CATALOG

DPX Series

Full Flow Sharing Sectional Valves

walvoil

FLUID POWER E|MOTION

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.
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6th edition January 2013

The DPX Series

The DPX Series is a family of open/closed center post-pressure compensated sectional valves designed specifically for Mobile Applications. The DPX series provides exceptional controllability, efficiency and flexibility for applications requiring up to 160 l/min (*42 US gpm*) flow rates. DPX Series is available in three different sizes: DPX050, DPX100 and DPX160, also available in High Pressure configuration.

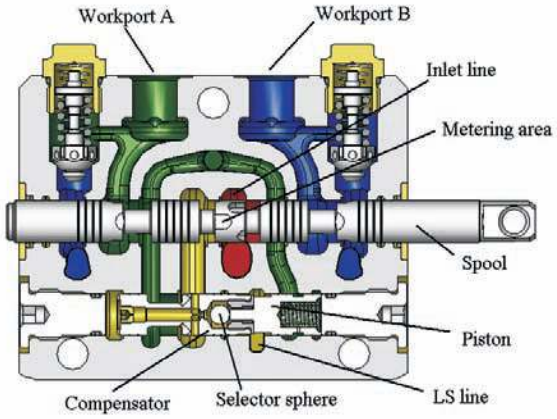
DPX050

DPX100

DPX160

The Flow Sharing technology

The DPX Series control valves adds to the standard Load Sensing valve the benefit of Flow Sharing technology. The DPX Series patented compensator maintains the margin pressure as a costant pressure drop across the spool metering area. The result is a flow to the workport dependent only on spool position. In case of flow saturation, the effective pressure drop across all spools is reduced equally. This results in proportional flow reduction at each section.



In case of flow saturation, the flow demand is higher than the maximum pump flow therefore the margin pressure is reduced according to the formula (dimensionless indication):

$$Q \alpha A \sqrt{\Delta P / \rho}$$

Q = flow to workports
ΔP = pressure drop across metering area
A = metering area
ρ = oil density

Since all spools have the same pressure drop across the metering area, then all flows are reduced proportionally. This allows the operator to mantain control of all function, though at reduced speed of active functions.

Advantages and options

- Energy saving on closed center system, is produced only required flow and pressure by the actuators.
- The flow sharing technology permits multiple movements even with flow saturation.
- Flow passage design allows high P and T flow rate in a standard valve dimension.
- Inlet section with unidirectional restrictor option suitable for dumping the pressure peaks from the LS line to the compensator and vice versa.
- High Pressure version (HP) stackable with standard one.
- Working section option with priority features in saturation conditions.
- Dedicated spools for special functions (customized flows, back pressures, pressure control).

For special options contact Sales Dept.

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.

		DPX050	DPX100		DPX160	
			Std.	HP	Std.	HP
Nominal flow rating	inlet port with compensator, stand-by (margin pressure) 14 bar - *200 psi*	80 l/min - *21 US gpm*	120 l/min - *32 US gpm*		230 l/min - *61 US gpm*	
	working ports, stand-by (margin pressure) 14 bar - *200 psi*	50 l/min - *13 US gpm*	90 l/min - *24 US gpm*		160 l/min - *42 US gpm*	
Max. pressure	inlet port **P**	300 bar *4350 psi*	300 bar *4350 psi*	380 bar (1) *5550 psi* (1)	300 bar *4350 psi*	380 bar (2) *5550 psi* (2)
	working ports **A** and **B**	350 bar *5100 psi*	300 bar *4350 psi*	420 bar (1) *6000 psi* (1)	300 bar *4350 psi*	420 bar (2) *6000 psi* (2)
Back pressure (max.) on outlet port **T**	with mechanical devices	10 bar - *145 psi*				
	with hydr./pneum./electric devices	30 bar - *435 psi*				
	with electrohydraulic devices	see related pages				
Standard internal leakage A(B)->T	Δp=100 bar - *1450 psi*	max. 6.5 cm³/min *max. 0.40 in³/min*	max. 9 cm³/min *max. 0.55 in³/min*		max. 12 cm³/min *max. 0.73 in³/min*	
	with port valves Δp=100 bar - *1450 psi*	max. 11.5 cm³/min *max. 0.70 in³/min*	max. 14 cm³/min *max. 0.85 in³/min*		max. 17 cm³/min *max. 1.04 in³/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 mm²/s - *from 15 to 75 cSt*				
	min.	12 mm²/s - *12 cSt*				
	max.	400 mm²/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) Fatigue rating verified for 1 million cycles on 6 sample valves with Test Pressure = 1.10 x Max. pressure indicated

Standard threads

REFERENCE STANDARD		BSP	UN-UNF	METRIC(3)	METRIC ISO(3)	NPTF
THREAD ACCORDING TO		ISO 228/1 BS 2779	ISO 263 ANSI B1.1 unified	ISO 262	ISO 262	ANSI B1.20.3
CAVITY DIMENSION ACCORDING TO	ISO	1179	11926	9974-1	6149	
	SAE		J1926		J2244	J476a
	DIN	3852-2 shape X or Y		3852-1 shape X or Y		

NOTE (3): Metric threading is available on request

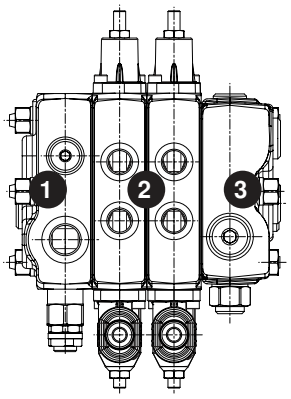
PORTS THREADING	DPX050		DPX100		DPX160	
	BSP	UN-UNF	BSP	UN-UNF	BSP	UN-UNF
Inlet **P**	G 1/2	3/4-16 (SAE 8)	G 1/2 - G 3/4 (4)	7/8-14 (SAE10)	G 3/4	1 1/16-12 (SAE12)
Ports **A** and **B**	G 3/8	9/16-18 (SAE 6)	G 3/8 - G 1/2 (4)	3/4-16 (SAE8)	G 3/4	1 1/16-12 (SAE12)
Outlet **T**	G 1/2	3/4-16 (SAE 8)	G 1/2 - G 3/4 (4)	7/8-14 (SAE10)	G 1	1 5/16-12 (SAE16)
Pilot **V** and drain **L**	G 1/4	9/16-18 (SAE 6)	G 1/4	9/16-18 (SAE6)	G 1/4	9/16-18 (SAE6)
Hydraulic control ports	G 1/4	7/16-20 (SAE 4)	G 1/4	7/16-20 (SAE 4)	G 1/4	9/16-18 (SAE 6)
Pneumatic control ports			NPTF 1/8-27	NPTF 1/8-27		

NOTE (4) - Optional threading

Guide to configuration

Configuration with mechanical, hydraulic or electric controls

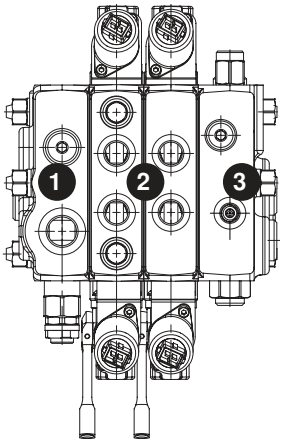
This configuration needs standard inlet sections, working sections without pilot lines and standard outlet sections.



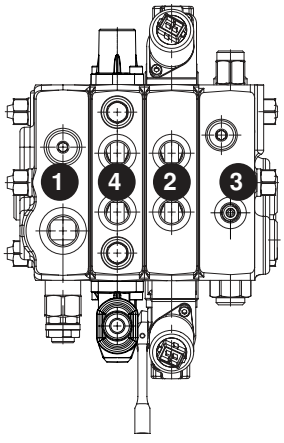
DPX050
1 : AM or AN inlet sections
2 : P or Q working sections
3 : RP or RQ working sections with outlet
DPX100
1 : AM or AN inlet sections
2 : P or Q working sections
3 : RF outlet sections
DPX160
1 : AM or AN inlet sections
2 : P or Q working sections
3 : RC outlet sections

Configuration with only electrohydraulic or mixed controls

Electrohydraulic configuration (pic. 1) needs standard inlet sections, working and outlet sections with pilot lines.
In a valve configurated with electrohydraulic mixed sections (two-sides and one side type controls), the two-sides control section have to be positioned after (on the right) one-side control section, close to the outlet one.
In a mixed control configuration valve (pic. 2) electrohydraulic control sections have to be positioned after (on the right) manual/hydraulic/electric control sections, close to the outlet section.
In case of need to include manual/hydraulic/electric control sections between 2 electro-hydraulic control sections, or between one of these and outlet section, it is necessary to require specific kits able to cross pilot line.



(pic. 1)



(pic. 2)

DPX050
1 : AM or AN inlet sections
2 : PZ, QZ, PE or QE working sections
3 : RPZ, RQZ, RPE or RQE working sections with outlet
4 : P or Q working sections
DPX100
1 : AM or AN inlet sections
2 : PE, QE. PZ or QZ working sections
3 : RDN or RDR outlet sections
4 : P or Q working sections
DPX160
1 : AM or AN inlet sections
2 : PE or QE working sections
3 : RCR or RCN outlet sections
4 : P or Q working sections

Guide to configuration

High pressure (HP) valve configuration

DPX flow sharing series is available both for Standard and High pressure (HP) configuration also.
The main difference between the two configurations is the max. reachable pressures.
In details:

DPX100-DPX160
- Max. pressure on inlet port P and on working ports A/B = 300 bar - *4350 psi*

DPX100HP-DPX160HP
- Max. pressure on inlet port P = 380 bar - *5550 psi*
- Max. pressure on working ports A/B = 420 bar - *6000 psi*

In addition to valve entirely configurated for Standard pressure or HP, a mixed configuration – Standard/HP – is available by combining only the sections needed.

Closed center type inlet cover: one single solution for Standard and HP pressures.
Open center type inlet cover: separate solutions for Standard and HP pressure.
Priority inlet cover (only for DPX160): configuration available only for Standard pressure.
Working sections: separate solutions for Standard and HP pressures.
Outlet covers: one single solution for Standard and HP pressures.

Example of entirely Standard pressure valve configuration

DPX100/2/AM1(TGW3-175/ELN)/P-101(80/80)-8IMN.U3T/Q-101(80/80)-8IMN/RF-12VDC

Std pressure open center inlet section
Std pressure closed center inlet section
Std pressure working sections
Standard pressure outlet section

Example of entirely HP valve configuration

DPX100HP/2/AM1(TGW5-300/ELN)/P-101(80/80)-8IMN.U3T/Q-101(80/80)-8IMN/RF-12VDC

HP open center inlet section
Std pressure closed center inlet section
HP working sections
Standard pressure outlet section

Example of mixed - Standard/HP - valve configuration

DPX100/2/AM1(TGW3-175/ELN)/P-101(80/80)-8IMN.U3T/HP-Q-101(80/80).U3(360)-8IMN/RF-12VDC

Std pressure open center inlet section
Std pressure closed center inlet section
Std pressure working section
HP working section
Standard pressure outlet section

Pressure peaks reduction

Pressure peaks may occur in a port during normal machine operation, causing signal L.S. swings. If those pressure swings reach the inlet section or the pump compensators, they could cause an harsh and not confortable regulation, especially if they occur with high frequency.
The DPX Series directional valves, open and closed center ones, are available with inlet sections equipped with devices for L.S. signal peaks reduction.

Standard configuration
Bidirectional restrictor on L.S. signal; it dampens the pressure peaks from L.S. line to inlet setion compensator and vice versa.
SU option
Unidirectional restrictor on L.S. signal; it dampens the pressure peaks from L.S. line (and then from users) to inlet setion compensator. It's recommended for applications that need soft start.
SO options
Unidirectional restrictor on L.S. signal; it dampens the pressure peaks from inlet section compensator to L.S. line. It's recommended for swings reduction occurred during normal operation.

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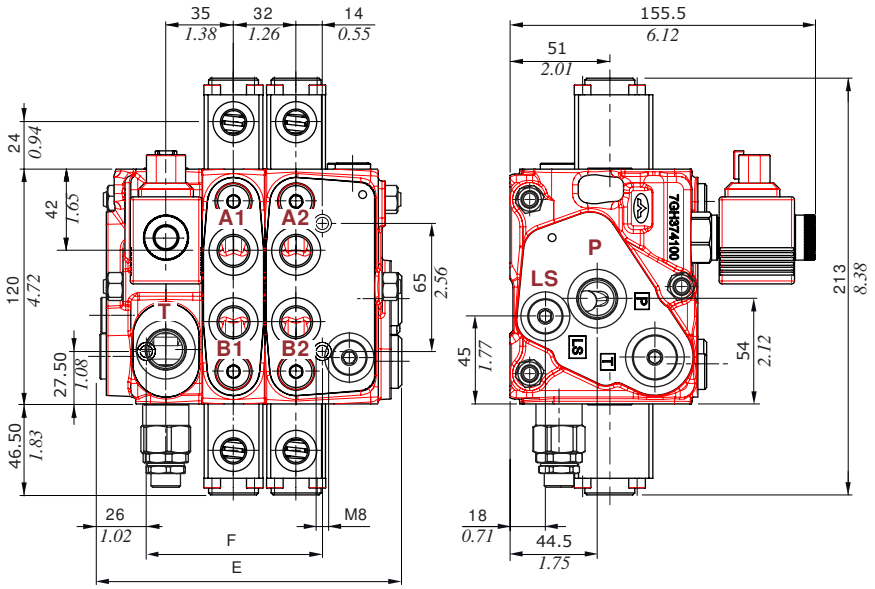
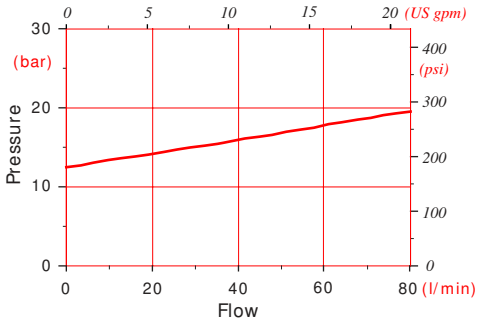
Dimensional data and performance

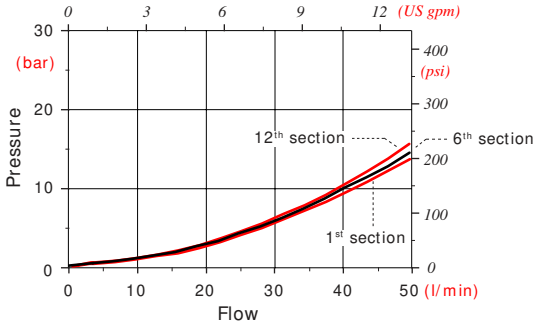


Type	E		F	
	mm	*in*	mm	*in*
DPX050/1	119	*4.69*	57.5	*2.26*
DPX050/2	151	*5.95*	89.5	*3.52*
DPX050/3	183	*7.20*	121.5	*4.78*
DPX050/4	215	*8.46*	153.5	*6.04*
DPX050/5	247	*9.72*	185.5	*7.30*
DPX050/6	279	*10.98*	217.5	*8.56*
DPX050/7	311	*12.24*	249.5	*9.82*
DPX050/8	343	*13.50*	281.5	*11.08*
DPX050/9	375	*14.76*	313.5	*12.34*
DPX050/10	407	*16.02*	345.5	*13.60*
DPX050/11	439	*17.28*	377.5	*14.86*
DPX050/12	471	*18.54*	409.5	*16.12*

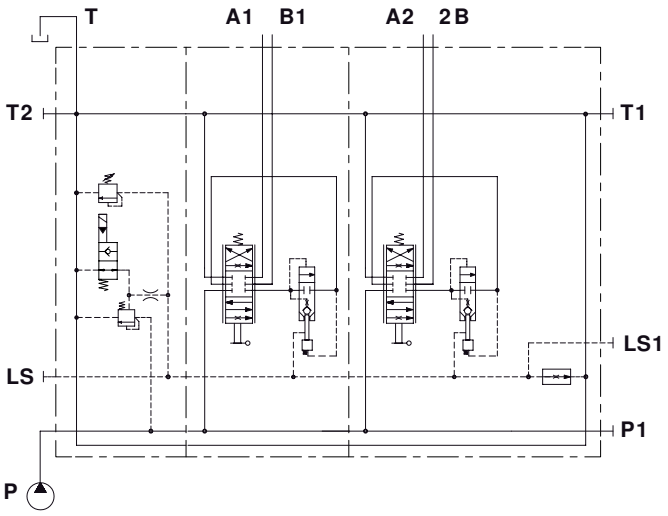
P⇒T Pressure drop inlet compensator (margin pressure)



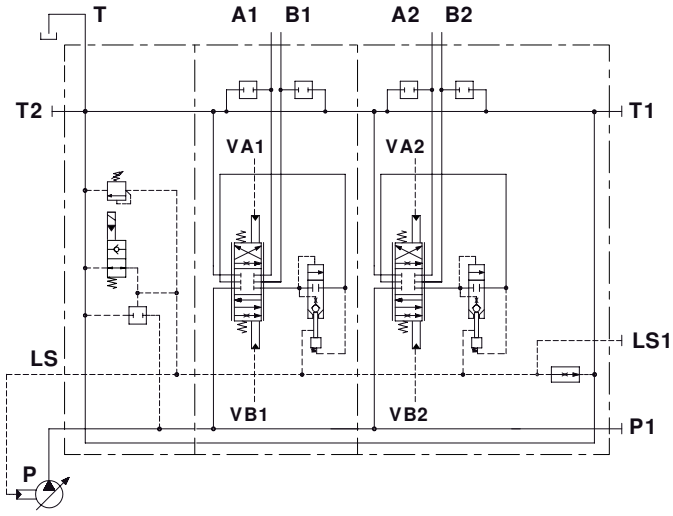
A(B)⇒T pressure drop (standard spool @ max.stroke)



Configuration example with mechanical and hydraulic controls

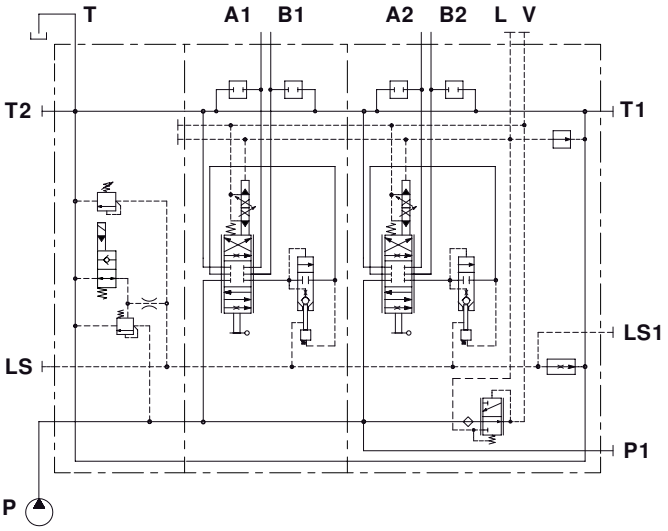


Open center circuit and lever control, with unloader valve, without port valves arrangement

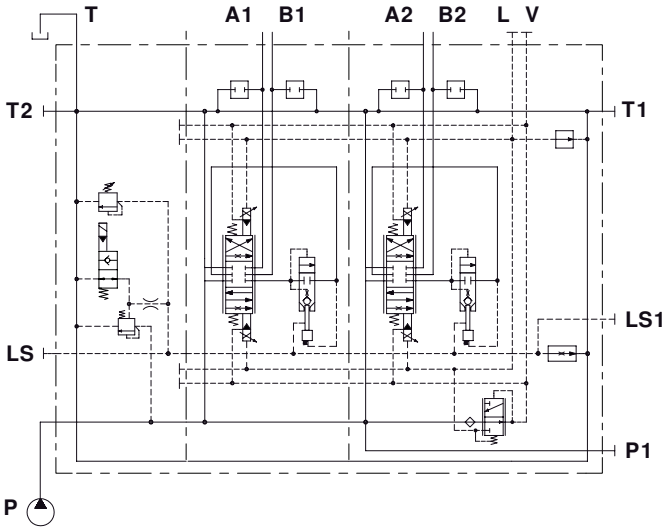


Closed center circuit and proportional hydraulic control, with unloader valve and port valves arrangement

Configuration example with electrohydraulic controls



Open center circuit and one-side proportional electrohydraulic control with lever, unloader valve, port valves arrangement and pressure reducing valve, internal pilot and drain



