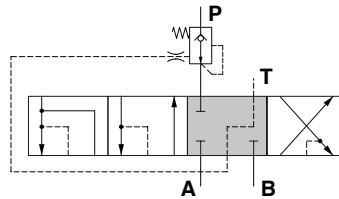
Spool stroke

position 1: + 6 mm (+ 0.24 in)
position 2: - 6 mm (- 0.24 in)

8Y type spool

regenerative in 4th position (pos.3)

3 1 0 2



Spool stroke

position 1: + 4.5 mm (+ 0.18 in)
position 2: - 4.2 mm (- 0.17 in)
position 3: + 7.8 mm (+ 0.31 in)

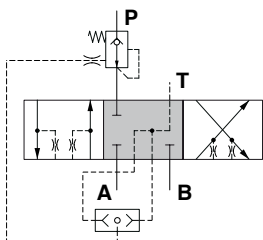
Spools for independent drain

For C26, C27, C27SA, C27SB type working sections.

1..A type spool

A, B closed in neutral position

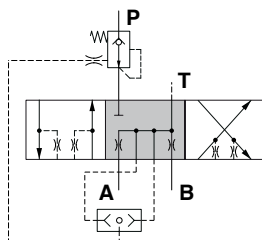
1 0 2



2H..A type spool

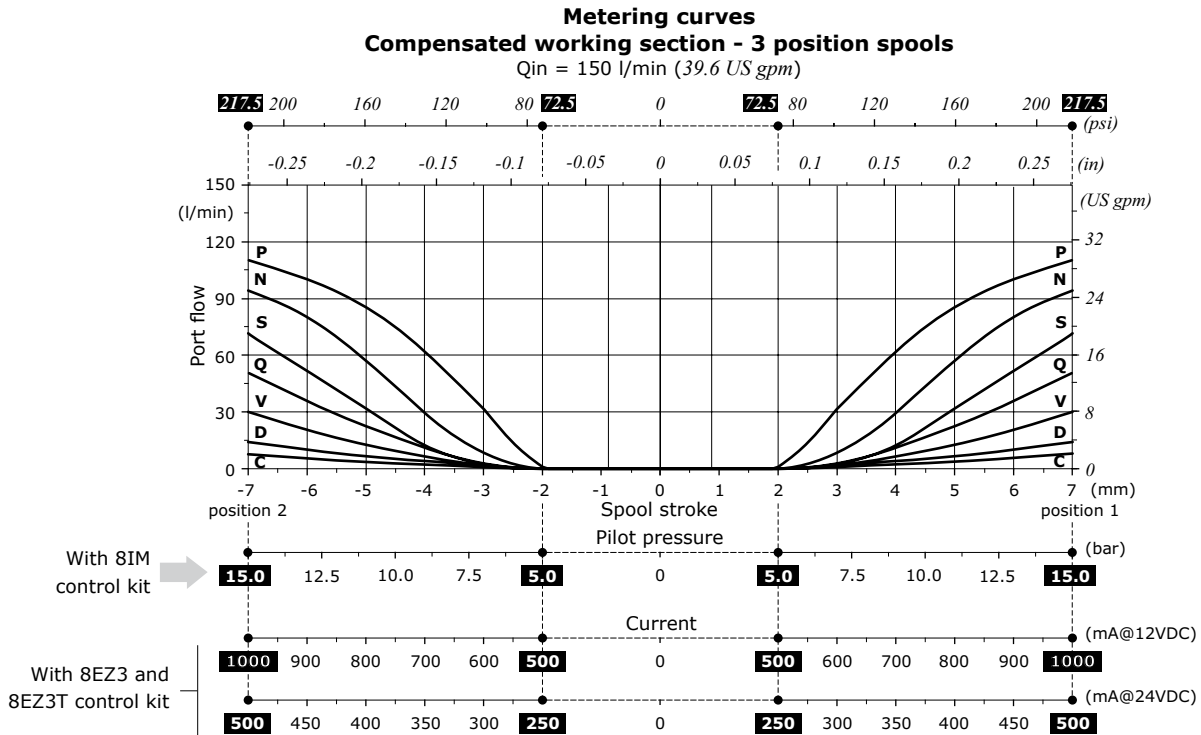
A, B partially to tank in neutral position

1 0 2

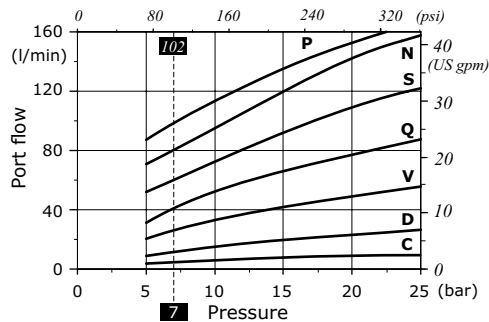


Standard and independent spools

Following curves are detected with standard spools, connecting P⇒A⇒B⇒T and P⇒B⇒A⇒T ports without flow multiplication. Customized spools with backpressure or flow multiplication may require different force, pressure and pilot current for operation.



Non-compensated working section
Spool flow vs. Stand-by pressure
(margin pressure)



Spool nominal flow @ 7 bar (102 psi) stand-by (margin pressure)

- C = 5 l/min (1.3 US gpm)
- D = 10 l/min (2.6 US gpm)
- V = 25 l/min (6.6 US gpm)
- Q = 40 l/min (10.6 US gpm)
- S = 60 l/min (15.9 US gpm)
- N = 80 l/min (21.1 US gpm)
- P = 100 l/min (26.4 US gpm)

Working section

Pressure control spools

Introduction

The instability of the Load Sensing systems in certain applications, with 1/2 - 2 Hz frequency load oscillations, can cause serious operation control issues.

Critical applications are generally due to operations with a major inertia torque and/or functions with controlled secondary pressure components (counterbalance valves).

For example:

- rotation function
- main crane lifting/descent function.

Features

The pressure control spools are designed in such a way that the stroke controls the pump pressure.

The spool must be actuated until the pump pressure slightly exceeds the load pressure before the work function is applied. If the spool is kept in this position, the pump pressure will remain constant, even in case of load pressure changes, thus ensuring system stability.

Use of the pressure control spool, means as well:

- both the fluid flow and the dead band depend on the load
- a flow proportional to the ΔP between the L.S. signal and the load on the port, which does not remain constant will be dispensed.
- the pressure drop through the main spool is due to vary (energy consumption).

Because of these factors, the pressure control spools must only be used when load instability issues are ascertained and in those applications where constant pressure is required such as Drilling Machines.

Application

The pressure control spools should only be used when load stability problems exist, as could occur during lifting/descent and rotation (with cylinders) operations of a crane.

For the lifting/descent operation a "single" type pressure control spool is best used. This type of spool is designed for normal flow control on the port used for lifting, and for pressure control on the port connected to the pilot signal of the counterbalance valve.

An independent load lifting movement is thus obtained, as well as a dropping function which is stable but dependent on the load.

In the rotation function, the load pressure is usually constant, irrespective of the fact whether the crane is loaded or not, and a spool must therefore be used with pressure control function on both ports A and B.

In both cases a working section with pressure compensator is required (C26 or C27 types).

Always make a point of using the L.S. pressure relief valves, which not only ensure individual pressure limitation but also allow adjusting the max flow to ports.

Any anti-shock valves must be set to 20% higher than the setting values of the L.S. pressure relief valves.

Limitation

The use of the pressure control spools therefore allows limiting oscillations and obtaining smooth and precise control of the function with the following limitations:

- the "non-adjustment" stroke of the spool (dead band) will depend on load conditions
- the working section of the control valve will lose the "load independent" characteristic
- pump pressure could exceed load pressure.

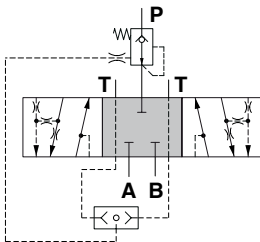
Pressure control spools

Pressure control on A and B ports

1PC(D,V,Q) type spool

A, B closed in neutral position

1 0 2



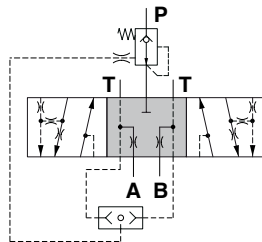
Spool stroke

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

2HPC(D,V,Q) type spool

A, B partially to tank in neutral position

1 0 2



Spool stroke

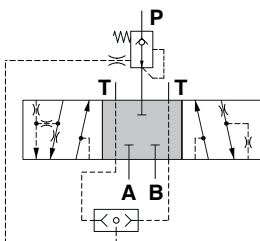
position 1: + 7 mm (+ 0.28 in)
position 2: - 7 mm (- 0.28 in)

Pressure control on A port,
flow control on B port

1PC2(D,V,Q) type spool

A, B closed in neutral position

1 0 2



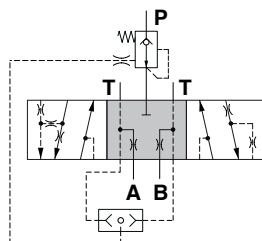
Spool stroke

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

2HPC2(D,V,Q) type spool

A, B partially to tank in neutral position

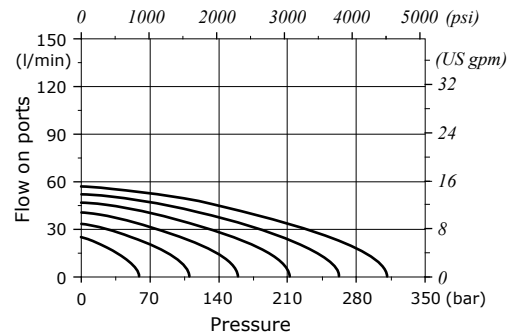
1 0 2



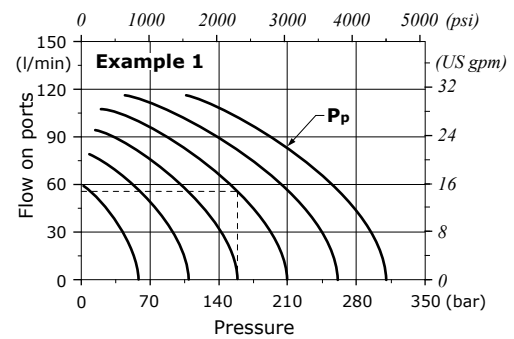
Spool stroke

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

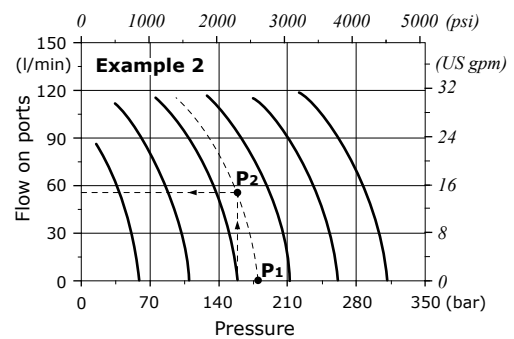
Flow vs Pressure curve
Size V (10 l/min - 2.6 US gpm) spool



Flow vs Pressure curve
Size D (25 l/min - 6.6 US gpm) spool



Flow vs Pressure curve
Size Q (40 l/min - 10.6 US gpm) spool



Sizing

Example 1: how to determine the flow to ports

To know the flow to ports of a spool of known size, you need to know the setting pressure of the valve on the L.S. signal as well as the operating pressure.

As shown in the example, the spool is size D (25 l/min in flow control), the valve on the LS signal is calibrated at 210 bar - 3050 psi (zero flow to port with such load). Following the third parabola of the operating curve, it can be seen that with a load of 150 bar - 2200 psi we have 55 l/min - 14.5 US gpm on port.

Example 2: how to determine the spool size

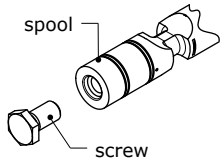
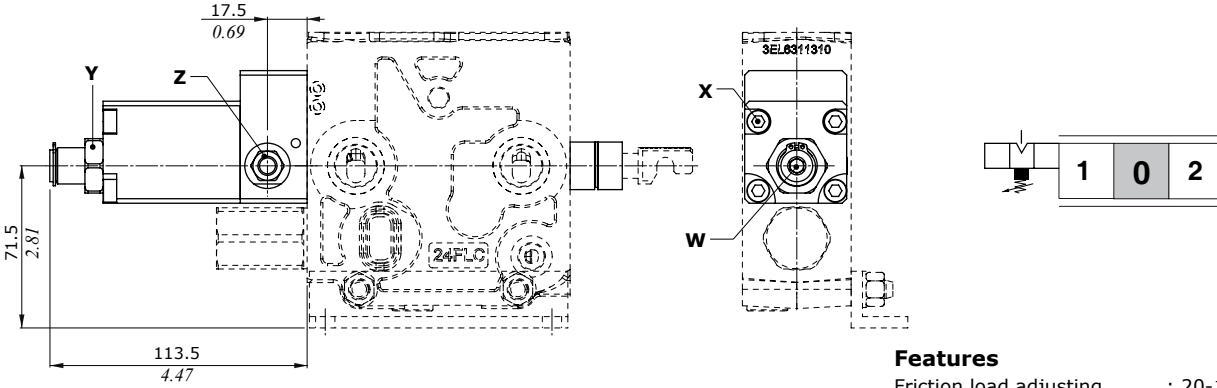
It is necessary to know the flow to port (e.g., 55 l/min - 14.5 US gpm), the setting pressure of the pressure relief valve on the L.S. signal (180 bar - 2600 psi) and the operating pressure (150 bar - 2200 psi).

Tracing the parabolas parallel to those entered in the characteristic curve graphs, in the spool type Q we obtain a curve that crosses the required points: 55 l/min at 150 bar - 14.5 US gpm and 0 l/min - US gpm at 180 bar - 2600 psi.

Working section

"A" side spool control kit

With friction and center position feeling: 7FT type



NOTE: spool replacement

The spool for this control is to be selected from the list on page 23-24. To assemble the spool remove the screw (wrench 13) on spool back and trash it. Then clean the cavity from Loctite® residue.

Features

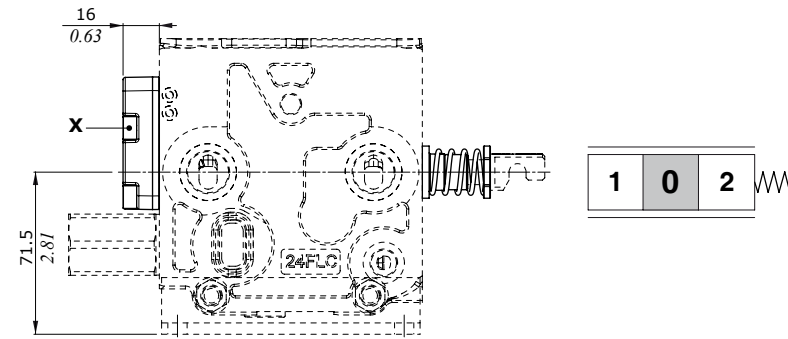
- Friction load adjusting . . . : 20-150 N (4.5-34 lbf)
- Friction load std. setting . . : 100 N (22.5 lbf)
- Center tap (more than load) : 100 N (22.5 lbf)

Wrenches and tightening torque

- X = allen wrench 5 - 9.8 Nm (7.2 lbf)
- Y = wrench 24 - 42 Nm (31 lbf)
- Z = wrench 13 - 24 Nm (17.7 lbf)
- W = allen wrench 6

With spring return to neutral position: 8 type

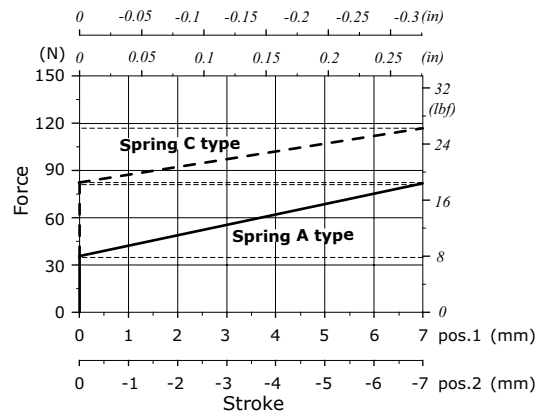
It is supplied with standard spring type A (see force-stroke diagram); available with stronger spring type C (8MC code: 5V08230000).



Wrenches and tightening torque

- X = allen wrench 5 - 9.8 Nm (7.2 lbf)

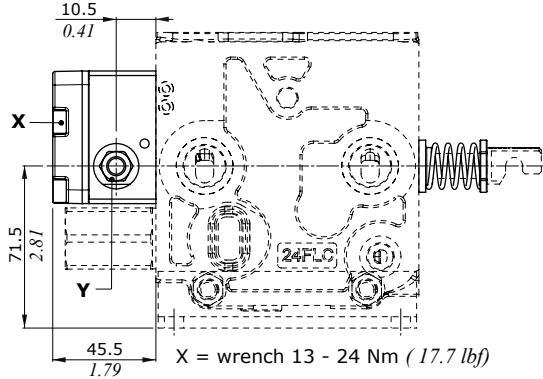
Force vs. Stroke diagram



Spring A type = from 35.6 N (8 lbf) to 81.8 N (18.4 lbf)
 Spring C type = from 82.3 N (18.5 lbf) to 116.8 N (26.3 lbf)

"A" side spool control kit

With detent in 4th position (pos.3), for floating circuit: 13 type
 F, G or FV type working sections and floating circuit 5 type spool are requested for.



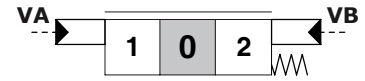
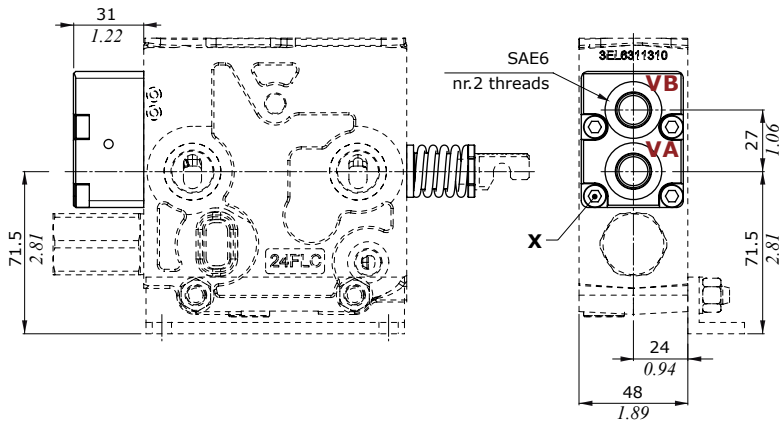
Features

Detent force ($\pm 10\%$) : 310 N (70 lbf)
 Release force ($\pm 10\%$) : 110 N (24.7 lbf)

Wrenches and tightening torque

X = allen wrench 5 - 9.8 Nm (7.2 lbf)
 Y = wrench 13 - 24 Nm (17.7 lbf)

Proportional hydraulic controls



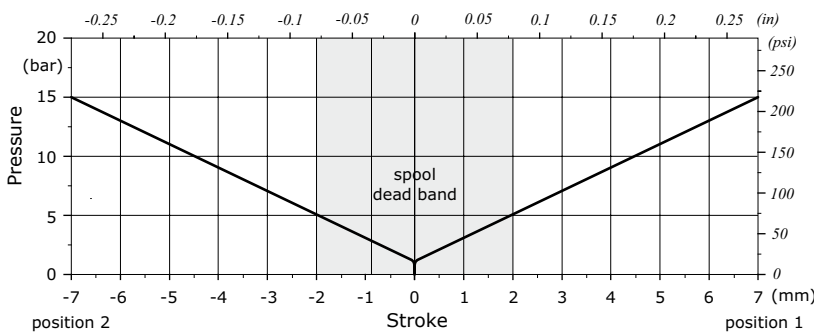
Features

Max. pressure. : 50 bar (725 psi)

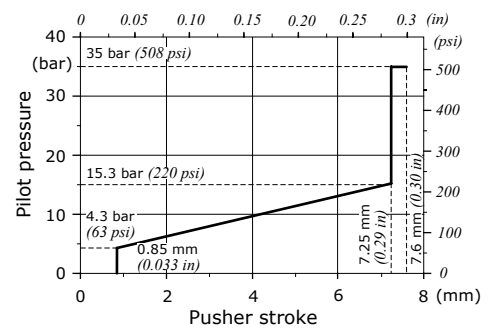
Wrenches and tightening torque

X = allen wrench 5 - 9.8 Nm (7.2 lbf)
 Y = wrench 13 - 24 Nm (17.7 lbf)

Stroke vs. Pressure diagram



Suggested pressure control curve: 020 type



Working section

Electrohydraulic control performance data

Following specifications are measured with:

- mineral oil of 46 mm²/s (46 cSt) viscosity at 40°C (104°F) temperature,
- 20°C (60°F) environmental temperature,
- standard spools, connecting P⇒A⇒B⇒T ports without flow multiplication,
- 12 VDC and 24 VDC nominal voltage with ± 10% tolerance.

Specifications		Standard spool control type		Regenerative spool control type		Floating spool control type
		8EZ3	8EZ3T	8EZ3CR	(8Y)13EZ3	13EZ3
Electric specifications						
Coil impedance	12 VDC	6.7 Ω	4.7 Ω	6.7 Ω	6.7 Ω	6.7 Ω
	24 VDC	24.7 Ω	20.8 Ω	24.7 Ω	24.7 Ω	24.7 Ω
Max. operating current	12 VDC	1.79 A	1.50 A	1.79 A	1.79 A	1.79 A
	24 VDC	0.97 A	0.75 A	0.97 A	0.97 A	0.97 A
No load current consumption		-	-	-	-	-
Hysteresis max. ⁽¹⁾ external drain		10%	10%	10%	10%	10%
Time response from 0 ⇒ 100% and from 100% ⇒ 0 of stroke		< 150 ms	< 150 ms	< 150 ms	< 150 ms	< 150 ms
Min. flow control signal	12 VDC	500 mA	500 mA	560 mA	560 mA	220 mA
	24 VDC	250 mA	250 mA	280 mA	280 mA	110 mA
Max. flow control signal	12 VDC	1000 mA	1000 mA	800 mA	800 mA	560 mA
	24 VDC	500 mA	500 mA	400 mA	400 mA	280 mA
Min. Regenerative flow control signal	12 VDC	-	-	-	1100 mA	-
	24 VDC	-	-	-	550 mA	-
Max. Floating/Regenerative flow control signal	12 VDC	-	-	-	1300 mA	900 mA
	24 VDC	-	-	-	650 mA	450 mA
Dither frequency high frequency		150 Hz (200 mA)	100 Hz (200 mA)	150 Hz (200 mA)		150 Hz (200 mA)
Insertion		100%		100%		100%
Coil insulation		Class F (155°C - 311°F)	Class H (180°C - 356°F)	Class F (155°C - 311°F)		Class F (155°C - 311°F)
Connector type		ISO4400 Flying leads Deutsch DTM	AMP JPT Deutsch DT	ISO4400		ISO4400
Weather protection (connector)		IP65 (ISO4400 type) IP69K (DTM type)	IP65 (JPT type) IP69K (DT type)	IP65		IP65
Hydraulic specifications						
Max. pressure		50 bar (725 psi)		50 bar (725 psi)		
Max. back pressure on drain		2.5 bar (36 psi)		2.5 bar (36 psi)		

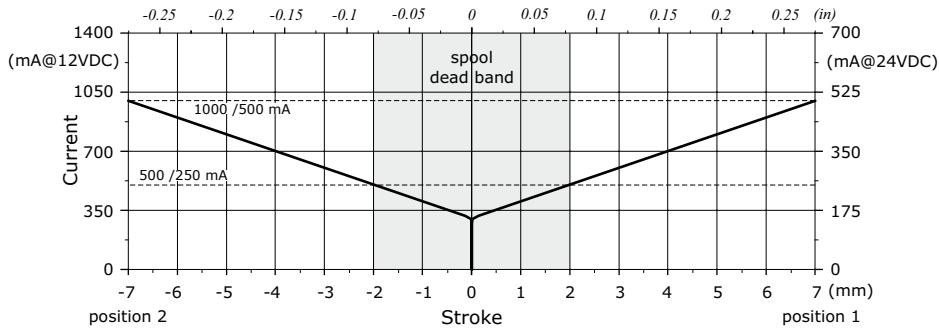
Note (1) For the calculation rules please see "Appendix A" on page 86.

Listed electrohydraulic controls require CED400W electronic control unit; for information please contact Sales Department.

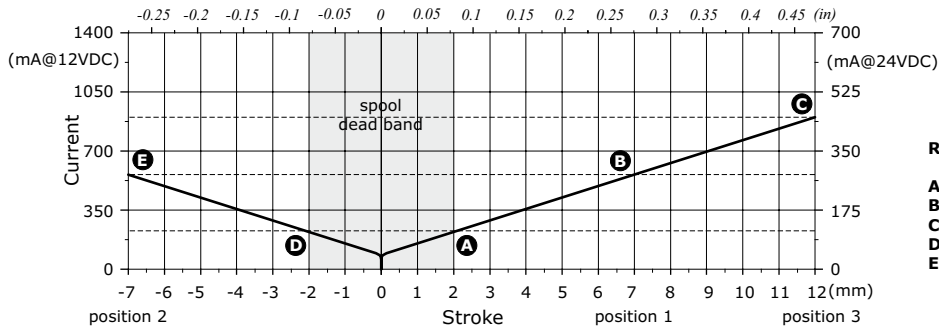
Electrohydraulic control performance data

Spool stroke vs. pilot current diagrams

8EZ3 - 8EZ4 - 8EZ4D - 8EZ3T types

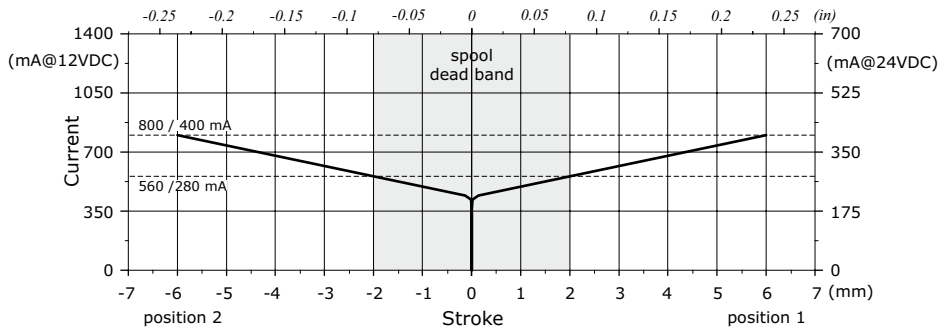


13EZ3 - 13EZ4 types: for floating circuit

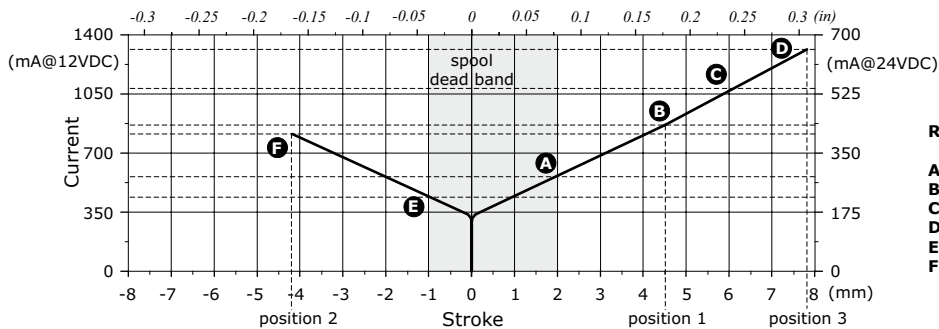


Ref.	Current (mA)		Stroke mm (in)
	12VDC	24VDC	
A	220	110	2 (0.079)
B	560	280	7 (0.276)
C	900	450	12 (0.472)
D	220	110	-2 (-0.079)
E	560	280	-7 (-0.276)

8EZ3CR type: for regenerative circuit



(8Y)13EZ3 type: for regenerative circuit



Ref.	Current (mA)		Stroke mm (in)
	12VDC	24VDC	
A	560	280	2 (0.079)
B	850	425	4.5 (0.177)
C	1100	550	6 (0.236)
D	1300	650	7.8 (0.307)
E	440	210	-1 (-0.039)
F	800	405	-4.2 (-0.165)

Working section

Electrohydraulic controls: spool position sensor

The sensor can be ordered exclusively through the electrohydraulic controls; please see page 24 for available control list.

