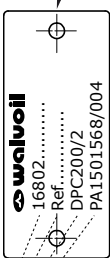
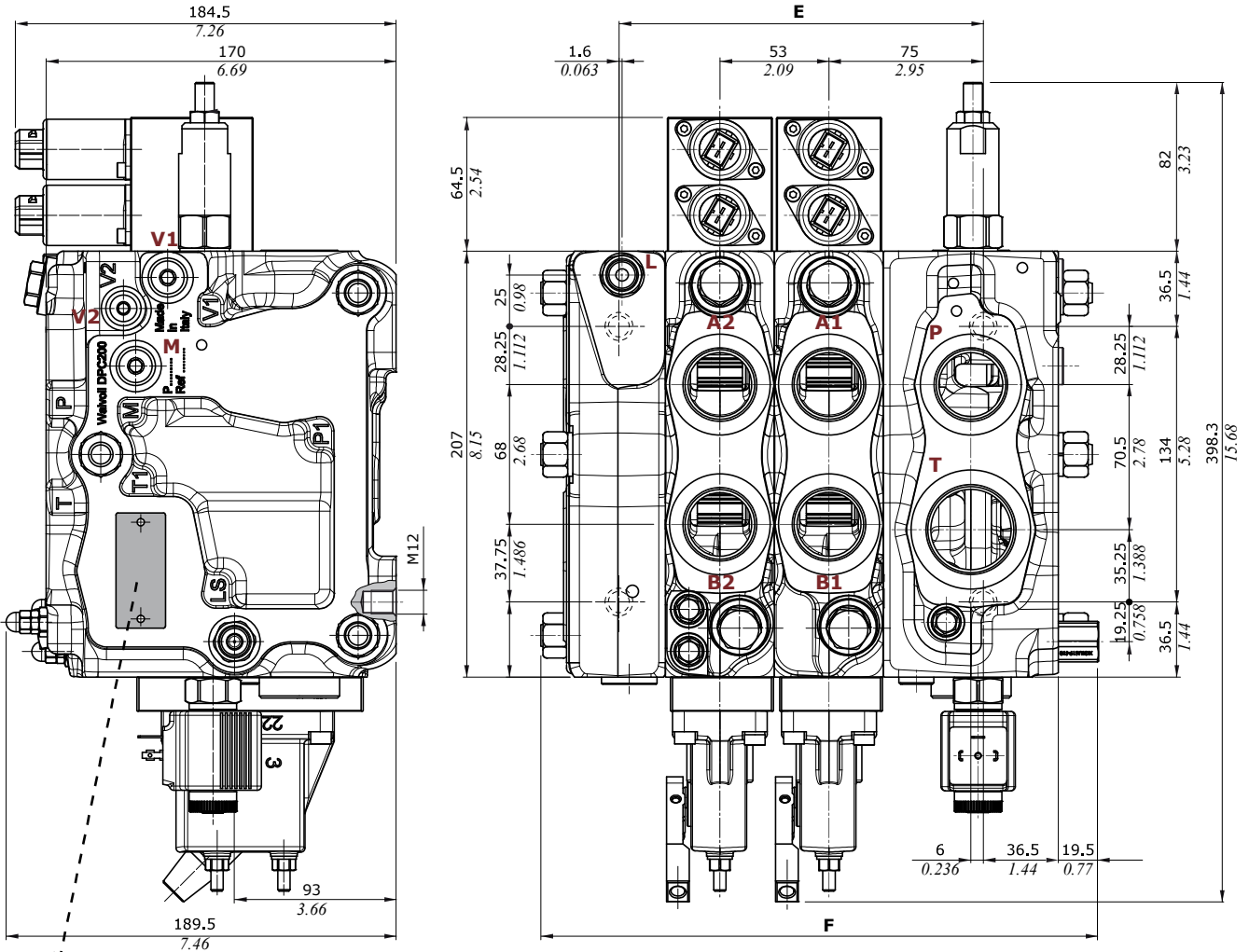


Dimensional data and performance

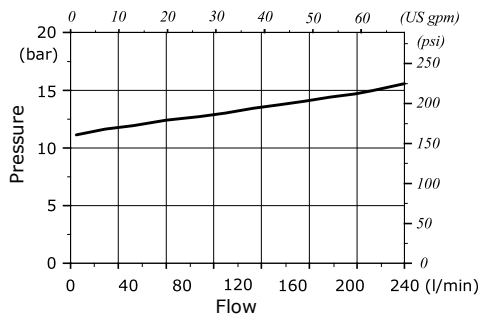


- product code
- customer reference
- product name
- production allotment

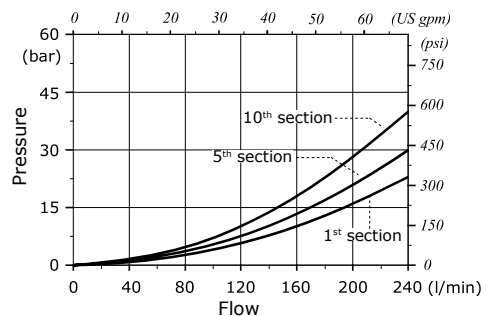
TYPE	E		F		Weight	
	mm	in	mm	in	Kg	lb
DPC200/1	124	4.88	218	8.58	39.5	87.1
DPC200/2	177	6.97	271	10.67	53.8	117
DPC200/3	230	9.06	324	12.76	68.1	150
DPC200/4	283	11.14	377	14.84	82.4	182
DPC200/5	336	13.23	430	16.93	96.7	213

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

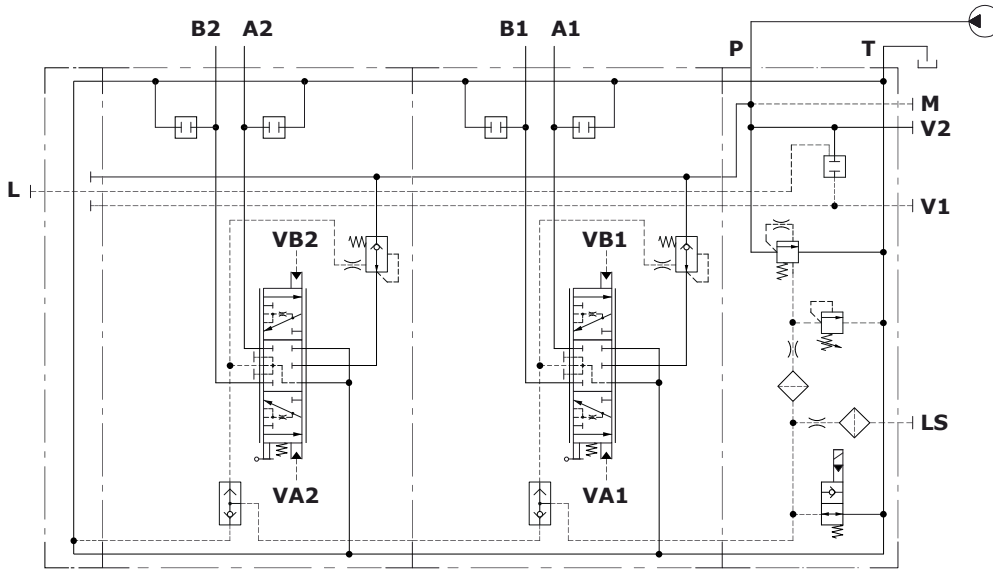
P⇒T Pressure drop inlet compensator (margin pressure)



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

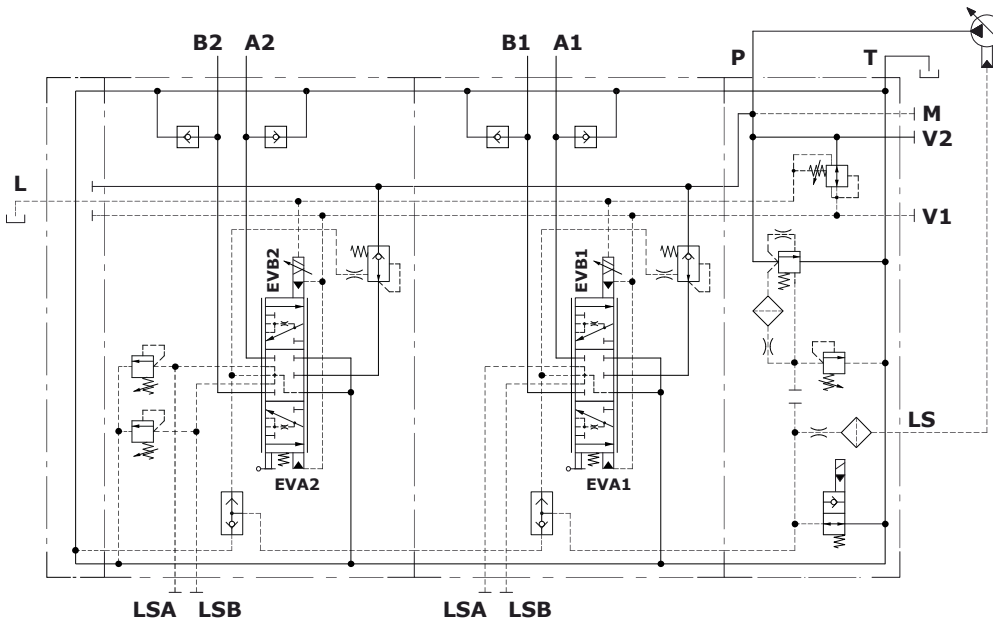


Open center configuration example



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

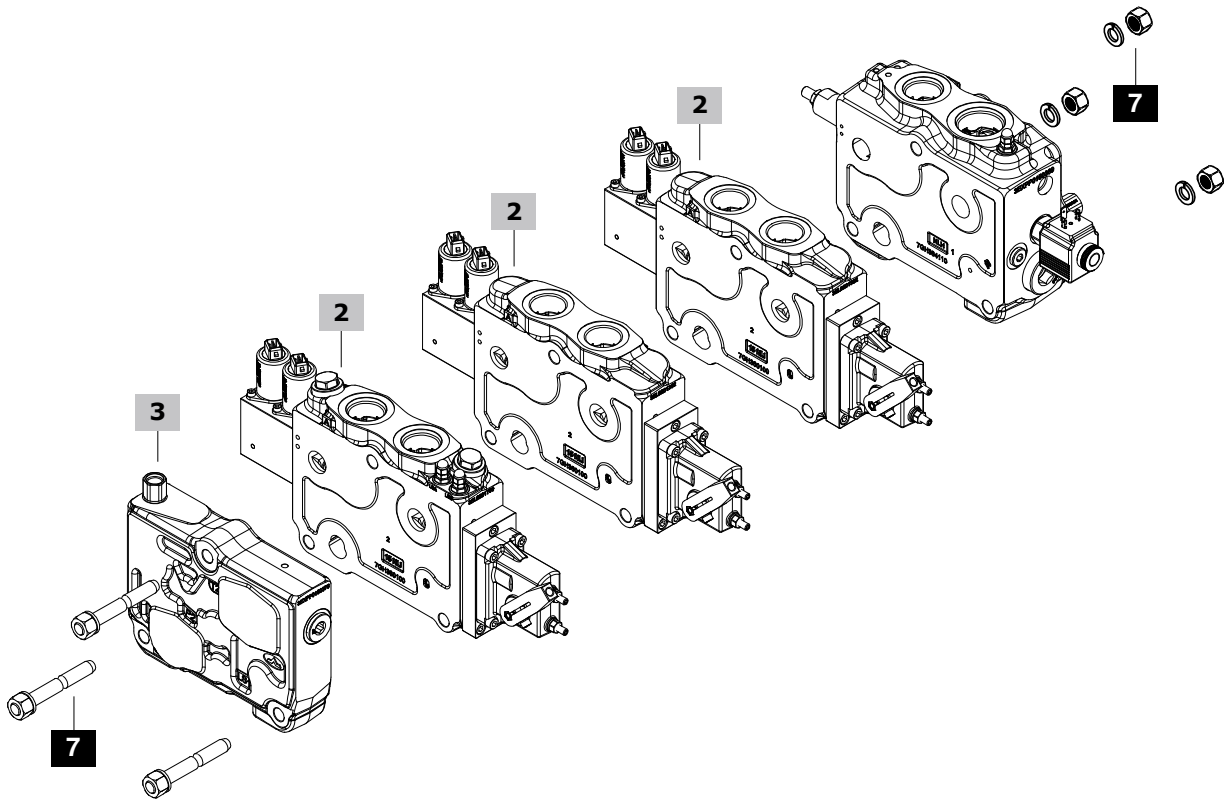
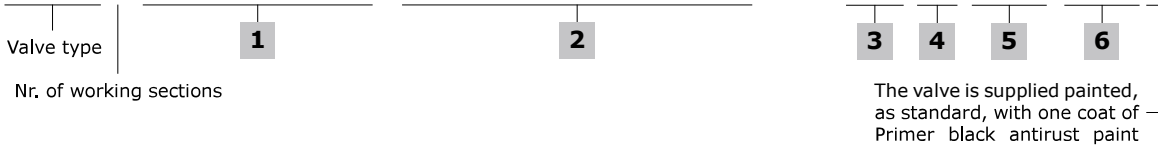
Closed center configuration example