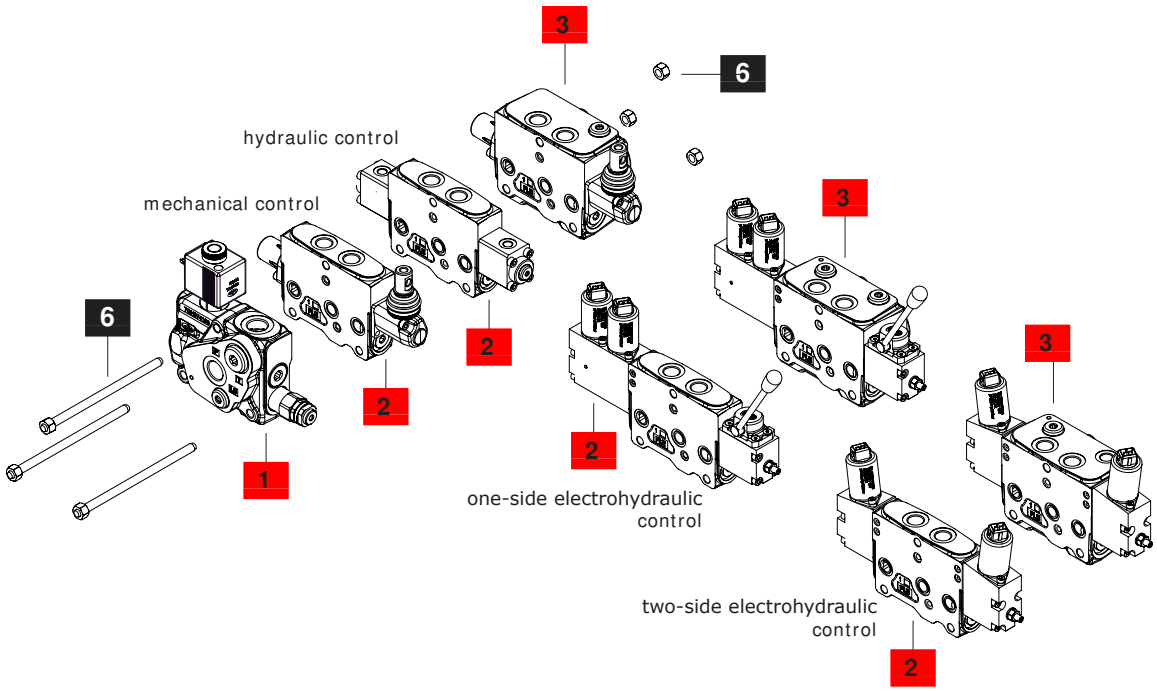
Open center circuit and two-side proportional electrohydraulic control, with unloader valve and port valves arrangement and pressure reducing valve, internal pilot and drain

Complete sections ordering codes

Nr. of working sections

DPX050/3/AM2(TGW3-175\ELN)/Q-104(40\40)-8L/Q-I104(40\40)-8IM/RQ-104(40\40)-8L-.....-12VDC

1 2 3 4 5



Complete sections ordering codes

1 Inlet section *

Open Center circuit
TYPE: **DPX050/AM2(TGW3-175/ELN)-SAE-12VDC**
CODE: 660205000
DESCRIPTION: With compensator, pressure relief valve and unloader valve, with P-T-T2-LS ports (T2-LS plugged)
TYPE: **DPX050/AM2(SO/TGW3-175/ELN)-SAE-12VDC**
CODE: 660205002
DESCRIPTION: As previous with non-return flow limiter from inlet section to working section and by-pass valve
TYPE: **DPX050/AM2(SU/TGW3-175/ELN)-SAE-12VDC**
CODE: 660205001
DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve
Closed Center circuit
TYPE: **DPX050/AN2(TGW3-175/ELN)-SAE-12VDC**
CODE: 660205003
DESCRIPTION: Without compensator, with press. relief valve and unloader valve, with P-T-T2-LS ports (T2 plugged)
TYPE: **DPX050/AN2(SO/TGW3-175/ELN)-SAE-12VDC**
CODE: 660205005
DESCRIPTION: As previous with non-return flow limiter from inlet section to working section and by-pass valve
TYPE: **DPX050/AN2(SU/TGW3-175/ELN)-SAE-12VDC**
CODE: 660205004
DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve

2 Working section *

Mechanical control
TYPE: **DPX050/Q-104(40/40)-8L-SAE**
CODE: 660115001
DESCRIPTION: Lever control without port valves arrangement
TYPE: **DPX050/P-104(40/40)- 8L.U3T-SAE**
CODE: 660105001
DESCRIPTION: As previous with port valves arrangement
Proportional hydraulic control
TYPE: **DPX050/Q-I104(40/40)-8IM-SAE**
CODE: 660115002
DESCRIPTION: Without port valves arrangement
TYPE: **DPX050/P-I104(40/40)-8IM.U3T-SAE**
CODE: 660105002
DESCRIPTION: With port valves arrangement
Two-side proportional electrohydraulic control
TYPE: **DPX050/QE-I104(40/40)-8EB3F3-SAE-12VDC**
CODE: 660115003
DESCRIPTION: With spool stroke limiter, without port valves arrangement
TYPE: **DPX050/PE-I104(40/40)-8EB3F3.U3T-SAE-12VDC**
CODE: 660105003
DESCRIPTION: As previous with port valves arrangement
One-side proportional electrohydraulic control
TYPE: **DPX050/QZ-I104(40/40)-8EZ3F2LHCIF1-SAE-12VDC**
CODE: 660115004
DESCRIPTION: With lever and spool stroke limiter, without port valves arrangement
TYPE: **DPX050/PZ-I104(40/40)-8EZ3F2LHCIF1.U3T-SAE-12VDC**
CODE: 660105004
DESCRIPTION: As previous with port valves arrangement

3 Working section with outlet *

Mechanical control
TYPE: **DPX050/RQ-104(40/40)-8L-SAE**
CODE: 660305001
DESCRIPTION: Lever control, with Bleed valve and side P1-T1-LS1 ports (plugged), without port valves arrangement
TYPE: **DPX050/RP-104(40/40)-8L.U3T-SAE**
CODE: 660305002
DESCRIPTION: As previous with port valves arrangement
Hydraulic control
TYPE: **DPX050/RQ-I104(40/40)-8IM-SAE**
CODE: 660305011
DESCRIPTION: With Bleed valve and side P1-T1-LS1 ports (plugged), without port valves arrangement
TYPE: **DPX050/RP-I104(40/40)-8IM.U3T-SAE**
Code: 660305012
DESCRIPTION: As previous with port valves arrangement
Two-side proportional electrohydraulic control
TYPE: **DPX050/RQE-I104(40/40)-8EB3F3-SAE-12VDC**
CODE: 660303005
DESCRIPTION: With spool stroke limiter, Bleed valve, pressure reducing valve and side P1-T1-LS1 ports (plugged), pilot V and drain L ports plugged, without port valves arrangement
TYPE: **DPX050/RPE-I104(40/40)-8EB3F3.U3T-SAE-12VDC**
CODE: 660305006
DESCRIPTION: As previous with port valves arrangement
One-side proportional electrohydraulic control
TYPE: **DPX050/RQZ-I104(40/40)-8EZ3F2LHCIF1-SAE-12VDC**
CODE: 660305003
DESCRIPTION: With lever and spool stroke limiter, Bleed valve, pressure reducing valve and side P1-T1-LS1 ports (plugged), pilot V and drain L ports plugged, without port valves arrangement
TYPE: **DPX050/RPZ-I104(40/40)-8EZ3F2LHCIF1.U3T-SAE-12VDC**
CODE: 660305004
DESCRIPTION: As previous with port valves arrangement

4 Valve threading

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

5 Voltage

Specify the voltage of electric devices.

6 Assembling kit

CODE	DESCRIPTION
5TIR108125	Tie rod kit for 1 working section directional valve
5TIR108157	Tie rod kit for 2 working sections directional valve
5TIR108192	Tie rod kit for 3 working sections directional valve
5TIR108222	Tie rod kit for 4 working sections directional valve
5TIR108253	Tie rod kit for 5 working sections directional valve
5TIR108285	Tie rod kit for 6 working sections directional valve
5TIR108320	Tie rod kit for 7 working sections directional valve
5TIR108349	Tie rod kit for 8 working sections directional valve
5TIR108381	Tie rod kit for 9 working sections directional valve
5TIR108413	Tie rod kit for 10 working sections directional valve
5TIR108446	Tie rod kit for 11 working sections directional valve
5TIR108477	Tie rod kit for 12 working sections directional valve

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

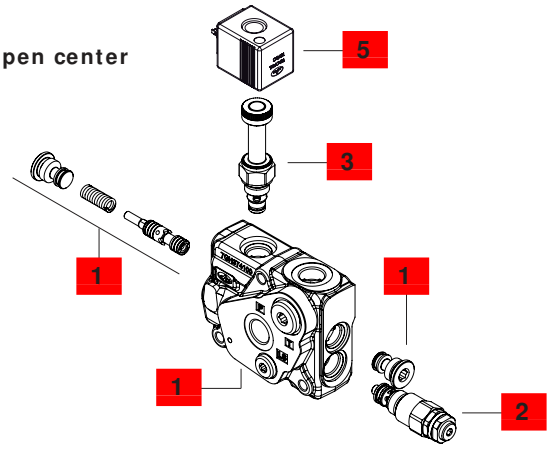
Inlet section parts ordering codes

Valve setting (bar)

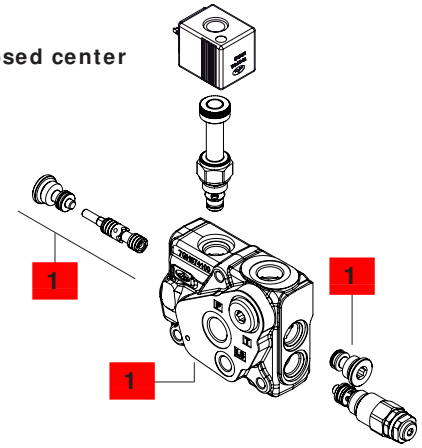
DPX050 / A M2 (TGW3 - 175 / ELN) - .... - 12VDC

1 2 3 4 5

AM: open center



AN: closed center



1 Inlet section kit* page 13

Open Center circuit

TYPE: **DPX050/M2-SAE/EL** CODE: 5FIA150740
DESCRIPTION: With P-T-T2-LS ports (T2-LS plugged) arranged for unloader valve

TYPE: **DPX050/M2(SU)-SAE/EL** CODE: 5FIA150730
DESCRIPTION: As previous with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX050/M2(SO)-SAE/EL** CODE:5FIA150731
DESCRIPTION: As previous with non return flow limiter from inlet section to working section and by-pass valve

Closed Center circuit

TYPE: **DPX050/N2-SAE/EL** CODE: 5FIA150741
DESCRIPTION: With P-T-T2-LS ports, arranged for unloader valve (T2 plugged)

TYPE: **DPX050/N2(SU)-SAE/EL** CODE: 5FIA150732
DESCRIPTION: As previous with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX050/N2(SO)-SAE/EL** CODE: 5FIA150733
DESCRIPTION: As previous with non return flow limiter from inlet section to working section and by-pass valve

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

2 Main pressure relief valve page 15

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

TYPE	CODE	DESCRIPTION
(TGW2-80)	0MC09002000	Range 10-120 bar / *145-1750 psi* std setting 80 bar / *1160 psi*
(TGW3-175)	0MC09002001	Range 40-220 bar / *580-3200 psi* std setting 175 bar / *2550 psi*
(TGW4-250)	0MC09002002	Range 200-350 bar / *2900-5100 psi* std setting 250 bar / *3600 psi*
SV	XTAP524340	Relief valve blanking plug

3 Solenoid operated unloading valve page 15

TYPE	CODE	DESCRIPTION
ELN	0EF08002000	Without emergency override
ELV	0EF08002003	With screw type emergency override
ELP	0EF08002002	With push-button emergency override
ELT	0EF08002004	With “twist & push” emergency override
LT	3XTP3533700	Unloading valve blanking plug

4 Section threading

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

5 Coil

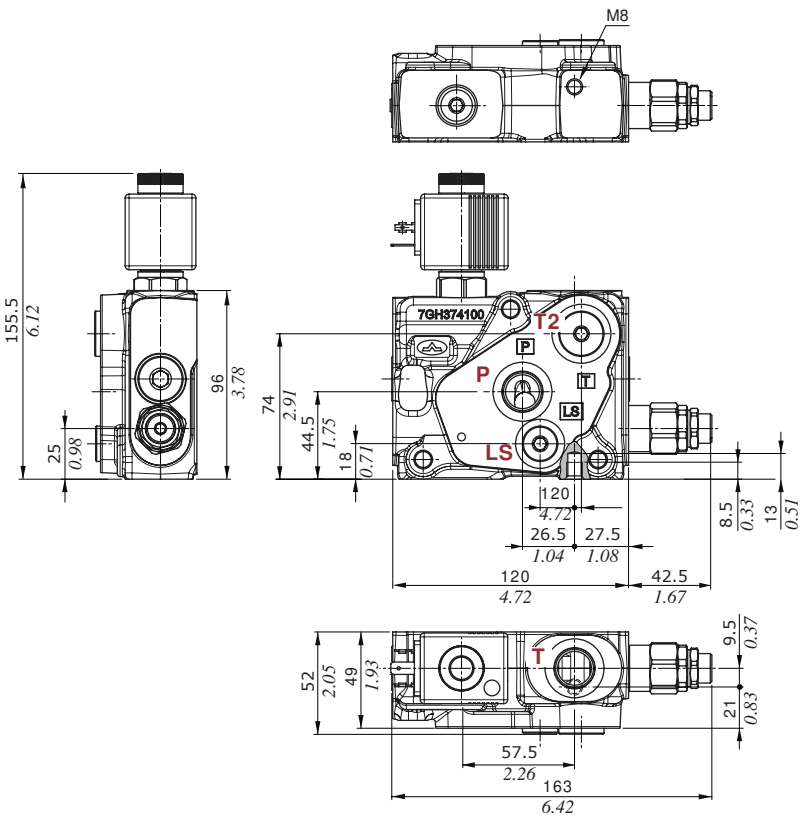
TYPE	CODE	DESCRIPTION
12VDC	4SL2000121	Coil type **BER,** ISO4400 conn., 12VDC

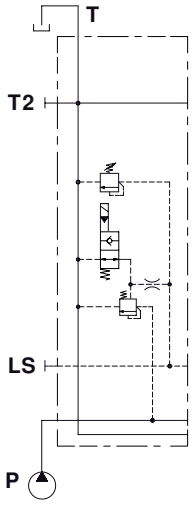
For complete available coils list see page 104.

Dimensions and hydraulic circuit

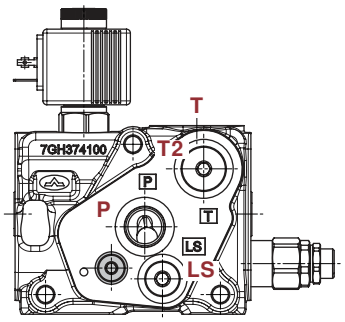
Type M Open Center section

M2 type





M2(SO) or M2(SU) type



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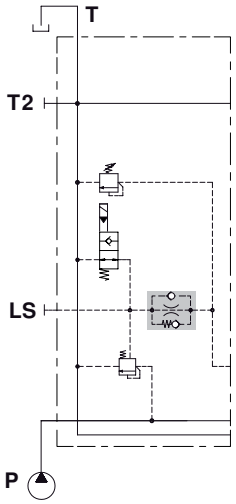

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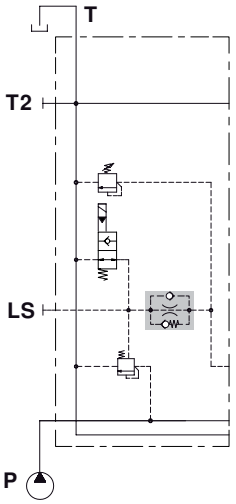
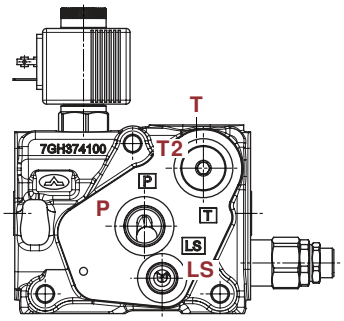


Inlet section

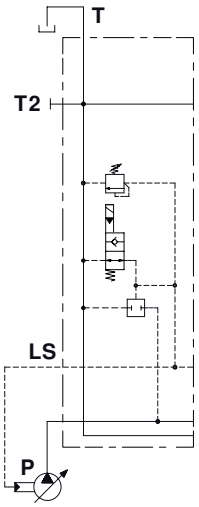
Dimensions and hydraulic circuit

Example of N Closed Center section

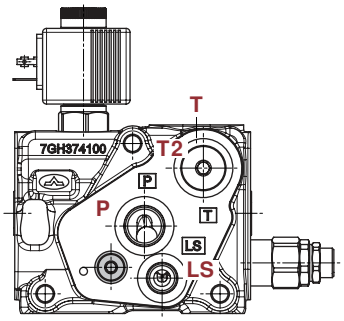
N2 type



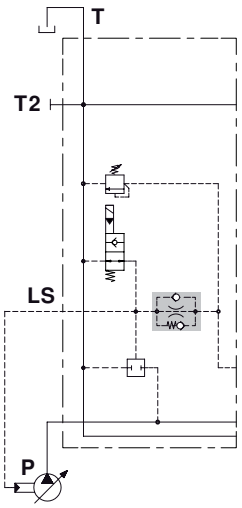
N2 type



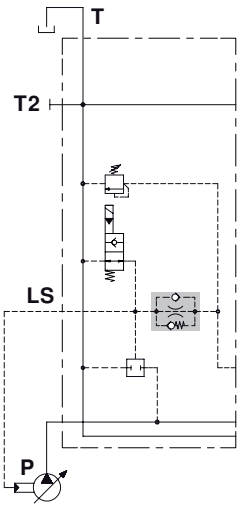
N2(SO) or N2(SU) type



N2(SU) type

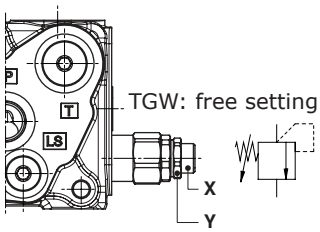


N2(SO) type



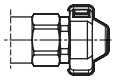
Main pressure relief valve

Setting types



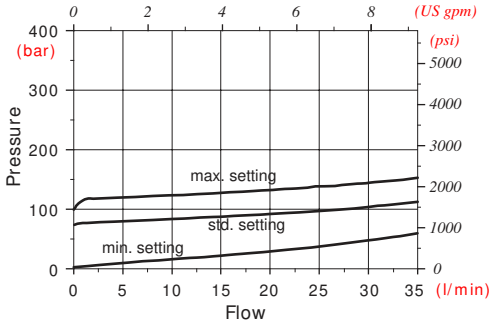
TGW: free setting

X = allen wrench 5
Y = wrench 19
20 Nm - *14.7 lbf*

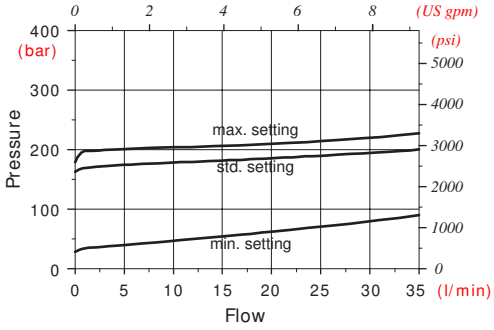


TZW: valve set and locked
(cap code 4COP126301, n.2 pcs)
RAL3003 pigmented

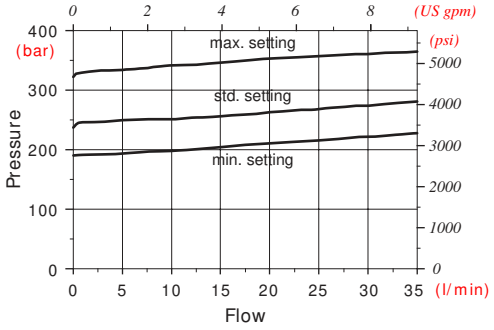
Setting range: type TGW2



Setting range: type TGW3



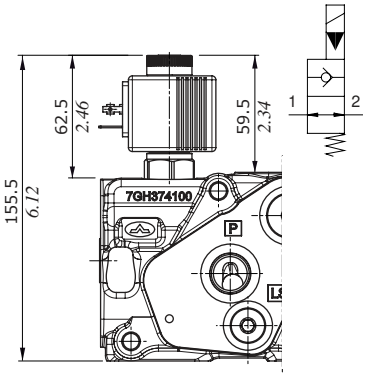
Setting range: type TGW4



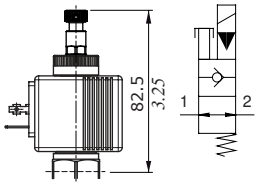
Solenoid operated unloading valve

Manual emergency types

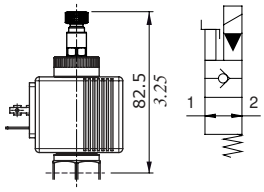
ELN: without emergency



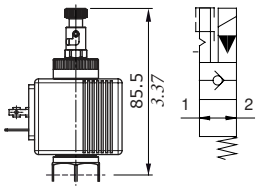
ELP: push button type



ELV: screw type



ELT: "push & twist" type



Features

Max. flow . . . . . : 40 l/min - *10.6 US gpm*
Max. pressure. . . . . : 350 bar - *5100 psi*
Internal leakage . . . . . : 0.25 cm³/min @ 210 bar
0.015 in³/min @ 3050 psi

For coil features and options see coil **BER** at page 104.

Working and outlet section parts ordering codes (mechanical and hydraulic)

flow on ports A/B (l/min) — Valve setting (bar): port A, port B

DPX050 / P - 104(40/40) - 8 L . U1(100) U2(120) - .....

1 3 4 5 7 8

DPX050 / RP - 104(40/40) - 8 L . U3T- .....