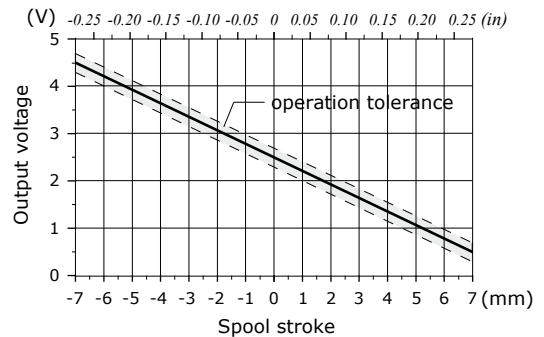
SPSL sensor

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

Working conditions

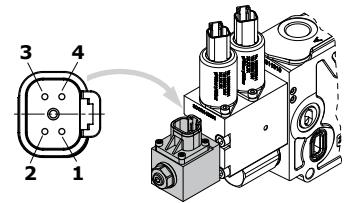
Voltage supply	5 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	DT04-4P Deutsch
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke	±10 mm (±0.39 in)
Max. mechanical stroke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

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

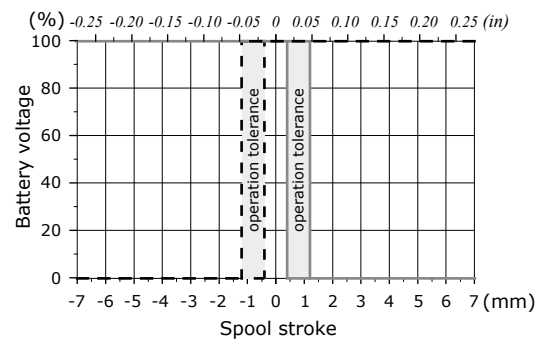
SPSD sensor

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

Working conditions

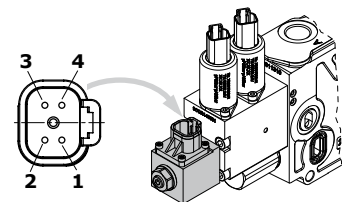
Voltage supply	from 9 to 32 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	DT04-4P Deutsch
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke	±10 mm (±0.39 in)
Max. mechanical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

SPSSD sensor output signal



Deutsch DT04-4P connector

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



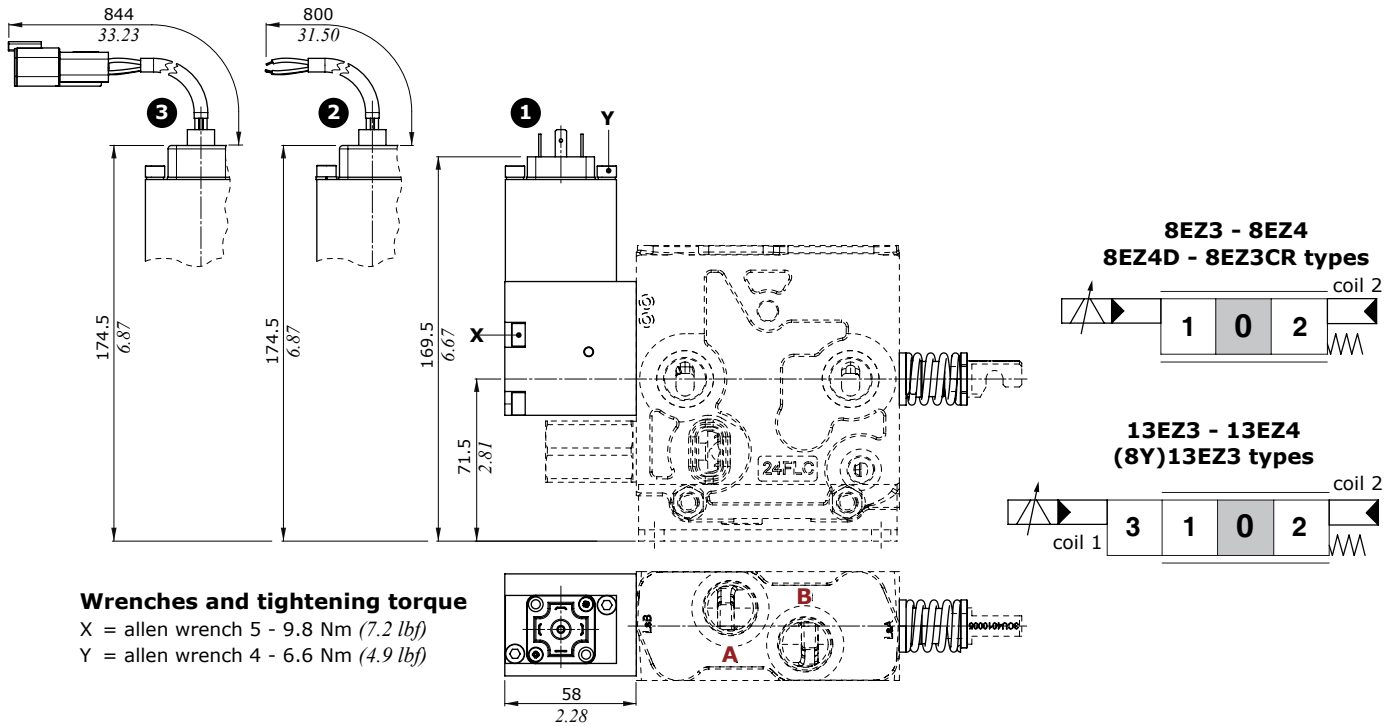
Deutsch DT06-4S mating connector, code 5CON140072

Electrohydraulic controls

Proportional controls; 8EZ - 13EZ types

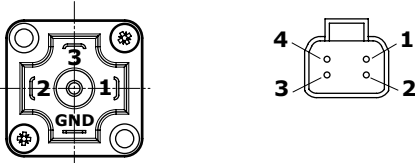
Control Types

- 1: With ISO4400 connector - mating connector code: 2X1001030
- 2: With flying leads
- 3: With Deutsch DTM04 connector - Deutsch DTM06 mating connector code: 5CON140025

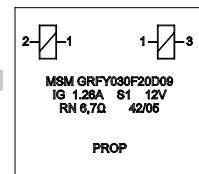
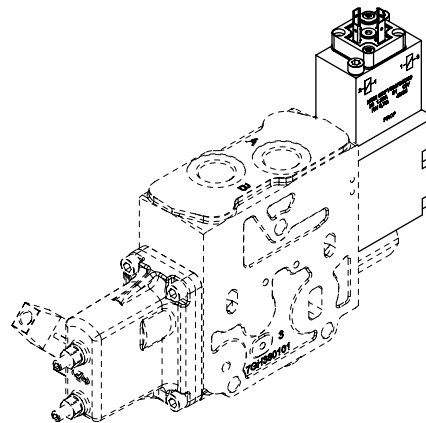


Wrenches and tightening torque
 X = allen wrench 5 - 9.8 Nm (7.2 lbf)
 Y = allen wrench 4 - 6.6 Nm (4.9 lbf)

ISO4400 connector Deutsch DTM04 connector



Connectors pin	Wire colour	Function
1	blue	common (-)
2	red	Coil 2 - B port
3	green	Coil 1 - A port
4	-	Plugged



Magnet is to be assembled with this side (printed side) facing the section side without O-ring seating

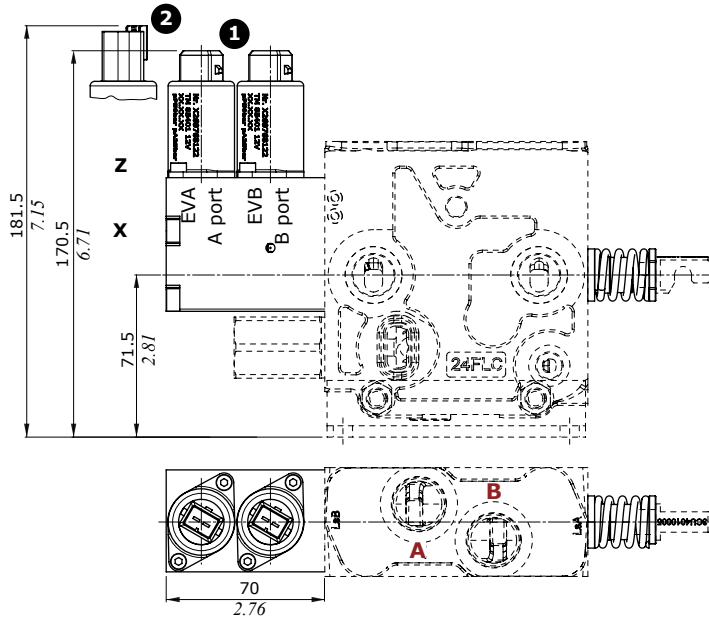
Working section

Electrohydraulic controls

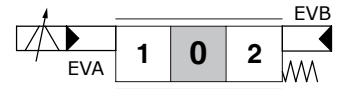
Control Types

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

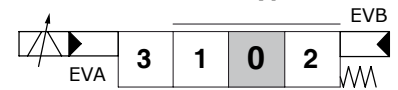
Proportional controls; 8EZ3T - 13EZ3T types



8EZ3T - 8EZ34T types



13EZ3T type

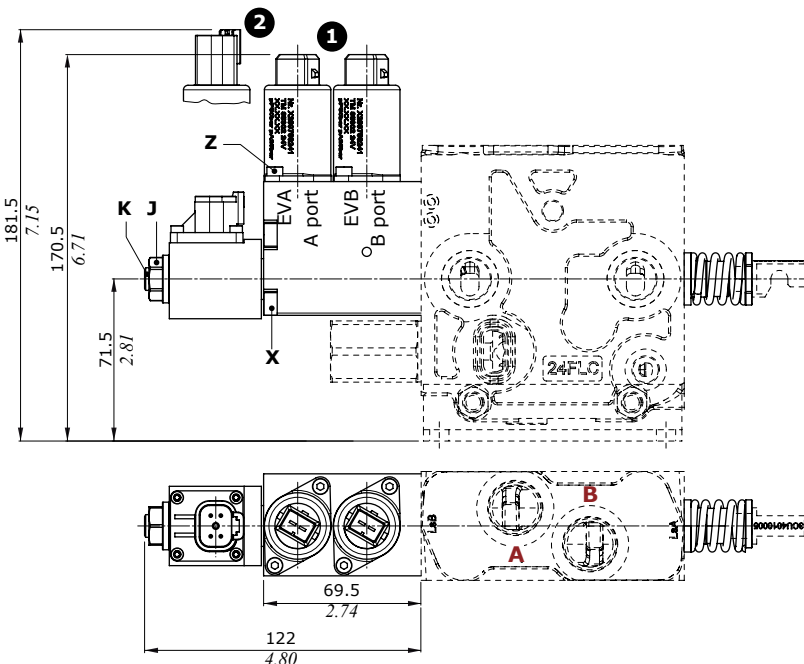


Wrenches and tightening torque

- X = allen wrench 5 - 9.8 Nm (7.2 lbf)
- Z = allen wrench 3 - 5 Nm (3.7 lbf)
- J = wrench 17 - 9.8 Nm (7.2 lbf)
- K = allen wrench 4 - 9.8 Nm (7.2 lbf)

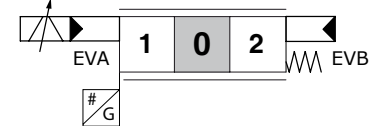
Proportional controls; 8EZ3TSPSD - 8EZ3TSPSL types

For sensor specification and features please see page 42.



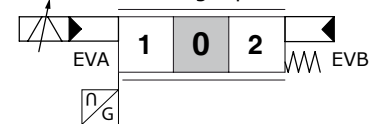
8EZ3TSPSD - 8EZ3T4SPSD types

CANbus interface



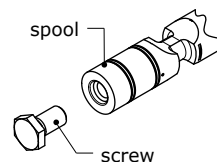
8EZ3TSPSL - 8EZ3T4SPSL types

Analog input



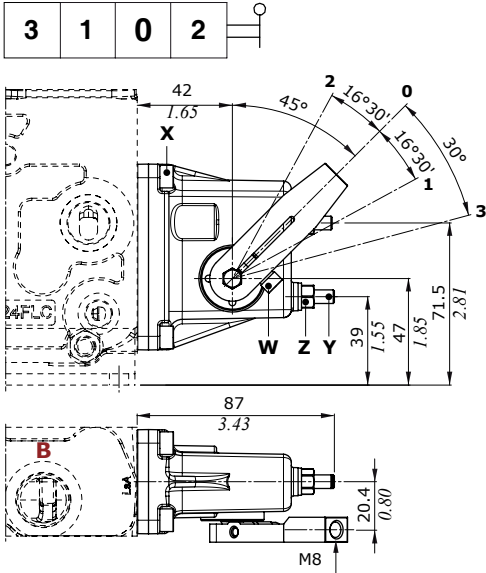
NOTE: spool replacement

The spool for this control is to be selected from the list on page 23-24. To assemble the spool remove the screw (wrench 13) on spool back and trash it. Then clean the cavity from Loctite® residue.

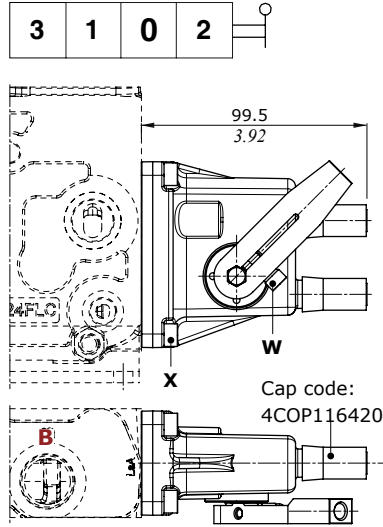


"B" side spool control kit

Aluminium lever box; L type

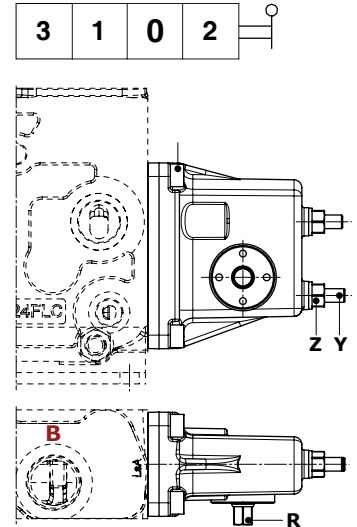


Aluminium lever box with anti-tamper caps; LZ type



Dimensions are the same as L type

Aluminium lever box, without lever; LN type

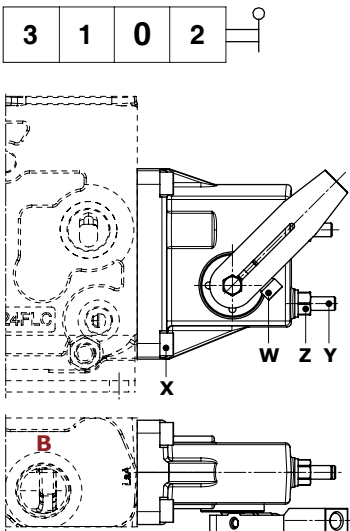


Dimensions are the same as L type

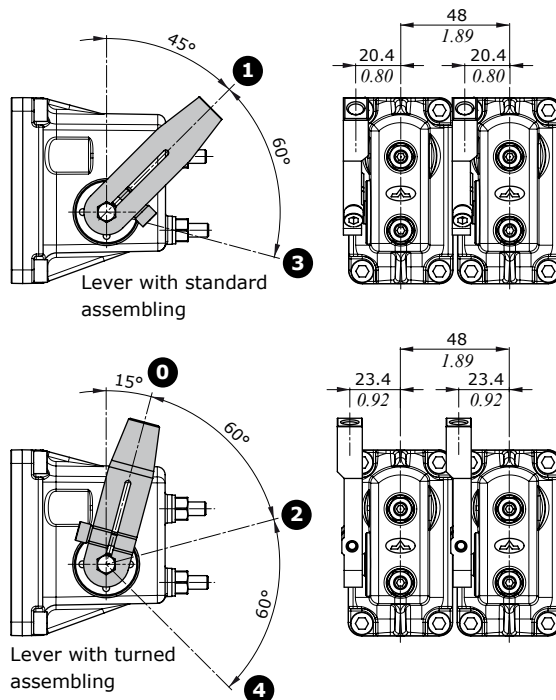
Lever assembly position

Please see page 22 for specification in working section description

Cast iron lever box; LG type

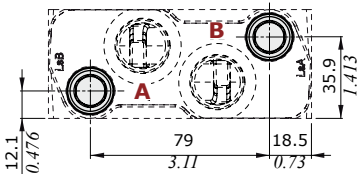
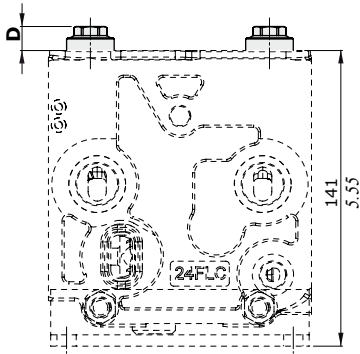


Dimensions are the same as L type

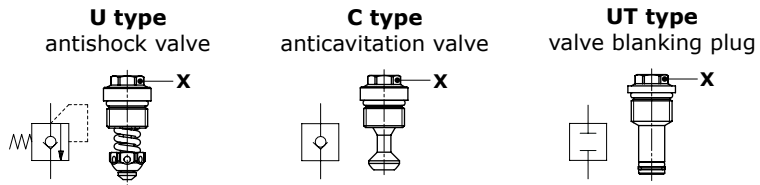


Working section

Port valves

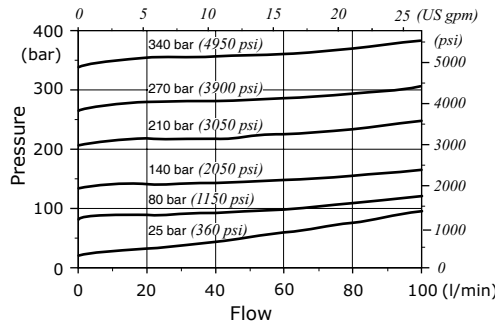


Valve type	Dim. D	
	mm	in
U	10.5	0.41
C	10.5	0.41
UT	7.5	0.30

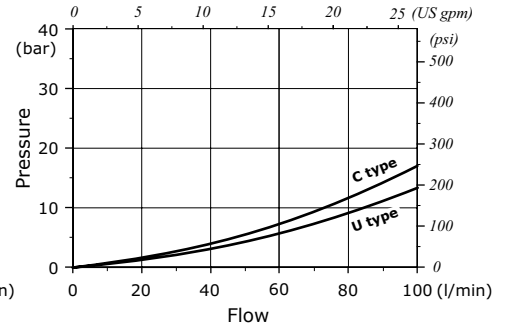


Wrenches and tightening torque
 X = wrench 13 - 24 Nm (17.7 lbf)

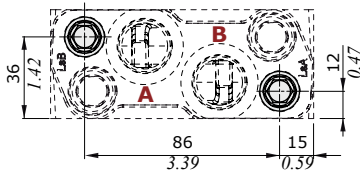
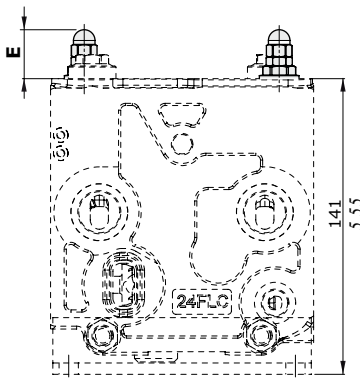
U type, setting example
 (10 l/min - 2.6 Us gpm)



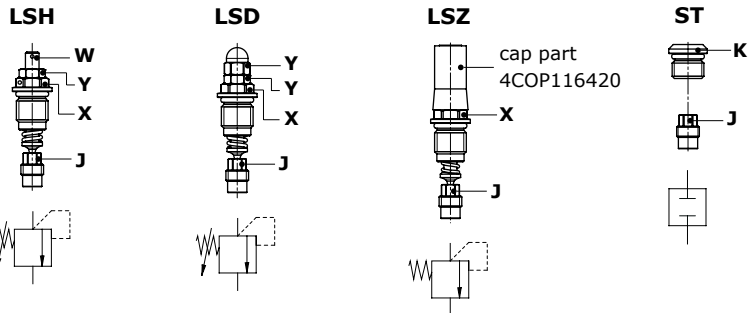
U-C types, pressure drop
 (in anticavitation)



L.S. port relief valves

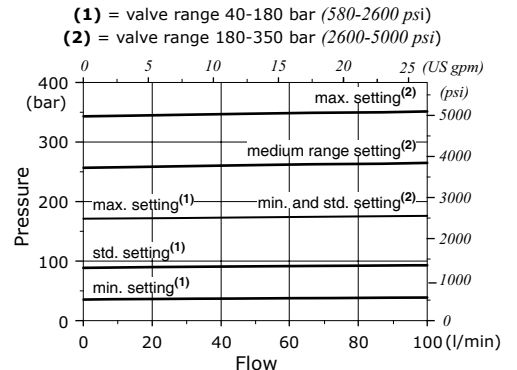


Valve type	Dim. E	
	mm	in
LSD	21.5	0.85
LSH	17	0.67
LSZ	34	1.34



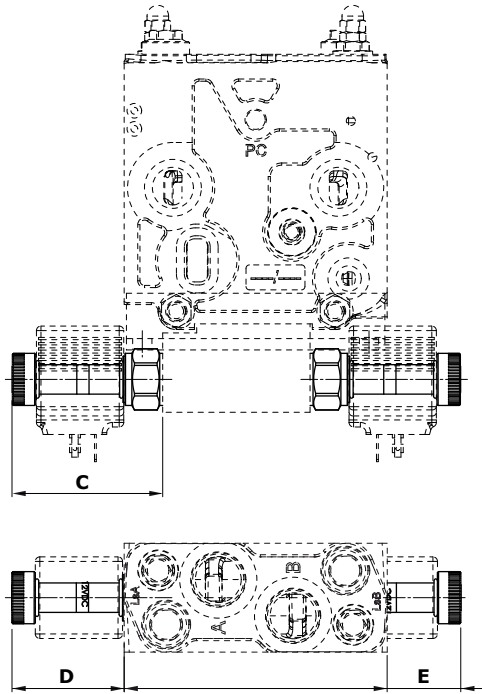
Legenda
LSH: with lock arrangement
LSD: with blind nut
LSZ: with anti-tamper cap
ST: valve blanking plug
Wrenches and tightening torques
 X = wrench 13 - 24 Nm (17.7 lbf)
 Y = wrench 10 - 9.8 Nm (7.2 lbf)
 W = allen wrench 3
 J = wrench 7 - 24 Nm (17.7 lbf)
 K = allen wrench 5 - 24 Nm (17.7 lbf)

Pressure vs. flow diagram



Solenoid operated L.S. unloading valves

Available only for C27 type working section.

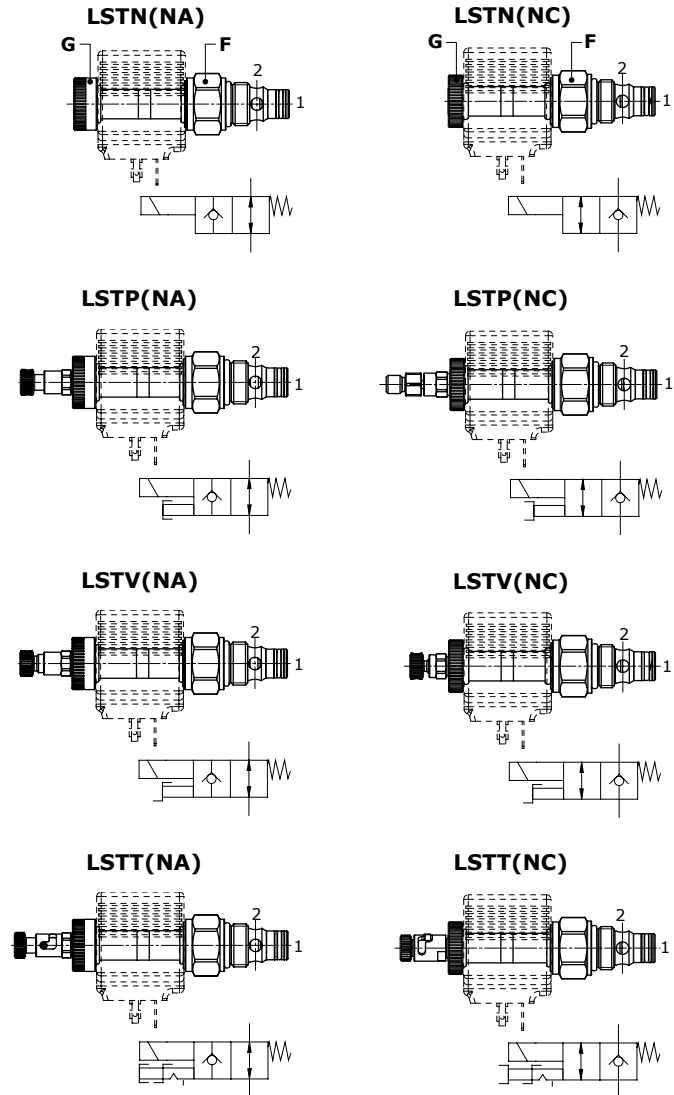


Valve type	Dimensions					
	C		D		E	
	mm	in	mm	in	mm	in
LSTN(NA)	66.7	2.63	49.7	1.96	34	1.34
LSTV(NA)	89.6	3.53	69.6	2.74	56.9	2.24
LSTP(NA)	89.6	3.53	69.6	2.74	56.9	2.24
LSTT(NA)	92.3	3.63	72.3	2.85	59.6	2.35
LSTN(NC)	62.8	2.47	42.8	1.69	30.1	1.19
LSTV(NC)	77.3	3.04	57.3	2.26	44.6	1.76
LSTP(NC)	90.8	3.57	70.8	2.79	58.1	2.29
LSTT(NC)	83.3	3.28	63.3	2.49	50.6	1.99

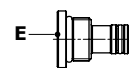
Features

Max. flow : 40 l/min (10.6 US gpm)
 Max. pressure : 380 bar (5500 psi)
 Internal leakage : 0.25 cm³/min @ 210 bar
 (0.015 in³/min @ 3050 psi)

For coil features and BER type coil options please see page 83.