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)

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 52**TYPE: **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

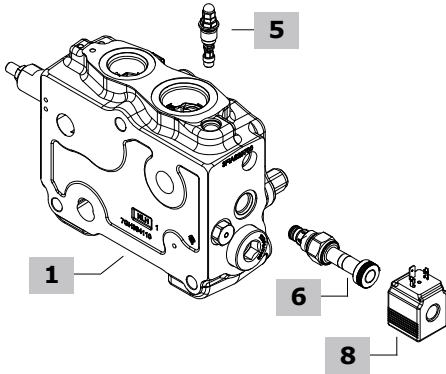
NOTE (*): Codes are referred to **UN-UNF** thread.

Inlet section part ordering codes

Valve setting (bar)

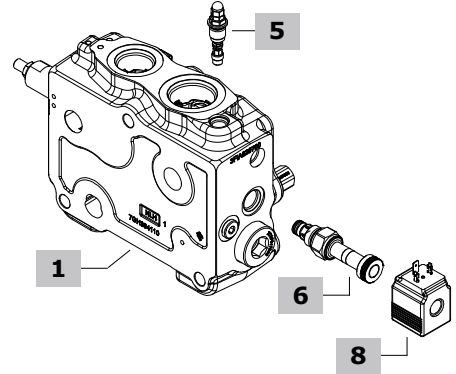
DPC200 / BR1 - 1 0 (H220\ELP\SB15)-.....-12VDC

1 2 3 5 6 4 7 8



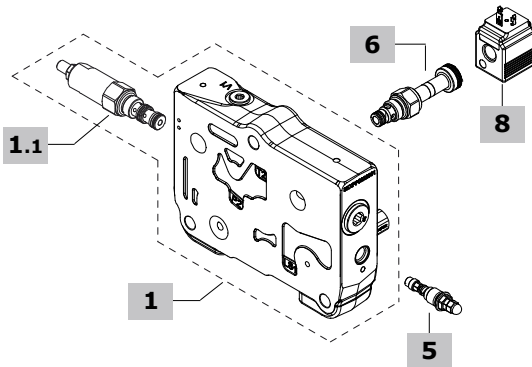
DPC200/BR2 - 1 0 (H220\ELP)-.....-12VDC

1 2 3 5 6 7 8

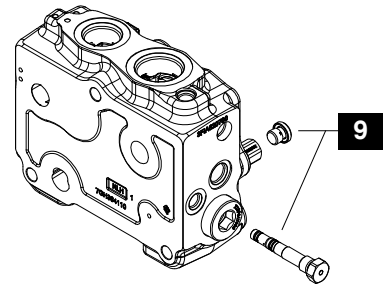


DPC200/BRF2 - 3 0 (H220\ELP)-.....-12VDC

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.

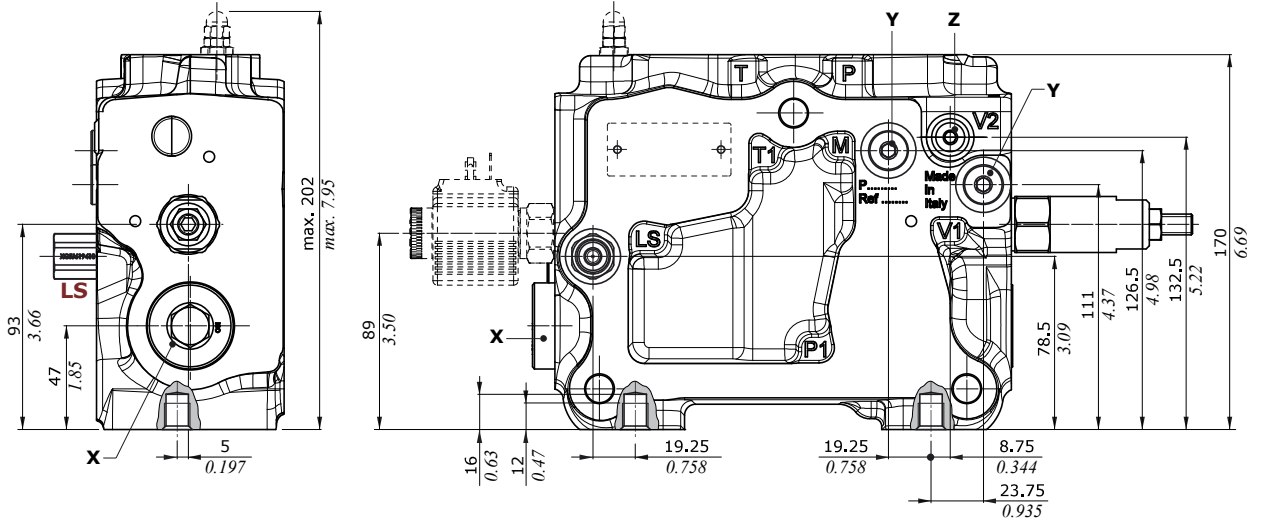
CODE	DESCRIPTION
5KIT200311	For circuit conversion from Open Center to Closed Center; from BR1/BN1 to BR2/BN2 sections
5KIT200710*	Kit for circuit conversion from Closed Center to Open Center; from BR2/BN2 to BR1/BN1 sections

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

Inlet section

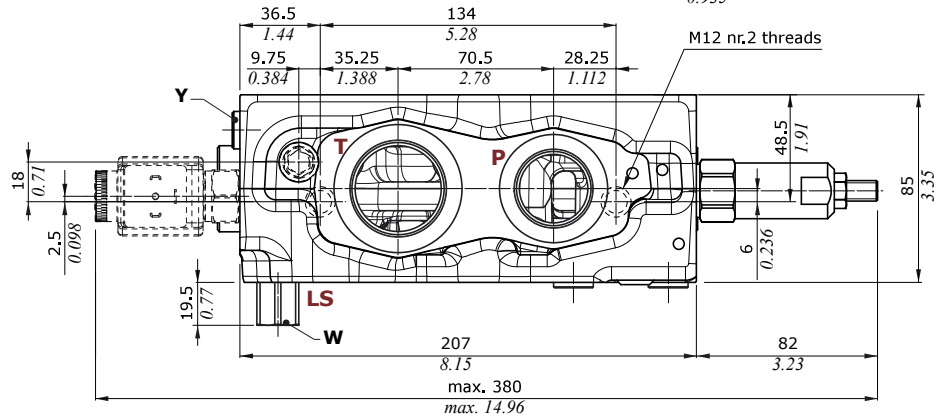
Dimensions and hydraulic circuit

Example of BR section type

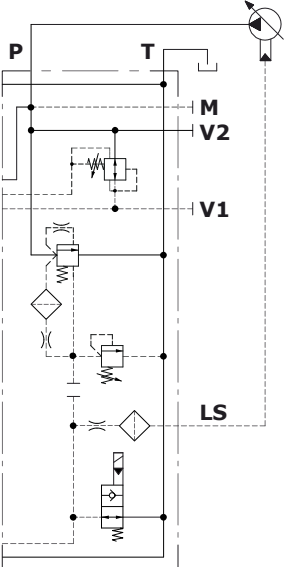


Auxiliary port specification

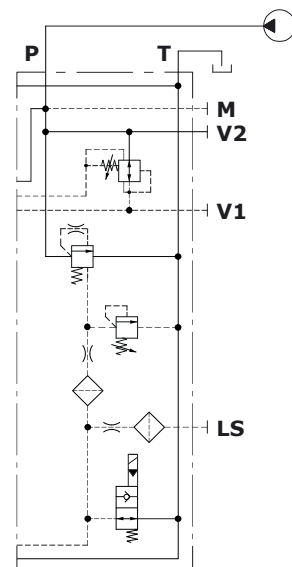
- M** = SAE6 pressure gauge connection
- V1** = SAE6 pilot pressure port (Pmax = 30 bar - 435 psi) for hydraulic pilot control valve feeding (P⇒OUT)
- V2** = M14x1.5 pilot pressure port for electrohydraulic control optional feeding (Pmax = 315 bar - 4600 psi) (P⇒IN): G1/4 joint is required, code 5GIU519612.



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



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

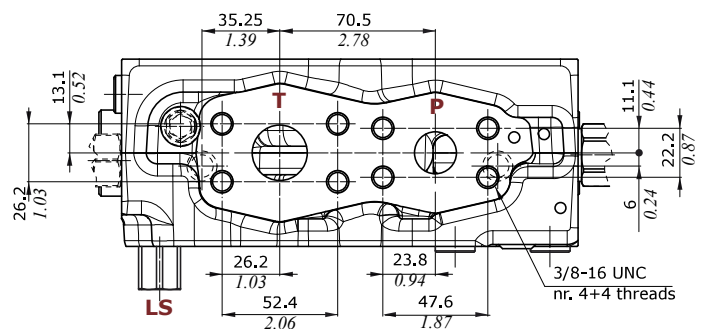


Wrenches and tightening torque

- X = allen wrench 17 - 90 Nm (66 lbf^{ft})
- Y = allen wrench 6 - 24 Nm (17.7 lbf^{ft})
- Z = allen wrench 5 - 24 Nm (17.7 lbf^{ft})
- W = wrench 19 - 24 Nm (17.7 lbf^{ft})