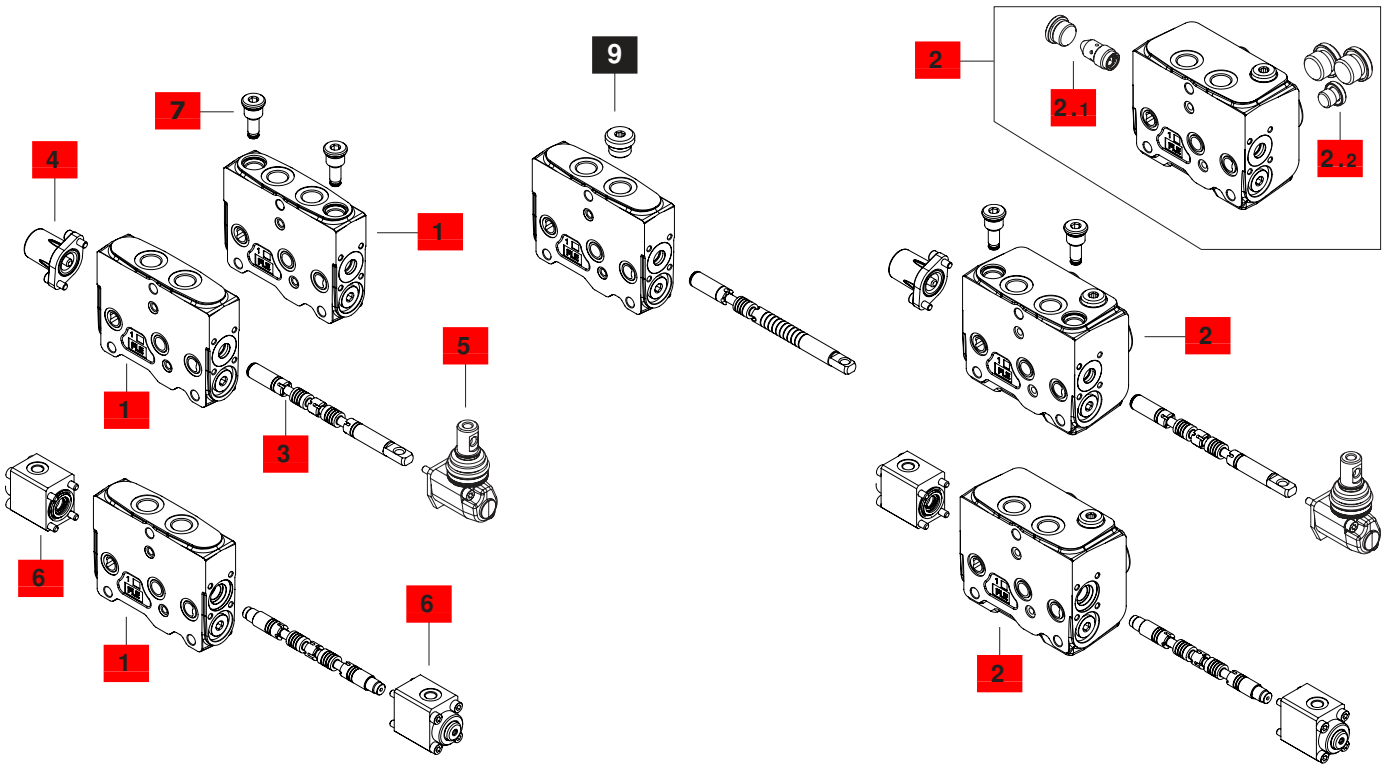
2 8

DPX050 / Q - I104(40/40) - 8IM - .....

1 6 8

DPX050 / RQ - I104(40/40) - 8IM (VBT) - F1- .....

2 2.1 2.2 8



1 Working section kit* page 20

<u>For mechanical control</u>

TYPE: **DPX050/Q-SAE** CODE: 5EL10A7010
DESCRIPTION: Without port valves arrangement
TYPE: **DPX050/P-SAE** CODE: 5EL10A7000
DESCRIPTION: With port valves arrangement

<u>For hydraulic control</u>

TYPE: **DPX050/Q-IM-SAE** CODE: 5EL10A7010A
DESCRIPTION: Without port valves arrangement
TYPE: **DPX050/P-IM-SAE** CODE: 5EL10A7000A
DESCRIPTION: With port valves arrangement

2 Working section kit with outlet* page 21

<u>For mechanical control</u>

TYPE: **DPX050/RQ-SAE** CODE: 5FIA20A710
DESCRIPTION: With Bleed valve, with port P1-T1-LS1 plugged, without port valves arrangement
TYPE: **DPX050/RP-SAE** CODE: 5FIA20A700
DESCRIPTION: As previous with port valves arrangement

<u>For hydraulic control</u>

TYPE: **DPX050/RQ-IM-SAE** CODE: 5FIA20A710A
DESCRIPTION: With Bleed valve, with port P1-T1-LS1 plugged, without port valves arrangement
TYPE: **DPX050/RP-IM-SAE** CODE: 5FIA20A700A
DESCRIPTION: As previous with port valves arrangement

Working and outlet section parts ordering codes (mechanical and hydraulic)

2.1 Bleed valve

TYPE	CODE	DESCRIPTION
(-)	X138850000	Bleed valve
(VBT)	4TAP416810	Valve blanking plug
Both options need cavity plug:		
	3XTAP822150	SAE8 plug, nr.1

2.2 Parts*

TYPE	CODE	DESCRIPTION
Ports P1-T1-LS1 plugged		
-	3XTAP822150	SAE8 plug, nr.2
	3XTAP817130	SAE6 plug, nr.1
Ports P1-T1 plugegd, LS1 open		
F1	3XTAP822150	SAE8 plug, nr.2

3 Spool page 23

Flow value is referred to 14 bar (*200 psi*) margin pressure.

TYPE	CODE	DESCRIPTION
For mechanical control		
Double acting with A and B closed in neutral position, floating circuit with positioner type 13RZ (4 position)		
105(50)	3CUA110005	50 l/min (*13 US gpm*) flow
104(40)	3CUA110004	40 l/min (*10.5 US gpm*) flow
103(30)	3CUA110003	30 l/min (*7.9 US gpm*) flow
102(20)	3CUA110002	20 l/min (*5.3 US gpm*) flow
101(10)	3CUA110001	10 l/min (*2.6 US gpm*) flow
106(5)	3CUA110006	5 l/min (*1.3 US gpm*) flow
Double acting with A and B partially to tank in neutral position		
2H05(50)	3CUA124005	50 l/min (*13 US gpm*) flow
2H04(40)	3CUA124004	40 l/min (*10.5 US gpm*) flow
2H03(30)	3CUA124003	30 l/min (*7.9 US gpm*) flow
2H02(20)	3CUA124002	20 l/min (*5.3 US gpm*) flow
2H01(10)	3CUA124001	10 l/min (*2.6 US gpm*) flow
2H06(5)	3CUA124006	5 l/min (*1.3 US gpm*) flow
Single acting on A, B plugged: need SAE6 plug		
305(50)	3CUA131005	50 l/min (*13 US gpm*) flow
302(20)	3CUA131002	20 l/min (*5.3 US gpm*) flow
For hydraulic control		
Double acting with A and B closed in neutral position, floating circuit with 4 positions control type 13IMP		
I105(50)	3CUA310005	50 l/min (*13 US gpm*) flow
I104(40)	3CUA310004	40 l/min (*10.5 US gpm*) flow
I103(30)	3CUA310003	30 l/min (*7.9 US gpm*) flow
I102(20)	3CUA310002	20 l/min (*5.3 US gpm*) flow
I101(10)	3CUA310001	10 l/min (*2.6 US gpm*) flow
I106(5)	3CUA310006	5 l/min (*1.3 US gpm*) flow
Double acting with A and B partially to tank in neutral position		
I2H05(50)	3CUA324005	50 l/min (*13 US gpm*) flow
I2H04(40)	3CUA324004	40 l/min (*10.5 US gpm*) flow
I2H08(30)	3CUA324008	30 l/min (*7.9 US gpm*) flow
I2H07(20)	3CUA324007	20 l/min (*5.3 US gpm*) flow
I2H01(10)	3CUA324001	10 l/min (*2.6 US gpm*) flow
I2H06(5)	3CUA324006	5 l/min (*1.3 US gpm*) flow
Single acting on A or B, other port plugged: need SAE6 plug		
I305-I405(50)	3CUA331005	50 l/min (*13 US gpm*) flow
I302-I402(20)	3CUA331002	20 l/min (*5.3 US gpm*) flow

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

4 "A" side spool positioners page 25

TYPE	CODE	DESCRIPTION
8	5V08102000	3 positions with spring return to neutral position
8F2	5V0810A001	Spool stroke limiter on port B
8D	5V08102200	External pin with M6 female thread
8D2	5V08102220	External pin with M8 male thread
9BZ	5V09202010	Detent in position 1
10BZ	5V10202010	Detent in position 2
11BZ	5V11202010	Detent in positions 1 and 2
12	5V12102000	2 positions, detent in pos. 1 and 2
For floating circuit (standard spool)		
13RZ	5V13306020	4 positions, detent in 4th position with spool in, spring return to neutral position

5 "B" side spool control kit page 27

TYPE	CODE	DESCRIPTION
L	5LEV10A000	Standard lever box
LF1	5LEV10A001	Lever box with spool stroke limiter on port A
SLP	5COP150000	Without lever with dust-proof plate
TQ	5TEL10A100	Flexible cable connection

6 Proportional hydraulic control* page 28

TYPE	CODE	DESCRIPTION
8IM-SAE	5IDR20A700	Range 8-27 bar (*116-392 psi*)
8IMX-SAE	5IDR20A701	Range 3.5-20 bar (*51-290 psi*)
8IMF3-SAE	5IDR20A702	Range 8-27 bar (*116-392 psi*), with spool stroke limiter on ports A and B
8IMXF3-SAE	5IDR20A703	Range 3.5-20 bar (*51-290 psi*), with spool stroke limiter on ports A and B
For floating circuit (standard spool)		
13IMP-SAE	5IDR20A710	Range 4-16.5-28 bar (*58-239-406 psi*)

7 Port valves page 35

TYPE	CODE	DESCRIPTION
UT	XTAP518370	Valve blanking plug
C	5KIT411000	Anticavitation valve

Fixed setting antishock and anticavitation valves: setting is referred to 10 l/min (*2.6 US gpm*)

TYPE: **U 100** (100 = setting (bar)) CODE: 5KIT308 100 (100 = setting (bar))

SETTING:

40 bar (*580 psi*)	50 bar (*725 psi*)	63 bar (*870 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*)
165 bar (*2400 psi*)	175 bar (*2550 psi*)	185 bar (*2700 psi*)
200 bar (*2900 psi*)	210 bar (*3050 psi*)	220 bar (*3200 psi*)
235 bar (*3400 psi*)	250 bar (*3600 psi*)	270 bar (*3900 psi*)
340 bar (*4950 psi*)		

8 Section threading

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

9 Plug for single acting spool*

CODE	DESCRIPTION
3XTAP817130	SAE6 plug

Working and outlet section parts ordering codes (electrohydraulic)

flow on ports A/B (l/min) — Valve setting (bar) port A / port B

DPX050 / PZ - I104(40/40) - 8EZ3F2 LHCIF1 . U1(100) U2(120) - ..... - 12VDC

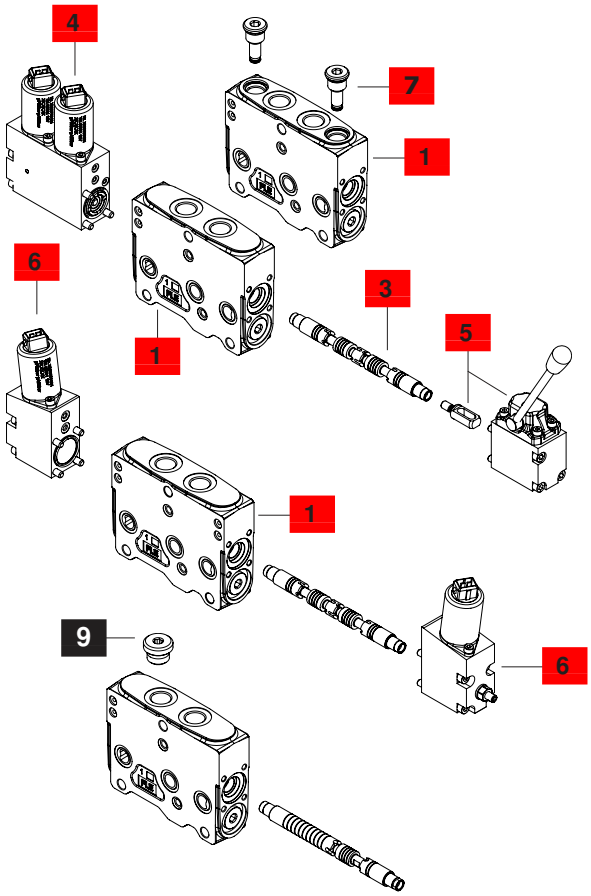
1 3 4 5 7 8 4

DPX050 / RQZ - I104(40/40) - 8EZ3F2LHCIF1 - (VBT / RT) - F1 - NOTAP(VL) - ..... - 12VDC

2 2.1 2.2 2.3 2.4 8

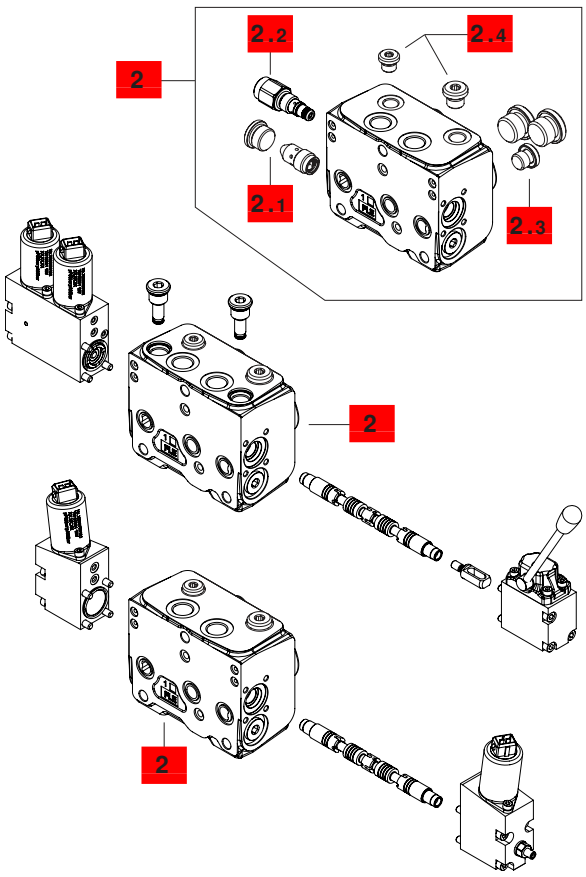
DPX050 / QE - I104(40/40) - 8EB3F3 - ..... - 12VDC

2 6 8 6



DPX050 / RQE - I104(40/40)-8EB3F3-.....-12VDC

2 8



1 Working section kit* page 20

<u>For two-side electrohydraulic control</u>

TYPE: **DPX050/QE-SAE** CODE: 5EL10A7012
DESCRIPTION: Without port valves arrangement
TYPE: **DPX050/PE-SAE** CODE: 5EL10A7002
DESCRIPTION: With port valves arrangement

<u>For one-side electrohydraulic control</u>

TYPE: **DPX050/QZ-SAE** CODE: 5EL10A7210
DESCRIPTION: Without port valves arrangement
TYPE: **DPX050/PZ-SAE** CODE: 5EL10A7200
DESCRIPTION: With port valves arrangement

2 Working section kit with outlet* page 21

<u>For two-side electrohydraulic control</u>

TYPE: **DPX050/RQE-SAE** CODE: 5FIA20A711
DESCRIPTION: With Bleed valve, with port P1-T1-LS1 plugged, without port valves arrangement
TYPE: **DPX050/RPE-SAE** CODE: 5FIA20A701
DESCRIPTION: As previous with port valves arrangement

<u>For one-side electrohydraulic control</u>

TYPE: **DPX050/RQZ-SAE** CODE: 5FIA20A721
DESCRIPTION: With Bleed valve, with port P1-T1-LS1 plugged, without port valves arrangement
TYPE: **DPX050/RPZ-SAE** CODE: 5FIA20A720
DESCRIPTION: As previous with port valves arrangement

Working and outlet section parts ordering codes (electrohydraulic)

2.1 Bleed valve

TYPE	CODE	DESCRIPTION
(-)	X138850000	Bleed valve
(VBT)	4TAP416810	Valve blanking plug

2.2 Pressure reducing valve

TYPE	CODE	DESCRIPTION
(-)	X219740033	Press. reducing valve, 32 bar (*464 psi*)
(RT)	XTAP418350	Valve blanking plug

2.3 Parts *

TYPE	CODE	DESCRIPTION
Ports P1-T1-LS1 plugged		
-	3XTAP822150	SAE8 plug, nr.2
	3XTAP817130	SAE6 plug, nr.1
Ports P1-T1 plugegd, LS1 open		
F1	3XTAP822150	SAE8 plug, nr.2

2.4 Pilot and drain *

TYPE	CODE	DESCRIPTION
(-)	3XTAP817130	SAE6 plug, nr.1 for internal drain
	3XTAP814120	SAE4 plug, nr.1 for internal pilot
NOTAP(VL)	4TAP310007	M10x1 DIN906 plug, for external drain

3 Spool page 23

Flow is referred to 14 bar (*200 psi*) stand-by (margin pressure)

TYPE	CODE	DESCRIPTION
Double acting with A and B closed in neutral position, floating circuit with 4 positions controls (type 13..)		
I105(50)	3CUA310005	50 l/min (*13 US gpm*) flow
I104(40)	3CUA310004	40 l/min (*10.5 US gpm*) flow
I103(30)	3CUA310003	30 l/min (*7.9 US gpm*) flow
I102(20)	3CUA310002	20 l/min (*5.3 US gpm*) flow
I101(10)	3CUA310001	10 l/min (*2.6 US gpm*) flow
I106(5)	3CUA310006	5 l/min (*1.3 US gpm*) flow
Double acting with A and B partially to tank in neutral position		
I2H05(50)	3CUA324005	50 l/min (*13 US gpm*) flow
I2H04(40)	3CUA324004	40 l/min (*10.5 US gpm*) flow
I2H08(30)	3CUA324008	30 l/min (*7.9 US gpm*) flow
I2H07(20)	3CUA324007	20 l/min (*5.3 US gpm*) flow
I2H01(10)	3CUA324001	10 l/min (*2.6 US gpm*) flow
I2H06(5)	3CUA324006	5 l/min (*1.3 US gpm*) flow
Single acting on A or B, other port plugged: need SAE6 plug		
I305-I405(50)	3CUA331005	50 l/min (*13 US gpm*) flow
I302-I402(20)	3CUA331002	20 l/min (*5.3 US gpm*) flow

8 Section threading

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

9 Plug for single acting spool*

CODE	DESCRIPTION
3XTAP817130	SAE6 plug

NOTE (*): *Codes are referred to **UN-UNF** thread.*
NOTE (-): *"TYPE" omitted in outlet section description*

4 One-side electrohydr. control page 33

TYPE	CODE	DESCRIPTION
8EZ3-12VDC	5V0810A780	With AMP connector
8EZ3-24VDC	5V0810A785	With AMP conector
8EZ3F2-12VDC	5V0810A781	With AMP connector and spool stroke limiter
8EZ3F2-24VDC	5V0810A782	As previous
8EZ34-12VDC	5V0810A786	With Deutsch connector
8EZ34-24VDC	5V0810A787	With Deutsch connector
8EZ34F2-12VDC	5V0810A783	With Deutsch connector and spool stroke limiter
8EZ34F2-24VDC	5V0810A784	As previous
For floating circuit (standard spool)		
13EZ3-12VDC	5V1310A784	Without Step, with AMP connector
13EZ3-24VDC	5V1310A785	As previous
13EZ34-12VDC	5V1310A786	Without Step, with Deutsch connector
13EZ34-24VDC	5V1310A787	As previous
13EZ3P-12VDC	5V1310A780	With Step, with AMP connector
13EZ3P-24VDC	5V1310A781	As previous
13EZ34P-12VDC	5V1310A782	With Step, with Deutsch connector
13EZ34P-24VDC	5V1310A783	As previous

5 "B" side options

TYPE	CODE	DESCRIPTION
For one-side electrohydraulic control		
LHCI	5LEV1A0401	Lever control with kinematic kit engaged
LHCI F1	5LEV1A0402	As previous with spool stroke limiter
SLC	5COP150010	Endcap
SLCF1	5COP150011	Endcap with spool stroke limiter

6 Two-side electrohydr. control page 32

TYPE	CODE	DESCRIPTION
8EB3-12VDC	5IDR90A200	With AMP connector
8EB3-24VDC	5IDR90A201	With AMP connector
8EB34-12VDC	5IDR90A202	With Deutsch connector
8EB34-24VDC	5IDR90A203	With Deutsch connector
8EB3F3-12VDC	5IDR90A204	With AMP connector with spool stroke limiter
8EB3F3-24VDC	5IDR90A205	As previous
8EB34F3-12VDC	5IDR90A206	With Deutsch connector with spool stroke limiter
8EB34F3-24VDC	5IDR90A207	As previous
For floating circuit (standard spool)		
13EB3-12VDC	5IDR91A204	Without Step, with AMP connector
13EB3-24VDC	5IDR91A205	As previous
13EB34-12VDC	5IDR91A206	Without Step, with Deutsch connector
13EB34-24VDC	5IDR91A207	As previous
13EB3P-12VDC	5IDR91A200	With Step, with AMP connector
13EB3P-24VDC	5IDR91A201	As previous
13EB34P-12VDC	5IDR91A202	With Step, with Deutsch connector
13EB34P-24VDC	5IDR91A203	As previous

7 Port valves page 35

TYPE	CODE	DESCRIPTION
U040	5KIT308040	Setting: 40 bar (*580 psi*)

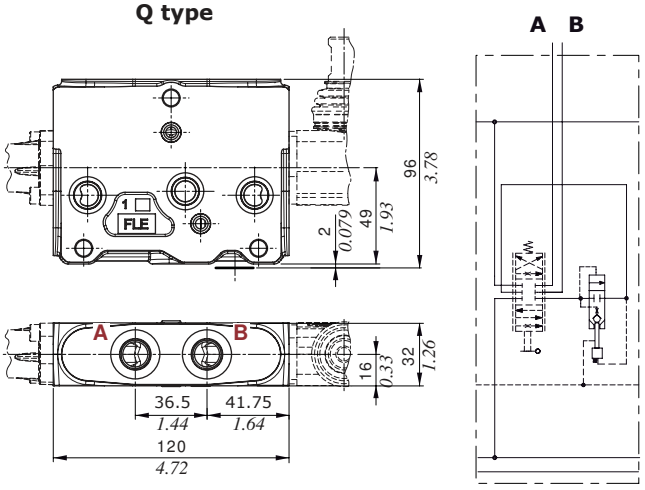
For complete list see previous pages.