LST3T



Legenda

- LSTN(NA): without emergency
- LSTP(NA): push button emergency override
- LSTV(NA): screw emergency override
- LSTT(NA): "push&twist" emergency override
- LSTN(NC): without emergency
- LSTP(NC): pull button emergency override
- LSTV(NC): screw emergency override
- LSTT(NC): "pull&twist" emergency override
- LST3T: valve blanking plug (both valve seats)

Wrenches and tightening torques

- F = wrench 24 - 30 Nm (22 lbf)
- G = manual tightening
- E = wrench 10 - 24 Nm (17.7 lbf)

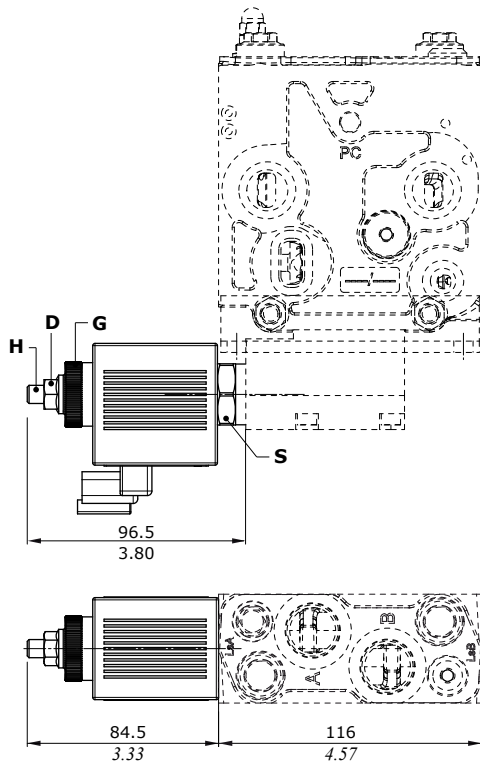
Working section

Proportional solenoid operated L.S. unloading valves

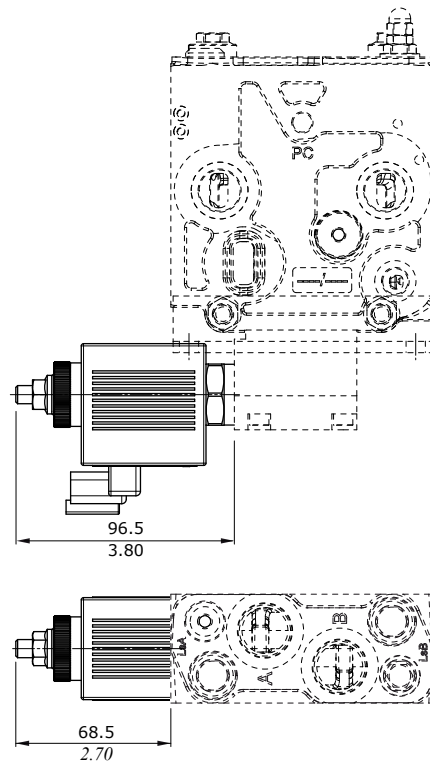
Only available on C27SA and C27SB sections.

The valve is always supplied with coil.

On C27SA section



On C27SB section



Wrenches and tightening torques

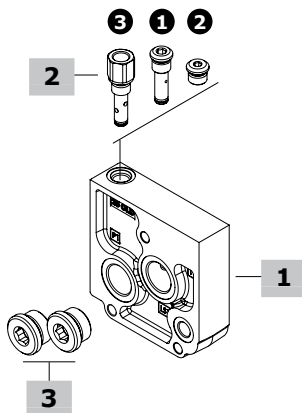
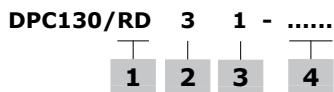
- S = wrench 27 - 50 Nm (36.9 lbf^t)
- D = wrench 13 - 15 Nm (11.1 lbf^t)
- H = allen wrench 4
- G = manual tightening

Features

- Max. flow : 3 l/min (0.79 US gpm)
- Max. pressure : 350 bar (5100 psi)
- Internal leakage : 0.25 cm³/min (0.015 in³/min)
@ 80% max pressure setting

For coil features and **BQP19** type coil options please see page 83.

Outlet section part ordering codes



1 Outlet section body * **page50**

TYPE	CODE	DESCRIPTION
RF	3FIA731000	Without ports
RC-SAE	3FIA731710	With P1 and T1 ports
RD-SAE	3FIA731720	With P1, T1 and LS1 ports

2 Drain options **page 50**

TYPE	CODE	DESCRIPTION
1	XTAP517460	Internal drain; to be used with mechanical controls
2	XTAP217160	Internal drain; to be used with hydraulic controls
3	XGIU519610*	External SAE6 drain; to be used with electrohydraulic controls

3 Ports options *

TYPE	CODE	DESCRIPTION
0	-	Without ports; for RF section
1	3XTAP832200	SAE12 plug (nr.2); P1 and T1 ports plugged
2	3XTAP832200	SAE12 plug (nr.1); P1 port plugged and T1 open
3	3XTAP832200	SAE12 plug (nr.1); P1 port open and T1 plugged
4	-	P1 and T1 ports open

4 Section threading

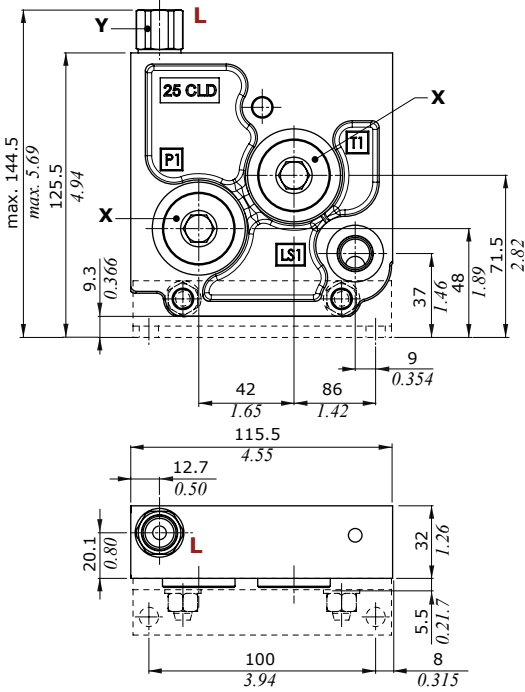
Specify only if it is different from BSP standard (see page 5).

NOTE (*): Codes are referred to **UN-UNF** thread.

Outlet section part ordering codes

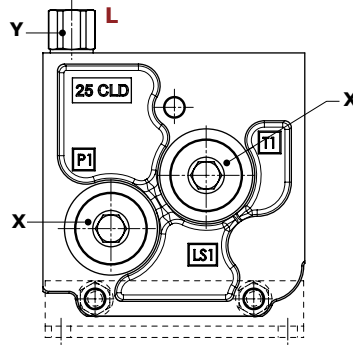
RD31 type

With P1, T1 (plugged) and LS1 ports.
External drain



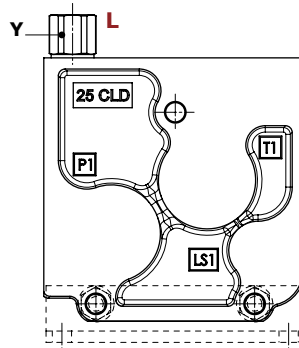
RC31 type

With P1, T1 (plugged) ports.
External drain



RF30 type

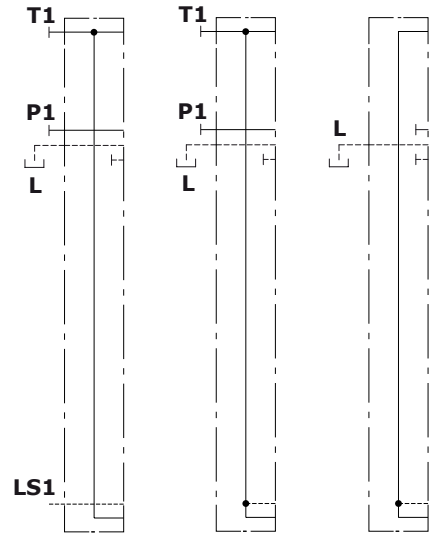
Without ports, external drain



Wrenches and tightening torque

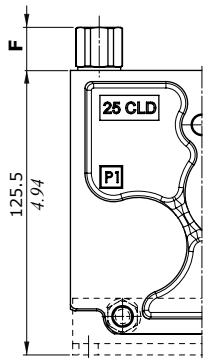
X = allen wrench 12 - 42 Nm (31 lbf)
Y = wrench 19 - 24 Nm (17.7 lbf)

RD31 type RC31 type RF30 type

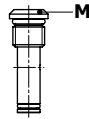


Note: Do not plug LS1 port (in case it is not used it has to be connected to tank).

Drain options



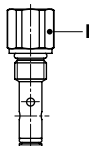
Option 1
internal drain for
mechanical controls



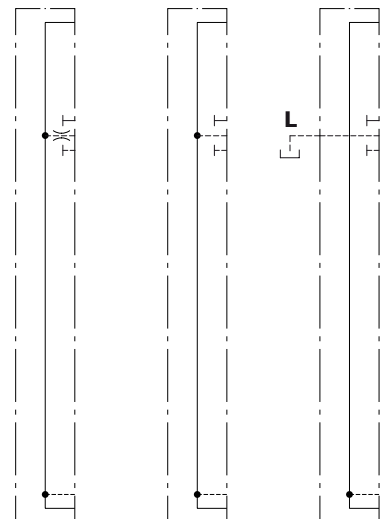
Option 2
internal drain for
hydraulic controls



Option 3
external drain for
electrohydraulic controls



Option 1 Option 2 Option 3

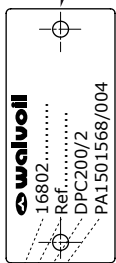
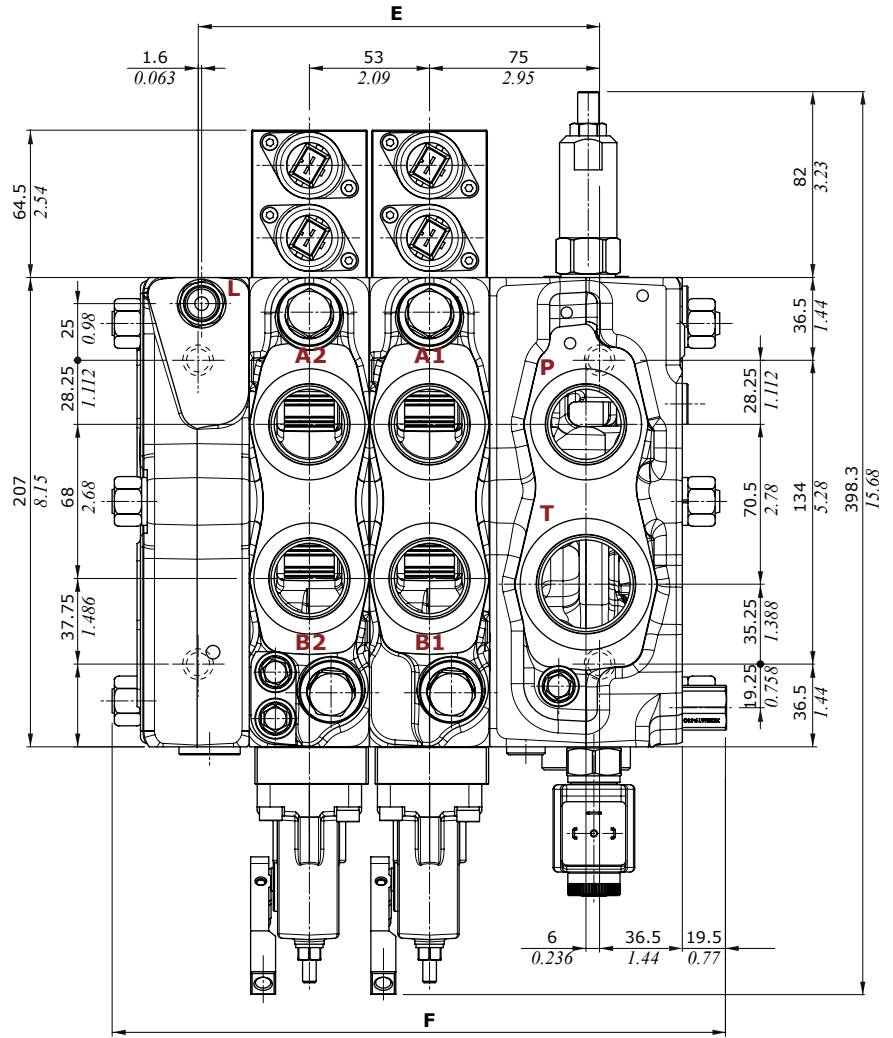
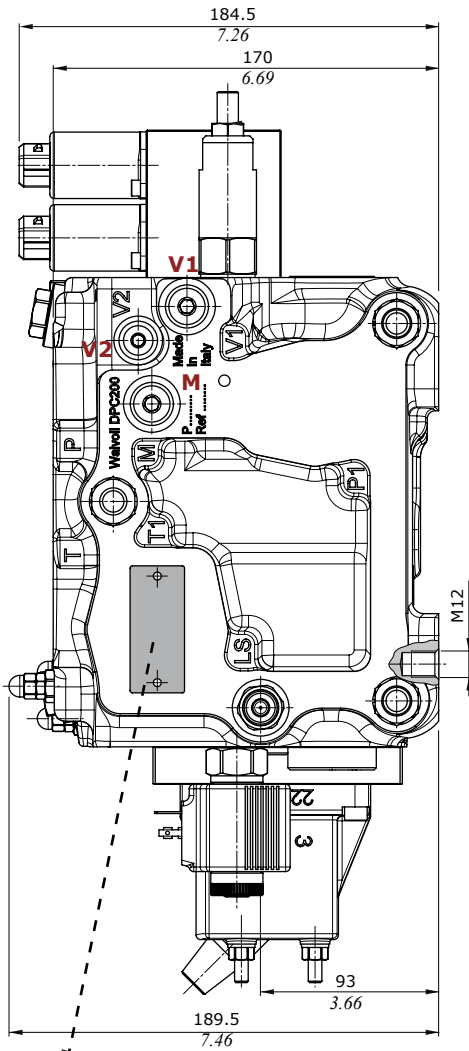


Option	Dim. F	
	mm	in
1	3.5	0.138
2	3.5	0.138
3	19	0.75

Wrenches and tightening torque

M = allen wrench 5 - 24 Nm (17.7 lbf)
N = wrench 19 - 24 Nm (17.7 lbf)

Dimensional data and performance

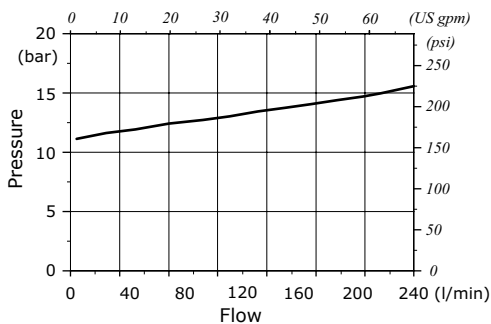


- product code
- customer reference
- product name
- production allotment

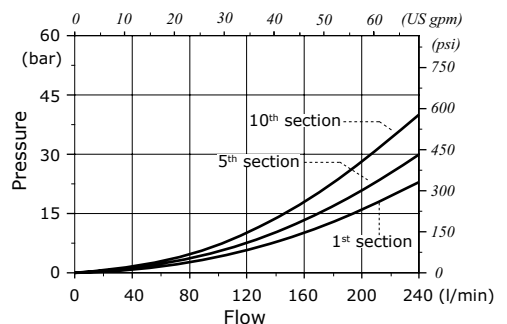
TYPE	E		F		Weight	
	mm	in	mm	in	Kg	lb
DPC200/1	124	4.88	218	8.58	39.5	87.1
DPC200/2	177	6.97	271	10.67	53.8	117
DPC200/3	230	9.06	324	12.76	68.1	150
DPC200/4	283	11.14	377	14.84	82.4	182
DPC200/5	336	13.23	430	16.93	96.7	213

TYPE	E		F		Weight	
	mm	in	mm	in	Kg	lb
DPC200/6	389	15.31	483	19.02	111	245
DPC200/7	442	17.40	536	21.10	125	276
DPC200/8	495	19.49	589	23.19	140	308
DPC200/9	548	21.57	642	25.28	154	339
DPC200/10	601	23.66	695	27.36	168	371

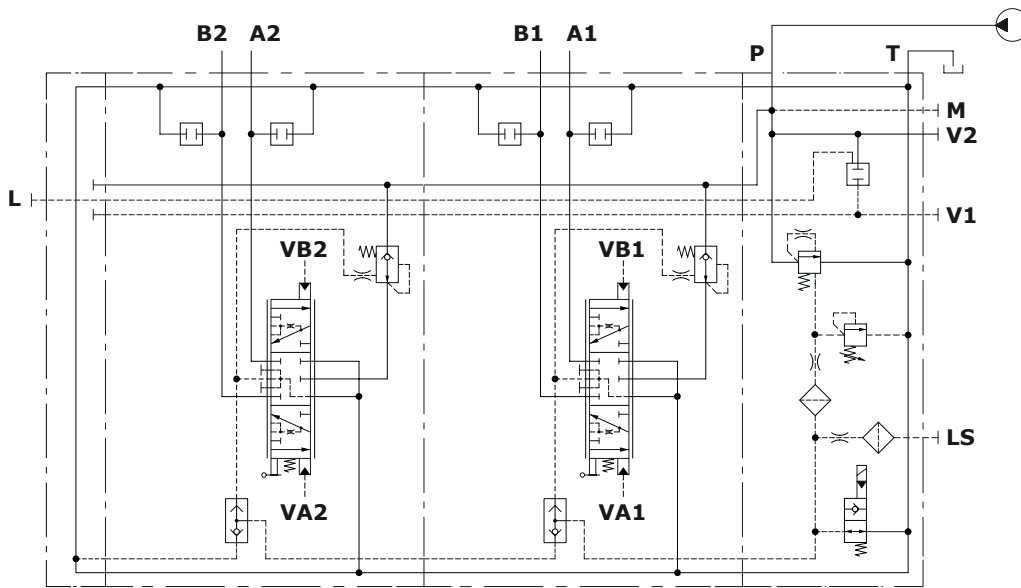
P⇒T Pressure drop inlet compensator (margin pressure)



A(B)⇒T pressure drop (104 standard spool @ max.stroke)

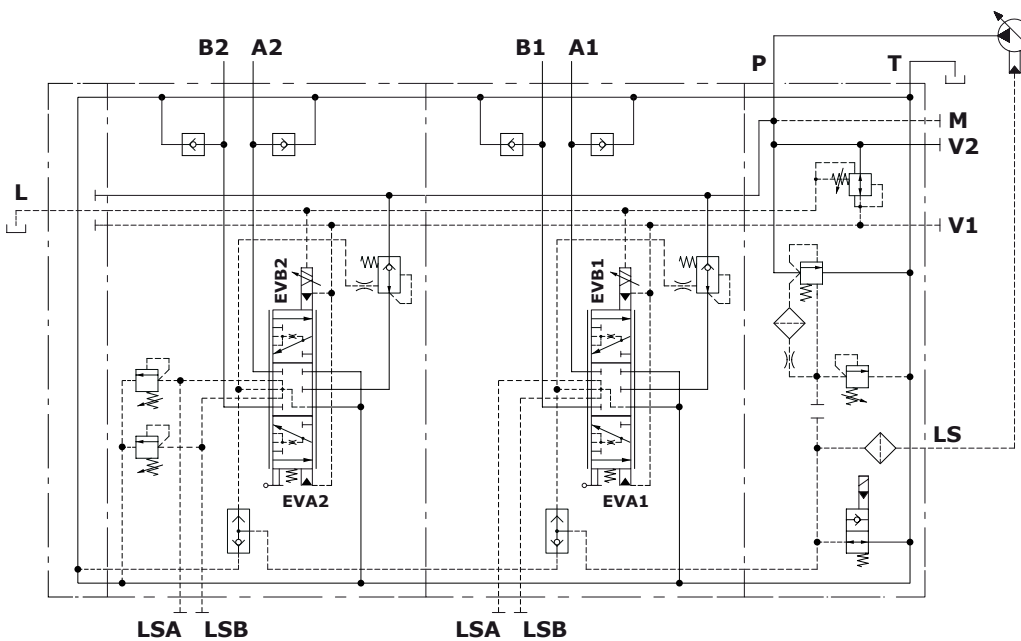


Open center configuration example



Open center circuit and proportional hydraulic control with lever, with unloader valve and port valve arrangement

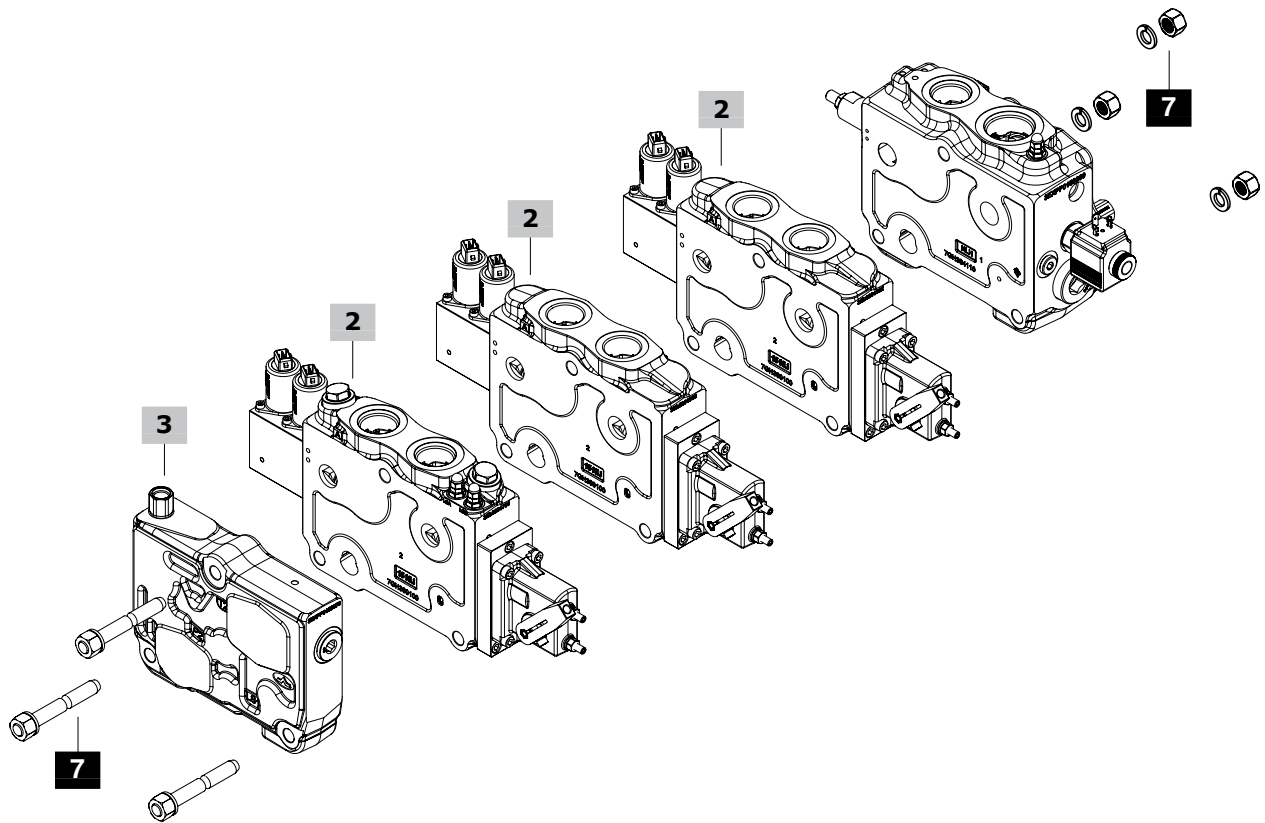
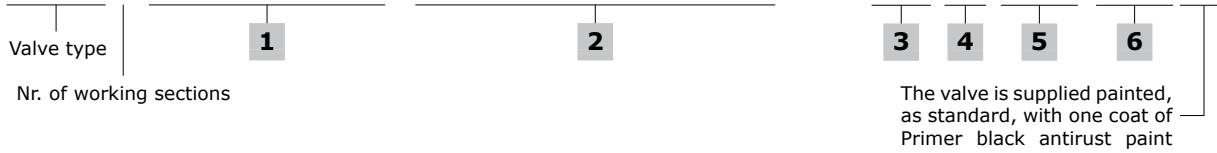
Closed center configuration example



Closed center circuit and one-side proportional electrohydraulic control with lever, with unloader valve and pressure reducing valve, anticavitation valves on all ports, L.S. relief valves on 2nd section, LSA and LSB ports, internal pilot and external drain

Complete section ordering codes

DPC200/3/ BR2-10(H220\ELP) / C10-104(200\200)-8EZ3TLG1/..... / RF30-.....-12VDC-<SB20-CVN>



Tie rod tightening
wrench 19 - 50 Nm (37 lbf^t)

1 Inlet section * page 46**Closed Center circuit**TYPE: **DPC200/BR2-10(H220\ELP)-SAE-12VDC**

CODE: 638205002

DESCRIPTION: With 3-way compensator, L.S. pressure relief valve and 12VDC solenoid operated unloader valve, with P-T-LS ports open

TYPE: **DPC200/BRF2-30(H220\ELP)-SAE-12VDC**

CODE: 638205004

DESCRIPTION: Without compensator, with L.S. pressure relief valve and 12VDC solenoid operated unloader valve, with P-T-LS ports open

Open Center circuitTYPE: **DPC200/BR1-10(H220\ELP)-SAE-12VDC**

CODE: 638205003

DESCRIPTION: With 3-way compensator, L.S. pressure relief valve and 12VDC solenoid operated unloader valve, with P-T-LS ports open

2 Working section * page 52TYPE: **DPC200/C10-104(200\200)-8EZ3TLG1-SAE-12VDC**

CODE: 638105001

DESCRIPTION: With 2-way compensator, double acting spool for 200 l/min (52.8 US gpm), prop. electrohydraulic control with lever.