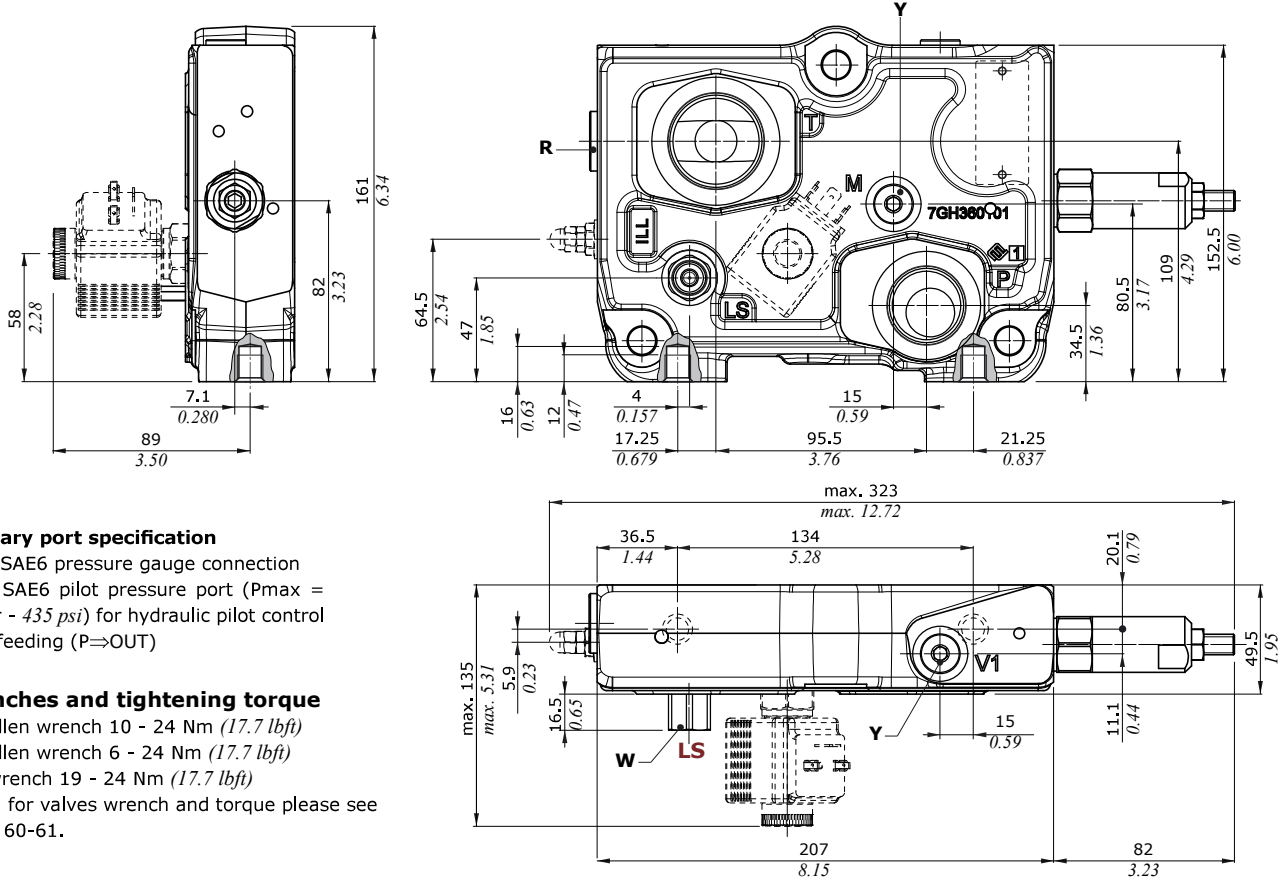
NOTE: for valves wrench and torque please see pages 60-61.

FS3-U(SAE) optional connection



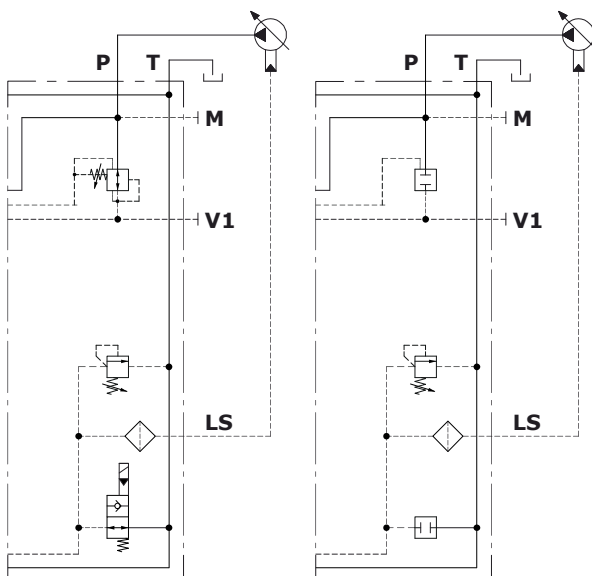
Dimensions and hydraulic circuit

Example of BRF section type

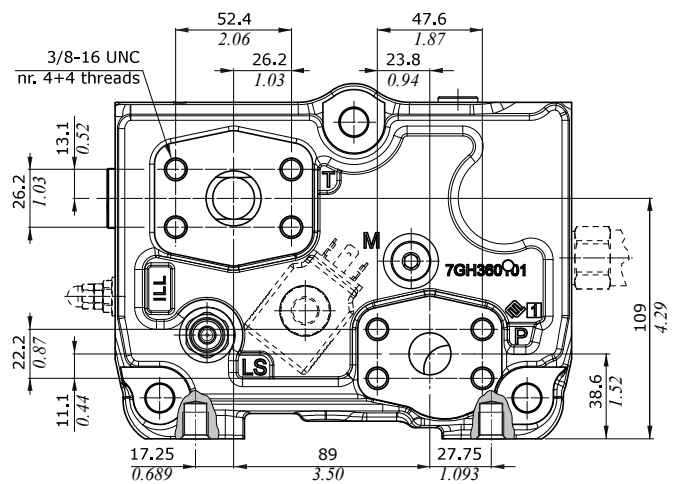


BRF2-30(H220\ELN) configuration

BRF2-30(H220\ELT\RT) configuration



FS3-U(SAE) optional connection

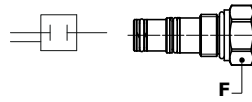
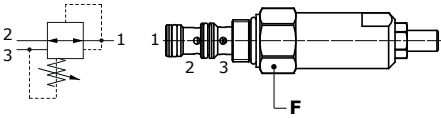


Inlet section

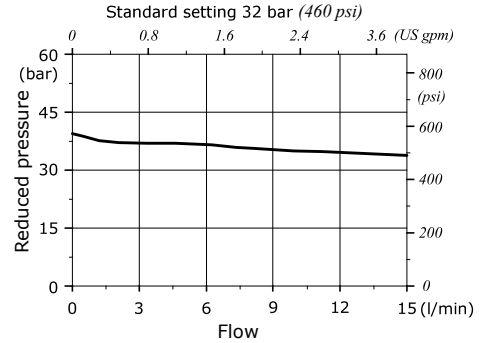
Pressure reducing valve

Pressure reducing valve
code: 4AC9539900

Valve blanking plug
code: 3XTP3535100

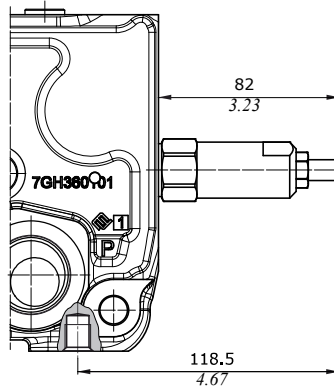
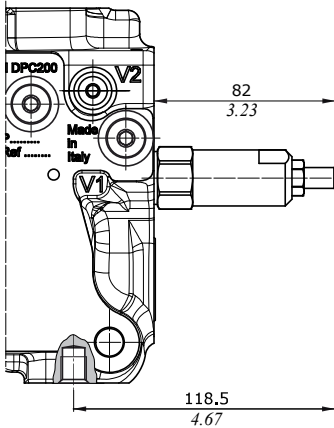


Reduced pressure vs. Flow



On BR section

On BRF section



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)

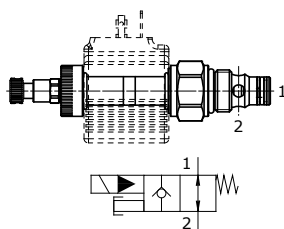
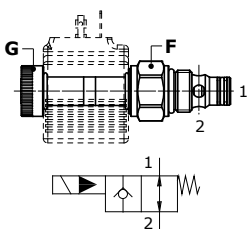
Wrenches and tightening torques

F = wrench 24 - 30 Nm (22 lbf)

Solenoid operated L.S. unloading valve

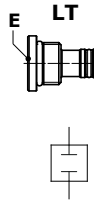
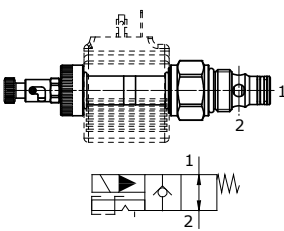
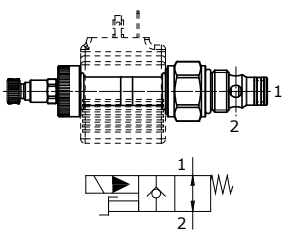
ELN

ELP



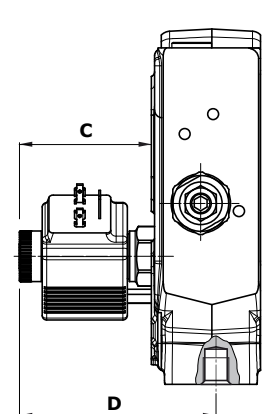
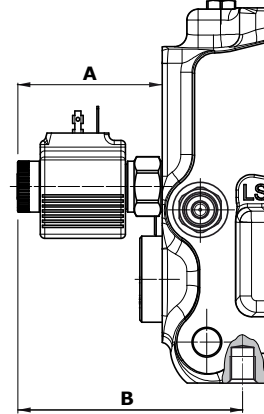
ELV

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

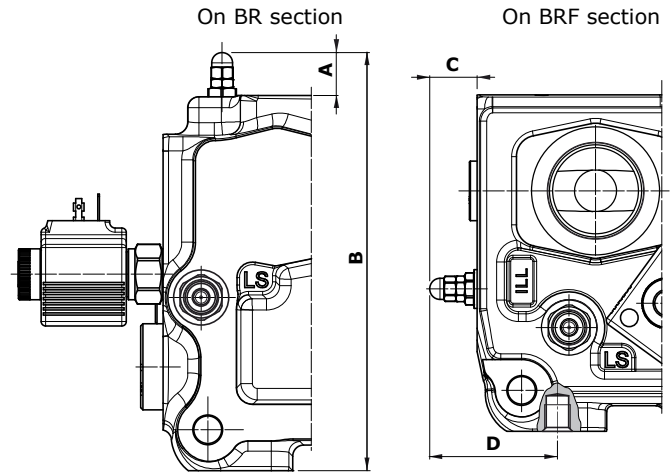
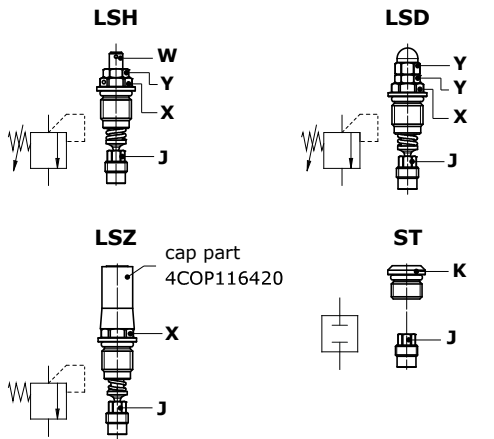
- ELN: without emergency
- ELP: push button emergency override
- ELV: screw emergency override
- ELT: "push&twist" emergency override
- LT: valve blanking plug

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)

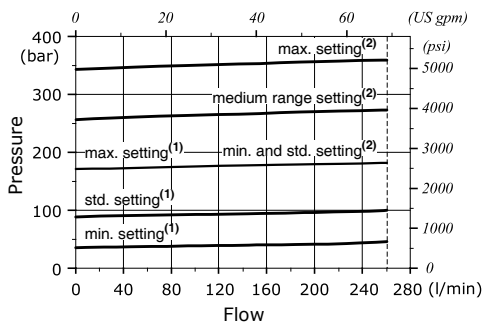
K = allen wrench 5 - 24 Nm (17.7 lbf)

Valve type	BR section		BRF section		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