Working and outlet section

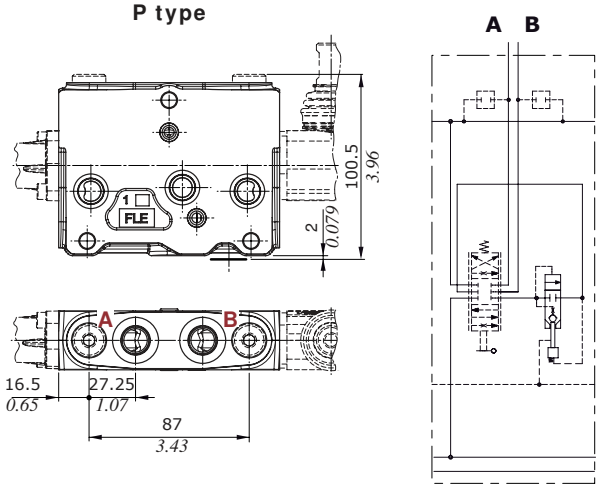
Dimensions and hydraulic circuit

Section for mechanical and hydraulic controls

Q type

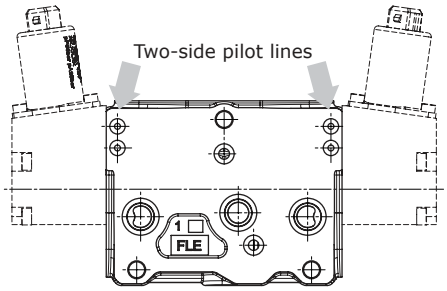


P type

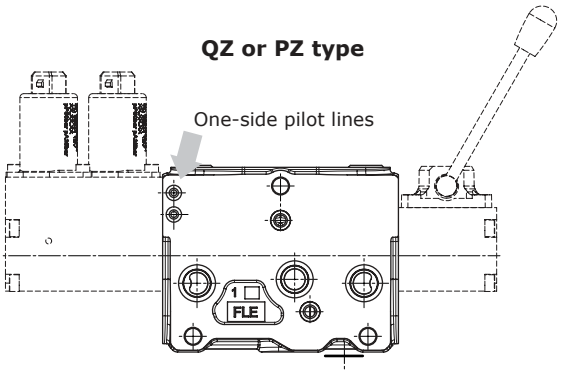


Section for electrohydraulic controls

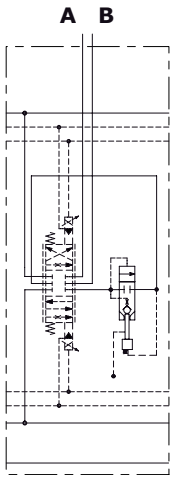
QE or PE type



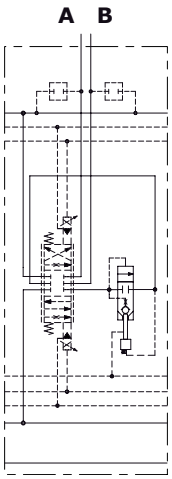
QZ or PZ type



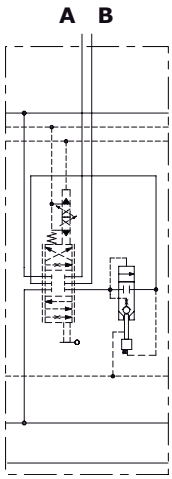
QE type



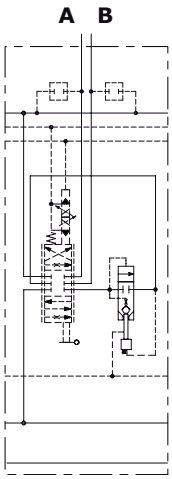
PE type



QZ type



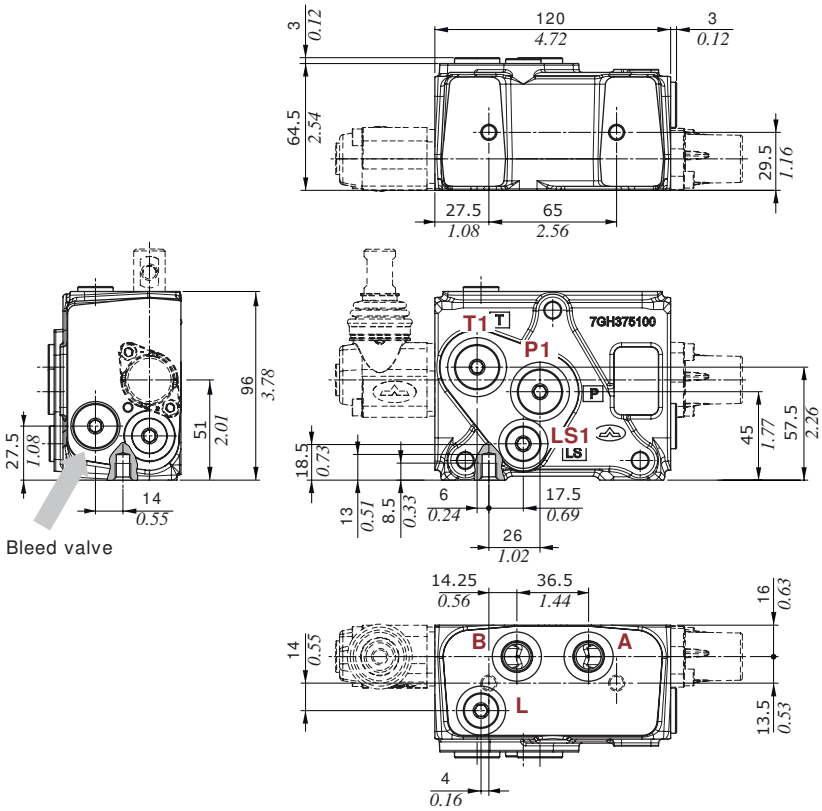
PZ type

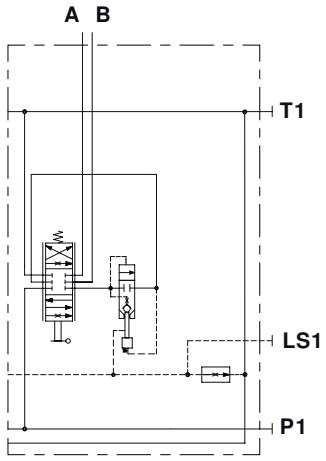


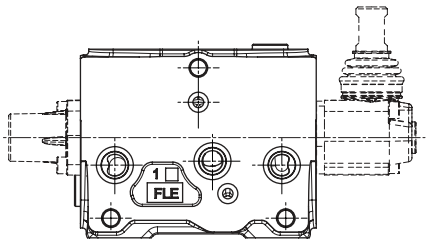
Dimensions and hydraulic circuit

Section with outlet for mechanical and hydraulic controls

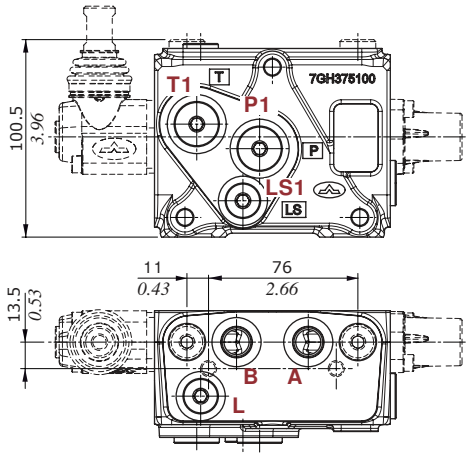
RQ type

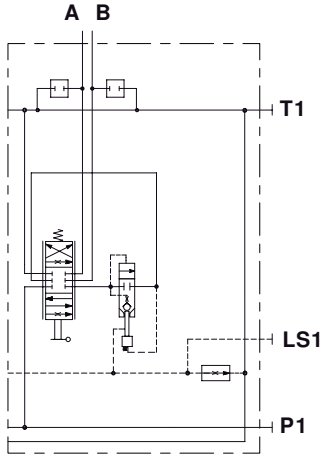






RP type

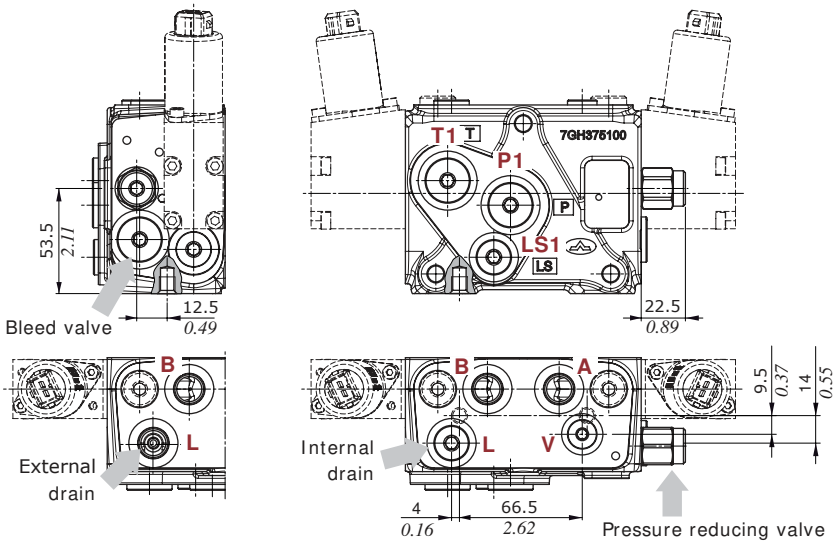




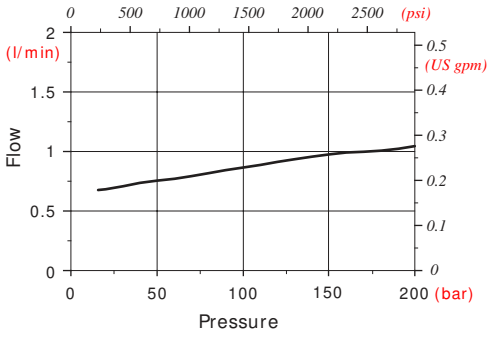
Working and outlet section

Dimensions and hydraulic circuit

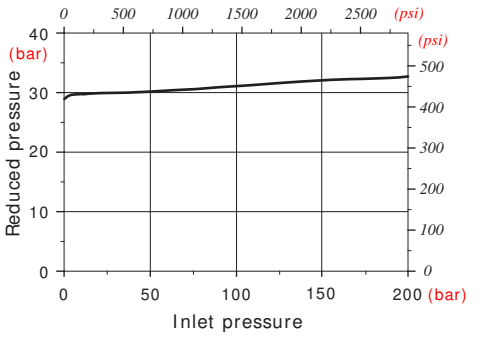
Section with outlet for electrohydraulic controls



Bleed valve diagram
Flow vs. Pressure



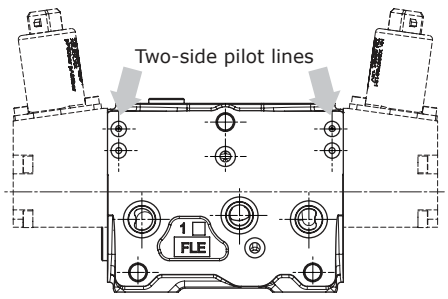
Pressure reducing valve diagram
Reduced pressure vs. Inlet pressure



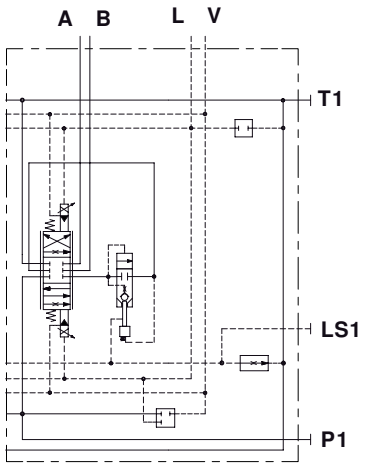
Bleed valve features
Max. inlet pressure : 300 bar - *4350 psi*
Max. back pressure : 25 bar - *363 psi*

Pressure reducing valve features
Max. inlet pressure : 380 bar - *5500 psi*
Max. back pressure : 25 bar - *363 psi*

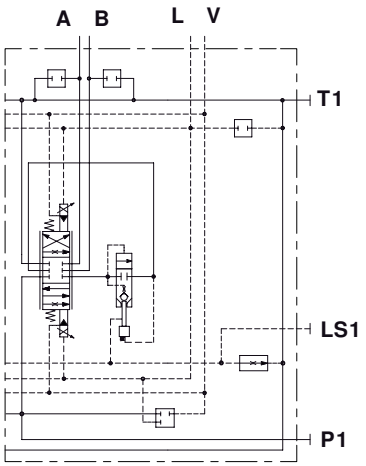
RQE or RPE type



RQE type
(Without pressure reducing valve)

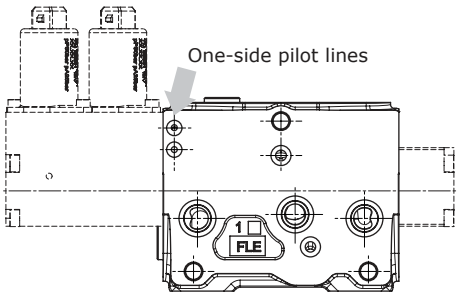


RPE type
(Without pressure reducing valve)

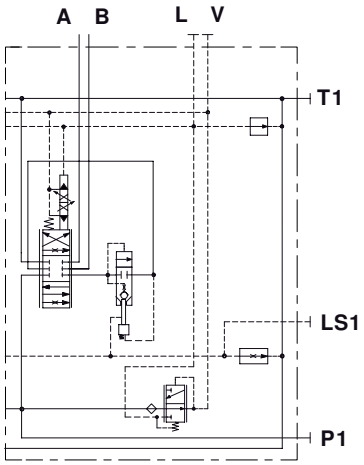


Dimensions and hydraulic circuit

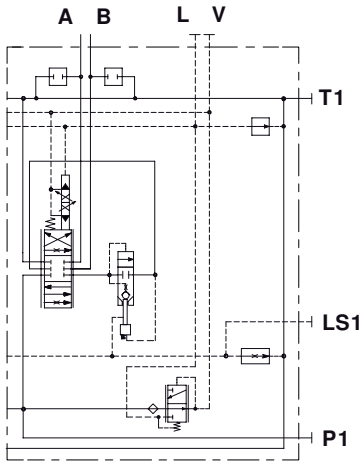
RQZ or RPZ type



RQZ type
(With pressure reducing valve)



RPZ type
(With pressure reducing valve)

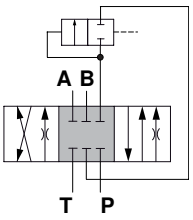


Spool

Spool type 1 (1../I1..)
A, B closed in neutral position

with 3 positions control

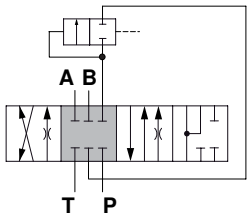
1 **0** 2



Spool stroke
position 1: + 5.5 mm *(- 0.22 in)*
position 2: - 5.5 mm *(+ 0.22 in)*

with 4 positions control

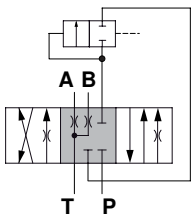
1 **0** 2 3



Spool stroke
position 1: + 5.5 mm *(- 0.22 in)*
position 2: - 5.5 mm *(+ 0.22 in)*
position 3: - 10 mm *(- 0.39 in)*

Spool type 2H(2H../I2H..)
A, B partially to tank in neutral pos.

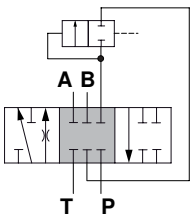
1 **0** 2



Spool stroke
position 1: + 5.5 mm *(- 0.22 in)*
position 2: - 5.5 mm *(+ 0.22 in)*

Spool type 3 (3../I3..)
single acting on A

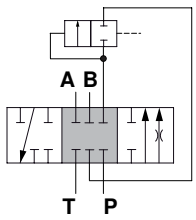
1 **0** 2



Spool stroke
position 1: + 5.5 mm *(- 0.22 in)*
position 2: - 5.5 mm *(+ 0.22 in)*

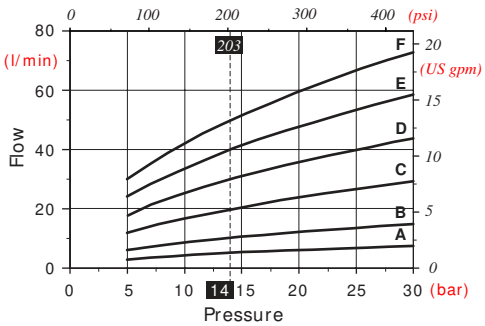
Spool type 4 (4../I4..)
single acting on B

1 **0** 2



Spool stroke
position 1: + 5.5 mm *(- 0.22 in)*
position 2: - 5.5 mm *(+ 0.22 in)*

Spool flow vs. Stand-by pressure (margin pressure)



Curves with spool nominal flow
@ 14 bar *(200 psi)* stand-by (margin pressure)

A = 5 l/min *(1.3 US gpm)* **B** = 10 l/min *(2.6 US gpm)*
C = 20 l/min *(5.3 US gpm)* **D** = 30 l/min *(7.9 US gpm)*
E = 40 l/min *(10.6 US gpm)* **F** = 50 l/min *(12.2 US gpm)*

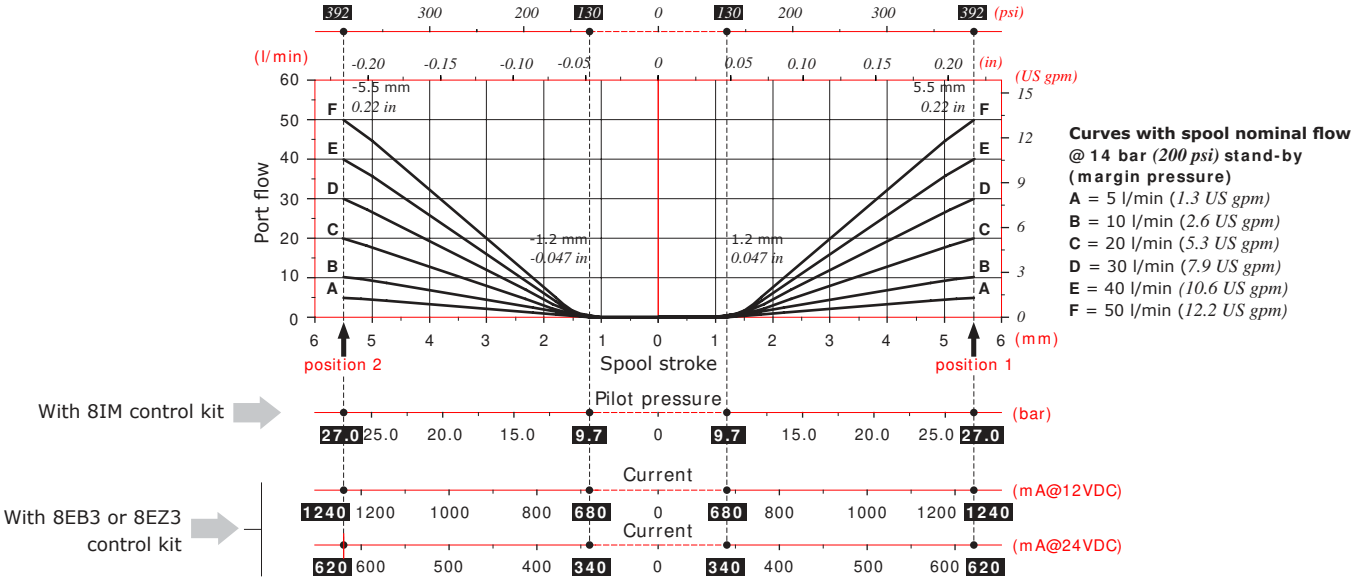
Working and outlet section

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.