TYPE: **DPC200/F32-503(150\150)-8EZ3TLG1.ULTULT.STST-SAE-12VDC**

CODE: 638105002

DESCRIPTION: With 2-way compensator, floating spool for 150 l/min (39.5 US gpm), prop. electrohydraulic control with lever, arranged for "UL" size valves and L.S. relief valves, with LSA-LSB ports

3 Outlet section * page 67**For valve with mechanical control**TYPE: **DPC200/RF10**

CODE: 638303001

DESCRIPTION: Without ports

For valve with hydraulic controlTYPE: **DPC200/RF20**

CODE: 638303002

DESCRIPTION: Without ports, internal drain

TYPE: **DPC200/RD21-SAE**

CODE: 638305004

DESCRIPTION: With P1, T1 (plugged) and LS1 ports, internal drain

For valve with electrohydraulic controlTYPE: **DPC200/RF30-SAE**

CODE: 638305003

DESCRIPTION: Without ports, L external drain

TYPE: **DPC200/RD31-SAE**

CODE: 638305005

DESCRIPTION: With P1, T1 (plugged) and LS1 ports, L external drain

4 Valve threading

Specify threading only if it is different from BSP standard (see page 5).

For valve with SAE J518-code 61 flange connection digit:

FS3U(SAE).**5 Voltage**

Specify the voltage of electric devices.

6 Pump stand-by

This option to be specified only if valve is configured for Closed Center circuit, without local compensation and if the value is different from 11.5 bar (167 psi)

7 Assembling kit

CODE	CODE	DESCRIPTION
With inlet section type		
BR type		BRF type
5TIR112215	5TIR112175	For 1 working section valve
5TIR112268	5TIR112228	For 2 working section valve
5TIR112321	5TIR112281	For 3 working section valve
5TIR112374	5TIR112334	For 4 working section valve
5TIR112427	5TIR112387	For 5 working section valve
5TIR112480	5TIR112440	For 6 working section valve
5TIR112533	5TIR112493	For 7 working section valve
5TIR112586	5TIR112546	For 8 working section valve
5TIR112639	5TIR112599	For 9 working section valve
5TIR112692	5TIR112652	For 10 working section valve

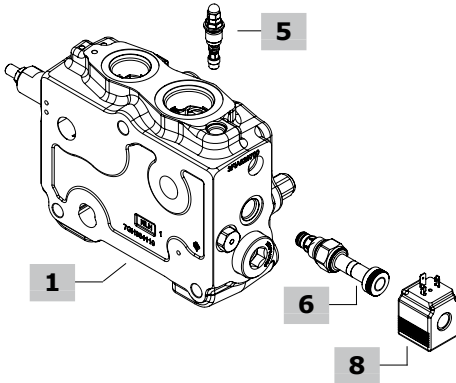
NOTE (*): Codes are referred to **UN-UNF** thread.

Inlet section part ordering codes

Valve setting (bar)

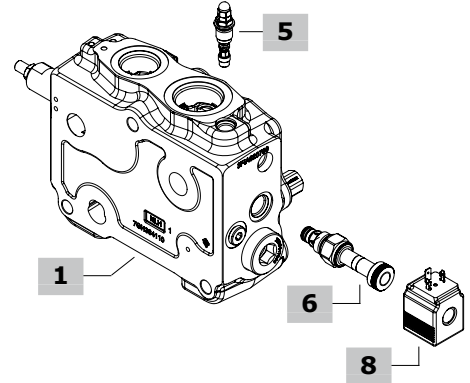
DPC200 / BR1 - 1 0 (H220\ELP\SB15)-.....-12VDC

1 2 3 5 6 4 7 8



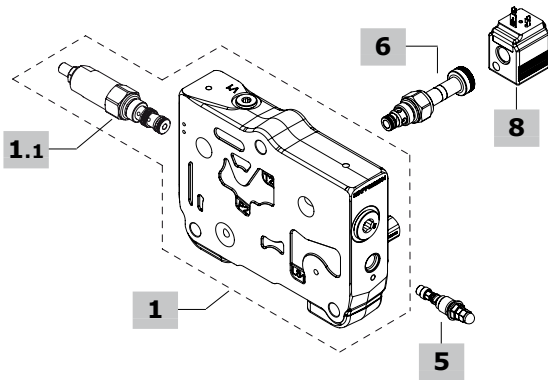
DPC200/BR2 - 1 0 (H220\ELP)-.....-12VDC

1 2 3 5 6 7 8

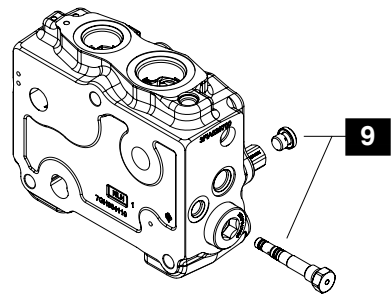


DPC200/BRF2 - 3 0 (H220\ELP)-.....-12VDC

1 2 3 5 6 7 8



Circuit conversion kit



Inlet section part ordering codes

1 Inlet section body kit* page 58**Open Center circuit**

TYPE: **DPC200/BR1-1-SAE** CODE: 5FIA620702
 DESCRIPTION: With compensator and pressure reducing valve, P-T-LS ports (LS plugged), arranged for unloader valve

TYPE: **DPC200/BR1-1-FS3-U(SAE)** CODE: 5FIA620703
 DESCRIPTION: As previous one, with SAE J518-code 61 flange connector

TYPE: **DPC200/BN1-1-SAE** CODE: 5FIA620709
 DESCRIPTION: With compensator, P-T-LS ports (LS plugged), arranged for pressure reducing valve (seat plugged) and unloader valve

Closed Center circuit

TYPE: **DPC200/BR2-1-SAE** CODE: 5FIA620704
 DESCRIPTION: With compensator and pressure reducing valve, P-T-LS ports, arranged for unloader valve

TYPE: **DPC200/BR2-1-FS3-U(SAE)** CODE: 5FIA620705
 DESCRIPTION: As previous one, with SAE J518-code 61 flange connection

TYPE: **DPC200/BN2-1-SAE** CODE: 5FIA620700
 DESCRIPTION: With compensator, P-T-LS ports, arranged for pressure reducing valve (seat plugged) and unloader valve

TYPE: **DPC200/BRF2-3-SAE** CODE: 5FIA620706
 DESCRIPTION: Without compensator, with pressure reducing valve, P-T-LS ports one, arranged for unloader valve

TYPE: **DPC200/BRF2-3-FS3-U(SAE)** CODE: 5FIA620707
 DESCRIPTION: As previous one, with SAE J518-code 61 flange connection

TYPE: **DPC200/BNF2-3-SAE** CODE: 5FIA620710
 DESCRIPTION: Without compensator, with P-T-LS ports, arranged for pressure reducing valve (seat plugged) and unloader valve

1.1 Particolari page 60

They are included in BRF inlet section ordering code

CODE	DESCRIPTION
4AC9539900A	Pressure reducing valve, setting 32 bar (460 psi)
3XTP3535100	Pressure reducing valve blanking plug

2 Port arrangement

TYPE	DESCRIPTION
1	With upper T and P ports (for BR/BN sections)
2	With upper and side T and P ports (for BR/BN sections)
3	With side T and P ports (for BRF section)

3 Port options

TYPE	DESCRIPTION
0	P and T ports open
1	P port open, T port plugged

4 Compensator stanb-by

Specify value only if it is different from the standard (11.5 bar - 167 psi): for Open Center sections

5 L.S. relief valve page 61

Standard setting is referred to 10 l/min (2.6 US gpm) flow.

TYPE	ID	CODE	DESCRIPTION
LSD	S	XCAR126215	With blind nut, range 40-180 bar (580-2600 psi), standard setting 90 bar (1300 psi)
		XCAR126213	As prev., range 180-350 bar (2600-5100 psi), standard setting 180 bar (2600 psi)
LSH	H	XCAR126216	With locked arrangement, range 40-180 bar (580-2600 psi), std setting 90 bar (1300 psi)
		XCAR126217	As prev., range 180-350 bar (2600-5100 psi), standard setting 180 bar (2600 psi)
LSZ	Z	5CAR126221	With anti-tamper cap, range 40-180 bar (580-2600 psi), std setting 90 bar (1300 psi)
		5CAR126219	As prev., range 180-350 bar (2600-5100 psi), standard setting 180 bar (2600 psi)
ST	ST	5KIT126210	Relief valve blanking plug

6 Solenoid operated L.S. unloading valve page 60

BER type coil to be used: please see chapter 9

TYPE	CODE	DESCRIPTION
ELN	0EC08002031	Without emergency override
ELP	0EC08002033	With push-button emergency override
ELT	0EC08002035	With "twist & push" emergency override
ELV	0EC08002034	With screw type emergency override
LT	XTAP510320	Unloading valve blanking plug

7 Section threading

Specify threading only if it is different from BSP standard (see page 5). For valve with SAE J518-code 61 flange connection digit: **FS3-U(SAE)**.

8 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200	BER type coil, ISO4400 conn., 12VDC

For complete available coil list please see page 82.

9 Circuit conversion kit

These kits are NOT available for BRF section.

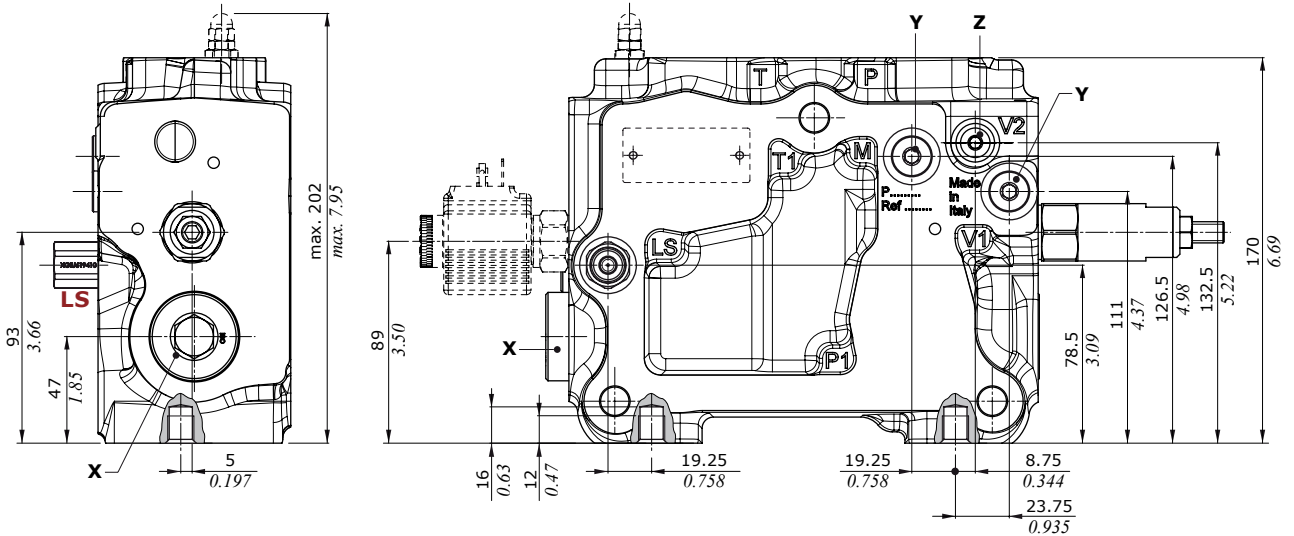
CODE	DESCRIPTION
5KIT200311	For circuit conversion from Open Center to Closed Center; from BR1/BN1 to BR2/BN2 sections
5KIT200710*	Kit for circuit conversion from Closed Center to Open Center; from BR2/BN2 to BR1/BN1 sections

NOTE (*): Codes are referred to **UN-UNF** thread.

Inlet section

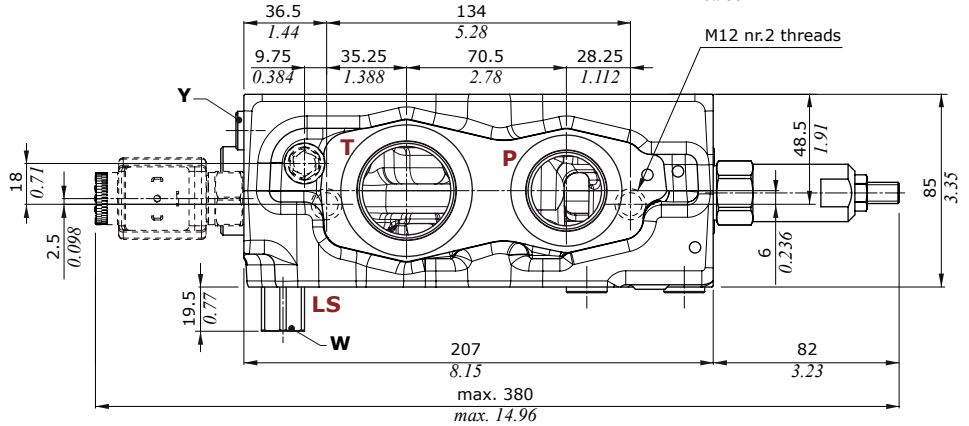
Dimensions and hydraulic circuit

Example of BR section type

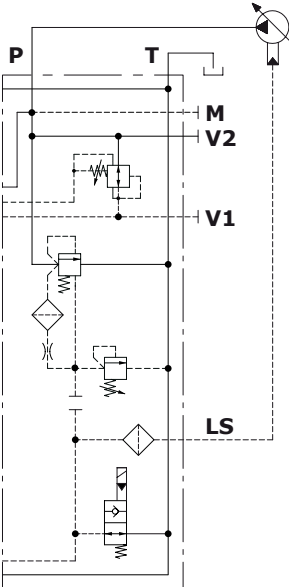


Auxiliary port specification

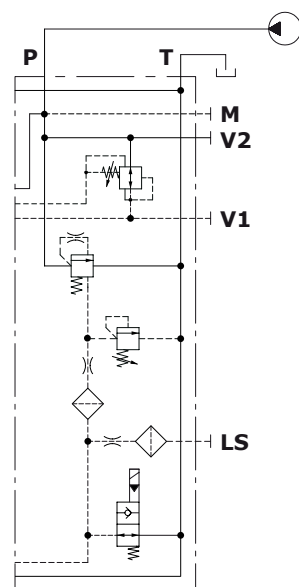
- M** = SAE6 pressure gauge connection
- V1** = SAE6 pilot pressure port (Pmax = 30 bar - 435 psi) for hydraulic pilot control valve feeding (P⇒OUT)
- V2** = M14x1.5 pilot pressure port for electrohydraulic control optional feeding (Pmax = 315 bar - 4600 psi) (P⇒IN): G1/4 joint is required, code 5GIU519612.



Closed center BR2-10(H220\ELN) configuration example



Open center BR1-10(H220\ELN) configuration example

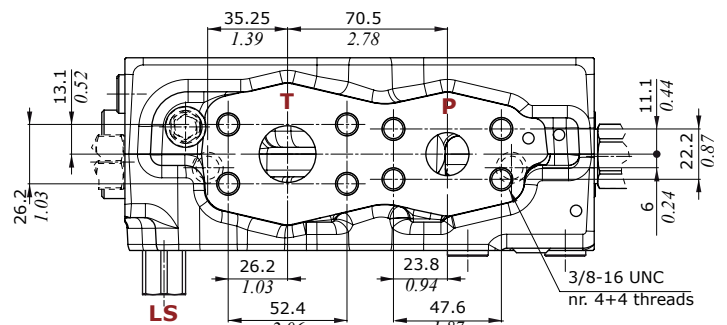


Wrenches and tightening torque

- X = allen wrench 17 - 90 Nm (66 lbft)
- Y = allen wrench 6 - 24 Nm (17.7 lbft)
- Z = allen wrench 5 - 24 Nm (17.7 lbft)
- W = wrench 19 - 24 Nm (17.7 lbft)

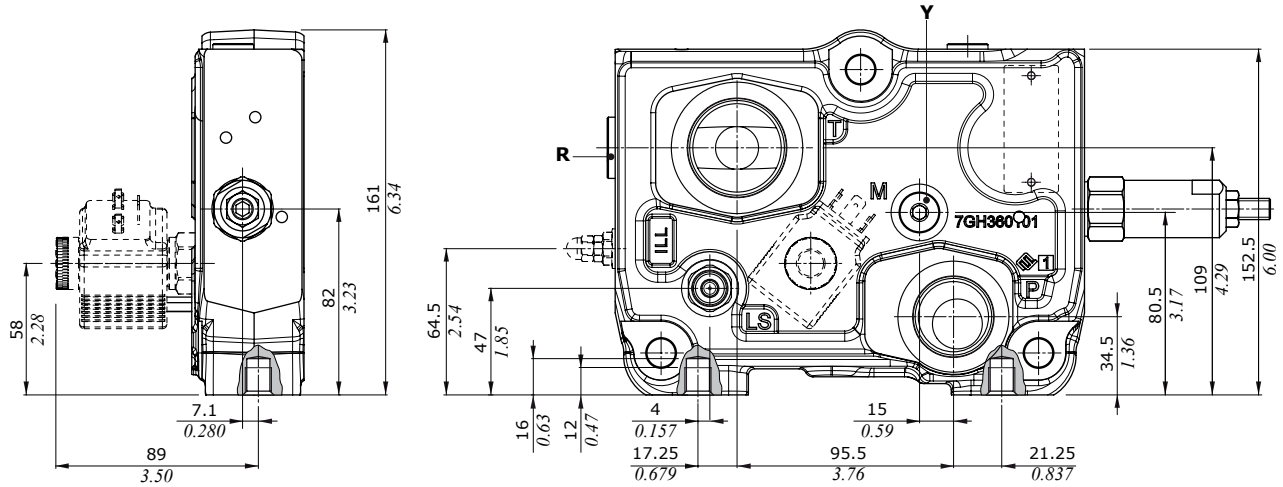
NOTE: for valves wrench and torque please see pages 60-61.

FS3-U(SAE) optional connection



Dimensions and hydraulic circuit

Example of BRF section type

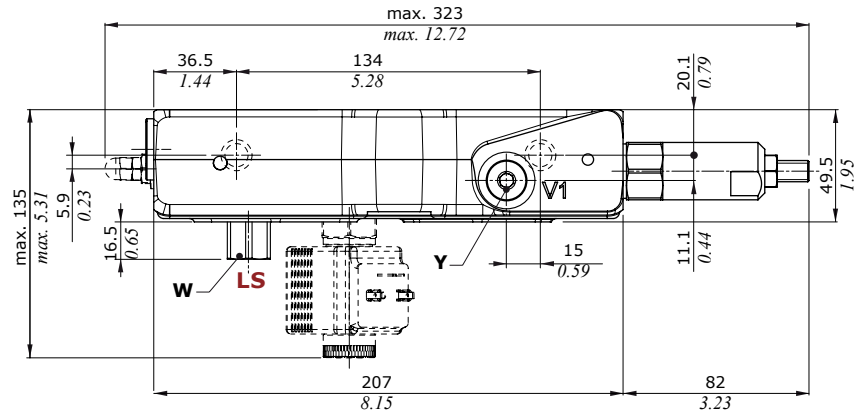


Auxiliary port specification

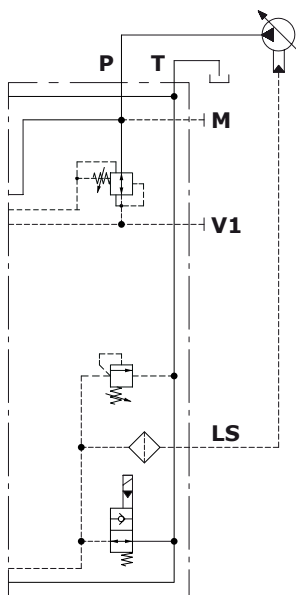
M = SAE6 pressure gauge connection
V1 = SAE6 pilot pressure port (Pmax = 30 bar - 435 psi) for hydraulic pilot control valve feeding (P⇒OUT)

Wrenches and tightening torque

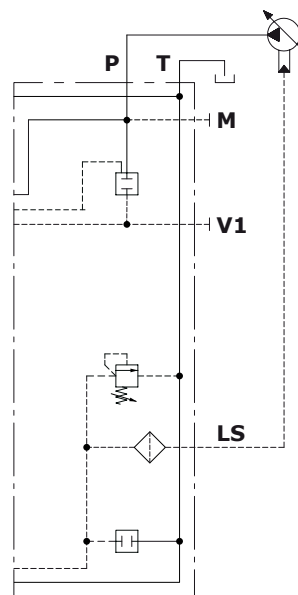
R = allen wrench 10 - 24 Nm (17.7 lbft)
Y = allen wrench 6 - 24 Nm (17.7 lbft)
W = wrench 19 - 24 Nm (17.7 lbft)
 NOTE: for valves wrench and torque please see pages 60-61.



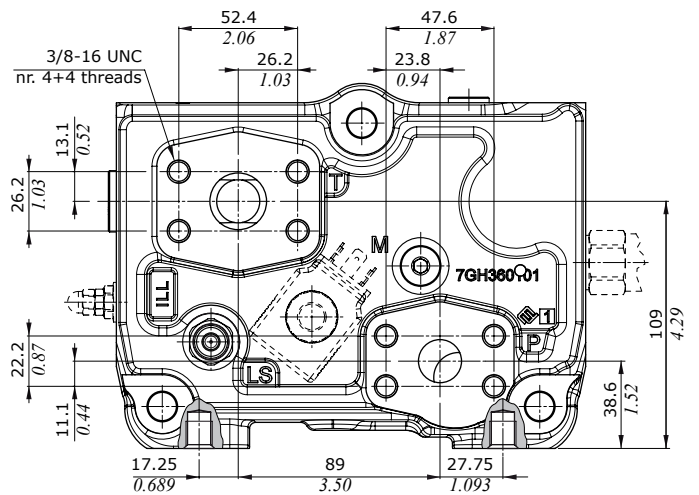
BRF2-30(H220\ELN) configuration



BRF2-30(H220\ELT\RT) configuration



FS3-U(SAE) optional connection

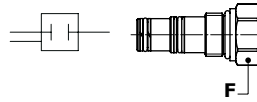
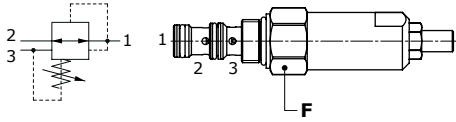


Inlet section

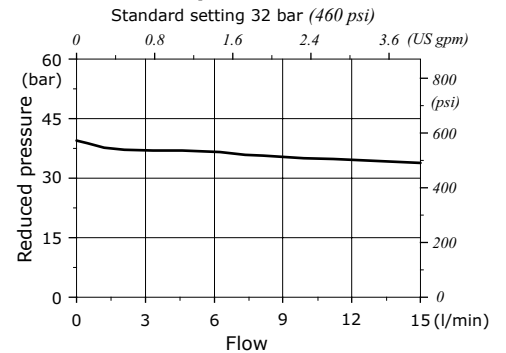
Pressure reducing valve

Pressure reducing valve
code: 4AC9539900

Valve blanking plug
code: 3XTP3535100



Reduced pressure vs. Flow



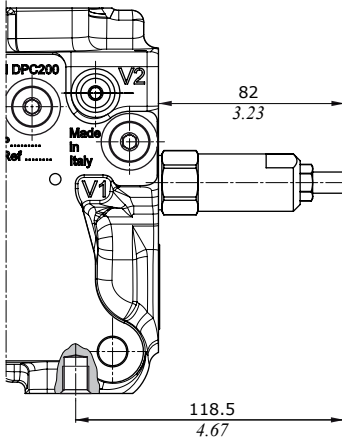
Features

Reduced press. range . . : from 3.5 to 35 bar
(from 50 to 500 psi)
Max. inlet pressure . . . : 420 bar (6100 psi)
Nominal flow : 15 l/min (4 US gpm)

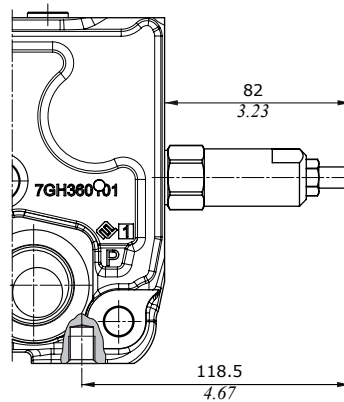
Wrenches and tightening torques

F = wrench 24 - 30 Nm (22 lbf)

On BR section

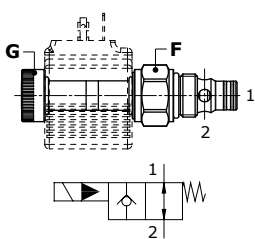


On BRF section

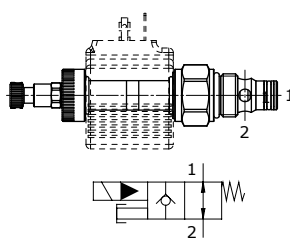


Solenoid operated L.S. unloading valve

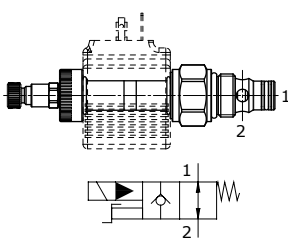
ELN



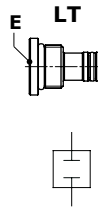
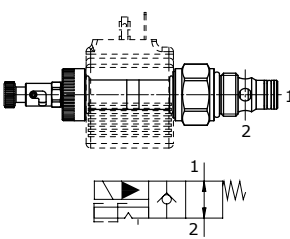
ELP



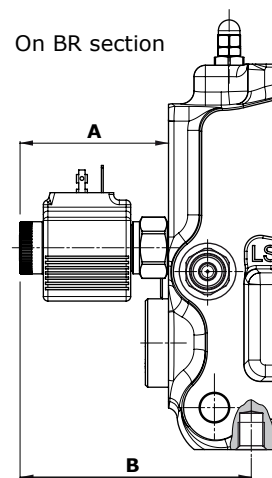
ELV



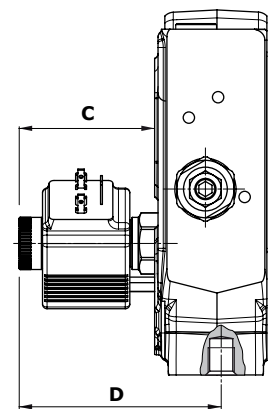
ELT



On BR section



On BRF section



Wrenches and tightening torques

F = wrench 24 - 30 Nm (22 lbf)
G = manual tightening
E = wrench 10 - 24 Nm (17.7 lbf)

Legenda

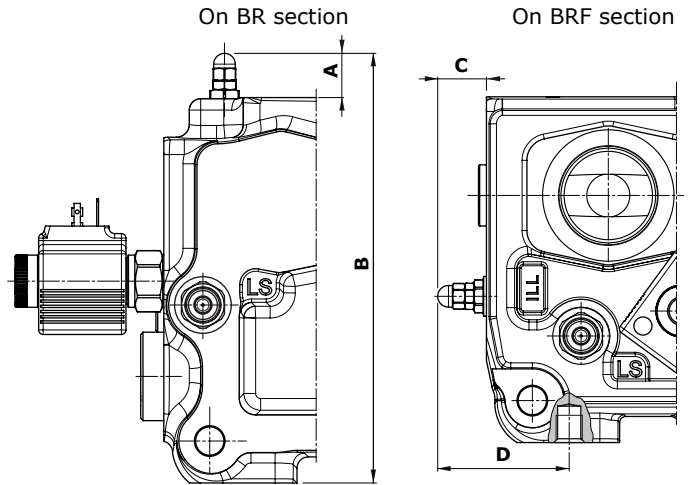
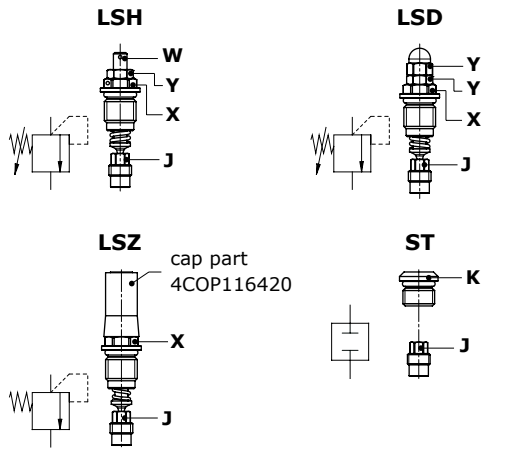
ELN: without emergency
ELP: push button emergency override
ELV: screw emergency override
ELT: "push&twist" emergency override
LT: valve blanking plug

Features

Max. flow : 40 l/min (10.6 US gpm)
Max. pressure : 380 bar (5500 psi)
Internal leakage . . : 0.25 cm³/min @ 210 bar (0.015 in³/min @ 3050 psi)
For coil features and **BER** type coil options please see at page 83.