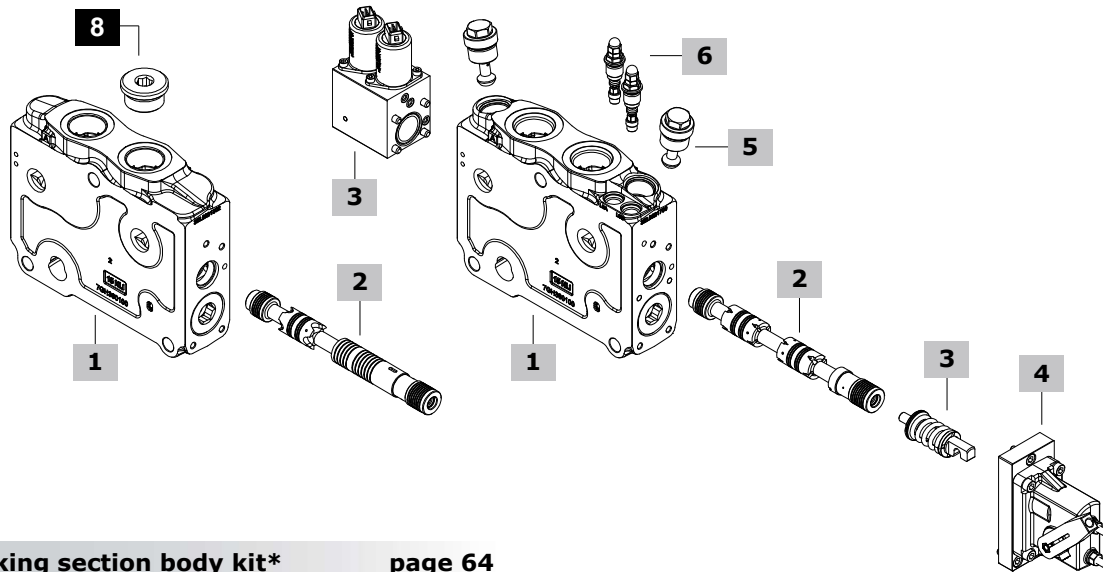
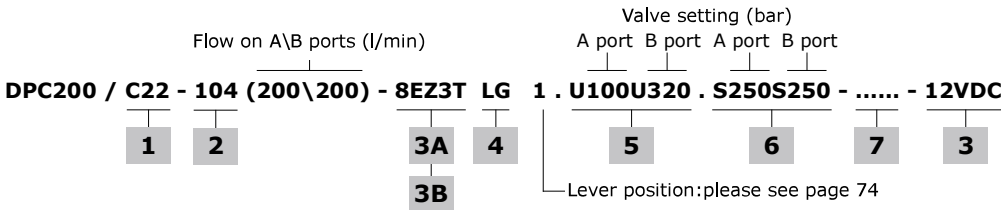
Pressure vs. flow diagram

(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
Standard types		
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.
With digital spool position sensor*		
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.
With analog spool position sensor*		
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.
For floating circuit (type 5 spool)		
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)
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)
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)

TYPE	CODE	DESCRIPTION
"UL" size valves		
ULT	XTAP528520	Valve blanking plug
CL	5KIT409000	Anticavitation valve (for UL cavity)
Fixed setting antishock and anticavitation valves with pressure relief function: setting is referred to 5 l/min (1.3 US gpm)		
TYPE: UL 100	CODE: 5KIT340 100 L	
└ setting (bar)		└ 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

TYPE	ID	CODE	DESCRIPTION
Standard setting is referred to 10 l/min (2.6 US gpm) flow.			
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 threading

Specify 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.

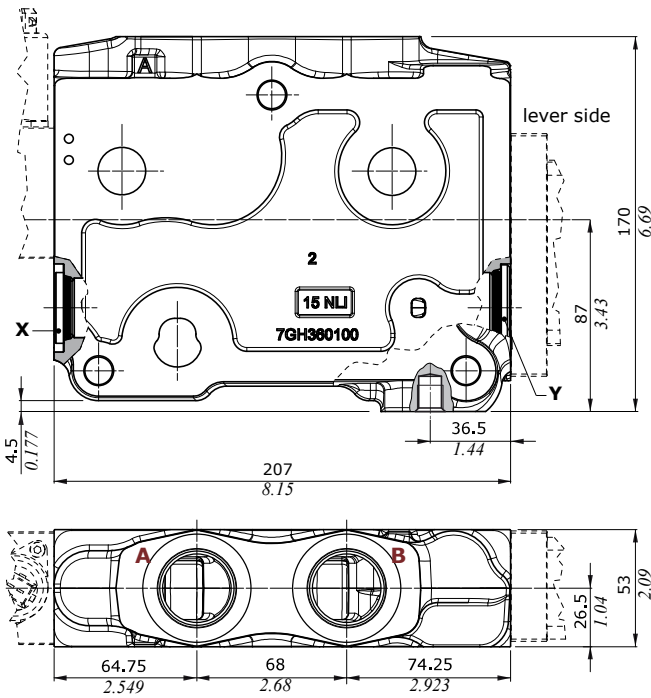
8 Plug for single acting spool*

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

Working section

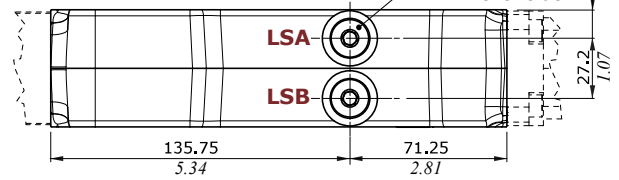
Dimensions and hydraulic circuit

Without port valves



LS bottom port position

(not for C10 type)



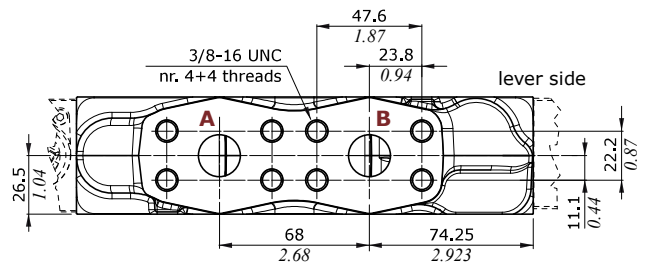
Wrenches and tightening torques

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

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

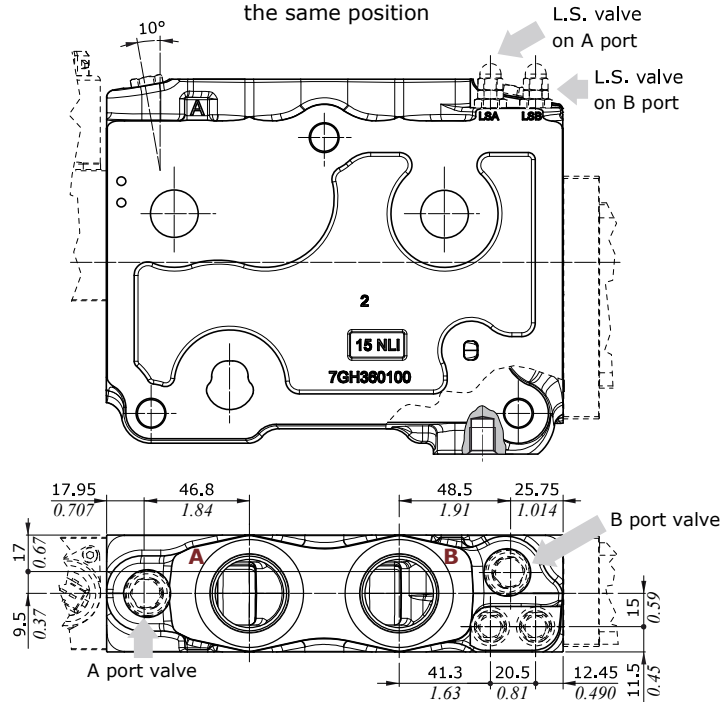
Z = allen wrench 6 - 24 Nm (17.7 lbf)

FS3-U(BSP) optional connection



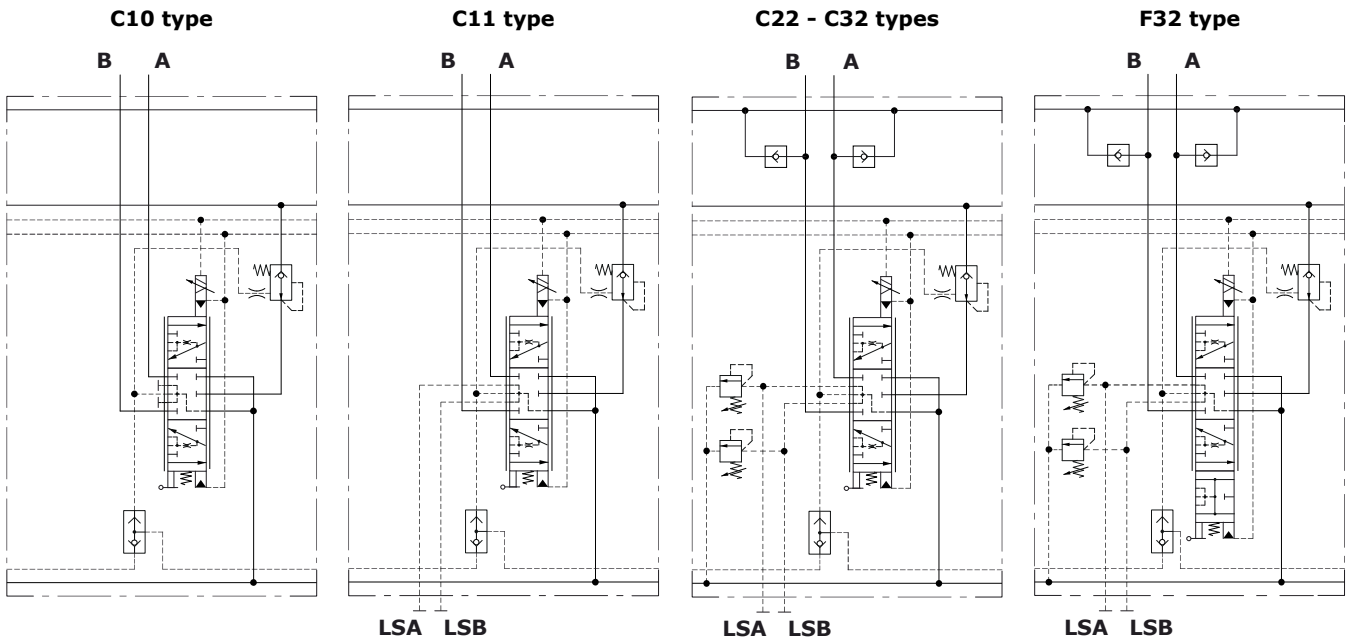
With port valves

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

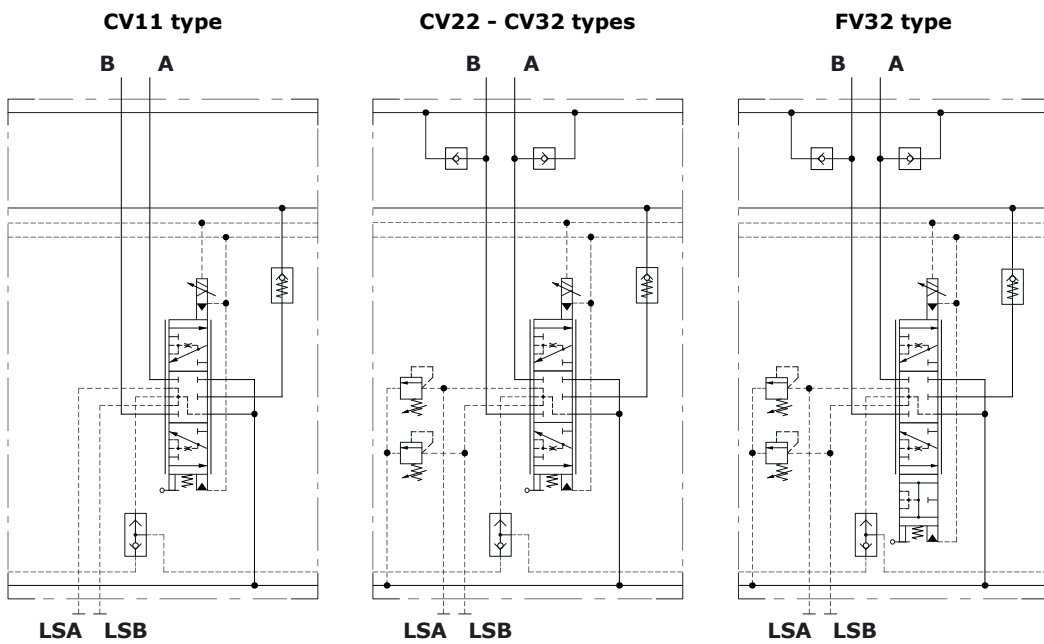


Dimensions and hydraulic circuit

With compensator



Without compensator, with check valve



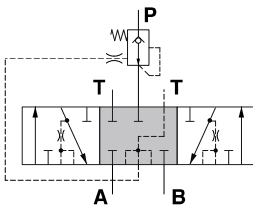
Working section

Spools

1 type spool

A, B closed in neutral position

2 0 1



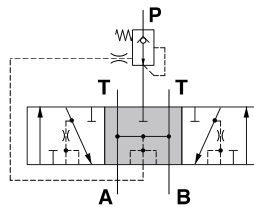
Spool stroke

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.