3 positions spools metering curve

Qin = 50 l/min (*13.2 US gpm*) - Open center circuit

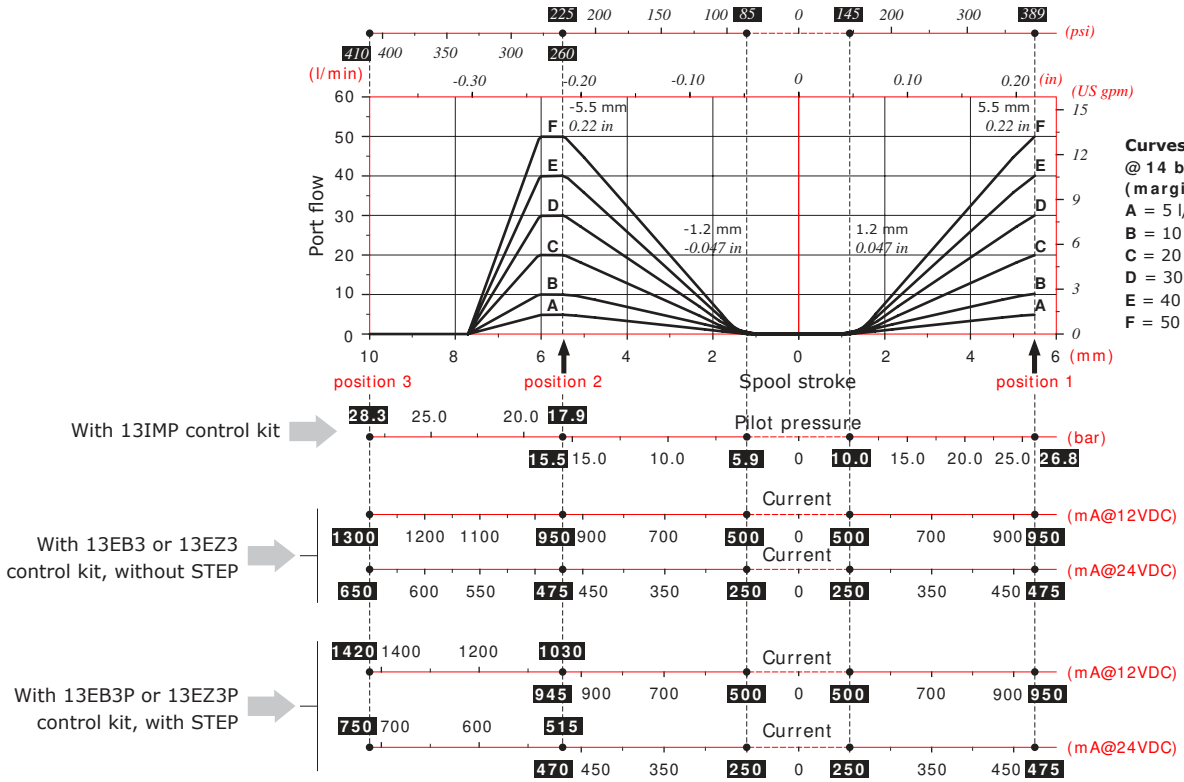


Curves with spool nominal flow @ 14 bar (*200 psi*) stand-by (margin pressure)

A = 5 l/min (*1.3 US gpm*)
B = 10 l/min (*2.6 US gpm*)
C = 20 l/min (*5.3 US gpm*)
D = 30 l/min (*7.9 US gpm*)
E = 40 l/min (*10.6 US gpm*)
F = 50 l/min (*12.2 US gpm*)

Floating spool metering curve

Qin = 50 l/min (*13.2 US gpm*) - Open center circuit



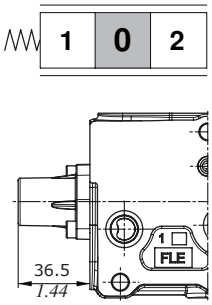
Curves with spool nominal flow @ 14 bar (*200 psi*) stand-by (margin pressure)

A = 5 l/min (*1.3 US gpm*)
B = 10 l/min (*2.6 US gpm*)
C = 20 l/min (*5.3 US gpm*)
D = 30 l/min (*7.9 US gpm*)
E = 40 l/min (*10.6 US gpm*)
F = 50 l/min (*12.2 US gpm*)

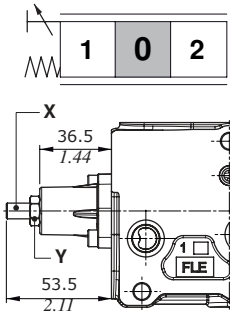
"A" side spool positioners

With spring return to neutral position

Type 8

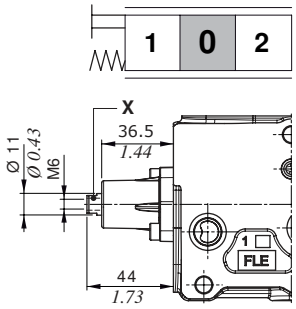


Type 8F2
Spool stroke limiter on Port B



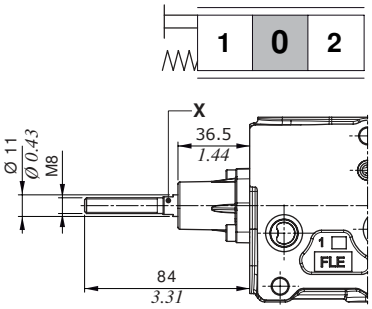
X = allen wrench 4
Y = wrench 13 / 24 Nm - *17.7 lbf*

Type 8D
External pin with M6 female thread



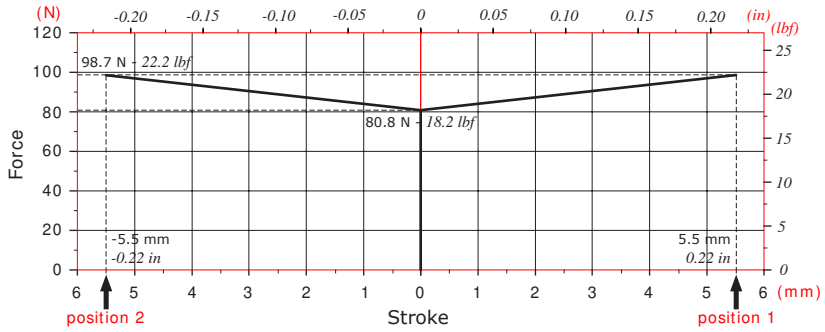
X = allen wrench 9

Type 8D2
External pin with M8 male thread



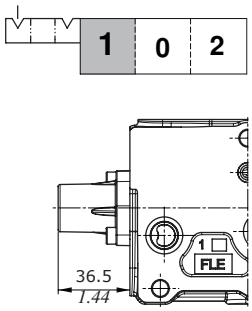
X = allen wrench 9

Force vs. Stroke diagram



2 positions, with detent in position 1 and 2

Type 12



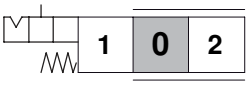
Release force 230 N ± 10 N
(*51.7 lbf ± 2.2 lbf*)

Working and outlet section

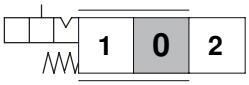
"A" side spool positioners

With detent and spring return to neutral position from either directions

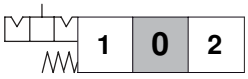
Type 9BZ
detent in position 1
(see curve A)

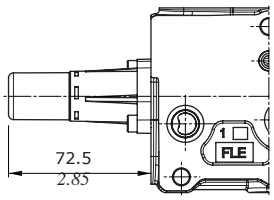


Type 10BZ
detent in position 2
(see curve B)

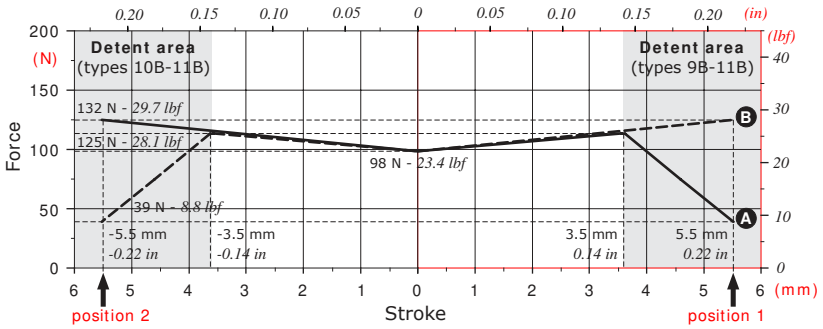


Type 11BZ
detent in positions 1
(curve A) and 2 (curve B)



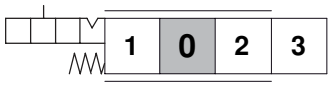


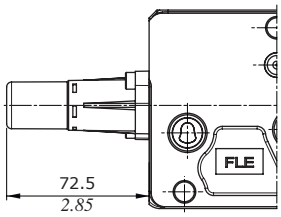
Force vs. Stroke diagram



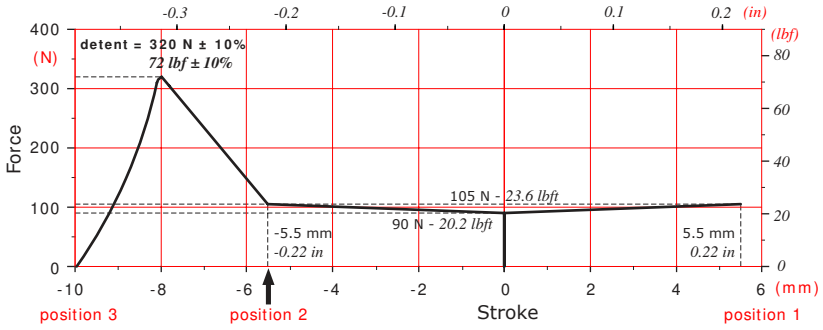
Release force 230 N ± 10% (*51.7 lbf ± 10%*)

For floating circuit, type 13RZ





Force vs. Stroke diagram

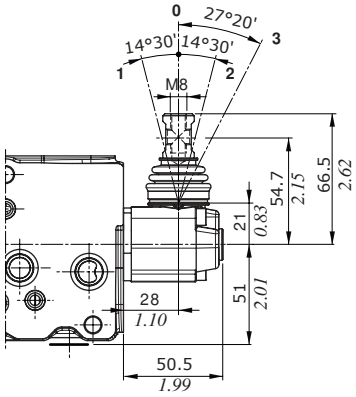


Release force from pos.3: 315 N ± 10% (*71 lbf ± 10%*)

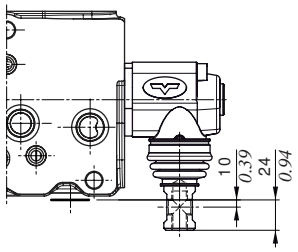
"B" side spool control kit

Lever boxes

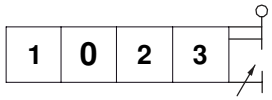
Type L

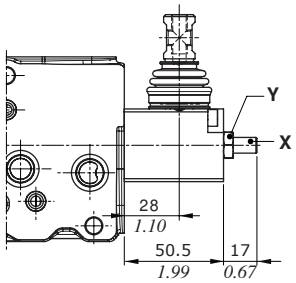


Type L180



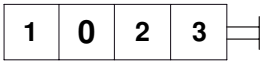
Type LF1
Spool stroke limiter on ports A

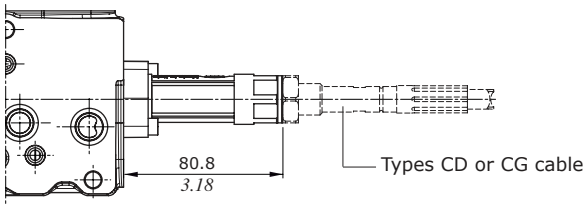




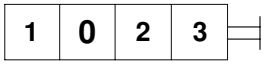
X = allen wrench 4
Y = wrench 13 / 24 Nm - *14.7 lbf*

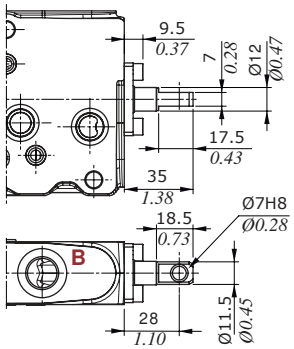
Flexible cable connection, type TQ





Dust-proof plate, type SLP

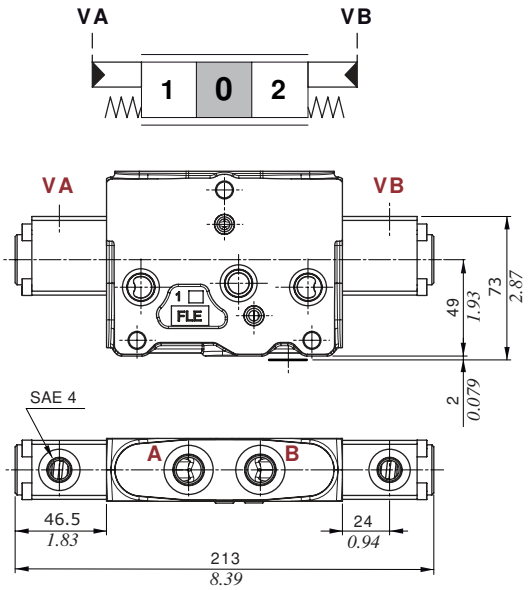




Working and outlet section

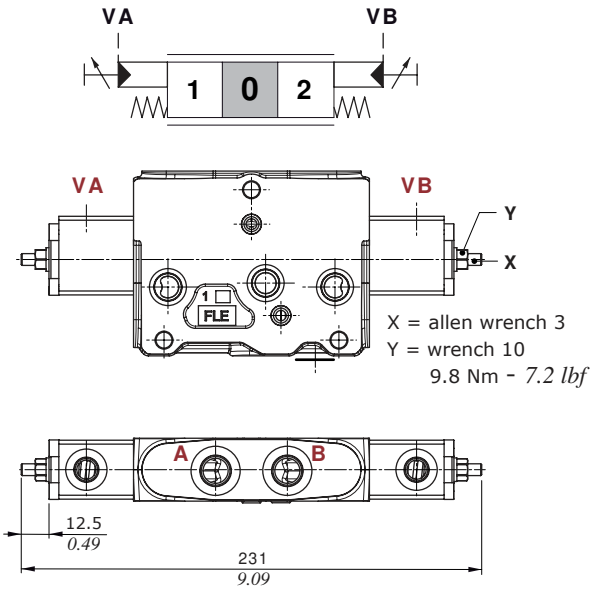
Proportional hydraulic control

Types 8IM - 8IMX



Types 8IMF3 - 8IMXF3

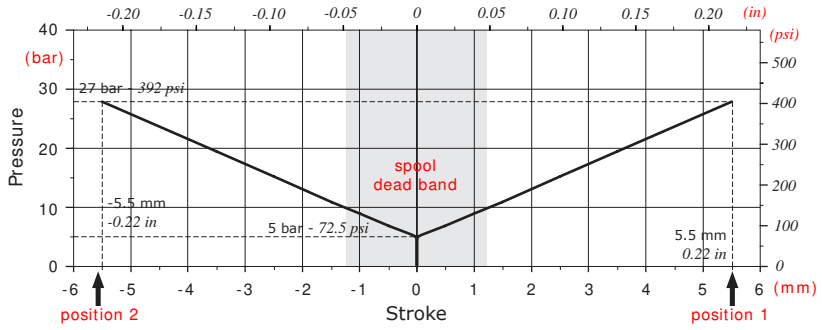
With spool stroke limiter on ports A and B



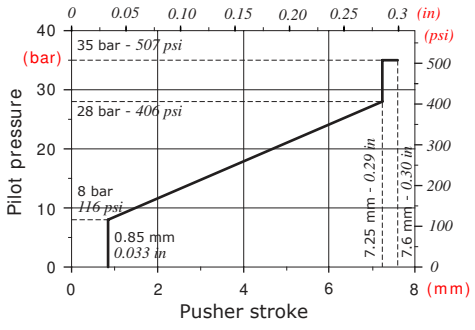
Features (all types)

Max. pressure. . . . . .: 70 bar - *1010 psi*

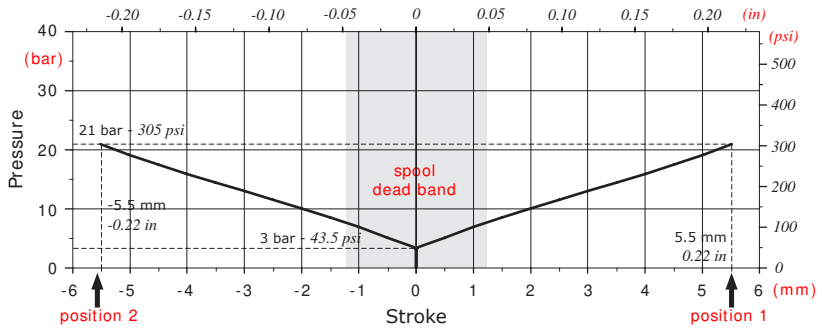
Types 8IM-8IMF3: Stroke vs. Pressure diagram



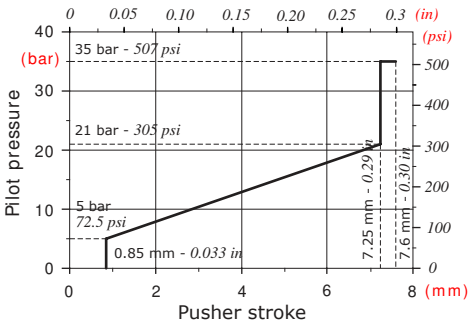
Suggested pressure control curve: 089



Types 8IMX-8IMXF3: Stroke vs. Pressure diagram

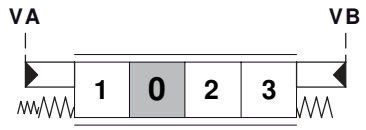


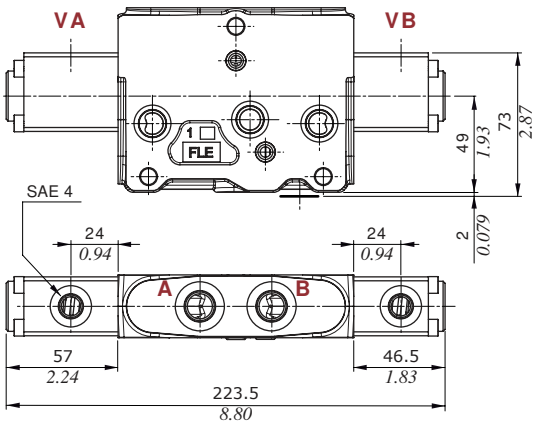
Suggested pressure control curve: 028



Proportional hydraulic control

For floating circuit, type 13IMP

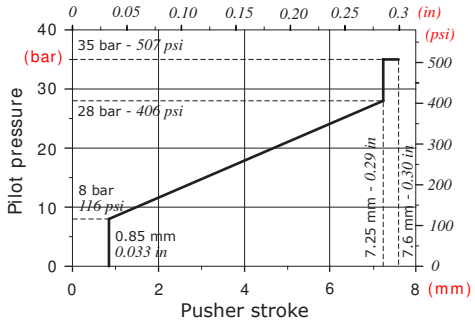




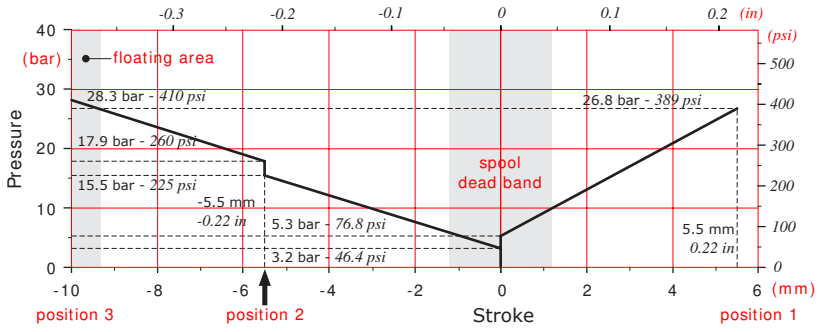
Features

Max. pressure. . . . . .: 70 bar - *1010 psi*

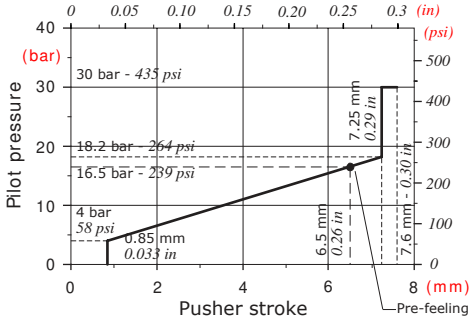
Suggested pressure control curve on port VA: type 089



Stroke vs. Pressure diagram



Suggested pressure control curve on port VB: type 086



Working and outlet section

Electrohydraulic controls performace data

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

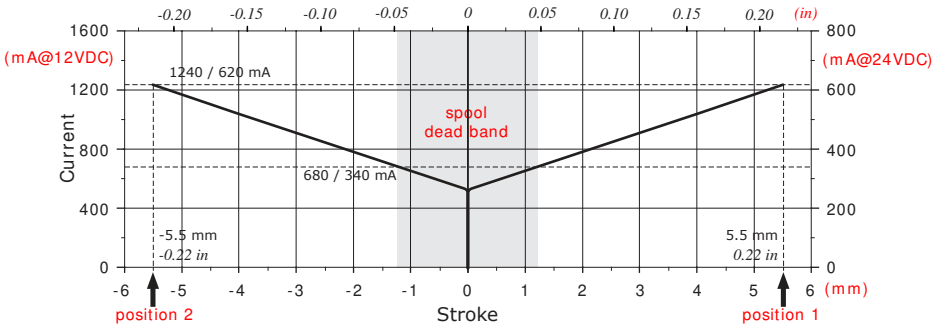
Following electrohydraulic controls need CED100X or CED400X electronic unit; for information contact Sales Department.