Valve type	BR section		BRF section	
	A	B	C	D
ELN	65.5 mm / 2.58 in	102 mm / 4.02 in	60 mm / 2.36 in	89 mm / 3.50 in
ELP	88.5 mm / 3.48 in	125 mm / 4.92 in	83 mm / 3.27 in	112 mm / 4.41 in
ELV	88.5 mm / 3.48 in	125 mm / 4.92 in	83 mm / 3.27 in	112 mm / 4.41 in
ELT	91 mm / 3.58 in	127.5 mm / 5.02 in	85.5 mm / 3.37 in	114.5 mm / 4.51 in

L.S. pressure relief valve



Legenda

LSH: with lock arrangement

LSD: with blind nut

LSZ: with anti-tamper cap

ST: valve blanking plug

Wrenches and tightening torques

X = wrench 13 - 24 Nm (17.7 lbf)

Y = wrench 10 - 9.8 Nm (7.2 lbf)

W = allen wrench 3

J = wrench 7 - 24 Nm (17.7 lbf)

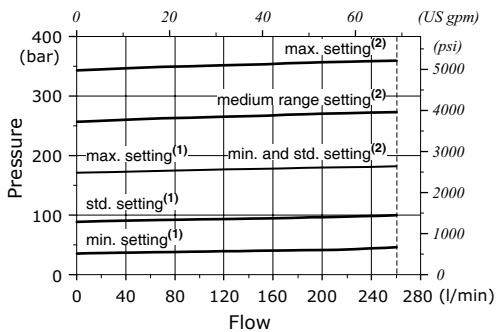
K = allen wrench 5 - 24 Nm (17.7 lbf)

Valve type	BR section				BRF section			
	A	B	C	D	A	B	C	D
	mm	in	mm	in	mm	in	mm	in
LSD	19.5	0.77	189.5	7.46	21.5	0.85	58	2.28
LSH	15	0.59	185	7.28	16	0.63	52.5	2.07
LSZ	32	1.26	202	7.95	34	1.34	70.5	2.78

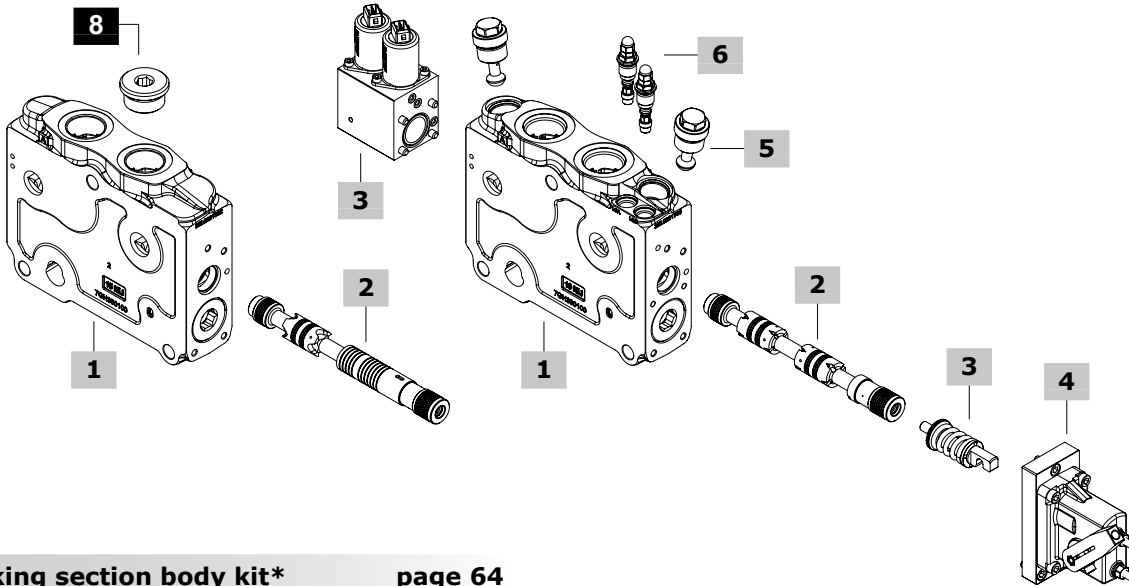
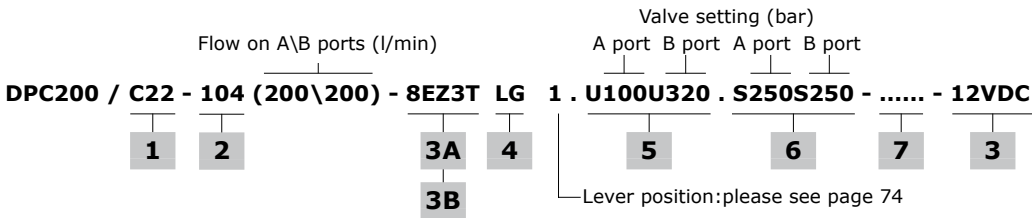
Pressure vs. flow diagram

(1) = valve range 40-180 bar (580-2600 psi)

(2) = valve range 180-350 bar (2600-5000 psi)



Working section parts ordering codes



1 Working section body kit* page 64

With compensator

- TYPE: **DPC200/C10-SAE** CODE: 5EL6201710
- DESCRIPTION: Without valve arrangement
- TYPE: **DPC200/C10-FS3-U** CODE: 5EL6209210U
- DESCRIPTION: As previous one, with SAE J518-code 61 flange connect.
- TYPE: **DPC200/C11-SAE** CODE: 5EL6301711
- DESCRIPTION: Without valve arrangement, with LSA-LSB ports
- TYPE: **DPC200/C11-FS3-U(SAE)** CODE: 5EL6209211S
- DESCRIPTION: As previous one, with SAE J518-code 61 flange connect.
- TYPE: **DPC200/C22-SAE** CODE: 5EL6201722
- DESCRIPTION: Arranged for "U" size valves and L.S. relief valves, with LSA-LSB ports
- TYPE: **DPC200/C22-FS3-U(SAE)** CODE: 5EL6209222S
- DESCRIPTION: As previous, with SAE J518-code 61 flange connect.
- TYPE: **DPC200/C32-SAE** CODE: 5EL6201732
- DESCRIPTION: Arranged for "UL" size valves and L.S.relief valves, with LSA-LSB ports
- TYPE: **DPC200/C32-FS3-U(SAE)** CODE: 5EL6209232S
- DESCRIPTION: As previous one, with SAE J518-code 61 flange connect.
- TYPE: **DPC200/F32-SAE** CODE: 5EL6204732
- DESCRIPTION: As C32 type, for floating circuit
- TYPE: **DPC200/F32-FS3-U(SAE)** CODE: 5EL6209232FS
- DESCRIPTION: As previous one, with SAE J518-code 61 flange connect.

Without compensator, with check valve

- TYPE: **DPC200/CV32-SAE** CODE: 5EL6201332AS
- DESCRIPTION: Arranged for "UL" size valves and L.S. relief valves, with LSA-LSB ports
- TYPE: **DPC200/CV32-FS3-U(SAE)** CODE: 5EL6209232AS
- DESCRIPTION: As previous one, with SAE J518-code 61 flange connect.
- TYPE: **DPC200/FV32-SAE** CODE: 5EL6204732A
- DESCRIPTION: For floating circuit, arranged for "UL" size valves and L.S. relief valves, with LSA-LSB ports
- TYPE: **DPC200/FV32-FS3-U(SAE)** CODE: 5EL6209232FAS
- DESCRIPTION: As previous one, with SAE J518-code 61 flange connect.

2 Spool page 66

Flow is referred to 7 bar (102 psi) stand-by (margin pressure)

TYPE	CODE	DESCRIPTION
Double acting with A and B closed in neutral position		
105	3CU4510025	25 l/min (6.6 US gpm) flow
101	3CU4510051	50 l/min (13.2 US gpm) flow
106	3CU4510075	75 l/min (19.8 US gpm) flow
102	3CU4510101	100 l/min (26.4 US gpm) flow
107	3CU4510125	125 l/min (33 US gpm) flow
103	3CU4510151	150 l/min (39.5 US gpm) flow
108	3CU4510175	175 l/min (46.2 US gpm) flow
104	3CU4510201	200 l/min (52.8 US gpm) flow
Double acting with A and B to tank in neutral position		
205	3CU4524025	25 l/min (6.6 US gpm) flow
201	3CU4524050	50 l/min (13.2 US gpm) flow
206	3CU4524075	75 l/min (19.8 US gpm) flow
202	3CU4524100	100 l/min (26.4 US gpm) flow
207	3CU4524125	125 l/min (33 US gpm) flow
203	3CU4524150	150 l/min (39.5 US gpm) flow
208	3CU4524175	175 l/min (46.2 US gpm) flow
204	3CU4524200	200 l/min (52.8 US gpm) flow
Double acting with A and B partially to tank in neutral position		
2H05	3CU4525025	25 l/min (6.6 US gpm) flow
2H01	3CU4525050	50 l/min (13.2 US gpm) flow
2H06	3CU4525075	75 l/min (19.8 US gpm) flow
2H02	3CU4525100	100 l/min (26.4 US gpm) flow
2H07	3CU4525125	125 l/min (33 US gpm) flow
2H03	3CU4525150	150 l/min (39.5 US gpm) flow
2H08	3CU4525175	175 l/min (46.2 US gpm) flow
2H04	3CU4525200	200 l/min (52.8 US gpm) flow
.....to be continued		

NOTE (*): Codes are referred to **UN-UNF** thread.

Working section parts ordering codes

2 Spool page 66

TYPE	CODE	DESCRIPTION
Single acting on A, B plugged: needs G1 plug		
305	3CU4530025	25 l/min (6.6 US gpm) flow
301	3CU4530050	50 l/min (13.2 US gpm) flow
306	3CU4530075	75 l/min (19.8 US gpm) flow
302	3CU4530100	100 l/min (26.4 US gpm) flow
307	3CU4530125	125 l/min (33 US gpm) flow
303	3CU4530150	150 l/min (39.5 US gpm) flow
308	3CU4530175	175 l/min (46.2 US gpm) flow
304	3CU4530200	200 l/min (52.8 US gpm) flow

Double acting with A and B closed in neutral position, 4 positions, floating in 4th pos., spool in: needs working section type F or FV, positioner and controls type 13

501	3CU4541050	50 l/min (13.2 US gpm) flow
502	3CU4541100	100 l/min (26.4 US gpm) flow
503	3CU4541150	150 l/min (39.5 US gpm) flow
504	3CU4541200	200 l/min (52.8 US gpm) flow

3A "A" side spool control kit page 68

TYPE	CODE	DESCRIPTION
Mechanical positioners		
7FT	5V07200000	With friction and center position feeling
8	5V08200000	3 positions, spring return to neutral position
13	5V13200000	For floating circuit (type 5 spool), 4 pos., detent in 4 th position, with spring return to neutral pos.

Proportional hydraulic controls

8IM	5V08200870*	Range from 5.2 to 15.3 bar (75 to 222 psi)
13IM	5V13200870*	For floating circuit (type 5 spool), range 2.5 to 7 bar (75 to 222 psi), floating 11 bar (160 psi)

3B Electrohydraulic controls page 70

TYPE	CODE	DESCRIPTION
<u>Standard types</u>		
8EZ3T-12VDC	5V08200721	With AMP integrated connector
8EZ3T-24VDC	5V08200741	With AMP integrated connector
8EZ3T4-12VDC	5V08200722	With Deutsch integrated conn.
8EZ3T4-24VDC	5V08200742	With Deutsch integrated conn.
<u>With digital spool position sensor#</u>		
8EZ3TSPSD-12VDC	5V08200725	With AMP integrated connector
8EZ3TSPSD-24VDC	5V08200745	With AMP integrated connector
8EZ3T4SPSD-12VDC	5V08200727	With Deutsch integrated conn.
8EZ3T4SPSD-24VDC	5V08200747	With Deutsch integrated conn.
<u>With analog spool position sensor#</u>		
8EZ3TSPSL-12VDC	5V08200625	With AMP integrated connector
8EZ3TSPSL-24VDC	5V08200645	With AMP integrated connector
8EZ3T4SPSL-12VDC	5V08200627	With Deutsch integrated conn.
8EZ3T4SPSL-24VDC	5V08200647	With Deutsch integrated conn.
<u>For floating circuit (type 5 spool)</u>		
13EZ3T-12VDC	5V13200721	With AMP integrated connector
13EZ3T-24VDC	5V13200741	With AMP integrated connector
13EZ3T4-12VDC	5V13200722	With Deutsch integrated conn.
13EZ3T4-24VDC	5V13200742	With Deutsch integrated conn.

4 "B" side spool control kit page 74

TYPE	CODE	DESCRIPTION
LG	5LEV200802	Cast iron lever box
LGN	5LEV200801	Cast iron lever box, without lever
L	5LEV200701	Aluminium lever box

5 Port valves page 75

TYPE	CODE	DESCRIPTION
"U" size valves		
UT	XTAP522442	Valve blanking plug
C	5KIT410000	Anticavitation valve (for U cavity)
<u>Fixed setting antishock and anticavitation valves: setting is referred to 10 l/min (2.6 US gpm)</u>		
TYPE: U 100	CODE: 5KIT330 100	
	└ setting (bar)	└ setting (bar)
SETTING:		
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)	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)

"UL" size valves

ULT	XTAP528520	Valve blanking plug
CL	5KIT409000	Anticavitation valve (for UL cavity)
<u>Fixed setting antishock and anticavitation valves with pressure relief function: setting is referred to 5 l/min (1.3 US gpm)</u>		

TYPE: UL 100	CODE: 5KIT340 100 L
	└ setting (bar)

SETTING:		
50 bar (725 psi)	70 bar (1010 psi)	80 bar (1150 psi)
100 bar (1450 psi)	120 bar (1750 psi)	130 bar (1900 psi)
140 bar (2050 psi)	150 bar (2150 psi)	160 bar (2300 psi)
170 bar (2450 psi)	180 bar (2600 psi)	190 bar (2750 psi)
200 bar (2900 psi)	210 bar (3050 psi)	220 bar (3200 psi)
250 bar (3600 psi)	270 bar (3900 psi)	300 bar (4350 psi)
320 bar (4650 psi)	350 bar (5050 psi)	370 bar (5350 psi)
380 bar (5500 psi)		

6 L.S. port relief valves page 76

Standard setting is referred to 10 l/min (2.6 US gpm) flow.

TYPE	ID	CODE	DESCRIPTION
LSD	S	XCAR126215	With blind nut, range 40-180 bar (580-2600 psi), standard setting 90 bar (1300 psi)
		XCAR126213	As prev., range 180-350 bar (2600-5100 psi), standard setting 180 bar (2600 psi)
LSH	H	XCAR126216	With locked arrangement, range 40-180 bar (580-2600 psi), std setting 90 bar (1300 psi)
		XCAR126217	As prev., range 180-350 bar (2600-5100 psi), standard setting 180 bar (2600 psi)
LSZ	Z	5CAR126221	With anti-tamper cap, range 40-180 bar (580-2600 psi), std setting 90 bar (1300 psi)
		5CAR126219	As prev., range 180-350 bar (2600-5100 psi), standard setting 180 bar (2600 psi)
ST	ST	5KIT126210	Relief valve blanking plug

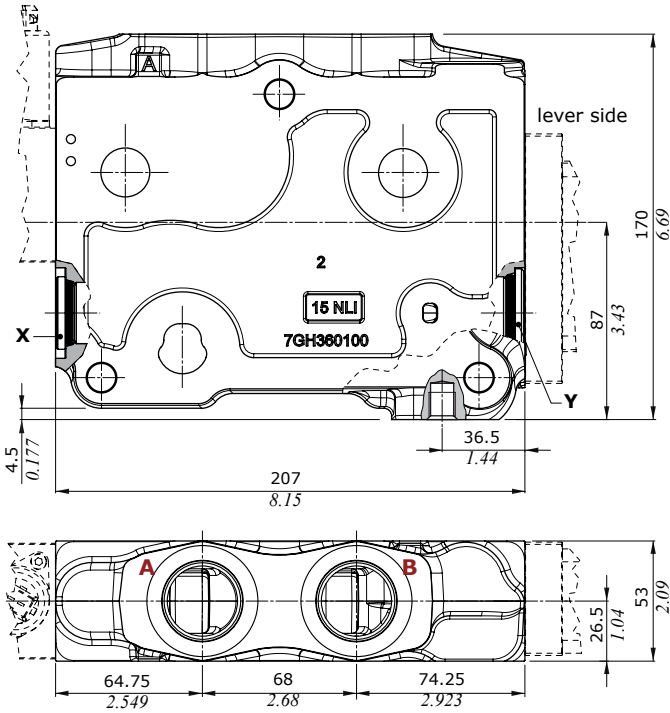
7 Section threadingSpecify threading only if it is different from BSP standard. For valve with SAE J518-code 61 flange connection digit: **FS3-U(SAE)**, only **FS3-U** for **C10** type.**8 Plug for single acting spool***

CODE	DESCRIPTION
3XTAP838200	SAE16 plug
4FL1066181	3/4" blind flange

Working section

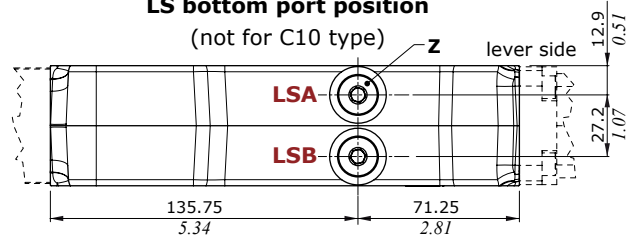
Dimensions and hydraulic circuit

Without port valves



LS bottom port position

(not for C10 type)



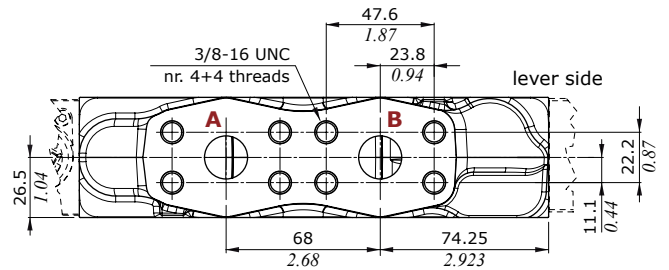
Wrenches and tightening torques

X = allen wrench 12 - 90 Nm (66 lbf)

Y = allen wrench 17 - 90 Nm (66 lbf)

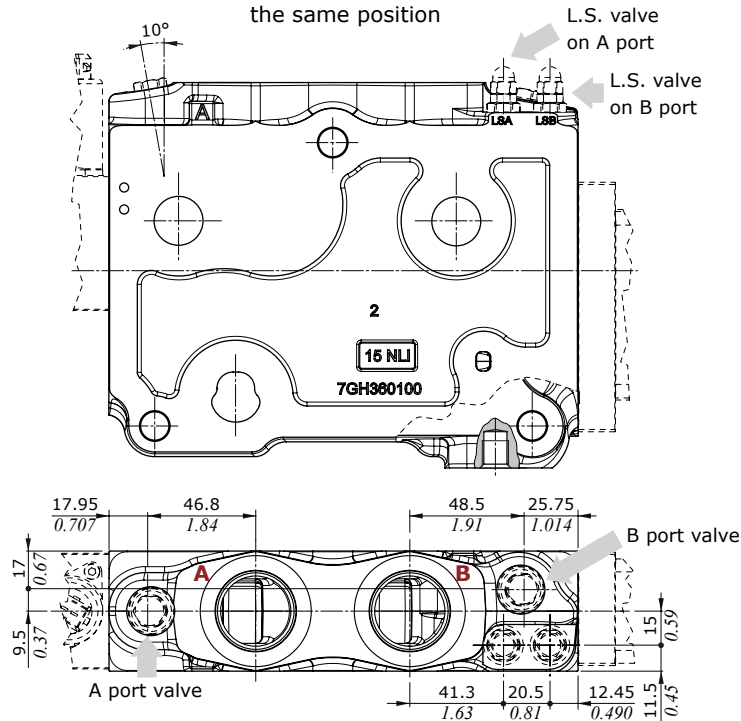
Z = allen wrench 6 - 24 Nm (17.7 lbf)

FS3-U(BSP) optional connection



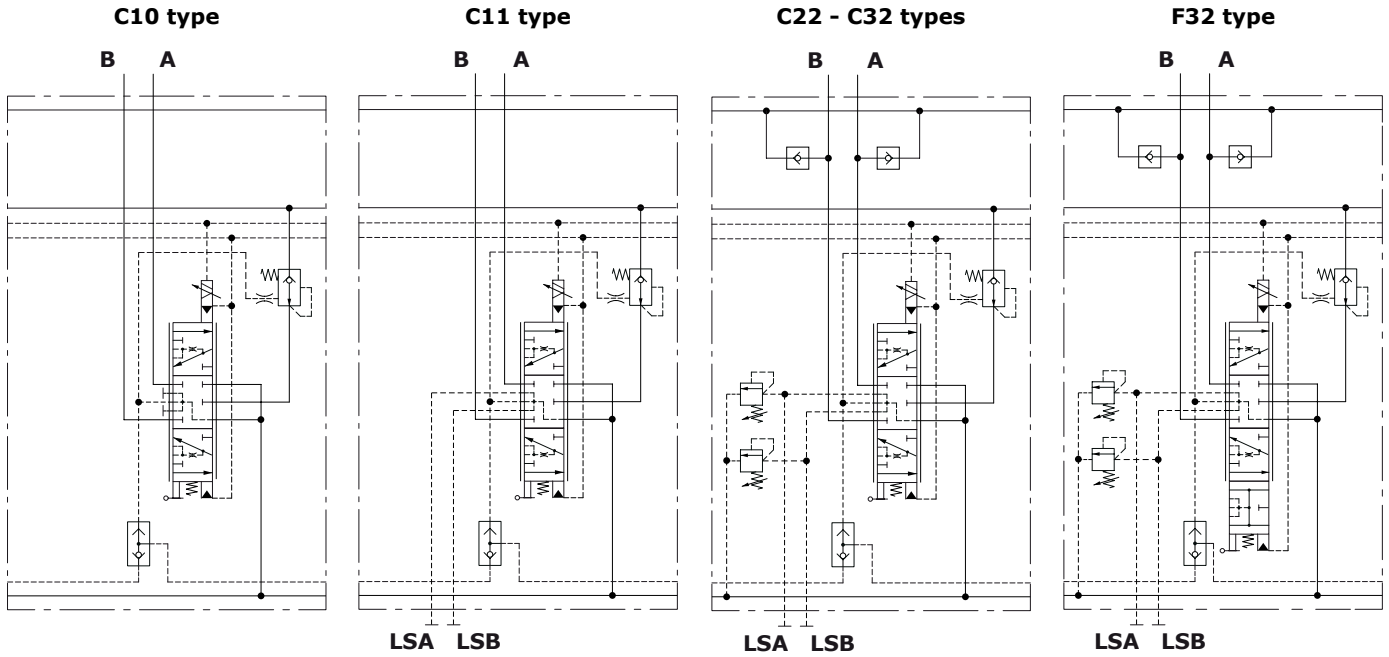
With port valves

"U" and "UL" size valves have the same position

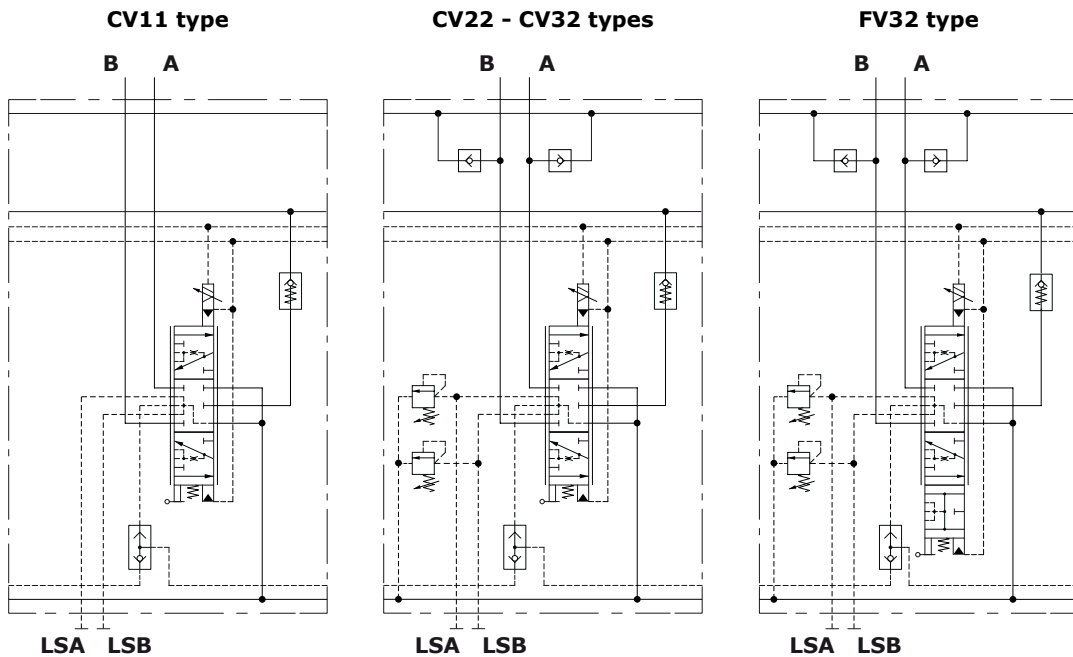


Dimensions and hydraulic circuit

With compensator



Without compensator, with check valve

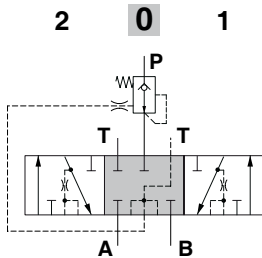


Working section

Spools

1 type spool

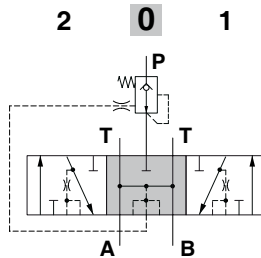
A, B closed in neutral position



Spool stroke
 position 1: - 8 mm (- 0.31 in)
 position 2: + 8 mm (+ 0.31 in)

2 type spool

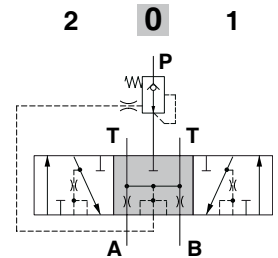
A, B open to tank in neutral pos.