2 0 1



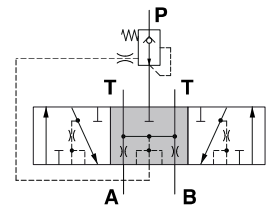
Spool stroke

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.

2 0 1



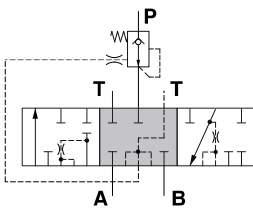
Spool stroke

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

3 type spool

single acting on A

2 0 1



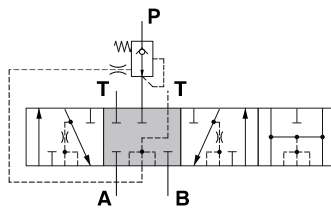
Spool stroke

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

5 type spool

floating in 4th position (pos.3)

2 0 1 3



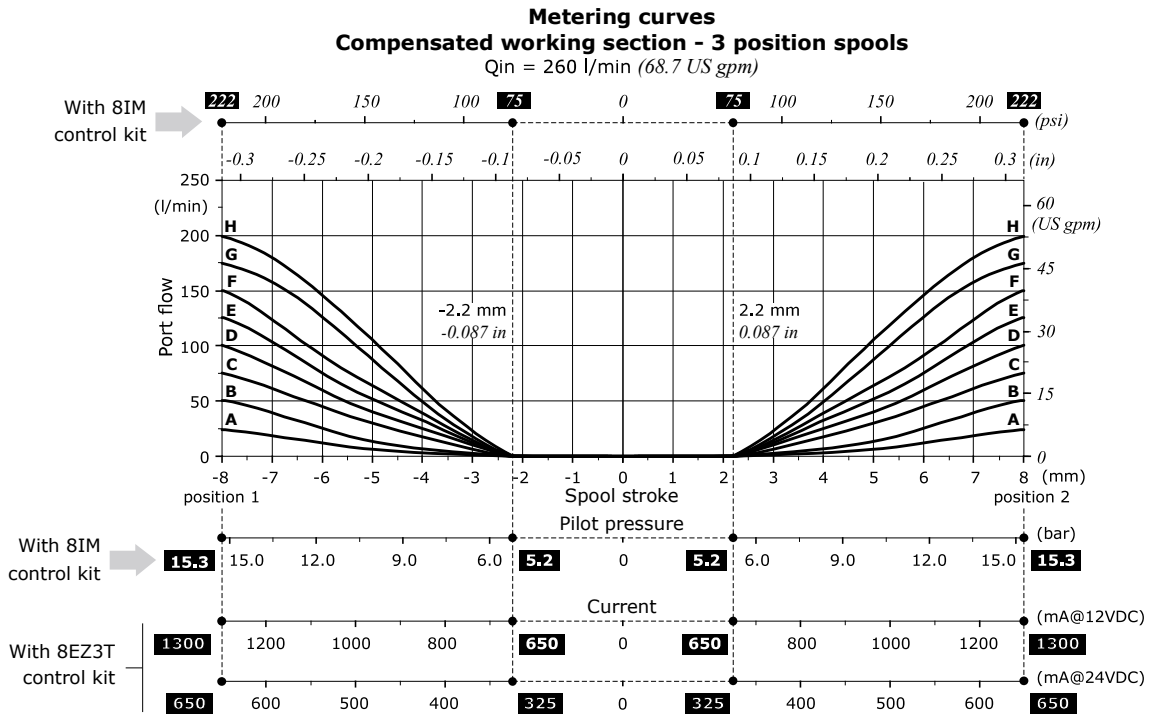
Spool stroke

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

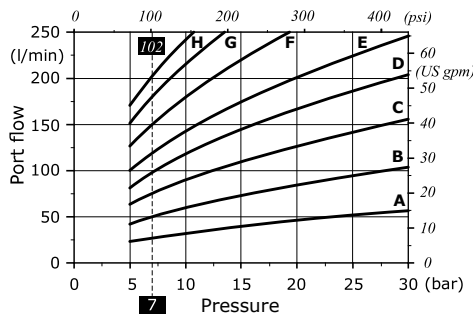
Spools

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)

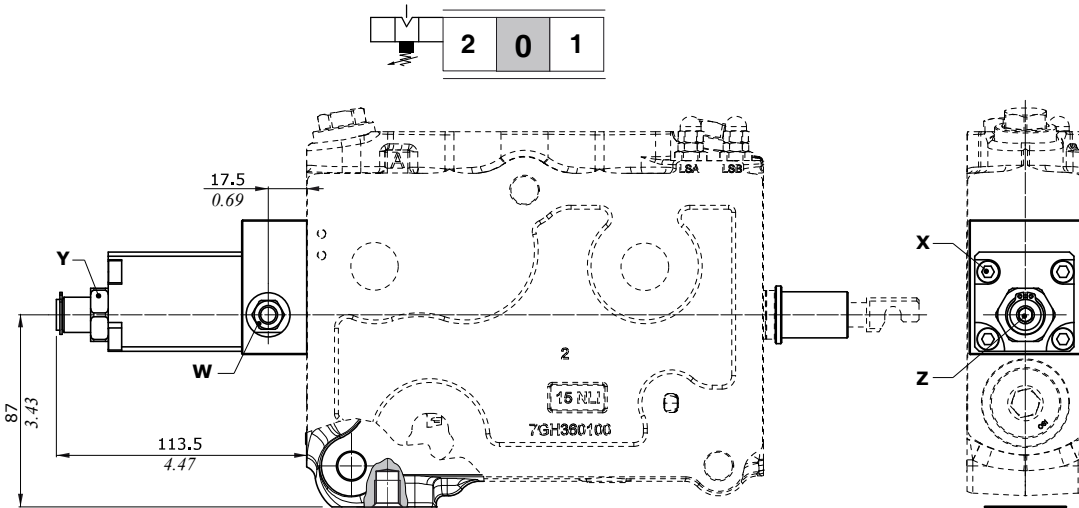


- Spool nominal flow @ 7 bar (102 psi) stand-by (margin pressure)**
- A = 25 l/min (6.6 US gpm)
 - B = 50 l/min (13.2 US gpm)
 - C = 75 l/min (19.8 US gpm)
 - D = 100 l/min (26.4 US gpm)
 - E = 125 l/min (33 US gpm)
 - F = 150 l/min (39.5 US gpm)
 - G = 175 l/min (46.2 US gpm)
 - H = 200 l/min (52.8 US gpm)

Working section

"A" side spool control kit

With friction and center position feeling: 7FT type



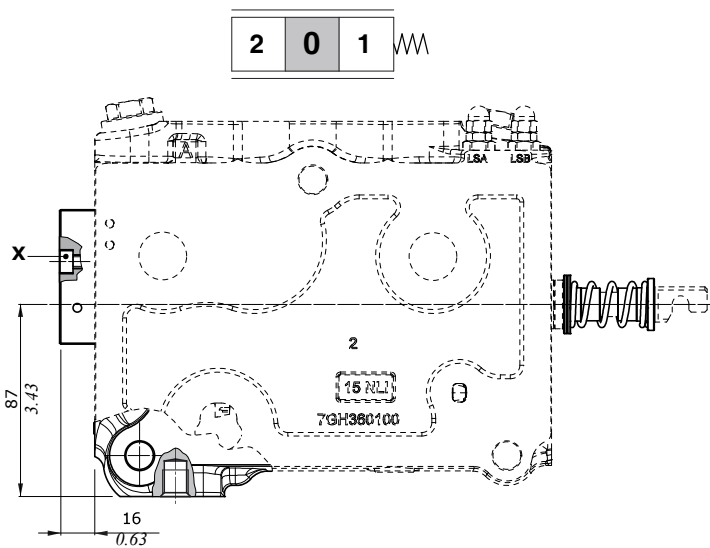
Features

- 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)

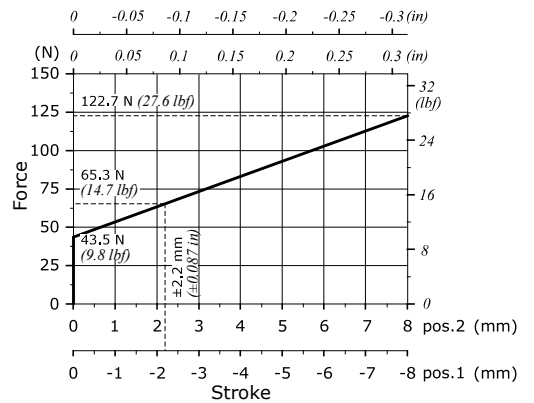
With spring return to neutral position: 8 type