Specifications		Spool control type					
		8EB3	13EB3	13EB3P	8EZ3	13EZ3	13EZ3P
Electric specifications							
Coil impedance	12 VDC	4.72 Ω	4.72 Ω	4.72 Ω	4.72 Ω	4.72 Ω	4.72 Ω
	24 VDC	20.8 Ω	20.8 Ω	20.8 Ω	20.8 Ω	20.8 Ω	20.8 Ω
Max. operating current	12 VDC	1.5 A	1.5 A	1.5 A	1.5 A	1.5 A	1.5 A
	24 VDC	0.75 A	0.75 A	0.75 A	0.75 A	0.75 A	0.75 A
No load current consumption		0	0	0	0	0	0
					Controls configured with lever box		
Hysteresis max. (1)	external drain	< 4%	< 4%	< 4%	< 6%	< 6%	< 6%
	internal drain	< 5%	< 5%	< 5%	< 7%	< 7%	< 7%
Time response	from 0 ⇒ 100% and from 100% ⇒ 0 of stroke	< 60 ms	< 85 ms	< 85 ms	< 75 ms	< 85 ms	< 85 ms
Min. flow control signal	12 VDC	680 mA	500 mA	500 mA	680 mA	500 mA	500 mA
	24 VDC	340 mA	250 mA	250 mA	340 mA	250 mA	250 mA
Max. flow control signal	12 VDC	1240 mA	950 mA	P⇒A: 950 mA P⇒B: 945 mA 1030 mA	1240 mA	950 mA	P⇒A: 950 mA P⇒B: 945 mA 1030 mA
	24 VDC	620 mA	475 mA	P⇒A: 475 mA P⇒B: 470 mA 515 mA	620 mA	475 mA	P⇒A: 475 mA P⇒B: 470 mA 515 mA
Float flow control signal	12 VDC		1300 mA	1420 mA		1300 mA	1420 mA
	24 VDC		650 mA	710 mA		650 mA	710 mA
Dither frequency	low frequency	150 Hz			150 Hz		
	high frequency	180 Hz - 200 mA			180 Hz - 200 mA		
Insertion		100%			100%		
Coil insulance		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 (type JPT) - IP69K (type DT)			IP65 (type JPT) - IP69K (type DT)		
Hydraulic specifications							
Max. pressure		40 bar (*580 psi*)			40 bar (*580 psi*)		
Max. back pressure		10 bar (*145 psi*)			10 bar (*145 psi*)		

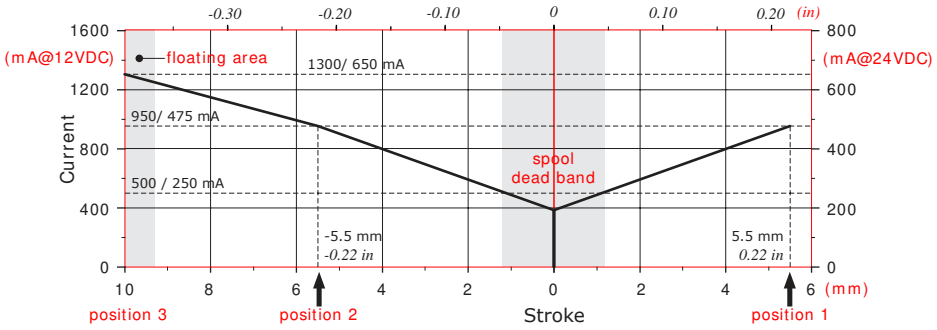
Note (1) hysteresis is indicated at nominal supply voltage and f = 0.008 Hz for one cycle (one cycle = neutral ⇒ full A ⇒ neutral ⇒ full B ⇒ neutral).
For the calculation rules see "Appendix A" on page 111.

Electrohydraulic controls performace data

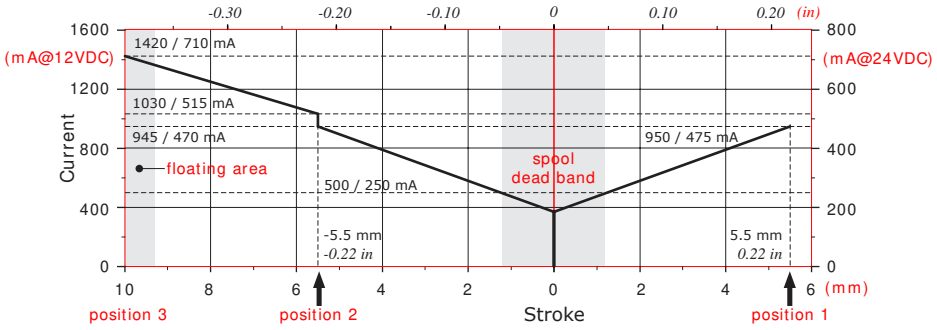
Types 8EB3/8EZ3: Stroke vs. Current diagram



Types 13EB3/13EZ3: Stroke vs. Current diagram



Types 13EB3P/13EZ3P: Stroke vs. Current diagram



Working and outlet section

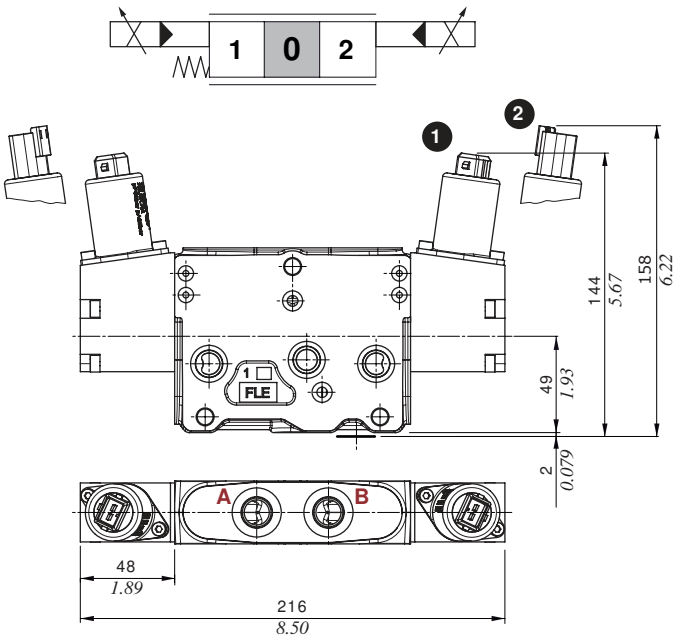
Two-side electrohydraulic control

Control Types

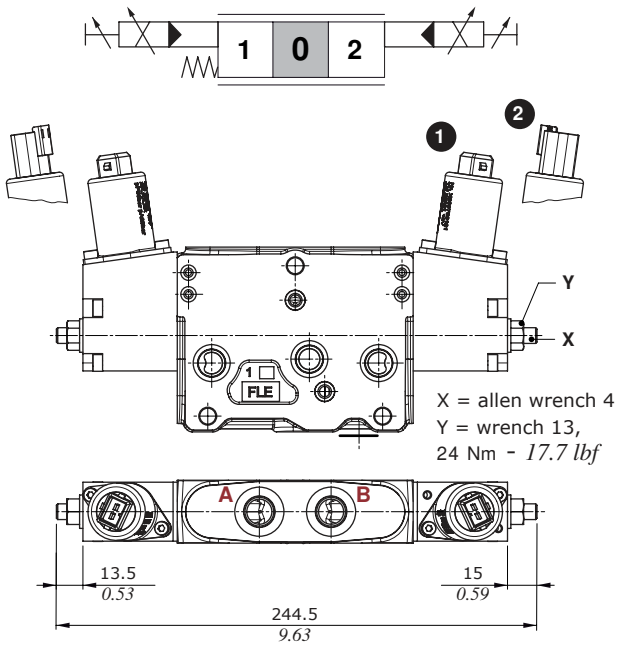
1 : With AMP JPT connector - mating connector AMP JPT, code: 5CON003

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

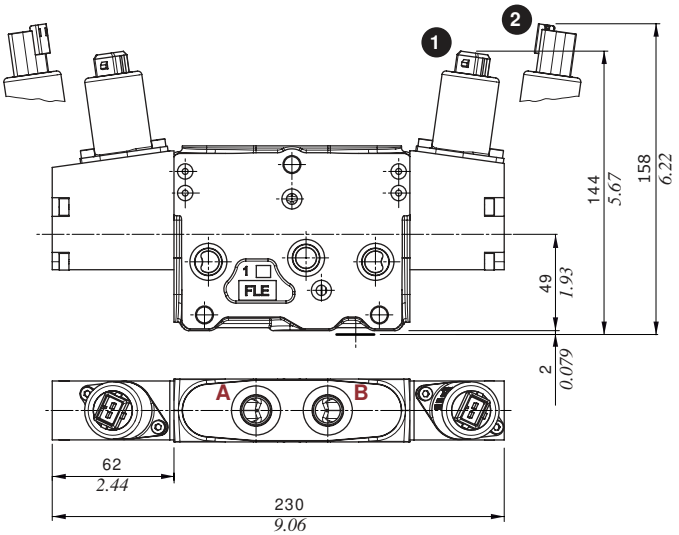
Types
8EB3 - 8EB34



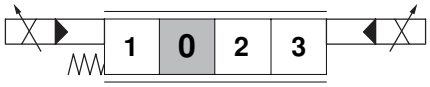
Types
8EB3F3 - 8EB34F3



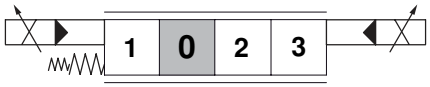
X = allen wrench 4
Y = wrench 13,
24 Nm - *17.7 lbf*



Types
13EB3 - 13EB34



Types
13EB3P - 13EB34P

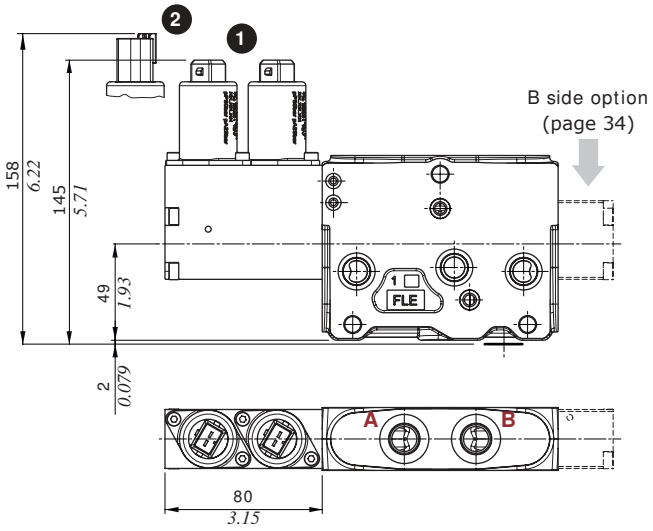


One-side electrohydraulic control

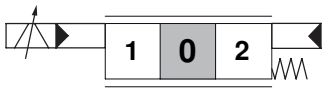
Control Types

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

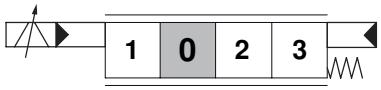
2 : With Deutsch DT04 connector - mating connector Deutsch DT06-2S code: 5CON140031



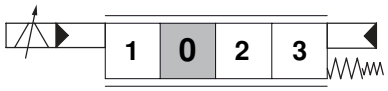
Types
8EZ3
8EZ34

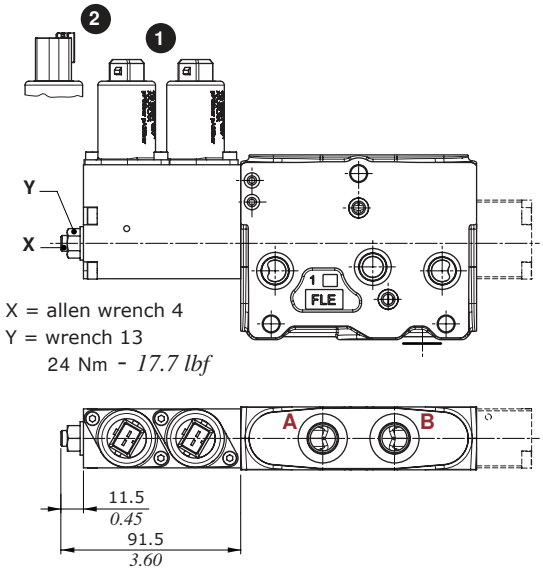


Types
13EZ3
13EZ34

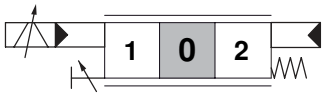


Types
13EZ3P
13EZ34P





Types
8EZ3F2
8EZ34F2



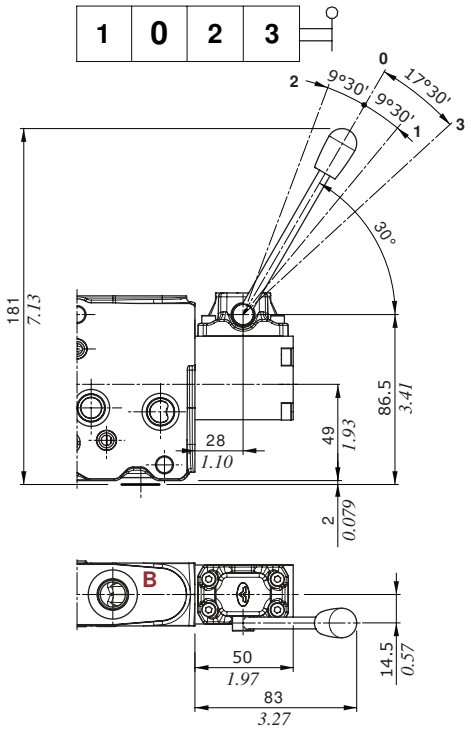
Working and outlet section

"B" side options

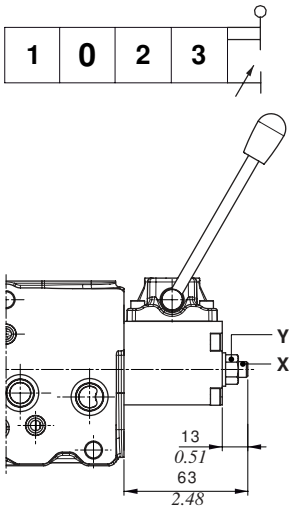
These options are available for one-side electyrohydraulic controls only.

Lever boxes

Type LHCI



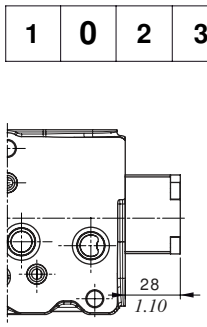
Type LHCI F1
Spool stroke limiter on ports A



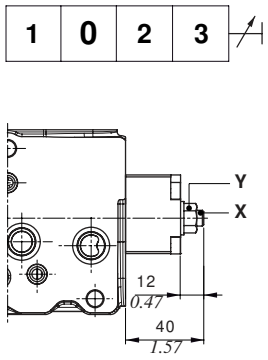
X = allen wrench 4
Y = wrench 13 / 24 Nm - *17.7 lbf*

Endcaps

Type SLC

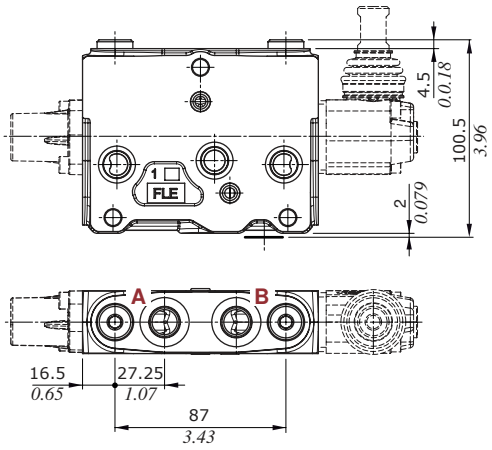


Type SLCF1
spool stroke limiter on ports A



X = allen wrench 4
Y = wrench 13 / 24 Nm - *17.7 lbf*

Port valves

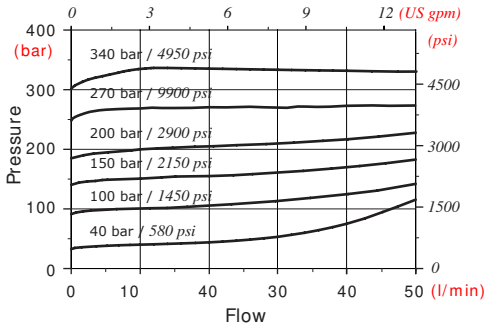


Type U

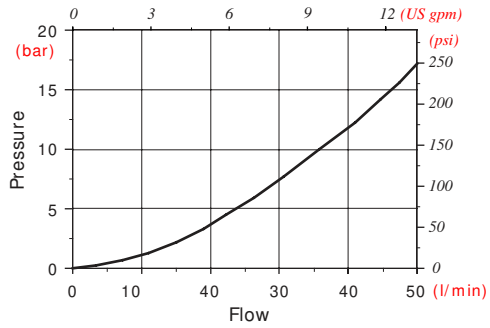
Type C

Type U: antishock valves with prefill

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

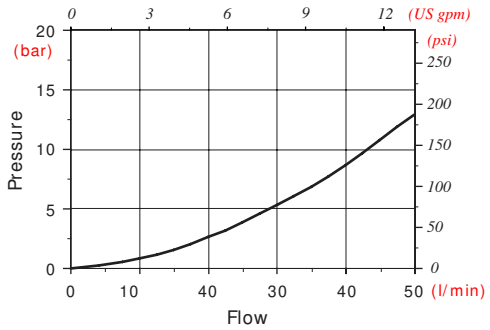


Pressure drop
(in anticavitation)

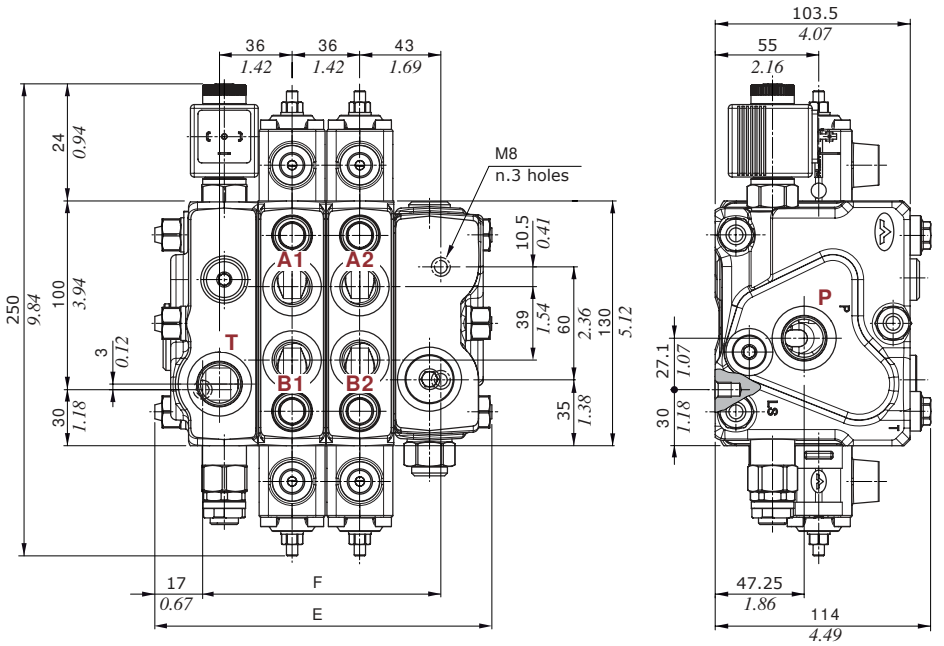


Type C: anticavitation valves

Pressure drop

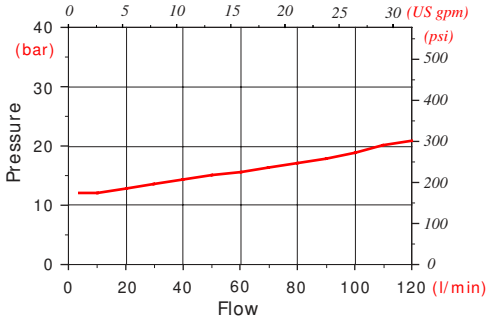


Dimensional data and performance

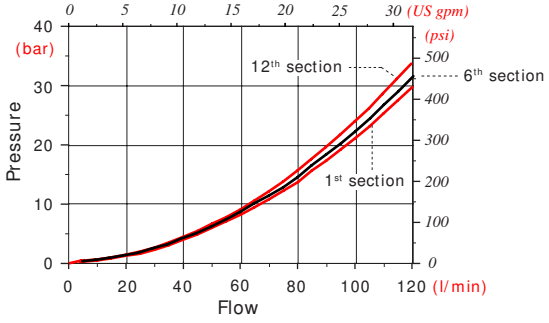


TYPE	E		F	
	mm	*in*	mm	*in*
DPX100/1	144	*5.67*	90.5	*3.56*
DPX100/2	180	*7.09*	126.5	*4.98*
DPX100/3	216	*8.50*	162.5	*6.40*
DPX100/4	252	*9.92*	198.5	*7.81*
DPX100/5	288	*11.34*	234.5	*9.23*
DPX100/6	324	*12.76*	270.5	*10.65*
DPX100/7	360	*14.17*	306.5	*12.07*
DPX100/8	396	*15.59*	342.5	*13.48*
DPX100/9	432	*17.01*	378.5	*14.90*
DPX100/10	468	*18.43*	414.5	*16.32*
DPX100/11	504	*18.43*	450.5	*17.74*
DPX100/12	540	*18.43*	486.5	*19.15*

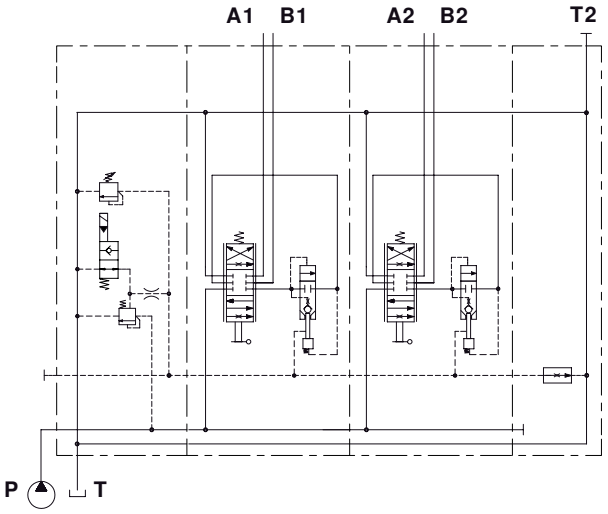
P⇒T Pressure drop inlet compensator (margin pressure)