Spool stroke
 position 1: - 8 mm (- 0.31 in)
 position 2: + 8 mm (+ 0.31 in)

2H type spool

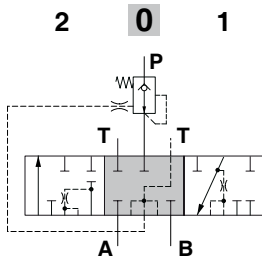
A, B partially to tank in neutral pos.



Spool stroke
 position 1: - 8 mm (- 0.31 in)
 position 2: + 8 mm (+ 0.31 in)

3 type spool

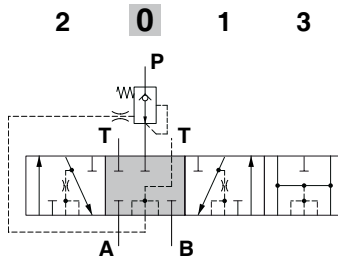
single acting on A



Spool stroke
 position 1: - 8 mm (- 0.31 in)
 position 2: + 8 mm (+ 0.31 in)

5 type spool

floating in 4th position (pos.3)

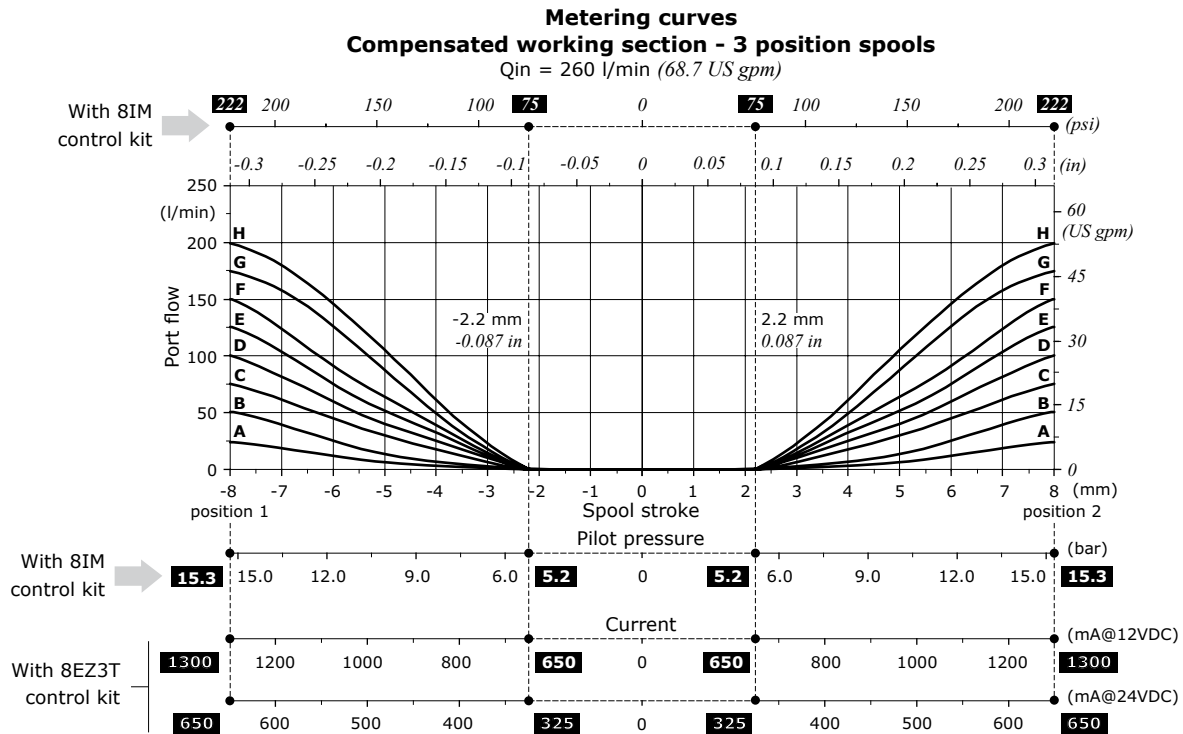


Spool stroke
 position 1: - 8 mm (- 0.31 in)
 position 2: + 8 mm (+ 0.31 in)
 position 3: - 13 mm (- 0.51 in)

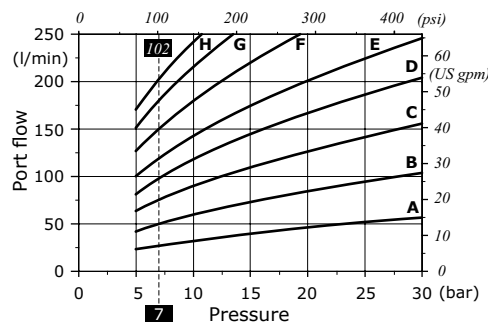
Spools

Following curves are detected with standard spools, connecting P⇒A⇒B⇒T and P⇒B⇒A⇒T ports without flow multiplication. Customized spools with backpressure or flow multiplication may require different force, pressure and pilot current for operation.

NOTE: for spools up to 120 l/min (31.7 US gpm), the effective flow on working ports may differ by 10% between the 1st an 10th section.



Non-compensated working section
Spool flow vs. Stand-by pressure
(margin pressure)



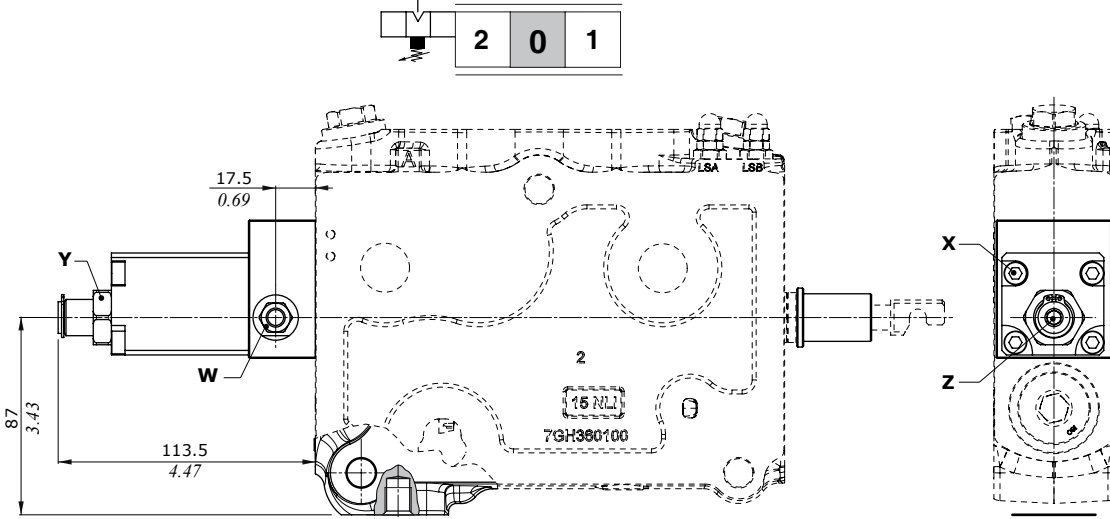
Spool nominal flow @ 7 bar (102 psi) stand-by (margin pressure)

- A = 25 l/min (6.6 US gpm)
- B = 50 l/min (13.2 US gpm)
- C = 75 l/min (19.8 US gpm)
- D = 100 l/min (26.4 US gpm)
- E = 125 l/min (33 US gpm)
- F = 150 l/min (39.5 US gpm)
- G = 175 l/min (46.2 US gpm)
- H = 200 l/min (52.8 US gpm)

Working section

"A" side spool control kit

With friction and center position feeling: 7FT type



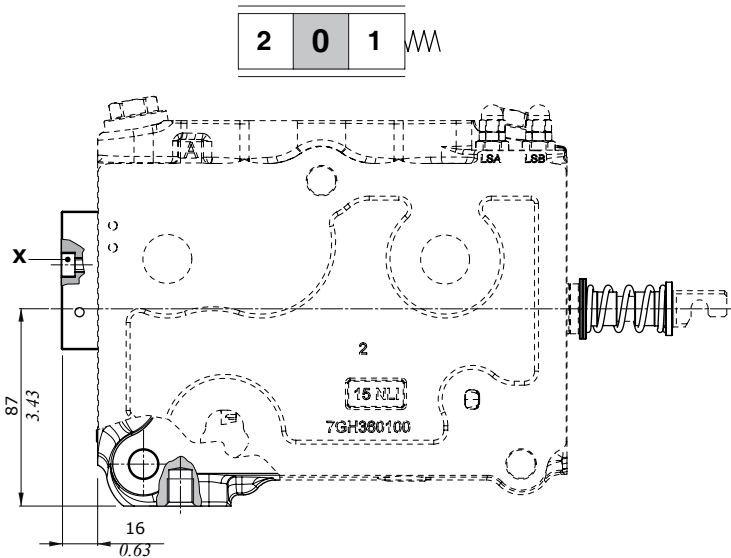
Features

- Friction load adjusting 20-150 N (4.5-34 lbf)
- Friction load std. setting 100 N (22.5 lbf)
- Center tap (more than load) 100 N (22.5 lbf)

Wrenches and tightening torques

- X = wrench 5 - 9.8 Nm (7.2 lbf)
- Y = wrench 24 - 42 Nm (31 lbf)
- Z = allen wrench 6
- W = wrench 13 - 24 Nm (17.7 lbf)

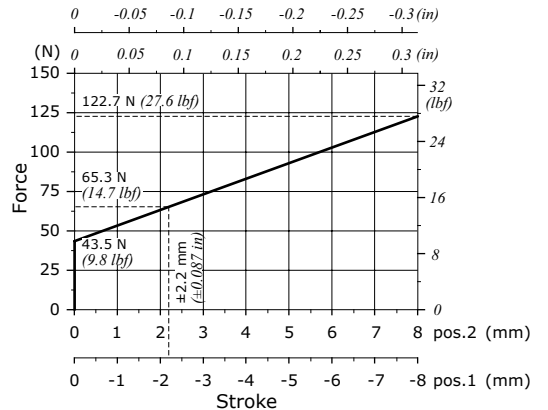
With spring return to neutral position: 8 type



Wrenches and tightening torques

- X = wrench 5 - 9.8 Nm (7.2 lbf)

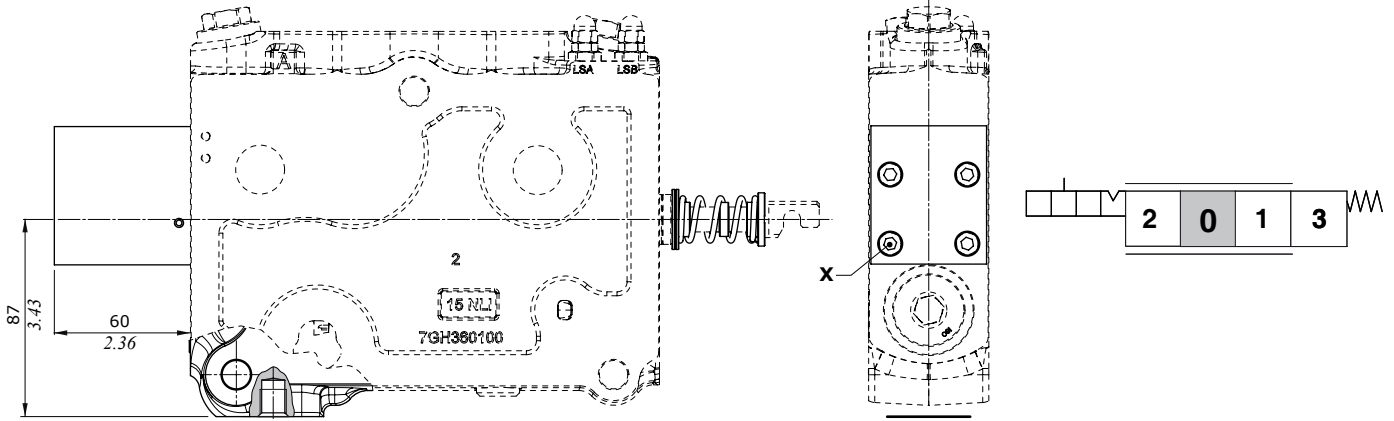
Force vs. Stroke diagram



"A" side spool control kit

With detent in 4th position (pos.3), for floating circuit: 13 type

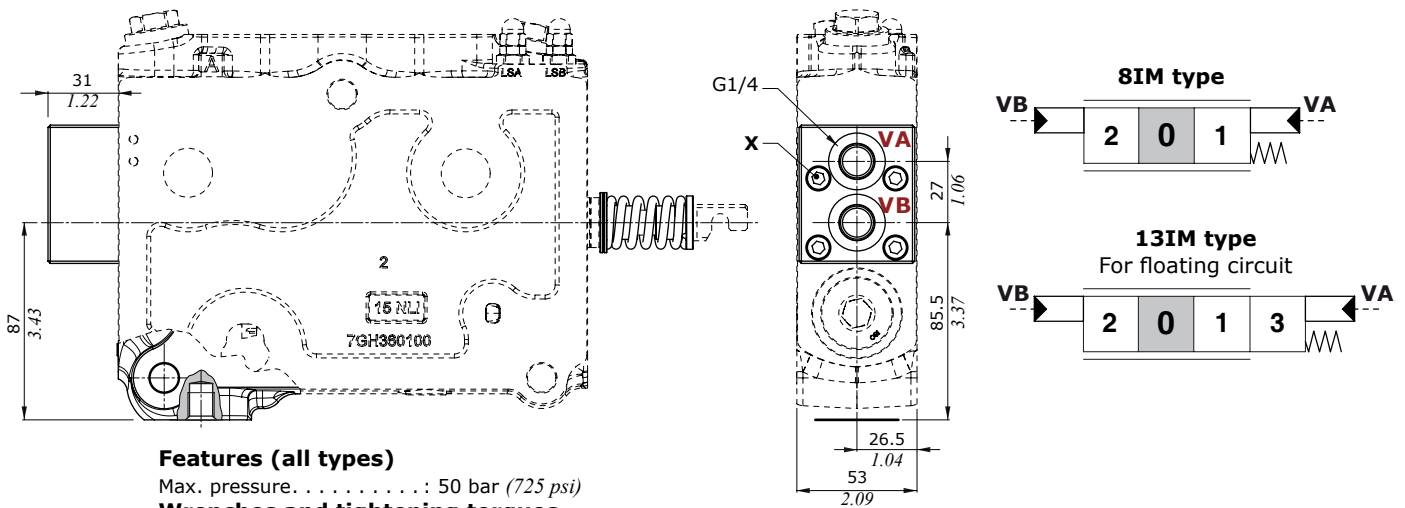
F or FV type working section and floating circuit type 5 spools are required



Wrenches and tightening torques

X = wrench 5 - 9.8 Nm (7.2 lbf)

Proportional hydraulic controls



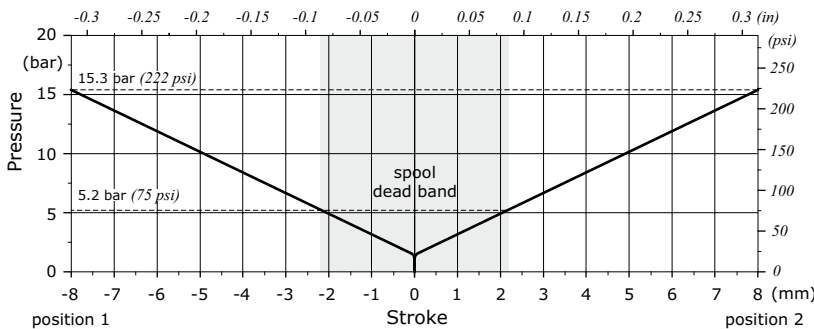
Features (all types)

Max. pressure : 50 bar (725 psi)

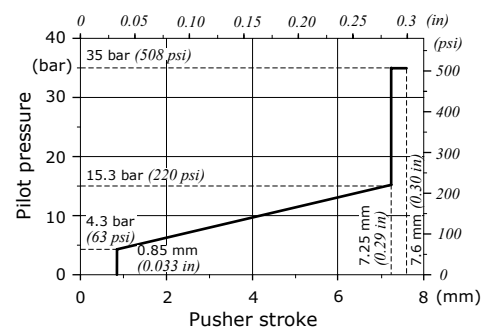
Wrenches and tightening torques

X = wrench 5 - 9.8 Nm (7.2 lbf)

8IM type: Stroke vs. Pressure diagram



Type 8IM: suggested pressure control curve: 020 type



Working section

Electrohydraulic controls

Following specifications are measured with:

- mineral oil of 46 mm²/s (46 cSt) viscosity at 40°C (104°F) temperature,
- 20°C (60°F) environmental temperature,
- standard spools, connecting P⇒A⇒B⇒T ports without flow multiplication,
- 12 VDC and 24 VDC nominal voltage with ± 10% tolerance.

Specifications	Spool control type		
	8EZ3T	13EZ3T	
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⁾	internal drain	5% with lever	7% with lever
Time response	from 0 ⇒ 100% of stroke	< 150 ms	< 250 ms
	from 100% ⇒ 0 of stroke	< 80 ms	< 125 ms
Min. flow control signal	12 VDC	650 mA	400 mA
	24 VDC	325 mA	200 mA
Max. flow control signal	12 VDC	1300 mA	600 mA
	24 VDC	650 mA	300 mA
Float flow control signal	12 VDC	-	850 mA
	24 VDC	-	250 mA
Dither frequency	low frequency	150 Hz	150 Hz
	high frequency	150 Hz - 350 mA	150 Hz - 350 mA
Insertion		100%	100%
Coil insulation		Class H (180°C - 356°F)	Class H (180°C - 356°F)
Connector type		AMP JPT - Deutsch DT	AMP JPT - Deutsch DT
Weather protection (connector)		IP65 (JPT type) - IP69K (DT type)	IP65 (JPT type) - IP69K (DT type)
Hydraulic specifications			
Max. pressure		50 bar (725 psi)	50 bar (725 psi)
Max. back pressure on drain		2.5 bar (36 psi)	2.5 bar (36 psi)

Note (1) for the calculation rules please see "Appendix A" on page 86.

Listed electrohydraulic controls require CED400W electronic unit; for information please contact Sales Department.

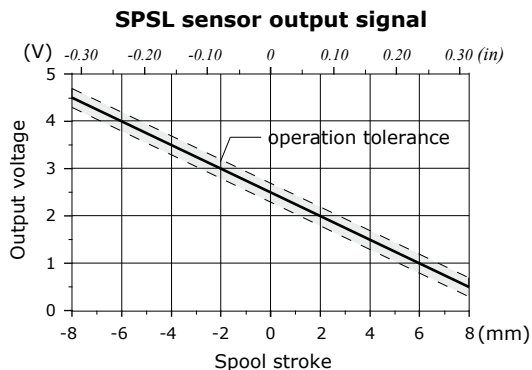
Electrohydraulic controls without on-board electronic: spool position sensor

The sensor can be ordered exclusively through the electrohydraulic controls; please see page 63 for available control list.

SPSL sensor

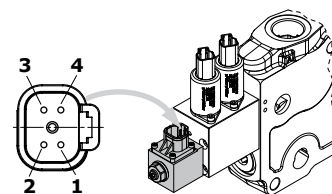
The SPSL position sensor converts the spool movements into a voltage linear signal..

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

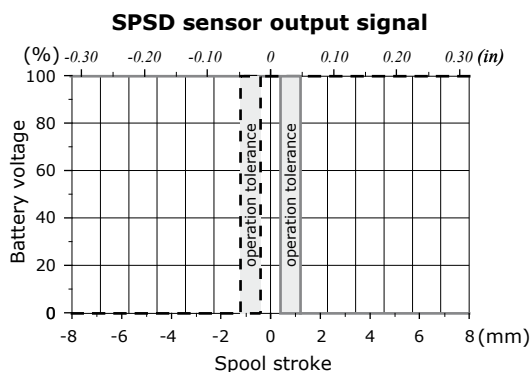


Deutsch DT06-4S mating connector, code 5CON140072

SPSD sensor

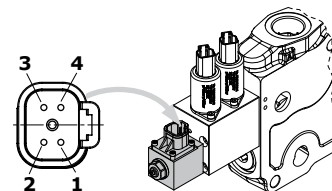
The SPSP position sensor converts the spool movements into an electric digital signal.

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

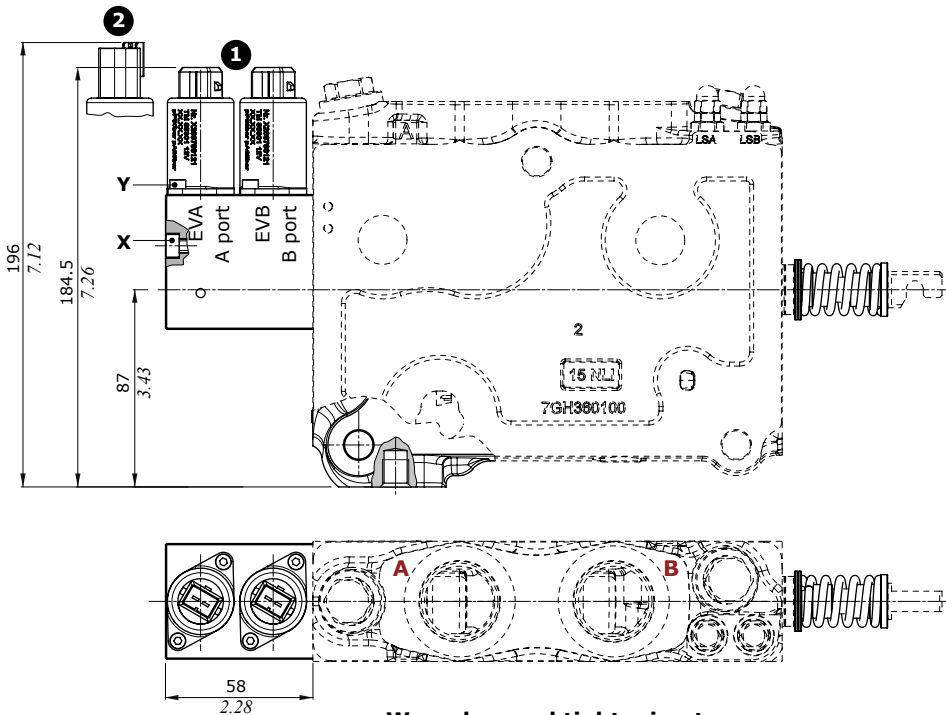
Working section

Electrohydraulic controls

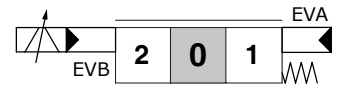
Proportional controls; 8EZ3T - 13EZ3T types

Control Types

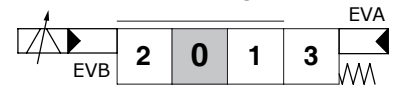
- 1 : With AMP JPT connector - AMP JPT mating connector, code: 5CON003
- 2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



8EZ3T - 8EZ3T4 types



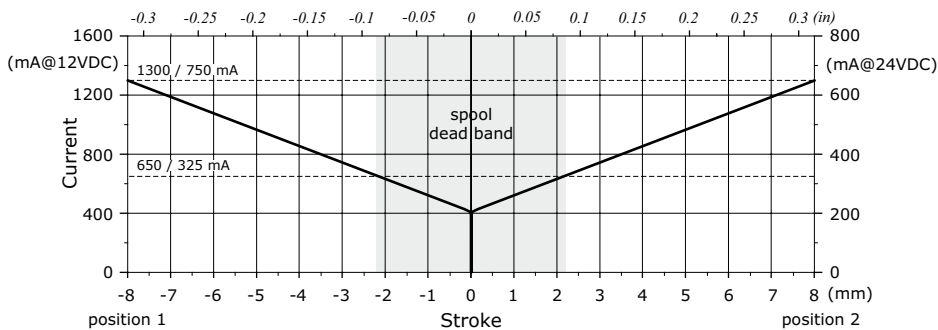
13EZ3T - 13EZ3T4 types For floating circuit



Wrenches and tightening torques

- X = allen wrench 5 - 9.8 Nm (7.2 lbf)
- Y = allen wrench 3 - 5 Nm (3.7 lbf)

8EZ3T type: Stroke vs. Current diagram



Electrohydraulic controls

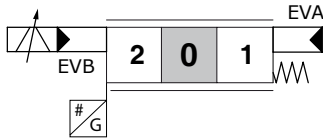
Proportional control; 8EZ3TSPSD - 8EZ3TSPSL types

For control features see previous page, for sensor specification and features please see page 71.