Wrenches and tightening torques

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

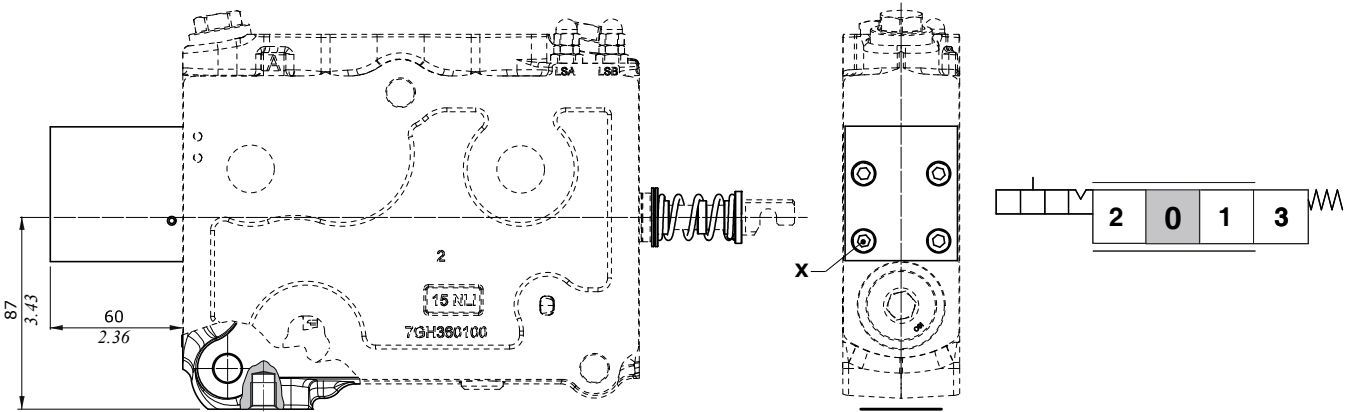
Force vs. Stroke diagram



"A" side spool control kit

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

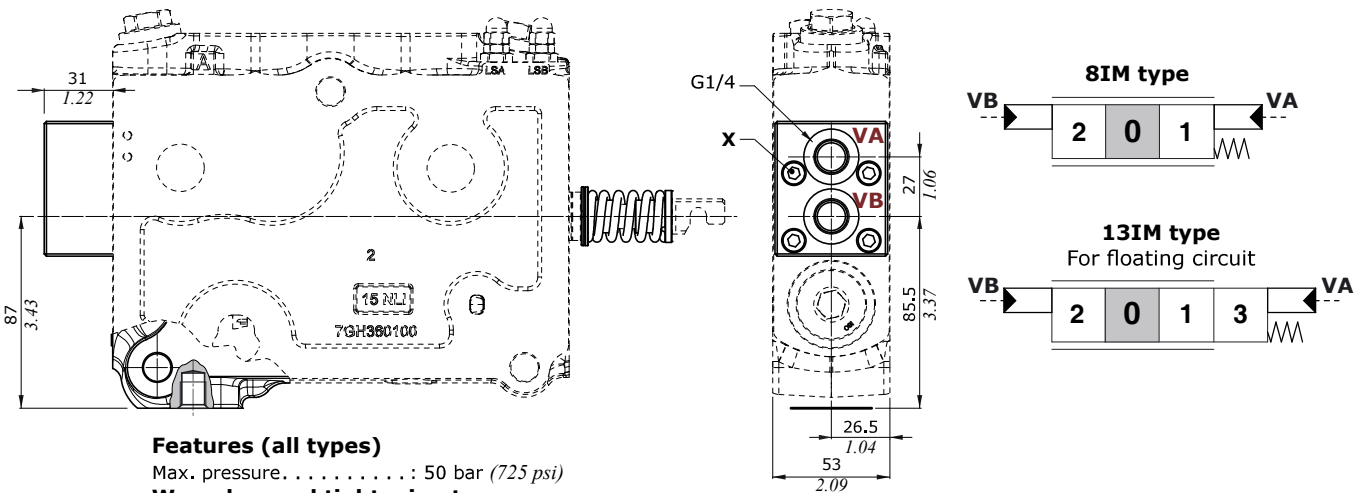
F or FV type working section and floating circuit type 5 spools are required



Wrenches and tightening torques

X = wrench 5 - 9.8 Nm (7.2 lbf)

Proportional hydraulic controls



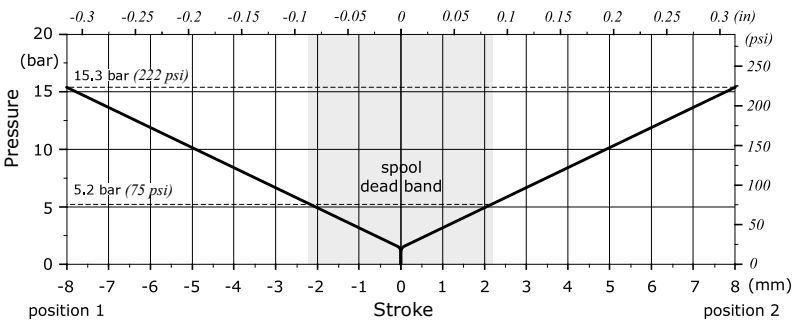
Features (all types)

Max. pressure : 50 bar (725 psi)

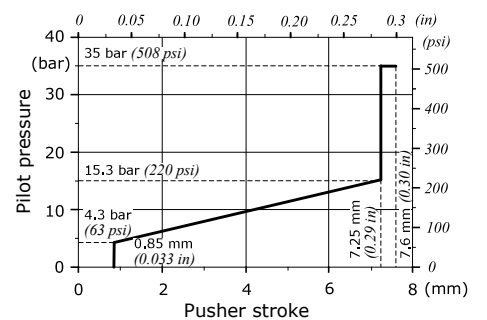
Wrenches and tightening torques

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.

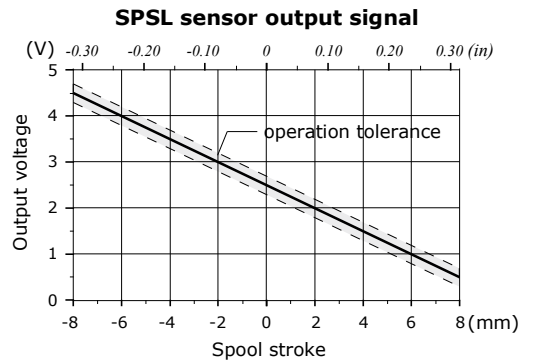
Electrohydraulic controls without on-board electronic: spool position sensor

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

SPSL sensor

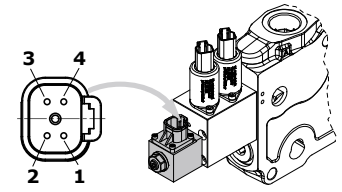
The SPSL position sensor converts the spool movements into a voltage linear signal..

Working conditions	
Voltage supply	5 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	DT04-4P Deutsch
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke	±10 mm (±0.39 in)
Max. mechanical stroke	±10 mm (±0.39 in)
Output signal	range from 0.5 to 4.5 V
	linearity ± 5%
	spool in neutral 2.5 ± 0.2 V
	max. current 1 mA
EMC compatibility	ISO 13766 / ISO 14982
Mechanical vibrations, shock, bumps	IEC 68-2-6,-27,-29



Deutsch DT04-4P connector

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

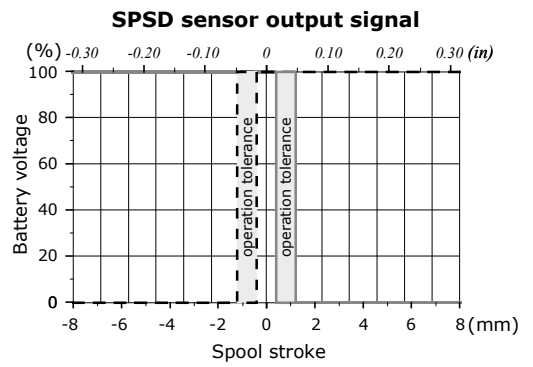


Deutsch DT06-4S mating connector, code 5CON140072

SPSD sensor

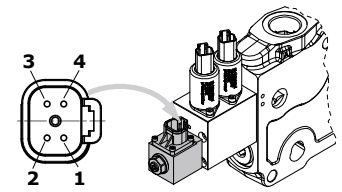
The SPSP position sensor converts the spool movements into an electric digital signal.

Working conditions	
Voltage supply	from 9 to 32 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	DT04-4P Deutsch
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke	±10 mm (±0.39 in)
Max. mechanical stroke	±10 mm (±0.39 in)
Output signal	type PNP
	max. current 6 mA
EMC compatibility	ISO 13766 / ISO 14982
Mechanical vibrations, shock, bumps	IEC 68-2-6,-27,-29



Deutsch DT04-4P connector

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



Deutsch DT06-4S mating connector, code 5CON140072

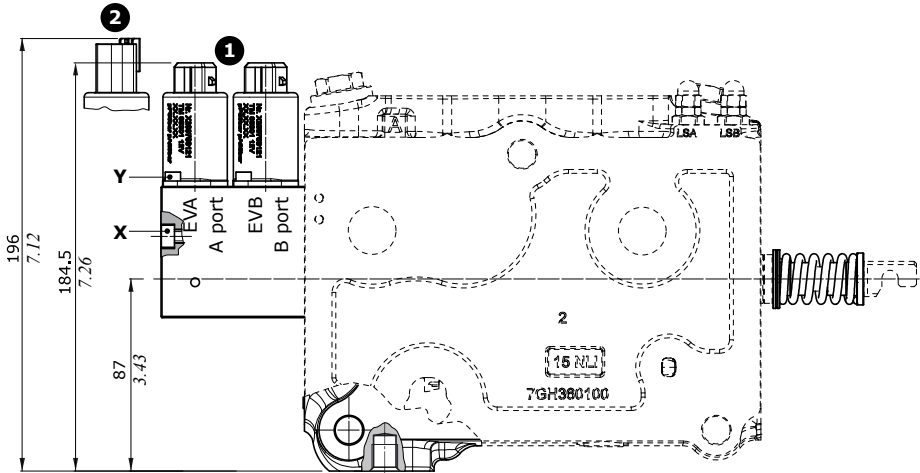
Working section

Electrohydraulic controls

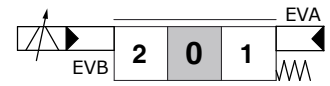
Proportional controls; 8EZ3T - 13EZ3T types

Control Types

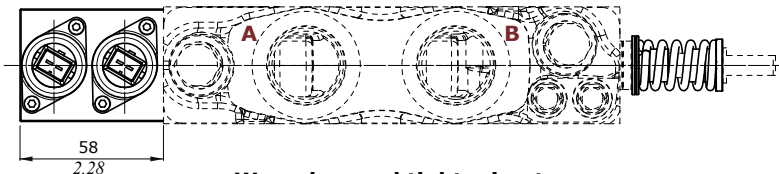
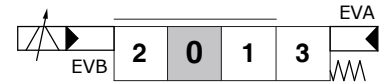
- 1 : With AMP JPT connector - AMP JPT mating connector, code: 5CON003
- 2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



8EZ3T - 8EZ3T4 types



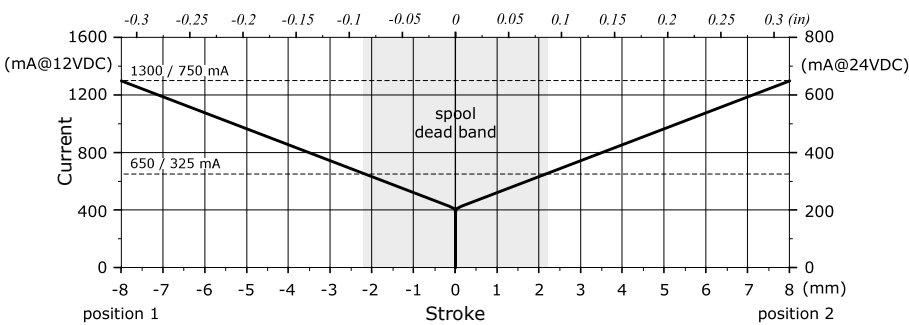
13EZ3T - 13EZ3T4 types
For floating circuit



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

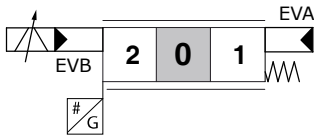
Proportional control; 8EZ3TSPSD - 8EZ3TSPSL types

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

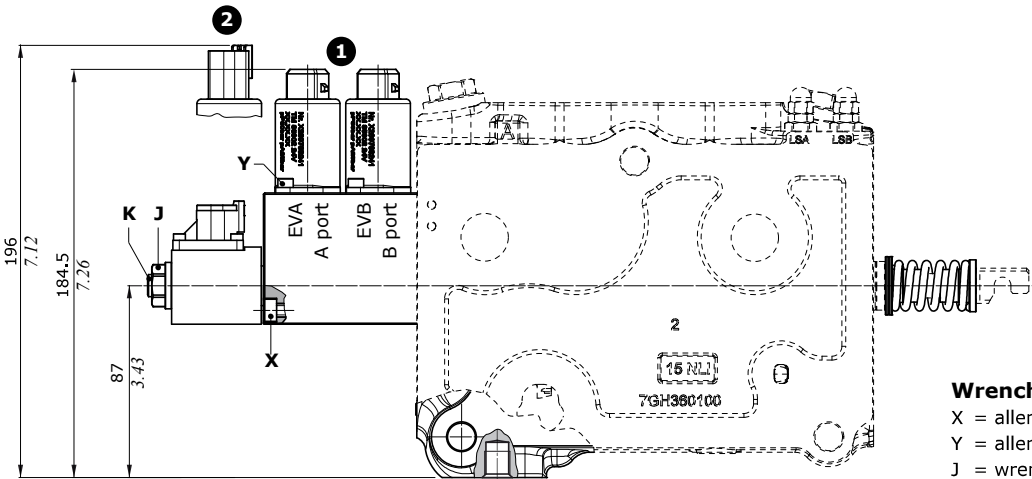
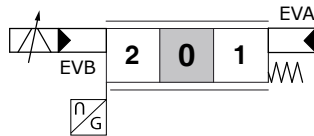
Control Types