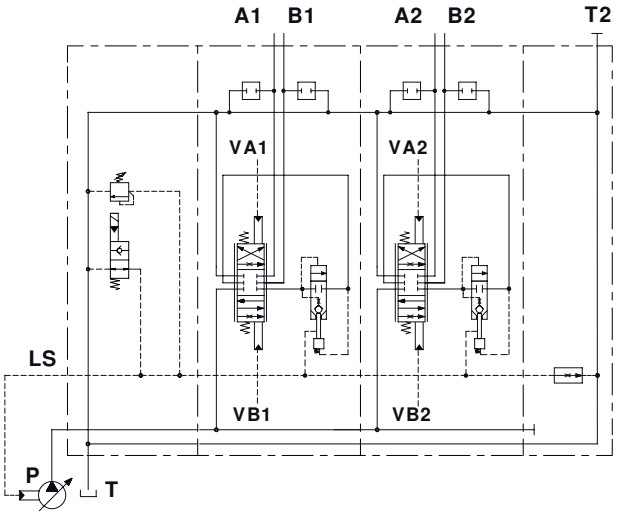
A(B)⇒T pressure drop (standard spool @ max.stroke)



Configuration example with mechanical and hydraulic controls

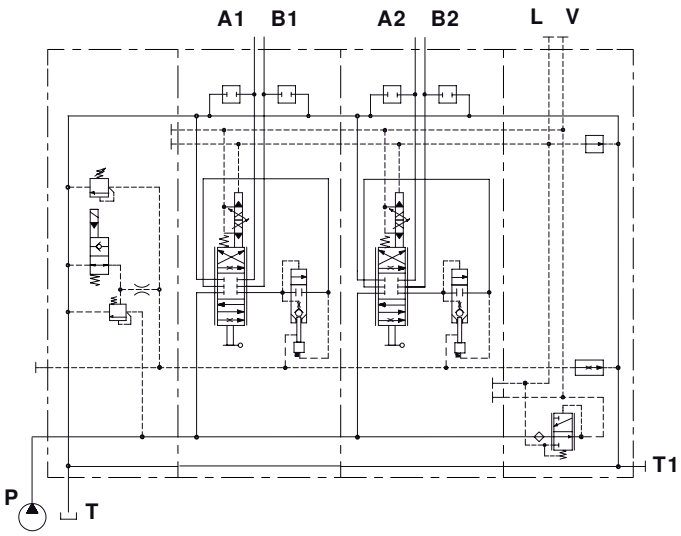


Open center circuit and lever control, with unloader valve, without port valves arrangement

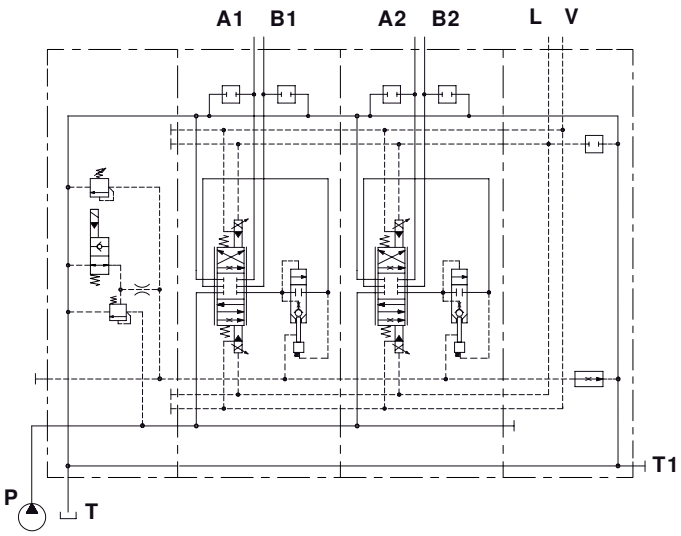


Closed center circuit and proportional hydraulic control, with unloader valve and port valves arrangement

Configuration example with electrohydraulic controls



Open center circuit and one-side proportional electrohydraulic control with lever, with unloader valve, port valves arrangement and pressure reducing valve, internal pilot and drain



Open center circuit and two-side proportional electrohydraulic control, with unloader valve and port valves arrangement, without pressure reducing valve, external pilot and drain

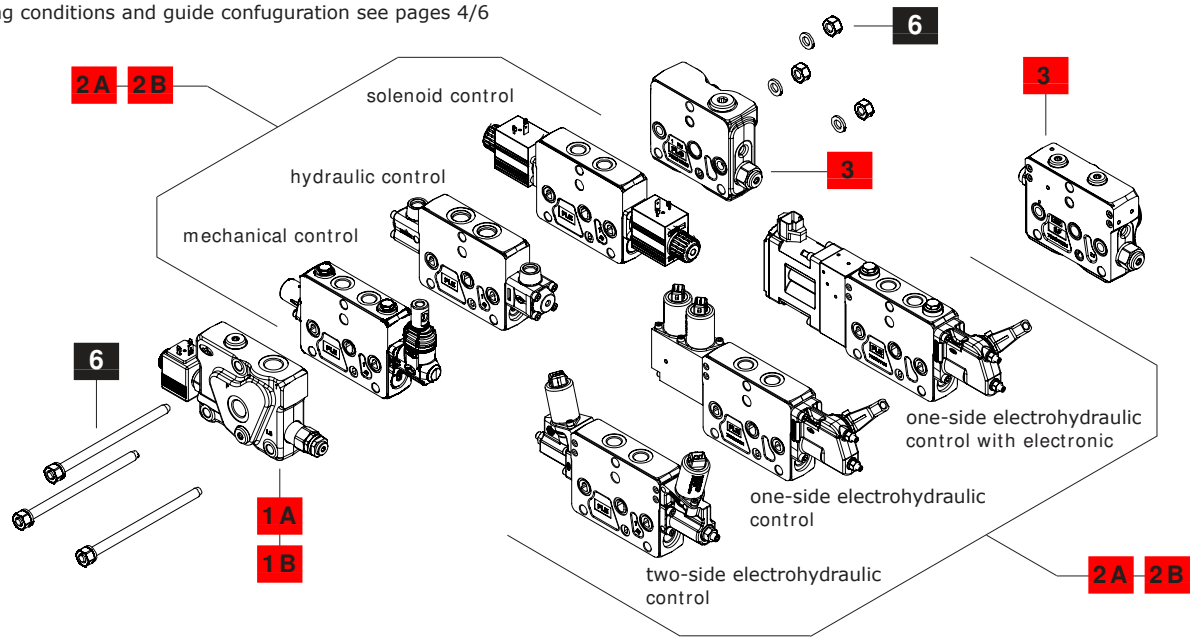
Complete sections ordering codes

Nr. of working sections

DPX100/3/AM1(TGW3-175/ELN)/P-101(80/80)-8L.U3T/Q-E101(80/80)-8IMN/Q-S102(60/60)-8ES3/RF-..-12VDC

1A 1B 2A 2B 3 4 5

DPX100 = standard pressure valve
DPX100HP = High Pressure valve
For working conditions and guide confuguration see pages 4/6



1 Std pressure inlet section *

Open Center circuit
TYPE: **DPX100/AM1(TGW3-175/ELN)-SAE-12VDC**
CODE: 640205016
DESCRIPTION: With compensator, press. relief valve and unloader valve, with P-T-LS ports (LS plugged)
TYPE: **DPX100/AM1(SO/TGW3-175/ELN)-SAE-12VDC**
CODE: 640205007
DESCRIPTION: As previous with non-return flow limiter from inlet section to working section and by-pass valve
TYPE: **DPX100/AM1(SU/TGW3-175/ELN)-SAE-12VDC**
CODE: 640205017
DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve
Closed Center circuit
TYPE: **DPX100/AN1(TGW3-175/ELN)-SAE-12VDC**
CODE: 640205021
DESCRIPTION: Without compensator, with press. relief valve and unloader valve, with P-T-LS ports
TYPE: **DPX100/AN1(SO/TGW3-175/ELN)-SAE-12VDC**
CODE: 640205009
DESCRIPTION: As previous with non-return flow limiter from inlet section to working section and by-pass valve
TYPE: **DPX100/AN1(SU/TGW3-175/ELN)-SAE-12VDC**
CODE: 640205022
DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve

1 High pressure inlet section *

Open Center circuit
TYPE: **DPX100HP/AM1(TGW5-350/ELN)-SAE-12VDC**
CODE: 640205023
DESCRIPTION: With compensator, press. relief valve and unloader valve, with P-T-LS ports (LS plugged)
TYPE: **DPX100HP/AM1(SO/TGW5-350/ELN)-SAE-12VDC**
CODE: 640205024
DESCRIPTION: As previous with non-return flow limiter from inlet section to working section and by-pass valve
TYPE: **DPX100HP/AM1(SU/TGW5-350/ELN)-SAE-12VDC**
CODE: 640205025
DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve
Closed Center circuit
Refer to "Std pressure" inlet sections

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

Complete sections ordering codes

2A Std pressure working section *

Mechanical control
TYPE: **DPX100/Q-101(80/80)-8L-SAE**
CODE: 640115001
DESCRIPTION: Lever control without port valves arrangement
TYPE: **DPX100/P-101(80/80)-8L.U3T-SAE**
CODE: 640105001
DESCRIPTION: As previous with port valves arrangement
Proportional hydraulic control
TYPE: **DPX100/Q-E101(80/80)-8IMN-SAE**
CODE: 640115013
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100/P-E101(80/80)-8IMN.U3(100)-SAE**
CODE: 640105014
DESCRIPTION: With antishock port valves
On/off solenoid control
TYPE: **DPX100/Q-S102(60/60)-8ES3-SAE-12VDC**
CODE: 640115014
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100/P-S102(60/60)-8ES3.U3(100)-SAE-12VDC**
CODE: 640105014
DESCRIPTION: With antishock port valves
Two-side proportional electrohydraulic control
TYPE: **DPX100/QE-E101(80/80)-8EB3TF3-SAE-12VDC**
CODE: 640115006
DESCRIPTION: With spool stroke limiter, without port valves arrangement
TYPE: **DPX100/PE-E101(80/80)-8EB3TF3.U3T-SAE-12VDC**
CODE: 640105007
DESCRIPTION: As previous with port valves arrangement
One-side proportional electrohydraulic control
TYPE: **DPX100/QZ-E101(80/80)-8EZ3LQF3-SAE-12VDC**
CODE: 640115015
DESCRIPTION: With spool stroke limiter, without port valves arrangement
TYPE: **DPX100/PZ-E101(80/80)-8EZ3LQF3.U3T-SAE-12VDC**
CODE: 640105019
DESCRIPTION: As previous with port valves arrangement
One-side prop. electrohydraulic control with electronic
TYPE: **DPX100/QZ-E101(80/80)-8ZR3T1LQF3-SAE-12VDC**
CODE: 640115016
DESCRIPTION: With spool stroke limiter, without port valves arrangement
TYPE: **DPX100/PZ-E101(80/80)-8ZR3T1LQF3.U3T-SAE-12VDC**
CODE: 640105020
DESCRIPTION: As previous with port valves arrangement

3 Outlet section *

Outlet section is the same type for standard and High Pressure valve
For mechanical, hydraulic or solenoid configuration
TYPE: **DPX100/RF-SAE** CODE: 640305003
DESCRIPTION: With Bleed valve upper T2 port (plugged)
TYPE: **DPX100/RF(04)-SAE** CODE: 640305011
DESCRIPTION: With Bleed valve upper T2, side P1-T1-LS1-M1 ports (plugged)
For electrohydraulic or mixed configuration
Type: **DPX100/RDN-NOTAP(VL)-SAE** CODE: 640305002
DESCRIPTION: Without pressure reducing valve, external pilot and drain (V-L ports), with Bleed valve and side T1 port (plugged)
TYPE: **DPX100/RDR(03)-SAE** CODE: 640305007
DESCRIPTION: With pressure reducing valve and Bleed valve, internal pilot and drain (V-L ports plugged), with side T1-P1-LS1 ports (plugged)
Note: for outlet sections with different port arrangement contact Sales Dpt.

2B High pressure working section *

Mechanical control
TYPE: **DPX100HP/Q-101(80/80)-8L-SAE**
CODE: 640115008
DESCRIPTION: Lever control without port valves arrangement
TYPE: **DPX100HP/P-101(80/80)-8L.U3T-SAE**
CODE: 640115009
DESCRIPTION: As previous with port valves arrangement
Proportional hydraulic control
TYPE: **DPX100HP/Q-E101(80/80)-8IMN-SAE**
CODE: 640115017
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100HP/P-E101(80/80)-8IMN.U3(100)-SAE**
CODE: 640105021
DESCRIPTION: With antishock port valves
On-off solenoid control
TYPE: **DPX100HP/Q-S102(60/60)-8ES3-SAE-12VDC**
CODE: 640115018
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100HP/P-S102(60/60)-8ES3.U3(100)-SAE-12VDC**
CODE: 640105022
DESCRIPTION: With antishock port valves
Two-side proportional electrohydraulic control
TYPE: **DPX100HP/QE-E101(80/80)-8EB3TF3-SAE-12VDC**
CODE: 640115019
DESCRIPTION: With stroke limiter, without port valves arrangement
TYPE: **DPX100HP/PE-E101(80/80)-8EB3TF3.U3T-SAE-12VDC**
CODE: 640105028
DESCRIPTION: As previous with port valves arrangement
One-side proportional electrohydraulic control
TYPE: **DPX100HP/QZ-E101(80/80)-8EZ3LQF3-SAE-12VDC**
CODE: 640115020
DESCRIPTION: With stroke limiter, without port valves arrangement
TYPE: **DPX100HP/PZ-E101(80/80)-8EZ3LQF3.U3T-SAE-12VDC**
CODE: 640105024
DESCRIPTION: As previous with port valves arrangement
One-side prop. electrohydraulic control with electronic
TYPE: **DPX100HP/QZ-E101(80/80)-8ZR3T1LQF3-SAE-12VDC**
CODE: 640115021
DESCRIPTION: With stroke limiter, without port valves arrangement
TYPE: **DPX100HP/PZ-E101(80/80)-8ZR3T1LQF3.U3T-SAE-12VDC**
CODE: 640105026
DESCRIPTION: As previous with port valves arrangement

4 Valve threading

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

5 Voltage

Specify the voltage of electric devices.i

6 Assembling kit

CODE	DESCRIPTION
5TIR110145	Tie rod kit for 1 working section directional valve
5TIR110179	Tie rod kit for 2 working sections directional valve
5TIR110215	Tie rod kit for 3 working sections directional valve
5TIR110252	Tie rod kit for 4 working sections directional valve
5TIR110289	Tie rod kit for 5 working sections directional valve
5TIR110323	Tie rod kit for 6 working sections directional valve
5TIR110359	Tie rod kit for 7 working sections directional valve
5TIR110397	Tie rod kit for 8 working sections directional valve
5TIR110431	Tie rod kit for 9 working sections directional valve
5TIR110467	Tie rod kit for 10 working sections directional valve
5TIR110503	Tie rod kit for 11 working sections directional valve
5TIR110541	Tie rod kit for 12 working sections directional valve

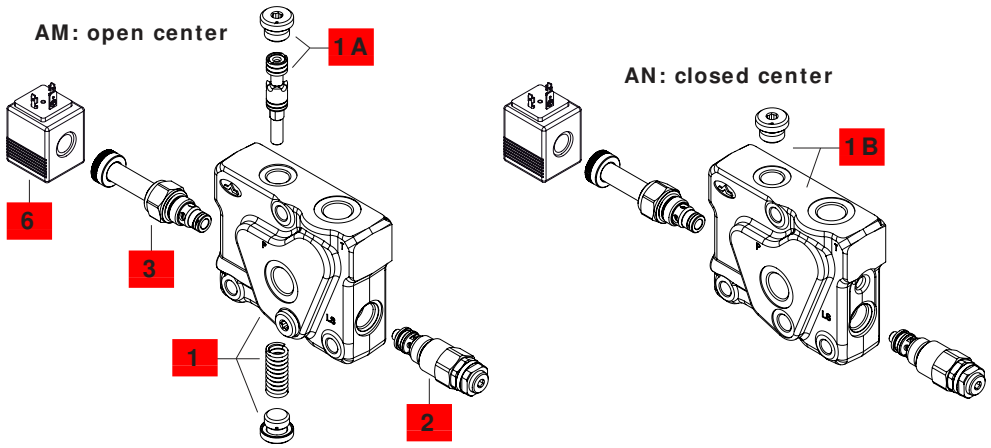
Inlet section parts ordering codes

Valve setting (bar)

DPX100 / A M1 (TGW3 - 175 / ELN) - ..... - 12VDC

1A 1B 2 3 4 5

DPX100 = standard pressure valve
DPX100HP = High Pressure valve
For working conditions and guide confuguration see pages 4/6



1A Std pressure inlet section kit* page 41

Open Center circuit
TYPE: **DPX100/M1-SAE/EL** CODE: YFIA104509
DESCRIPTION: With compensator, P-T-LS ports (LS plugged), arranged for unloader valve
TYPE: **DPX100/M1(SU)-SAE/EL** CODE: YFIA104510
DESCRIPTION: As previous with non return flow limiter from working section to inlet section and by-pass valve
TYPE: **DPX100/M1(SO)-SAE/EL** CODE: YFIA104511
DESCRIPTION: As previous with non return flow limiter from inlet section to working section and by-pass valve
Closed Center circuit
TYPE: **DPX100/N1-SAE/EL** CODE: YFIA104512
DESCRIPTION: Without compensator, with P-T-LS ports, arranged for unloader valve
TYPE: **DPX100/N1(SU)-SAE/EL** CODE: YFIA104513
DESCRIPTION: As previous with non return flow limiter from working section to inlet section and by-pass valve
TYPE: **DPX100/N1(SO)-SAE/EL** CODE: YFIA104514
DESCRIPTION: As previous with non return flow limiter from inlet section to working section and by-pass valve

1B High pressure inlet section kit* page 43

Open Center circuit
TYPE: **DPX100HP/M1-SAE/EL** CODE: YFIA104509
DESCRIPTION: With compensator, P-T-LS ports (LS plugged) arranged for unloader valve
TYPE: **DPX100HP/M1(SU)-SAE/EL** CODE: YFIA104510
DESCRIPTION: As previous with non return flow limiter from working section to inlet section and by-pass valve
TYPE: **DPX100HP/M1(SO)-SAE/EL** CODE: YFIA104511
DESCRIPTION: As previous with non return flow limiter from inlet section to working section and by-pass valve
Closed Center circuit
Refer to "Std pressure" inlet sections

2 Main pressure relief valve page 41

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

TYPE	CODE	DESCRIPTION
(TGW2-80)	0MC09002000	Range 10-120 bar / *145-1750 psi* std setting 80 bar / *1160 psi*
(TGW3-175)	0MC09002001	Range 40-220 bar / *580-3200 psi* std setting 175 bar / *2550 psi*
(TGW4-250)	0MC09002002	Range 200-350 bar / *2900-5100 psi* std setting 250 bar / *3600 psi*
(TGW5-300)	0MC09002003	Range 290-385 bar / *4200-5600 psi* std setting 300 bar / *4350 psi*
SV	XTAP524340	Relief valve blanking plug

3 Solenoid operated unloading valve page 43

TYPE	CODE	DESCRIPTION
ELN	0EF08002000	Without emergency override
ELV	0EF08002003	With screw type emergency override
ELP	0EF08002002	With push-button emergency override
ELT	0EF08002004	With “twist & push” emergency override
LT	3XTP3533700	Unloading valve blanking plug

4 Section threading

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

5 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SL2000121	Coil type **BER,** ISO4400 conn., 12VDC

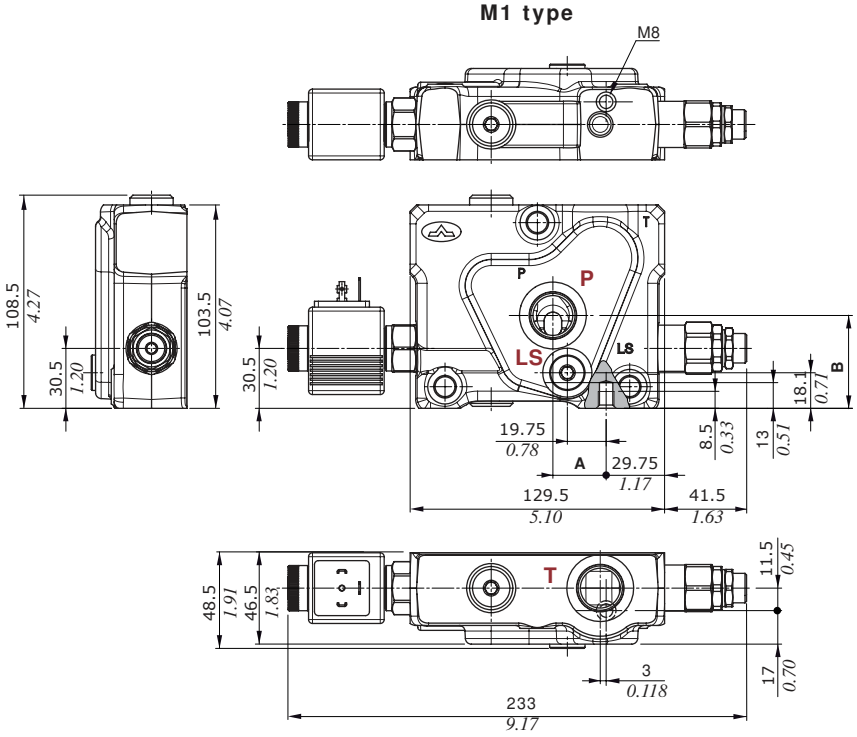
For complete available coils list see page 104.