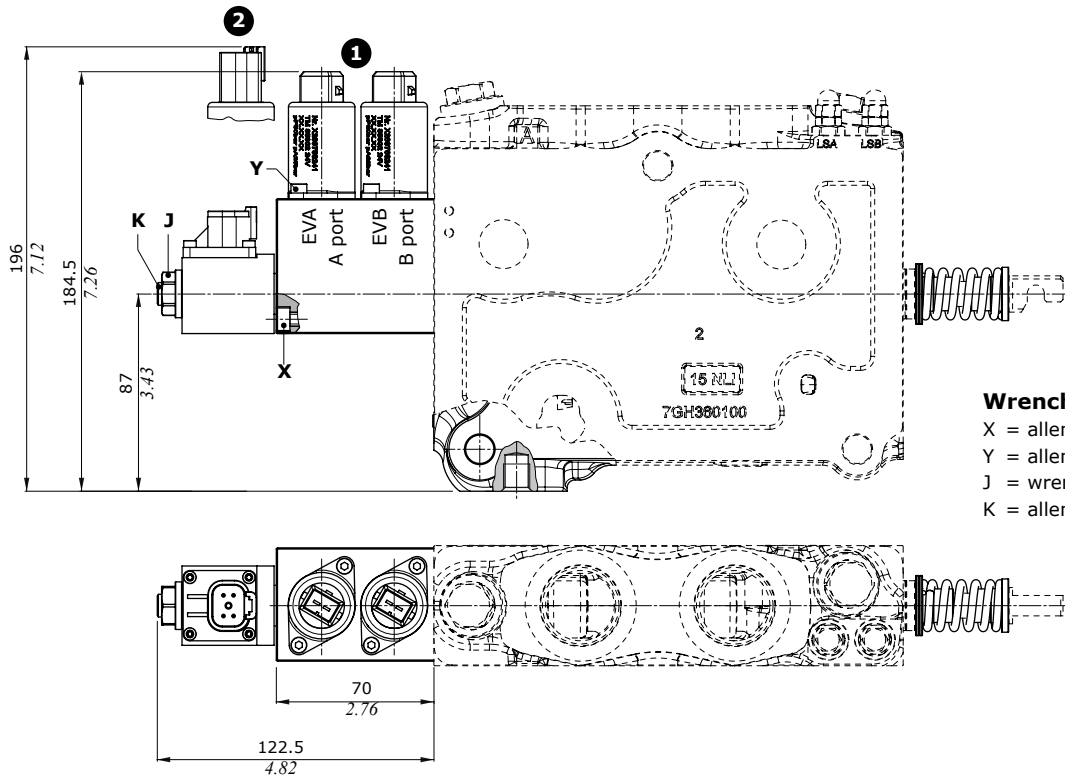
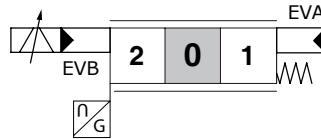
Control Types

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

8EZ3TSPSD - 8EZ3T4SPSD types
CANbus interface



8EZ3TSPSL - 8EZ3T4SPSL types
Analog input



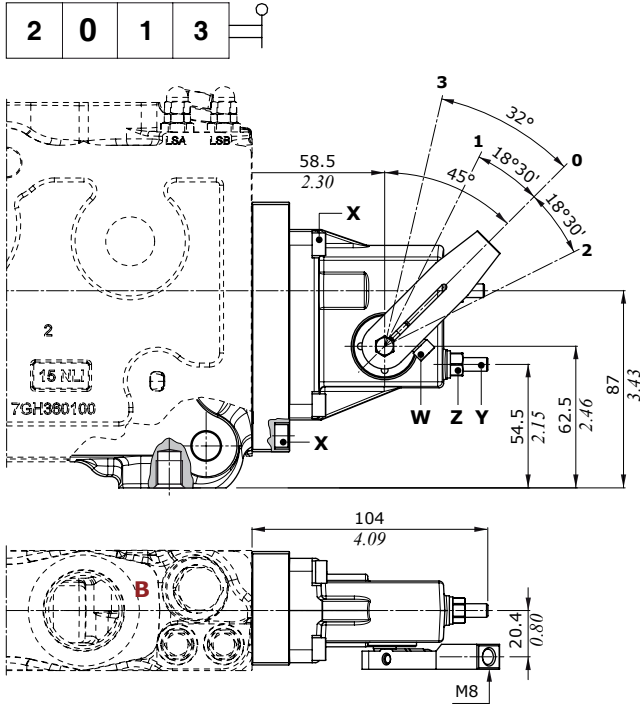
Wrenches and tightening torques

- X = allen wrench 5 - 9.8 Nm (7.2 lbf)
- Y = allen wrench 3 - 5 Nm (3.7 lbf)
- J = wrench 17 - 9.8 Nm (7.2 lbf)
- K = allen wrench 4 - 9.8 Nm (7.2 lbf)

Working section

"B" side spool control kit

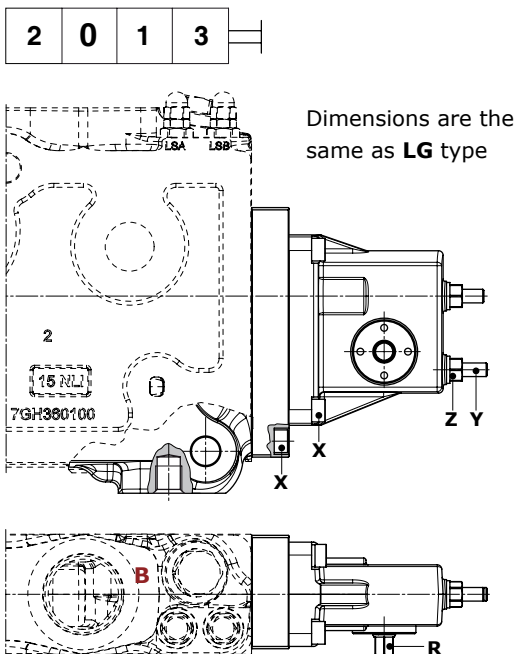
Cast iron standard lever box; LG type



Wrenches and tightening torque

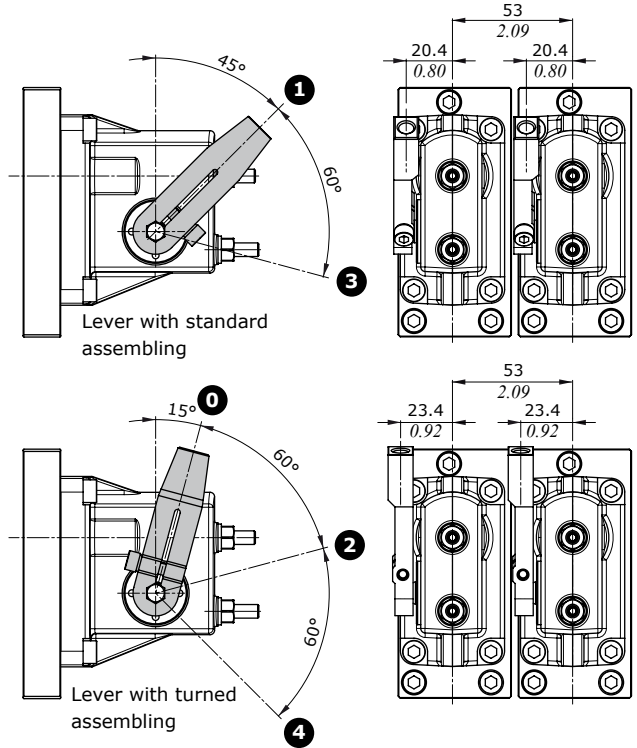
- X = allen wrench 5 - 9.8 Nm (7.2 lbf)
- Y = allen wrench 3
- Z = wrench 10 - 9.8 Nm (7.2 lbf)
- W = allen wrench 4 - 6.6 Nm (4.9 lbf)
- R = wrench 8

Cast iron lever box, without lever; LGN type

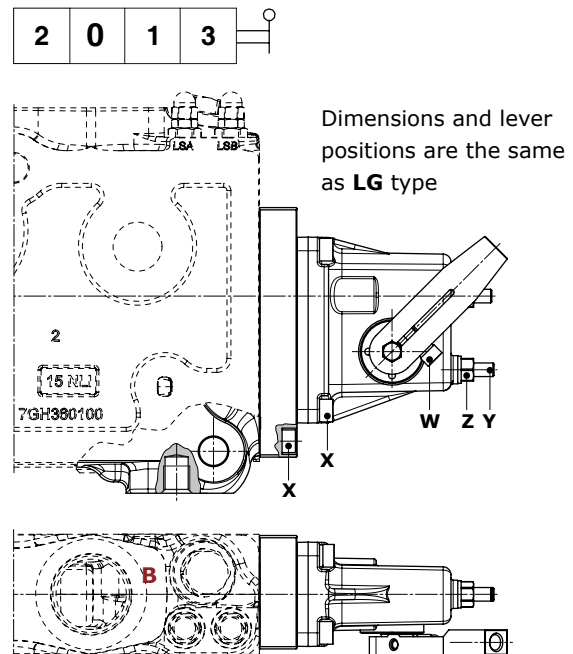


Lever assembly position

Please see page 62 for specification in working section description

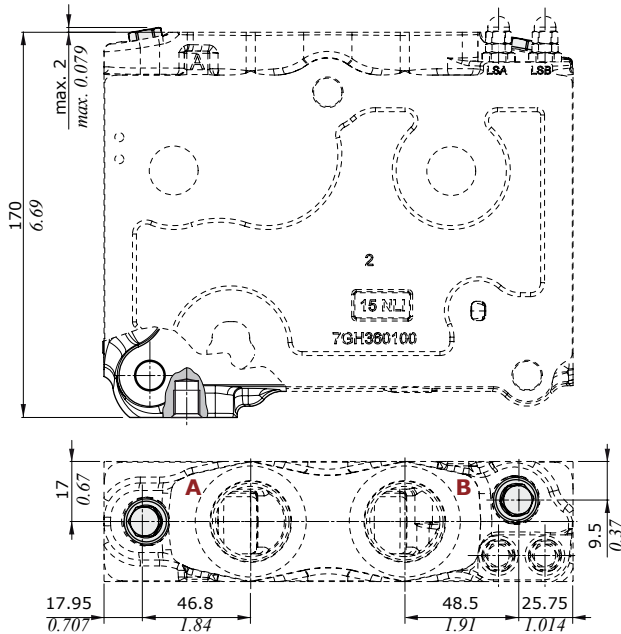


Aluminium lever box; L type



Port valves

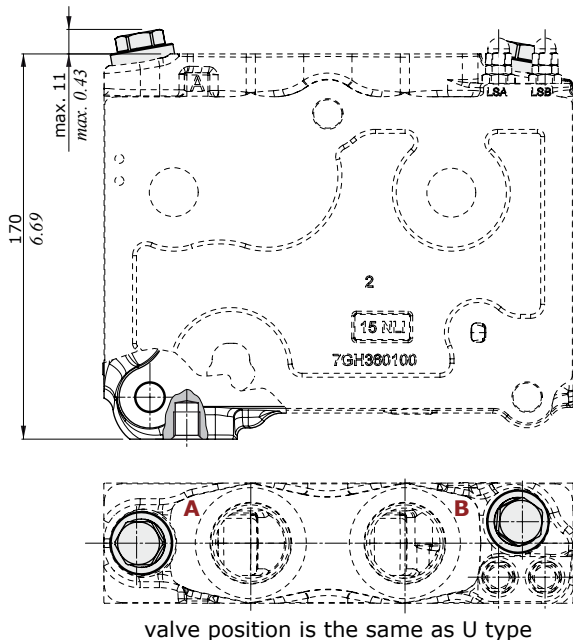
Antishock anticavitation valves, U type
Anticavitation valve, C type



Wrenches and tightening torque

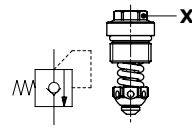
X = wrench 13 - 24 Nm (17.7 lbf)
Y = wrench 19 - 42 Nm (31 lbf)

Antishock anticavitation valves with pressure relief function, UL type
Anticavitation valve, CL type

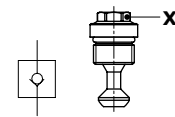


valve position is the same as U type

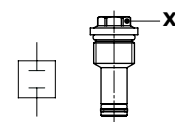
U type
antishock valve



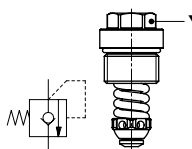
C type
anticavitation valve



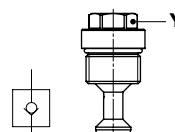
UT type
valve blanking plug



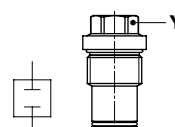
UL type
antishock valve



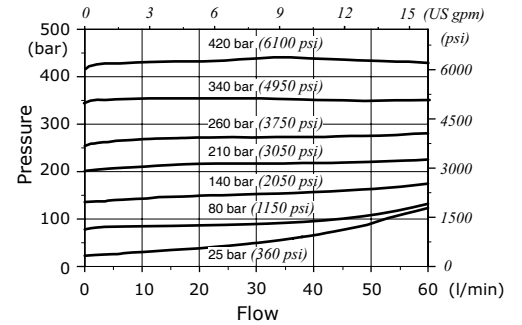
CL type
anticavitation valve



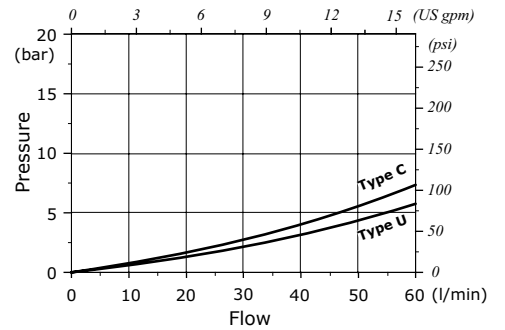
ULT type
valve blanking plug



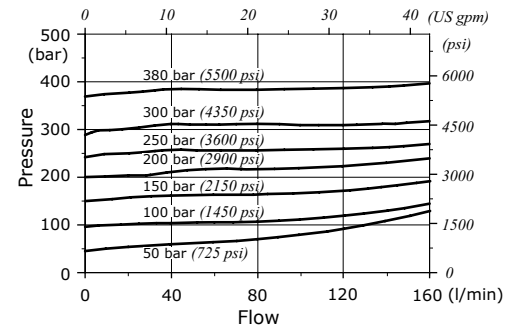
U type, setting example
(10 l/min - 2.6 Us gpm)



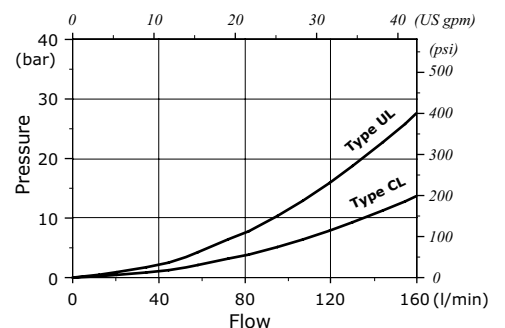
Types U-C, pressure drop
(in anticavitation)



UL type, setting example
(5 l/min - 1.3 Us gpm)

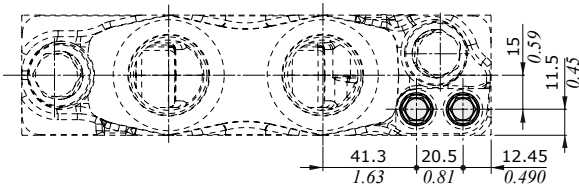
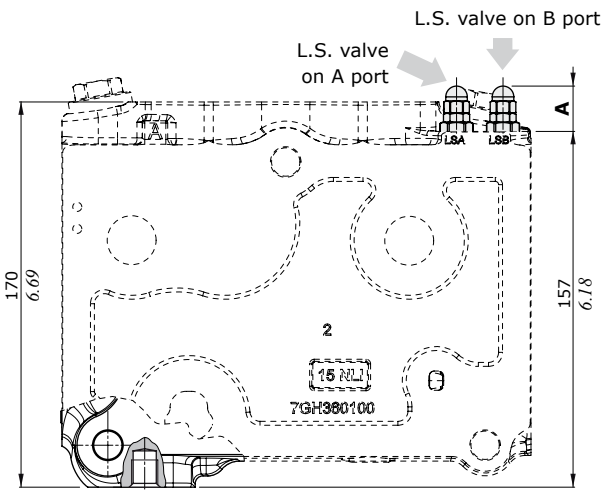


UL-CL types, pressure drop
(in anticavitation)

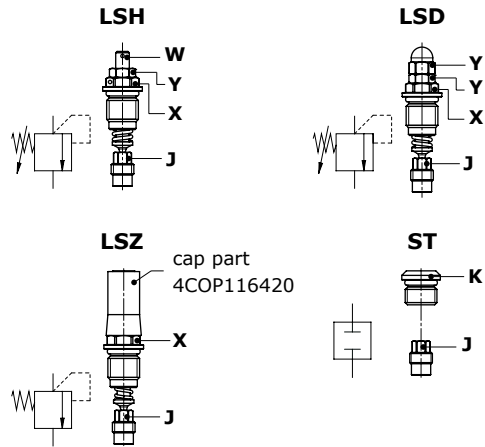


Working section

L.S. port relief valves



Valve type	dim. A	
	mm	in
LSD	20	0.79
LSH	15.5	0.61
LSZ	32.5	1.28



Legenda

LSH: with lock arrangement

LSD: with blind nut

LSZ: with anti-tamper cap

ST: valve blanking plug

Wrenches and tightening torques

X = wrench 13 - 24 Nm (17.7 lbf)

Y = wrench 10 - 9.8 Nm (7.2 lbf)

W = allen wrench 3

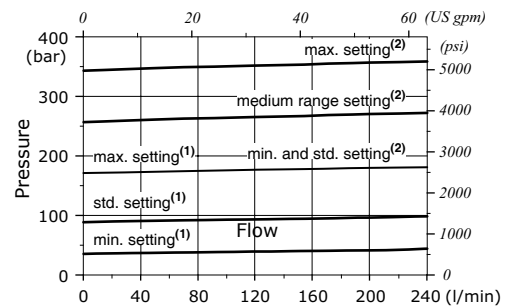
J = wrench 7 - 24 Nm (17.7 lbf)

K = allen wrench 5 - 24 Nm (17.7 lbf)

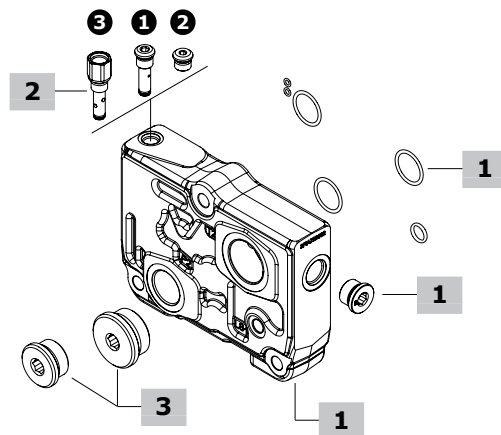
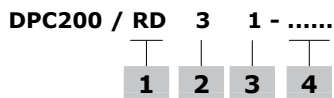
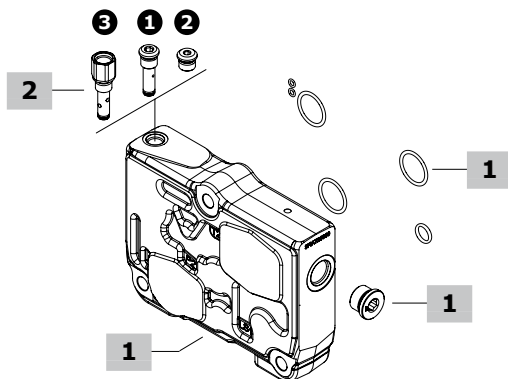
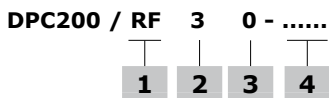
Pressure vs. flow diagram

(1) = valve range 40-180 bar (580-2600 psi)

(2) = valve range 180-350 bar (2600-5000 psi)



Outlet section part ordering codes



1 Outlet section* page 78

TYPE	CODE	DESCRIPTION
RF	5FIA720300	Without ports
RD	5FIA720702	With P1, T1 and LS1 ports
RD-FS3U(SAE)	5FIA720970	As previous one, with SAE J518-code 61 flange connection

2 Drain options page 79

TYPE	CODE	DESCRIPTION
1	XTAP517460	Internal drain; to be used with mechanical controls
2	XTAP217160	Internal drain; to be used with hydraulic controls
3	XGIU519610*	External drain SAE6; to be used with electrohydraulic controls

3 Port options*

TYPE: 0	DESCRIPTION: Without ports (only for RF type)
TYPE: 1	DESCRIPTION: P1 and T1 ports plugged
PLUG CODE:	3XTAP838200 (SAE16) + 3XTAP848220 (SAE20)
BLIND FLANGE CODE:	4FL1066181 (3/4") + 4FL1071191 (1")
TYPE: 2	DESCRIPTION: P1 port plugged and T1 port open
PLUG CODE:	3XTAP838200 (SAE16)
BLIND FLANGE CODE:	4FL1066181 (3/4")
TYPE: 3	DESCRIPTION: P1 port open and T1 port plugged
PLUG CODE:	3XTAP848220 (SAE20)
BLIND FLANGE CODE:	FL1071191 (1")
TYPE: 4	DESCRIPTION: P and T ports open

4 Section threading

Specify threading only if it is different from BSP standard.
For section with SAE J518-code 61 flange connection digit: **FS3-U(SAE)**.

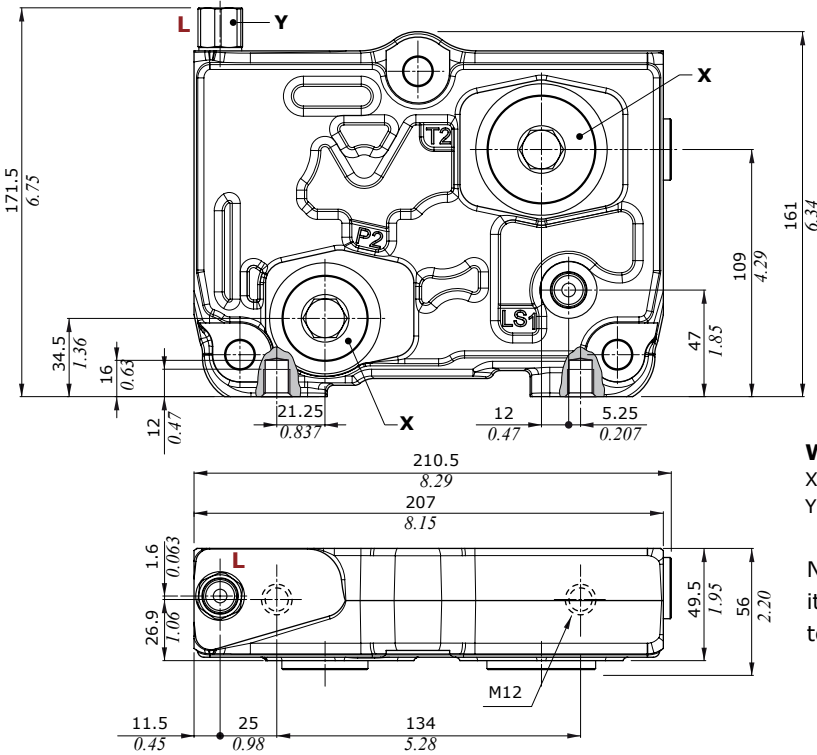
NOTE (*): Codes are referred to **UN-UNF** thread.

Outlet section

Dimensions and hydraulic circuit

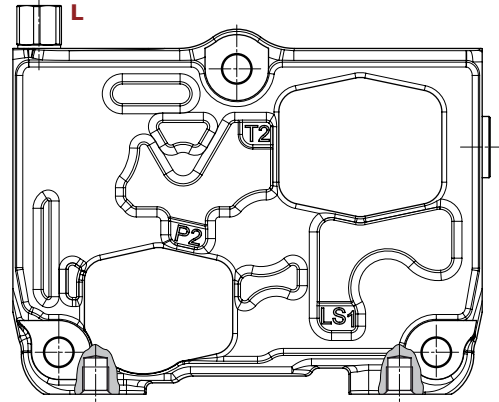
RD31 type

With P1, T1 (plugged) and LS1 ports; external drain



RF30 type

Without ports; external drain

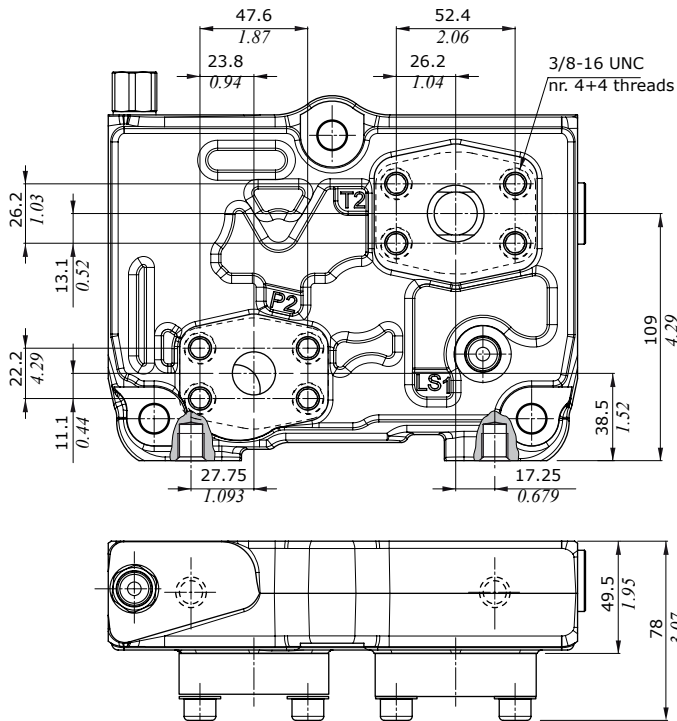


Wrenches and tightening torque

X = allen wrench 17 - 42 Nm (31 lbf)
 Y = wrench 19 - 24 Nm (17.7 lbf)

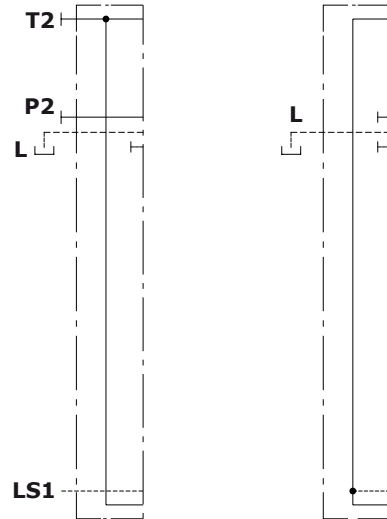
Note: Do not plug LS1 port (in case it's not used it has to be connected to tank).