- 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

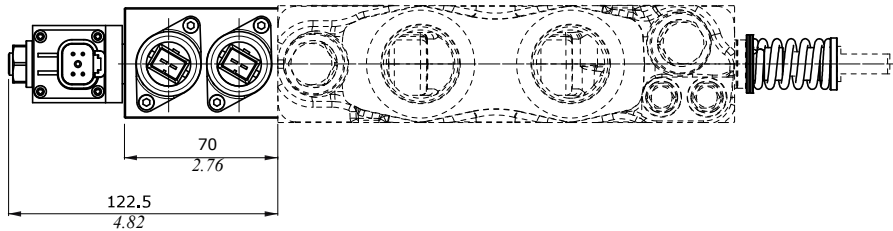


8EZ3TSPSL - 8EZ3T4SPSL types
Analog input



Wrenches and tightening torques

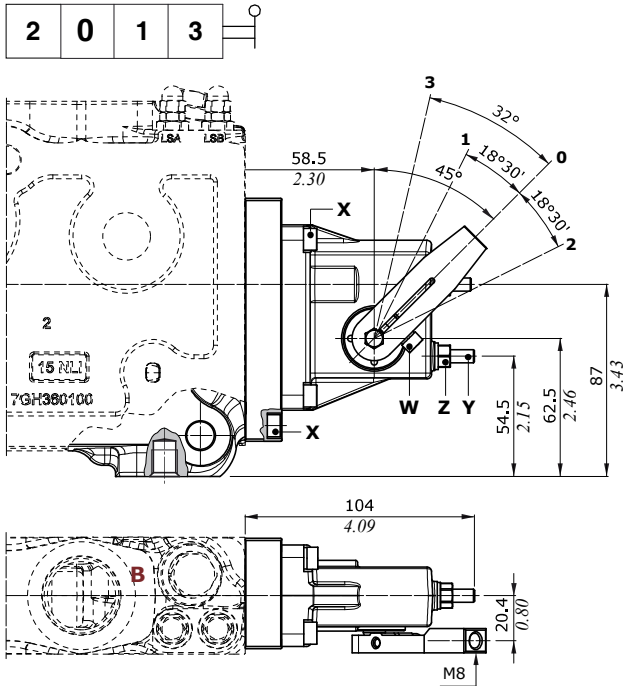
- X = allen wrench 5 - 9.8 Nm (7.2 lbf)
- Y = allen wrench 3 - 5 Nm (3.7 lbf)
- J = wrench 17 - 9.8 Nm (7.2 lbf)
- K = allen wrench 4 - 9.8 Nm (7.2 lbf)



Working section

"B" side spool control kit

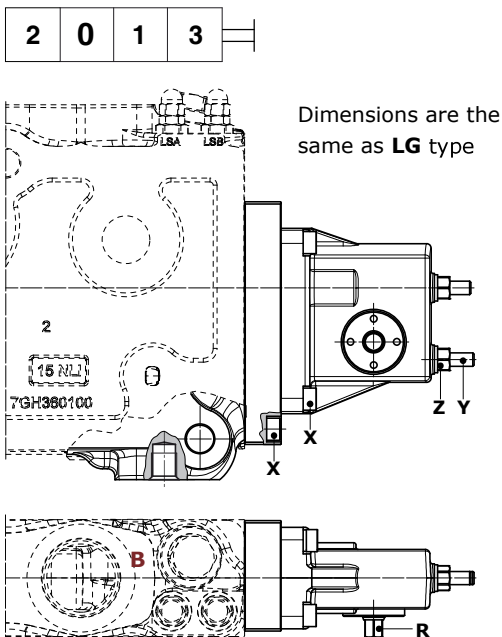
Cast iron standard lever box; LG type



Wrenches and tightening torque

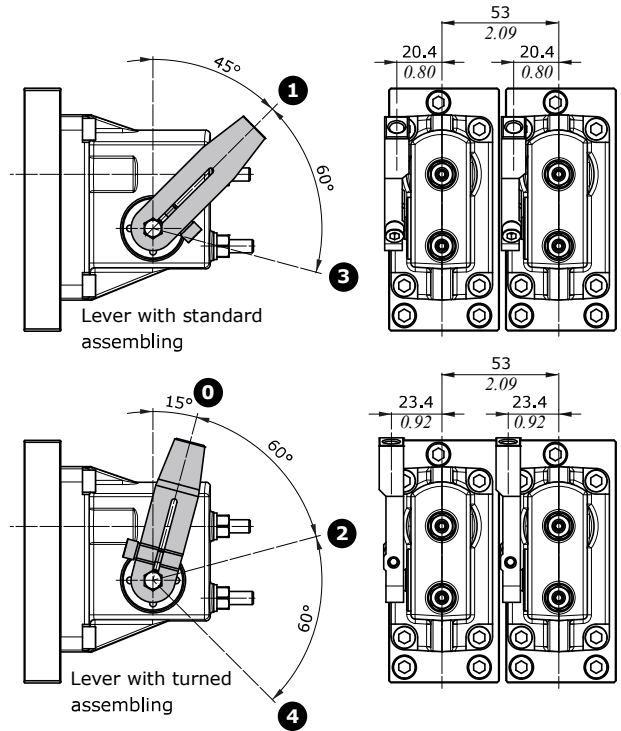
- X = allen wrench 5 - 9.8 Nm (7.2 lbf)
- Y = allen wrench 3
- Z = wrench 10 - 9.8 Nm (7.2 lbf)
- W = allen wrench 4 - 6.6 Nm (4.9 lbf)
- R = wrench 8

Cast iron lever box, without lever; LGN type

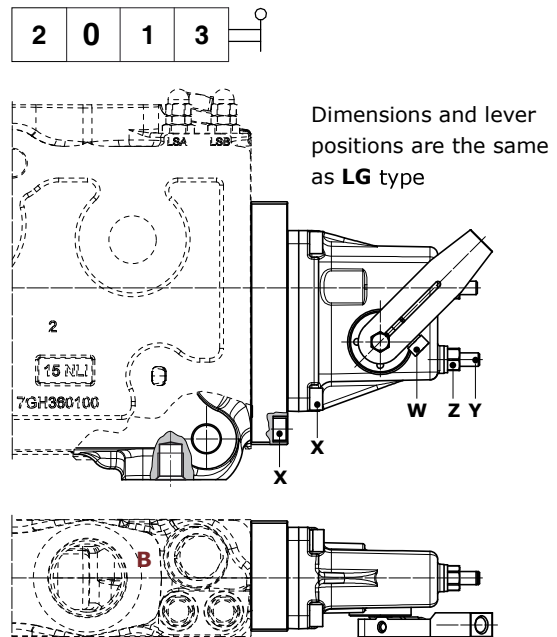


Lever assembly position

Please see page 62 for specification in working section description

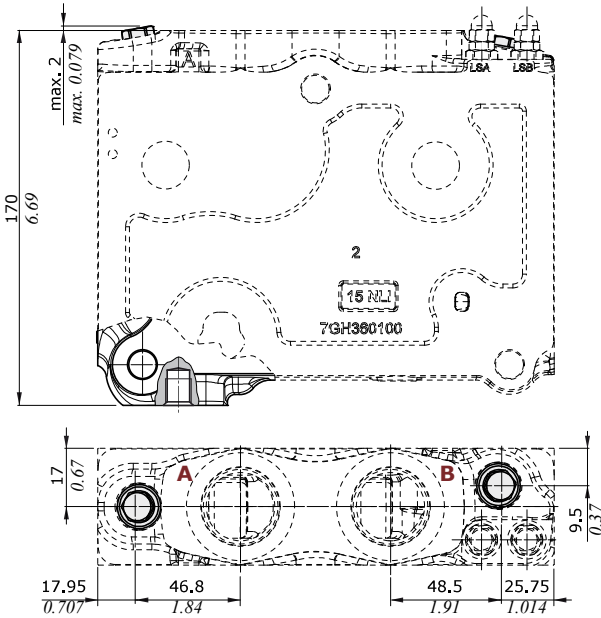


Aluminium lever box; L type



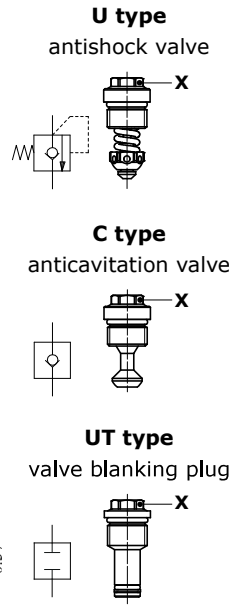
Port valves

Antishock anticavitation valves, U type
Anticavitation valve, C type

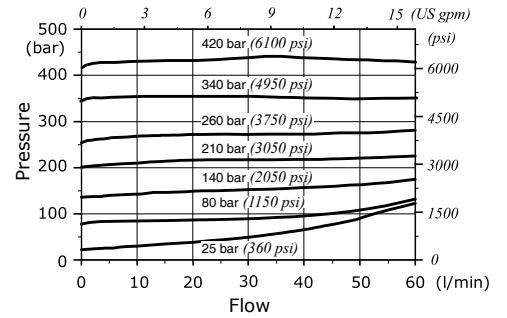


Wrenches and tightening torque

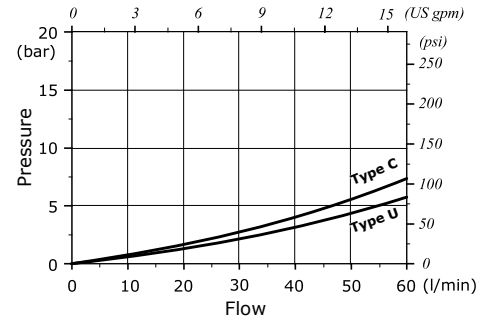
X = wrench 13 - 24 Nm (17.7 lbf)
Y = wrench 19 - 42 Nm (31 lbf)



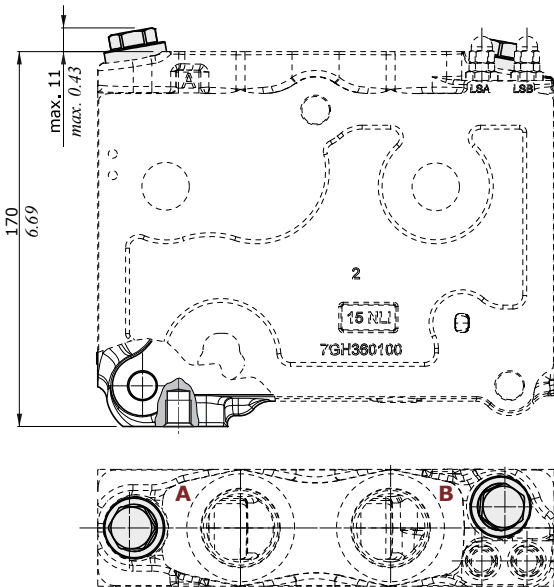
U type, setting example
(10 l/min - 2.6 US gpm)



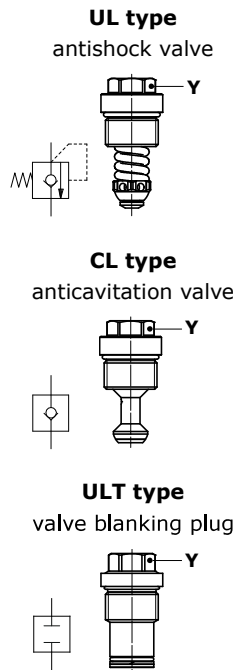
Types U-C, pressure drop
(in anticavitation)



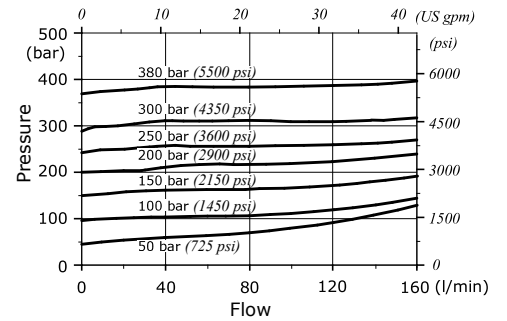
Antishock anticavitation valves with
pressure relief function, UL type
Anticavitation valve, CL type



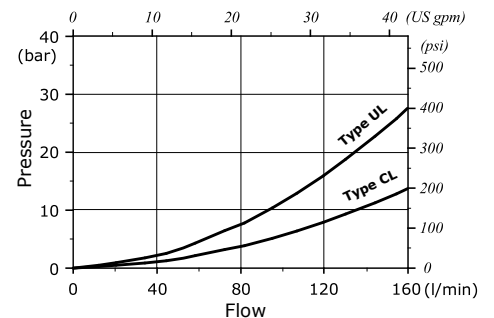
valve position is the same as U type



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

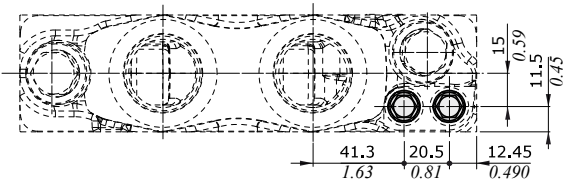
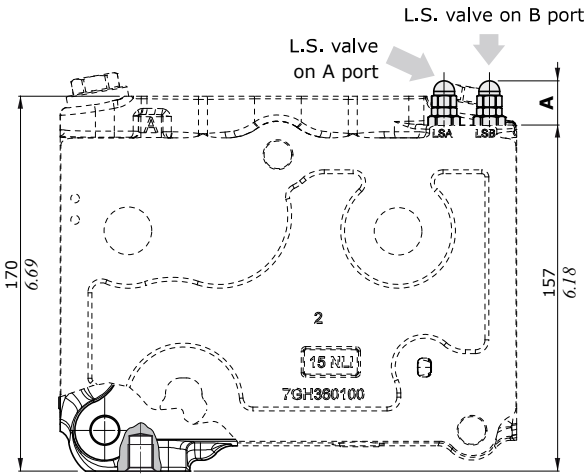


UL-CL types, pressure drop
(in anticavitation)

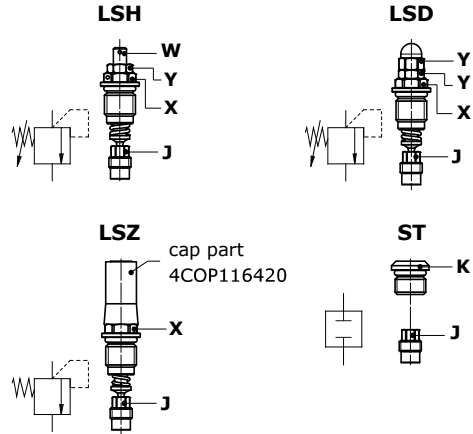


Working section

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

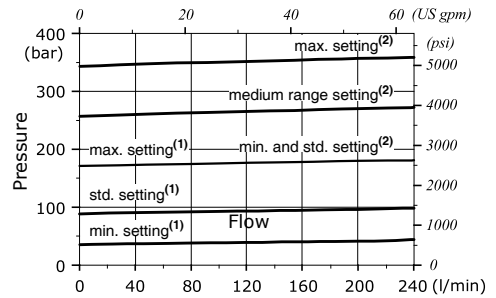
J = wrench 7 - 24 Nm (17.7 lbf)

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

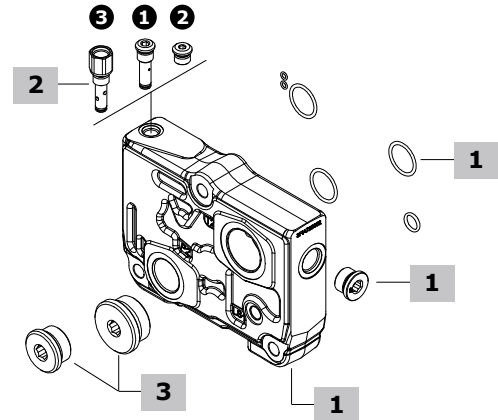
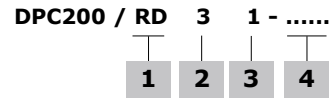
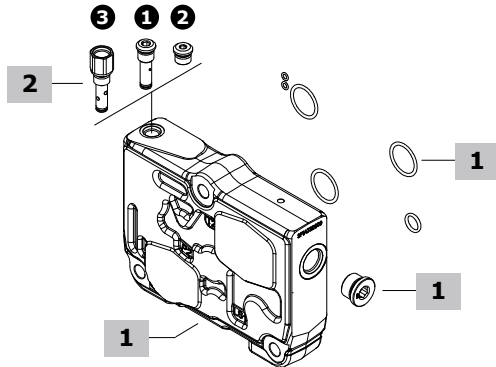
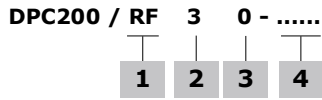
Pressure vs. flow diagram

(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).

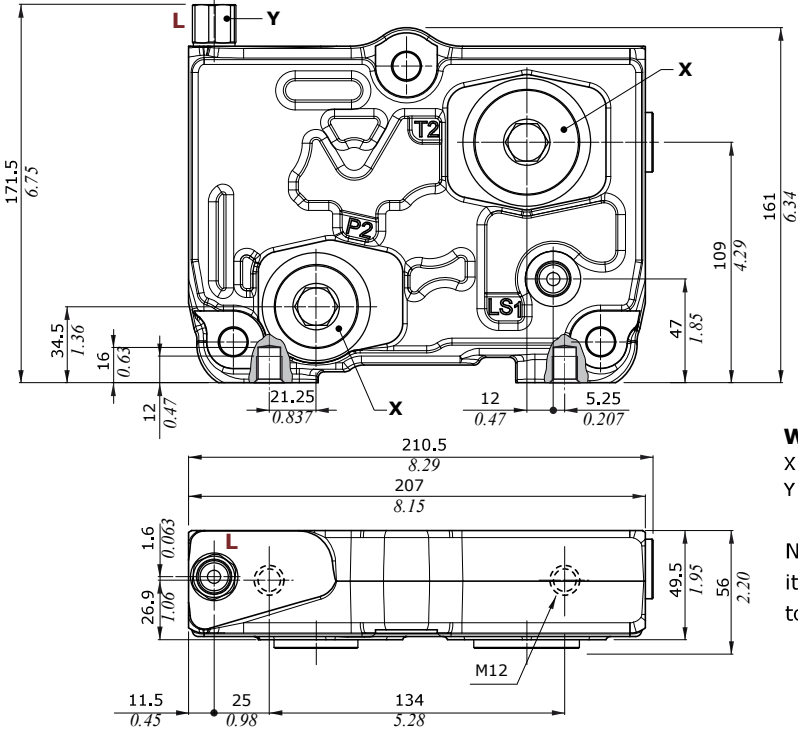
NOTE (*): Codes are referred to **UN-UNF** thread.

Outlet section

Dimensions and hydraulic circuit

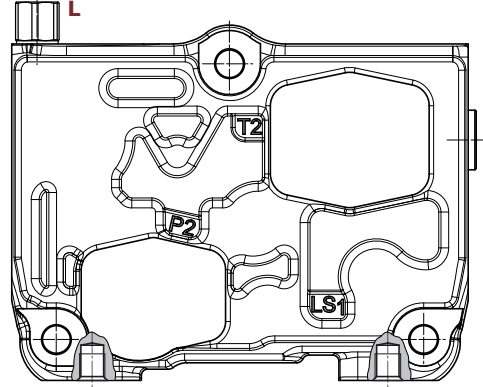
RD31 type

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



RF30 type

Without ports; external drain



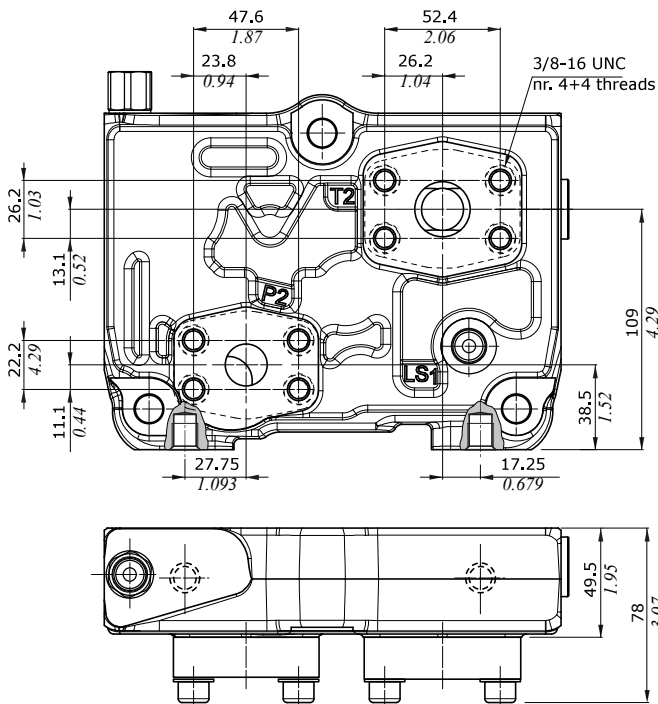
Wrenches and tightening torque

X = allen wrench 17 - 42 Nm (31 lbf)

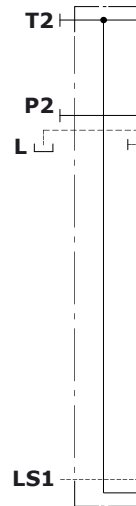
Y = wrench 19 - 24 Nm (17.7 lbf)

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

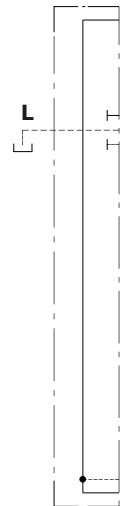
FS3-U(SAE) optional connection



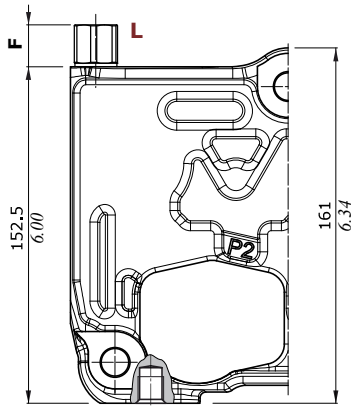
RD31 type



RF30 type

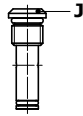


Drain options



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

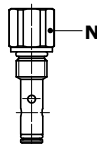
Option 1
internal drain for
mechanical controls



Option 2
internal drain for
hydraulic controls



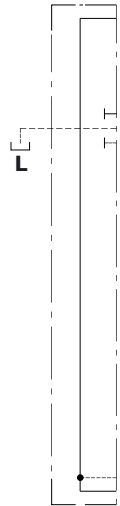
Option 3
external drain for
electrohydraulic controls



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)