FS3-U(SAE) optional connection

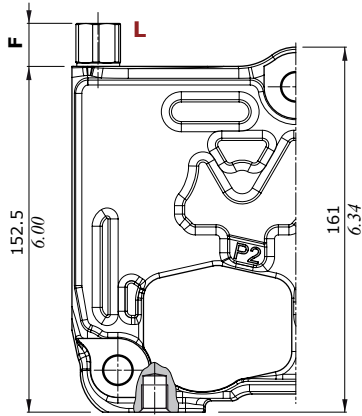


RD31 type

RF30 type

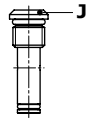


Drain options



Option	Dim. F	
	mm	in
1	3.5	0.138
2	3.5	0.138
3	19	0.75

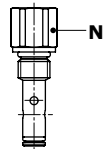
Option 1
internal drain for
mechanical controls



Option 2
internal drain for
hydraulic controls



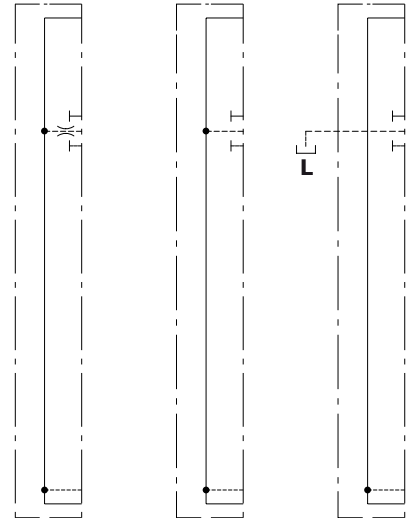
Option 3
external drain for
electrohydraulic controls



Option 1

Option 2

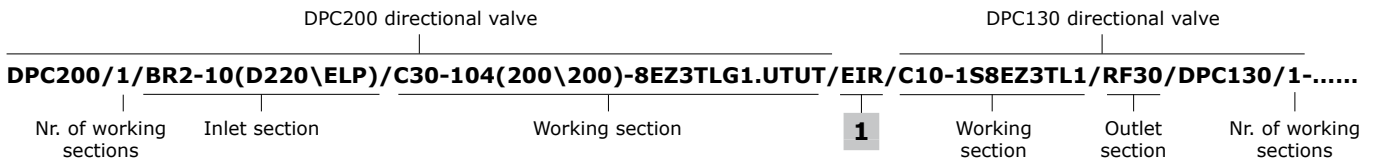
Option 3



Wrenches and tightening torque

- J = allen wrench 5 - 24 Nm (17.7 lbf)
- M = allen wrench 6 - 24 Nm (17.7 lbf)
- N = wrench 19 - 24 Nm (17.7 lbf)

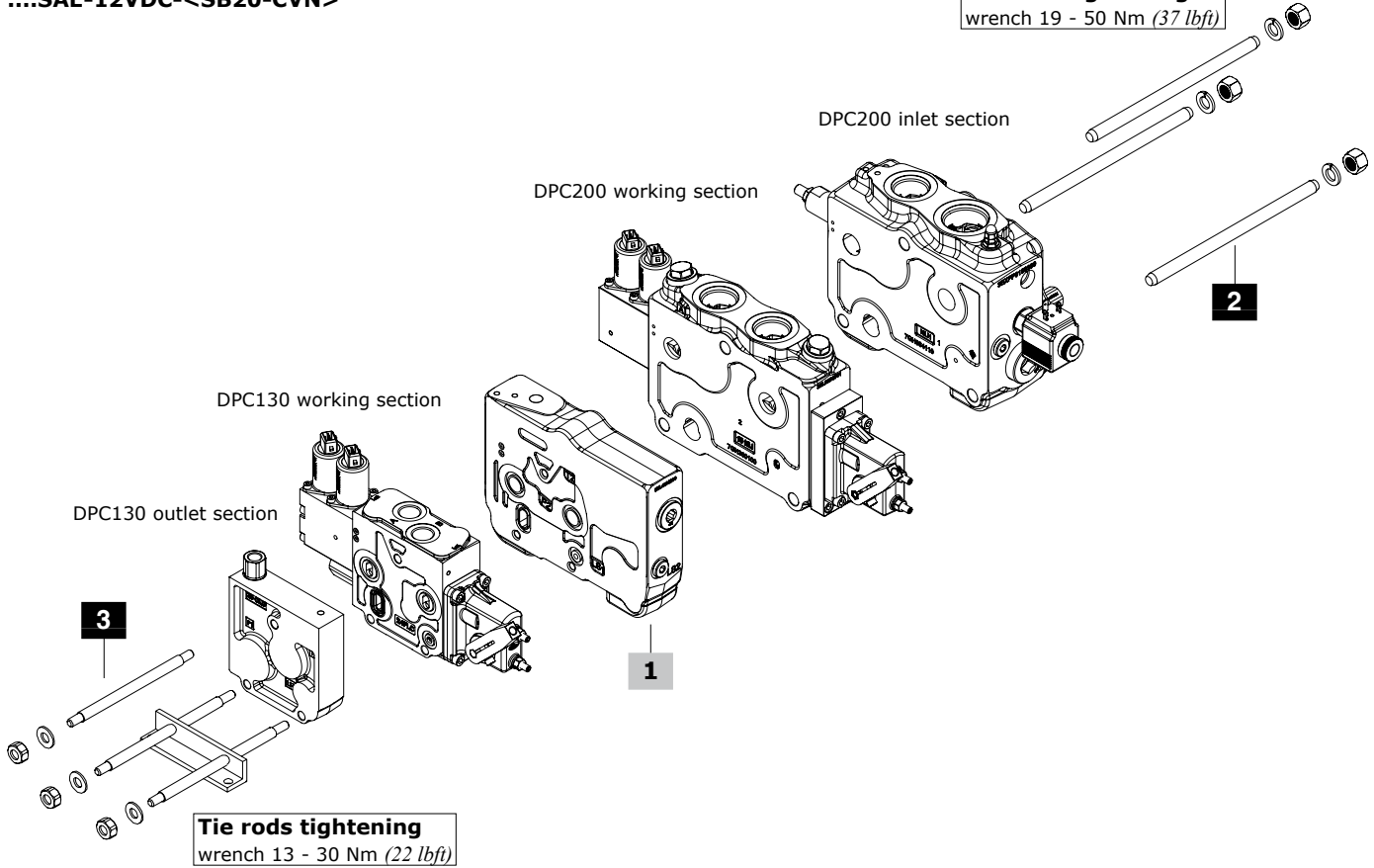
Connection between DPC Series valves



directional valve common specification

...SAE-12VDC-<SB20-CVN>

Tie rods tightening
wrench 19 - 50 Nm (37 lbf^t)



1 Intermediate section page 81

TYPE	CODE	DESCRIPTION
EIR-SAE	638405001	Section to assemble DPC200 and DPC130 in single directional valve; with LS port

NOTE: the maximum number of working sections should not exceed 10 units

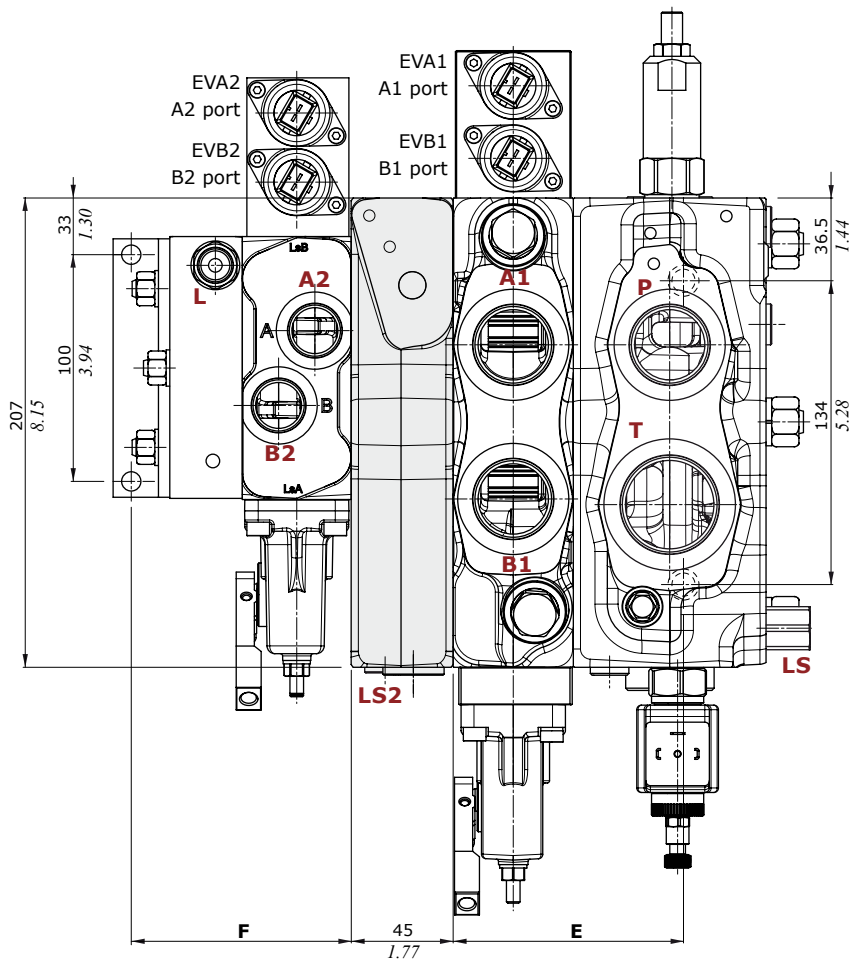
2 DPC200 side assembling kit

CODE	CODE	DESCRIPTION
With inlet section type		
BR type		
5TIR112180	5TIR112141	For 1 working section valve
5TIR112235	5TIR112194	For 2 working section valve
5TIR112287	5TIR112247	For 3 working section valve
5TIR112340	5TIR112300	For 4 working section valve
5TIR112393	5TIR112354	For 5 working section valve
5TIR112446	5TIR112407	For 6 working section valve
5TIR112499	5TIR112460	For 7 working section valve
5TIR112552	5TIR112512	For 8 working section valve
5TIR112605	5TIR112565	For 9 working section valve

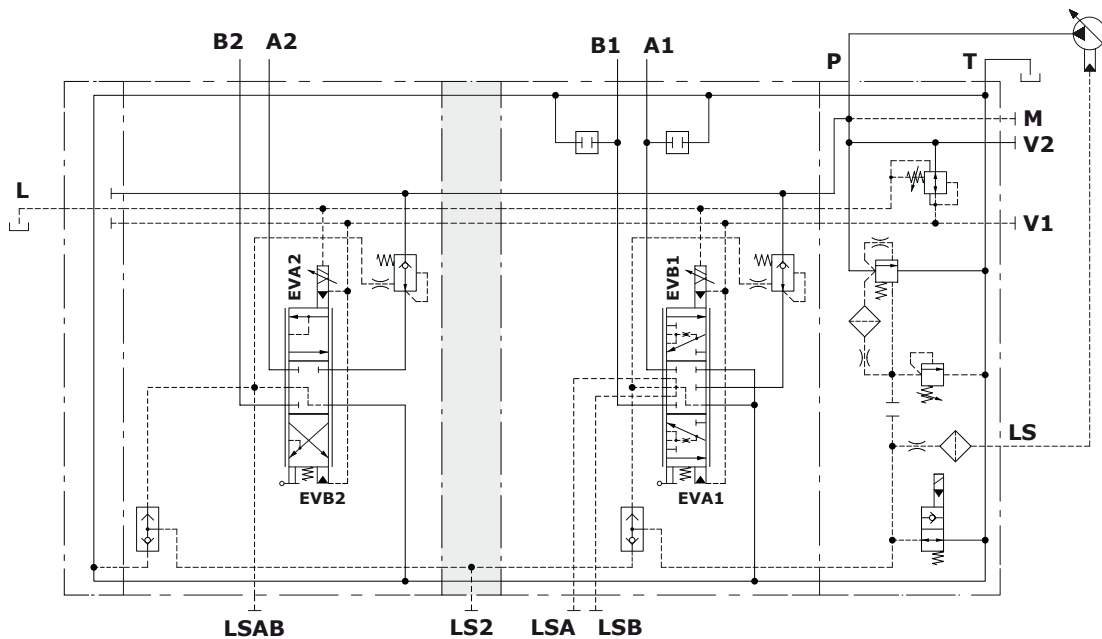
3 DPC130 side assembling kit

CODE	DESCRIPTION
5TIR108112	For 1 working section valve
5TIR108160	For 2 working section valve
5TIR108208	For 3 working section valve
5TIR108256	For 4 working section valve
5TIR108304	For 5 working section valve
5TIR108352	For 6 working section valve
5TIR108400	For 7 working section valve
5TIR108448	For 8 working section valve
5TIR108496	For 9 working section valve

Connection between DPC Series valve



Nr. of working sections	dim. E		dim. F			
	BR inlet section		BRF inlet section			
	mm	in	mm	in	mm	in
1	101.5	4.00	73.1	2.88	97	3.82
2	151.5	6.08	126.1	4.96	145	5.71
3	207.5	8.17	179.1	7.05	193	7.60
4	260.5	10.26	232.1	9.14	241	9.49
5	313.5	12.34	285.1	11.22	289	11.38
6	366.5	14.43	338.1	13.31	337	13.27
7	419.5	16.52	391.1	15.40	385	15.16
8	472.5	18.60	444.1	17.48	433	17.05
9	525.5	20.69	497.1	19.57	481	18.94



Coils and connectors

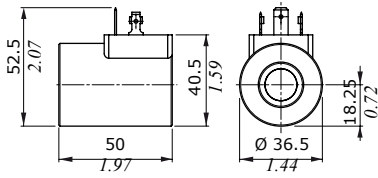
Coil type	Voltage	Connectors					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
BER	10 VDC	4SLE001000A	-	-	-	-	-
	12 VDC	4SLE001200A	4SLE001201A ⁽⁵⁾	4SLE001203A ⁽⁴⁾	4SLE001210A ⁽²⁾	4SLE001214A ⁽²⁾	4SLE001207A
		4SLE001217A ⁽³⁾	4SLE001209A ⁽³⁻⁴⁾	4SLE001202A ⁽⁵⁾	4SLE001211A ⁽³⁻⁴⁾		
			4SLE001216A ⁽³⁻⁵⁾	4SLE001206A ⁽²⁾			
	14 VDC	-	4SLE001400A ⁽⁵⁾	4SLE001403A ⁽³⁻⁴⁾	-	-	-
			4SLE001401A ⁽³⁻⁵⁾	4SLE001402A ⁽³⁻⁴⁾			
	24 VDC	4SLE002400A	4SLE002401A ⁽⁴⁾	4SLE002403A ⁽⁴⁾	-	-	4SLE002404A
		4SLE002408A ⁽³⁾	4SLE002407A ⁽³⁻⁴⁾				
	28 VDC	-	4SLE002802A ⁽⁵⁾	4SLE002800A ⁽⁴⁾	-	-	-
	48 VDC	4SLE004800A	-	-	-	-	-
4SLE304800A ⁽¹⁾							
110VDC	4SLE011000A	-	-	-	-	-	
	4SLE311000A ⁽¹⁾						
220 VDC	4SLE022000A	-	-	-	-	-	
	4SLE322000A ⁽¹⁾						
BQP19	12 VDC	4SL5000126A	4SL5000125A ⁽⁶⁾	4SL5000129A ⁽⁵⁾	-	-	-
	24 VDC	4SL5000245A	4SL5000244A ⁽⁶⁾	4SL5000248A ⁽⁵⁾	-	-	-
BT	10 VDC	4SL3000100					
	12 VDC	4SL3000120	4SL3000130 ⁽⁶⁾	4SL3000122 ⁽⁵⁾	4SL3000124 ⁽²⁾	4SL3000127 ⁽²⁾	4SL300012C
		4SL3000126 ⁽⁴⁾	4SL3000134 ⁽³⁻⁶⁾	4SL3000120 ⁽³⁻⁵⁾			
	24 VDC	4SL3000240	4SL3000249 ⁽⁶⁾	4SL3000248 ⁽⁵⁾	-	-	4SL3000246
		4SL3030240 ⁽¹⁾	4SL300024C ⁽³⁻⁶⁾				
	26 VDC	4SL3000260	-	-	-	-	-
	48 VDC	4SL3000480	-	-	-	-	-
		4SL3030480 ⁽¹⁾					
110 VDC	4SL3001100	-	-	-	-	-	
	4SL3031100 ⁽¹⁾						
220 VDC	4SL3002200	-	-	-	-	-	
	4SL3032200 ⁽¹⁾						
Mating connectors							
Standard		4CN1009995	5CON140031	5CON003	-	-	
	24VDC	4CN3010240	-	-	-	-	
With rectifier	48VDC	4CN3010480	-	-	-	-	
	110VDC	4CN3011100	-	-	-	-	
	220VDC	4CN3012200	-	-	-	-	

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

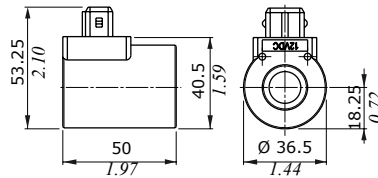
Coils and connectors

BT type

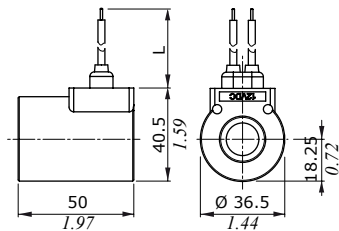
ISO4400 connector



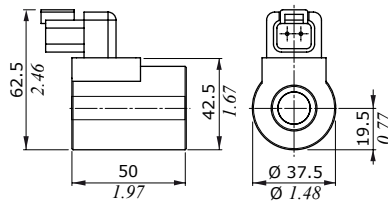
AMP JPT connector



Flying leads



DEUTSCH DT04 connector

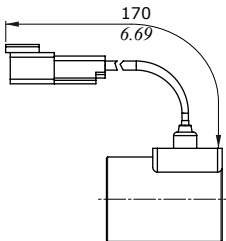


Coil type	Dimension L	
	(mm)	(in)
12VDC	247	9.72
24VDC	307	12.09

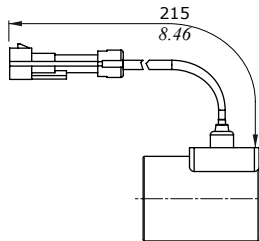
Features

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

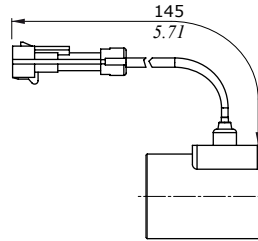
Flying leads with DEUTSCH DT04 connector



Flying leads with PACKARD WEATHER-PACK connector



Flying leads with PACKARD METRI-PACK connector

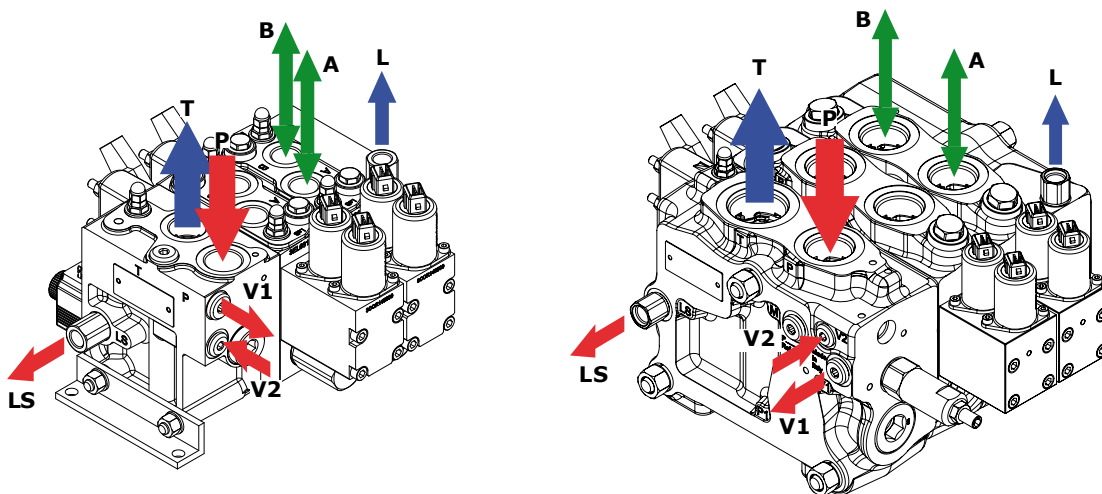


Main rules

The DPC 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.



FITTINGS TIGHTENING TORQUE - Nm / lbft

THREAD TYPE	P inlet port	A and B workports	T outlet port	LS signal port V pilot ports*	L drain port	Hydraulic control ports	
DPC130	BSP	G 3/4	G 1/2	G 3/4	G 1/4	G 1/4	
	With O-Ring seal	90 / 66.4	50 / 36.9	90 / 66.4	25 / 18.4	25 / 18.4	25 / 18.4
	With copper washer	90 / 66.4	60 / 44.3	90 / 66.4	30 / 22.1	30 / 22.1	30 / 22.1
	With steel and rubber washer	70 / 51.6	60 / 44.3	70 / 51.6	16 / 11.8	16 / 11.8	16 / 11.8
	UN-UNF	1 1/16-12 (SAE 12)	7/8-14 (SAE 10)	1 1/16-12 (SAE 12)	9/16-18 (SAE 6)	9/16-18 (SAE 6)	9/16-18 (SAE 6)
DPC200	With O-Ring seal	95 / 70	50 / 36.9	95 / 70	30 / 22.1	30 / 22.1	30 / 22.1
	BSP	G 1	G 1	G 1-1/4	G 1/4	G 1/4	G 1/4
	With O-Ring seal	120 / 88.5	120 / 88.5	190 / 140	25 / 18.4	25 / 18.4	25 / 18.4
	With copper washer	120 / 88.5	120 / 88.5	190 / 140	30 / 22.1	30 / 22.1	30 / 22.1
	With steel and rubber washer	120 / 88.5	120 / 88.5	190 / 140	16 / 11.8	16 / 11.8	16 / 11.8
	UN-UNF	1 5/16-12 (SAE 16)	1 5/16-12 (SAE 16)	1 5/8-12 (SAE 20)	9/16-18 (SAE 6)	9/16-18 (SAE 6)	7/16-20 (SAE 4)
	With O-Ring seal	150 / 111	150 / 111	200 / 147	30 / 22.1	30 / 22.1	18 / 13.3
SAE J518 code 61 ISO 6162-1 type 1 [bolts threading]	3/4 [3/8-16 UNC] DN 19 [M10]	3/4 [3/8-16 UNC] DN 19 [M10]	1 [3/8-16 UNC] DN 25 [M10]	-	-	-	
bolts torque; min-max	28-40 / 20.7-29.5	28-40 / 20.7-29.5	37-48 / 27.3-35.4	-	-	-	

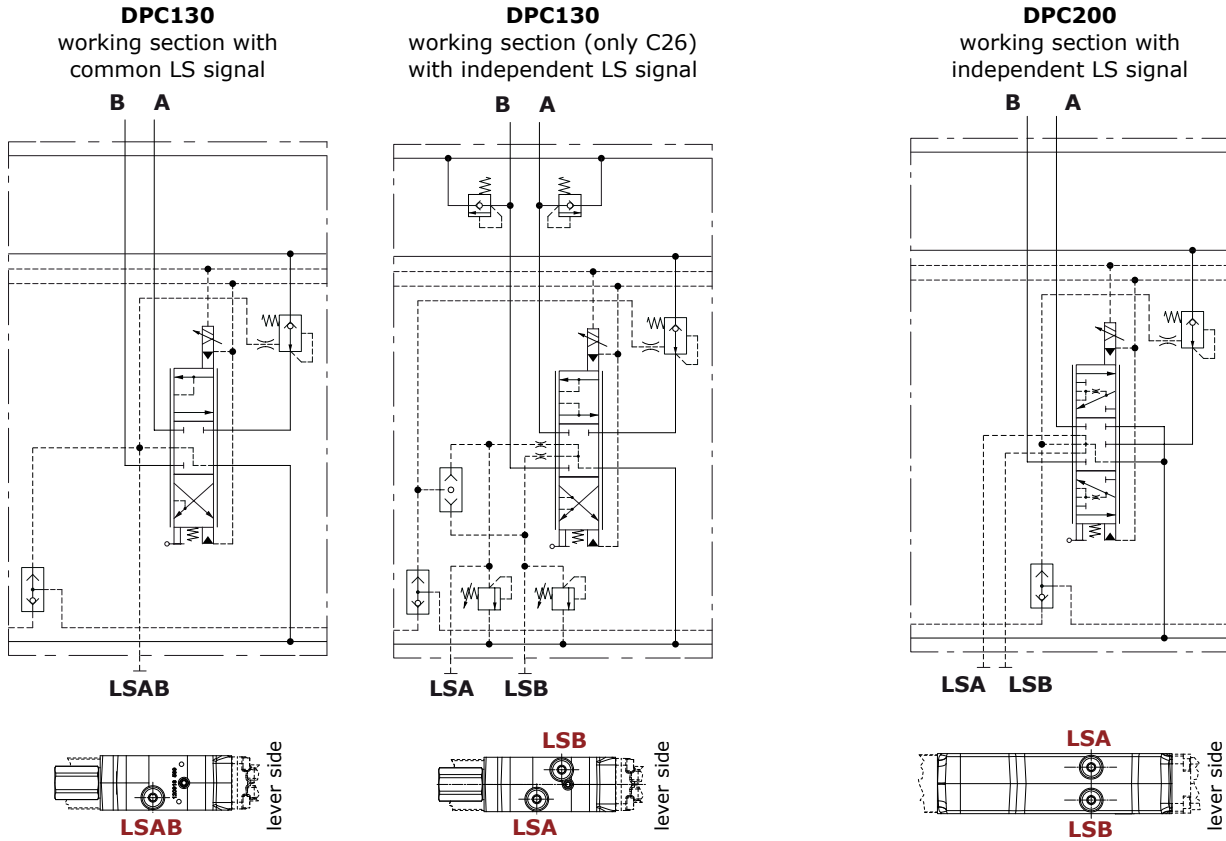
(*) V2 port is M14x1.5 threading: tightening torque value is the same of G1/4 thread

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

Main rules

Series DPC working sections are arranged for external operation of LS signal through dedicated ports on the lower side of sections.

For the maximum permissible pipe length please contact Sales Dpt.



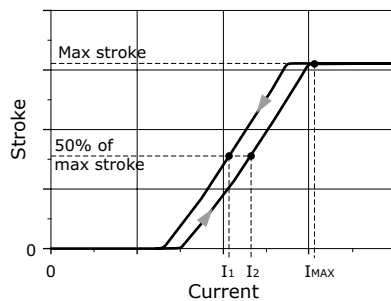
Appendix A

Electrohydraulic controls: hysteresis calculation rule

Hysteresis is calculated as difference between control currents ($I_2 - I_1$), necessary to reach 50% of nominal spool stroke, referred to maximum control current I_{MAX} , necessary 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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