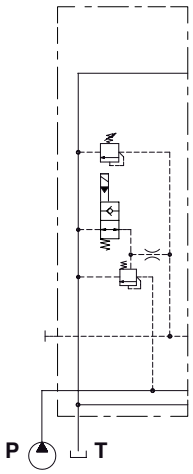
NOTE (*): *Codes are referred to **UN-UNF** thread.*

Dimensions and hydraulic circuit

Example of M Open Center section, standard pressure type

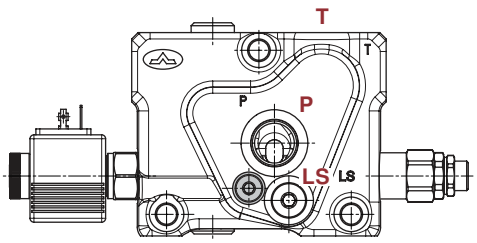
M1 type



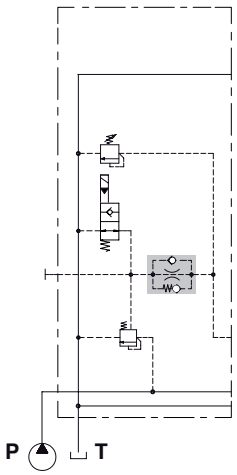


INLET SECTION TYPE	Inlet port P			
	A		B	
	mm	*in*	mm	*in*
Standard pressure	27.1	*1.07*	47.25	*1.86*
High pressure (HP)	27.1	*1.07*	51.5	*2.03*

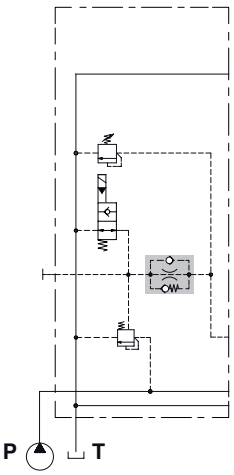
M1(SO) or M1(SU) type



M1(SU) type



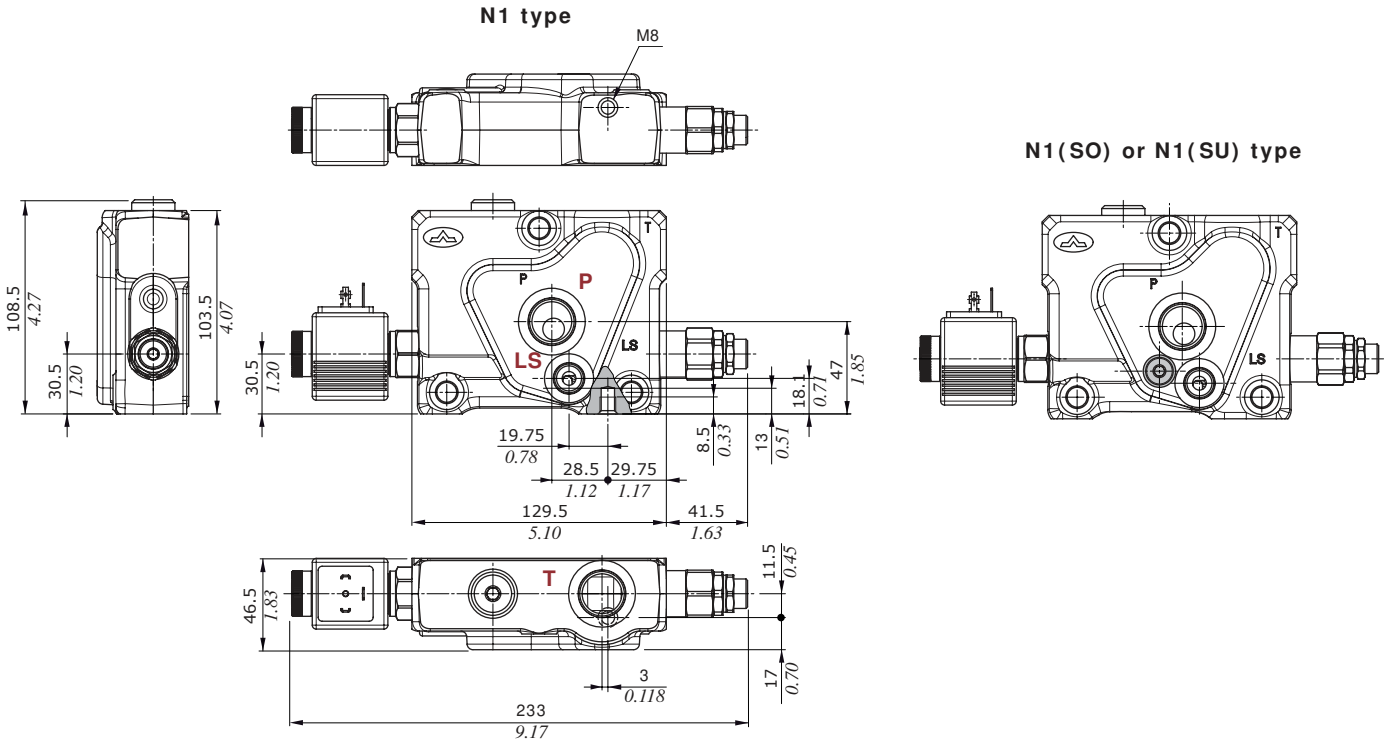
M1(SO) type

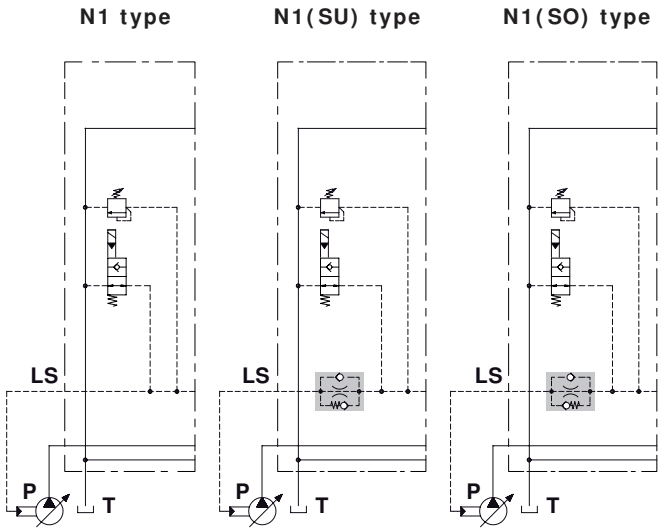


Inlet section

Dimensions and hydraulic circuit

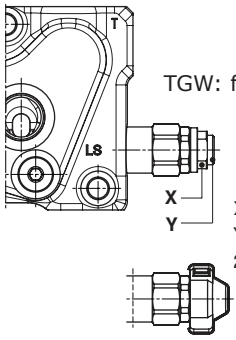
Example of N Closed Center section





Main pressure relief valve

Setting types

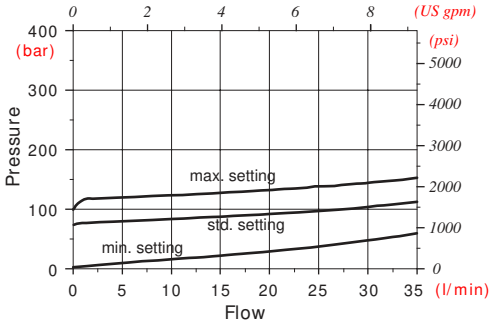


TGW: free setting

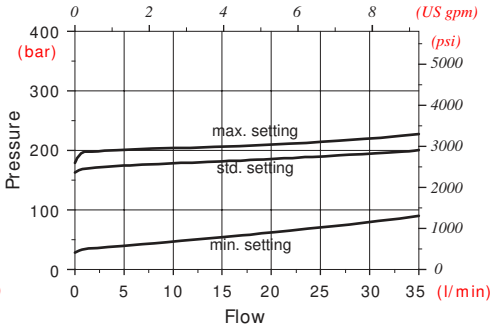
X = allen wrench 5
Y = wrench 19
20 Nm - *14.7 lbf*

TZW: valve set and locked
(cap code 4COP126301, n.2 pcs)
RAL3003 pigmented

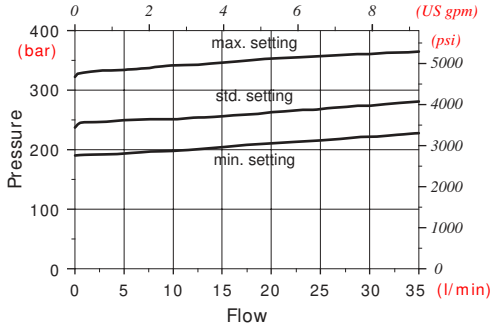
Setting range: type TGW2



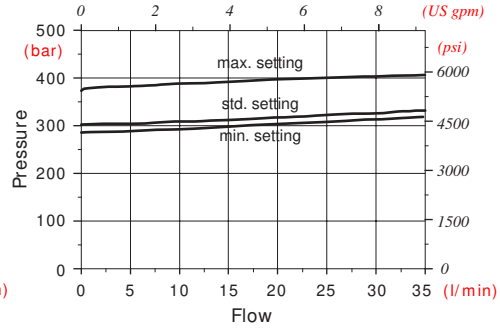
Setting range: type TGW3



Setting range: type TGW4



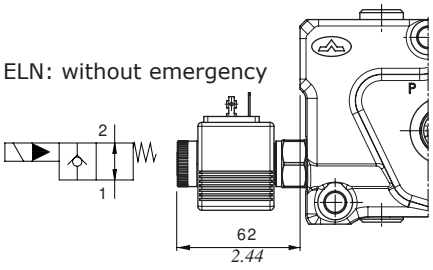
Setting range: type TGW5



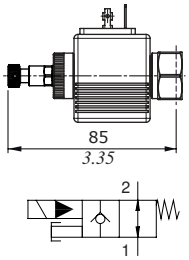
Solenoid operated unloading valve

Manual emergency types

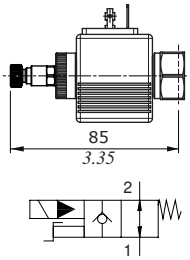
ELN: without emergency



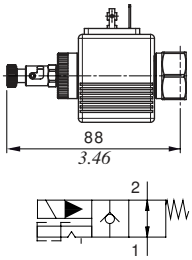
ELP: push button type



ELV: screw type



ELT: "push & twist" type



Features

Max. flow . . . . . : 40 l/min - *10.6 US gpm*
Max. pressure. . . . . : 350 bar - *5100 psi*
Internal leakage . . . . . : 0.25 cm³/min @ 210 bar
0.015 in³/min @ 3050 psi

For coil features and options see coil **BER** at page 104.

Working section parts ordering codes (mechanical, hydraulic, solenoid)

flow on ports A/B (l/min) — Valve setting (bar) port A / port B

DPX100 / P - 101(80/80) - 8 L . U1(100) U2(120) - .....

1A 1B 2 3 4 8 9

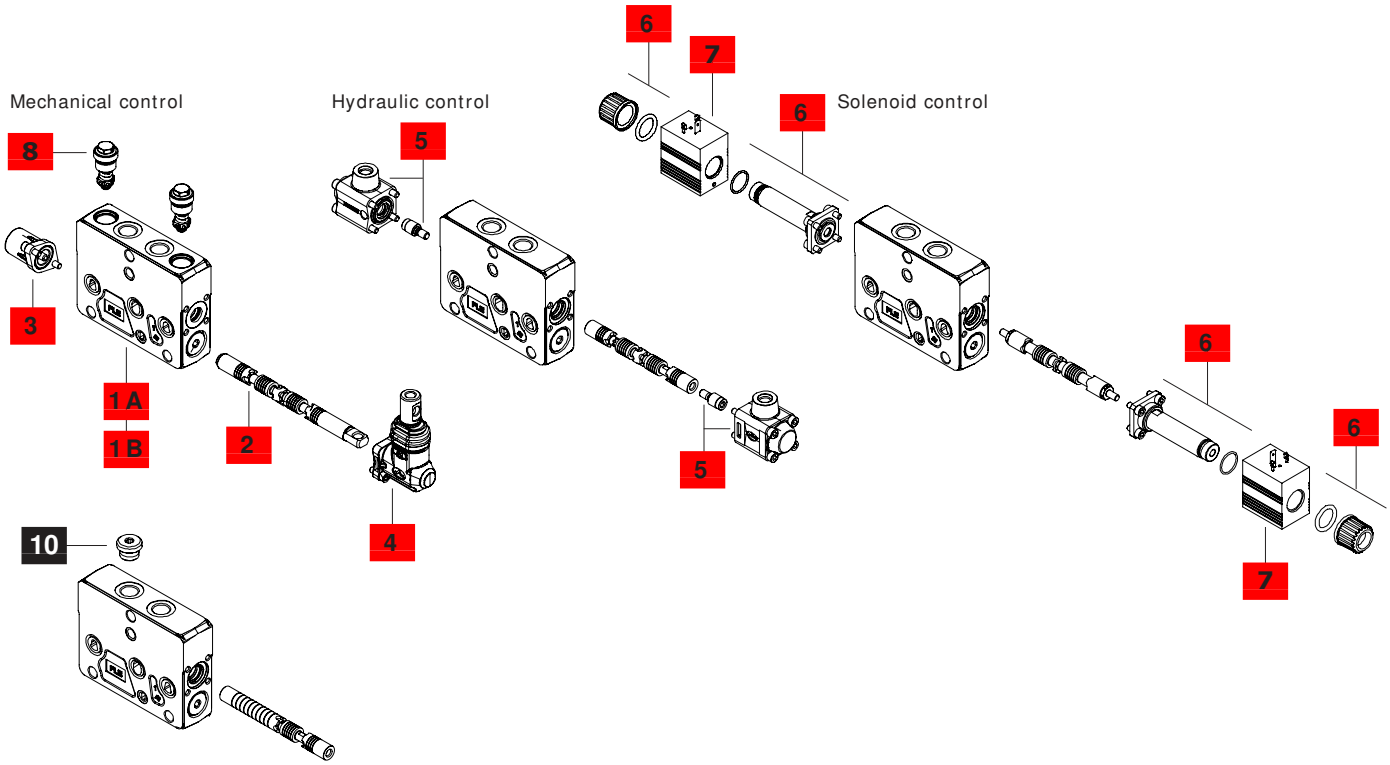
DPX100 = standard pressure valve
DPX100HP = High Pressure valve
For working conditions and guide confuguration see pages 4/6

DPX100 / Q - E101(80/80) - 8IMN - .....

5 9

DPX100 / Q - S102(60/60) - 8ES3 - ..... - 12VDC

6 9 7



1A Std press. working section kit* page 48

<u>For mechanical control</u>
TYPE: **DPX100/Q-SAE** CODE: 5EL1045010
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100/P-SAE** CODE: 5EL1045000
DESCRIPTION: With port valves arrangement
<u>For hydraulic and solenoid control</u>
TYPE: **DPX100/Q-IM-SAE** CODE: 5EL1045010A
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100/P-IM-SAE** CODE: 5EL1045000A
DESCRIPTION: With port valves arrangement

1B High press. working section kit* page 48

<u>For mechanical control</u>
TYPE: **DPX100HP/Q-SAE** CODE: 5EL1045011
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100HP/P-SAE** CODE: 5EL1045001
DESCRIPTION: With port valves arrangement
<u>For hydraulic and solenoid control</u>
TYPE: **DPX100HP/Q-IM-SAE** CODE: 5EL1040510B
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100HP/P-IM-SAE** CODE: 5EL1045000B
DESCRIPTION: With port valves arrangement

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

Working section parts ordering codes (mechanical, hydraulic, solenoid)

2 Spool page 48

Flow is referred to 14 bar (*200 psi*) stand-by (margin pressure)

TYPE	CODE	DESCRIPTION
For mechanical control		
Double acting with A and B closed in neutral position		
101(80)	3CU7110101	80 l/min (*21 US gpm*) flow
102(60)	3CU7110102	60 l/min (*16 US gpm*) flow
103(40)	3CU7110103	40 l/min (*10.5 US gpm*) flow
104(20)	3CU7110104	20 l/min (*5.3 US gpm*) flow
113(10)	3CU7110113	10 l/min (*2.6 US gpm*) flow
Double acting with A and B partially to tank in neutral position		
2H01(80)	3CU7110202	80 l/min (*21 US gpm*) flow
2H06(60)	3CU7124213	60 l/min (*16 US gpm*) flow
2H05(40)	3CU7124212	40 l/min (*10.5 US gpm*) flow
2H04(20)	3CU7124211	20 l/min (*5.3 US gpm*) flow
2H07(10)	3CU7124214	10 l/min (*2.6 US gpm*) flow
Single acting on A, B plugged: needs SAE8 plug		
301(80)	3CU7110301	80 l/min (*21 US gpm*) flow
304(60)	3CU7131304	60 l/min (*16 US gpm*) flow
303(40)	3CU7131303	40 l/min (*10.5 US gpm*) flow
302(20)	3CU7131302	20 l/min (*5.3 US gpm*) flow
Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: needs positioners type 13 and 13F		
501(70)	3CU7110501	70 l/min (*18.5 US gpm*) flow
504(60)	3CU7142504	60 l/min (*16 US gpm*) flow
503(20)	3CU7142503	20 l/min (*5.3 US gpm*) flow
For solenoid control		
Double acting with A and B closed in neutral position		
S102(60)	3CU7410102	60 l/min (*16 US gpm*) flow
S108(40)	3CU7410108	40 l/min (*10.5 US gpm*) flow
S105(20)	3CU7410105	20 l/min (*5.3 US gpm*) flow
S106(10)	3CU7410106	10 l/min (*2.6 US gpm*) flow
Double acting with A and B partially to tank in neutral position		
S2H01(60)	3CU7410202	60 l/min (*16 US gpm*) flow
For hydraulic control		
Double acting with A and B closed in neutral position		
E101(80)	3CU7710101	80 l/min (*21 US gpm*) flow
E108(60)	3CU7710108	60 l/min (*16 US gpm*) flow
E105(40)	3CU7710105	40 l/min (*10.5 US gpm*) flow
E106(20)	3CU7710106	20 l/min (*5.3 US gpm*) flow
E110(10)	3CU7710110	10 l/min (*2.6 US gpm*) flow
Double acting with A and B partially to tank in neutral position		
E2H01(80)	3CU7710202	80 l/min (*21 US gpm*) flow
E2H05(60)	3CU7724004	60 l/min (*16 US gpm*) flow
E2H04(40)	3CU7724003	40 l/min (*10.5 US gpm*) flow
E2H06(20)	3CU7724005	20 l/min (*5.3 US gpm*) flow
E2H03(10)	3CU7724002	10 l/min (*2.6 US gpm*) flow
Single acting on A or B, other port plugged: needs SAE8 plug		
E301-E401(80)	3CU7710301	80 l/min (*21 US gpm*) flow
E305-E405(60)	3CU7731305	60 l/min (*16 US gpm*) flow
E304-E404(40)	3CU7731304	40 l/min (*10.5 US gpm*) flow
E303-E403(20)	3CU7731303	20 l/min (*5.3 US gpm*) flow
Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: needs control kit type 13IMS		
I504(60)	YCU7742504	60 l/min (*16 US gpm*) flow
I503(20)	YCU7742503	20 l/min (*5.3 US gpm*) flow

9 Section threading

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

10 Plug for single acting spool*

CODE	DESCRIPTION
3XTAP822150	SAE8 plug

3 "A" side spool positioners page 51

TYPE	CODE	DESCRIPTION
7FT	5V07407000	With friction and neutral pos. notch
8	5V08107000	3 pos.,spring return to neutral pos.
8F2	5V08107100	Spool stroke limiter on port B
8D	5V08107200	External pin with M6 female thread
8TL	5V08107310	Arrangement for double control
8RM2-12VDC	5V08107590	Electromagnetic detent in pos. 2
8MG3(NO)	5V08107660	With micro in postions 1 and 2
8PP	5V08107700	Proportional pneumatic control
8PNB	5V08107718	On/off waterproof pneumatic control
8EPNB3-12VDC	5V08107742	On/off electropneumatic control
8EPNB3-24VDC	5V08107743	On/off electropneumatic control
8K-12VDC	5V08707112	Solenoid detent in neutral position
8K-24VDC	5V08707124	Solenoid detent in neutral position
9B	5V09207000	Detent in position 1
10B	5V10207000	Detent in position 2
11B	5V11207000	Detent in positions 1 and 2
For floating circuit (spool 5)		
13	5V13307000	4 positions, detent in 4th position with spring return to neutral position
13F	5V13507000	4 positions, with spring return to neutral position

4 "B" side spool control kit page 56

TYPE	CODE	DESCRIPTION
L	5LEV107000	Standard lever box
LSG	5LEV107000S	As previous, water-proof type
LF1	5LEV107100	Lever box with spool stroke limiter on port A
LSGF1	5LEV107100S	As previous, water-proof type
SLC	5COP207000	Without lever with endcap
SLP	5COP107010	Without lever with dust-proof plate
LCA1-4	5CLO207010	Joystick for 2 sections operation: configurations type 1 and 4
LCA2-3	5CLO207011	Joystick for 2 sections operation: configurations type 2 and 3

5 Proportional hydraulic control* page 58

TYPE	CODE	DESCRIPTION
8IMN-SAE	5IDR204702	Range 8-27 bar (*116-392 psi*)
8IMF3N-SAE	5IDR204710	As previous with spool stroke limiter
8IMXN-SAE	5IDR204701	Range 7.5-24 bar (*109-348 psi*)
8IMXF3N-SAE	5IDR204713	As previous with spool stroke limiter
For floating circuit (spool I5)		
13IMS-SAE	5IDR207750	Range 6.5-15.5 / 8-22.5 bar (*94-225 / 116-326 psi*)

6 On/off solenoid control page 60

TYPE	CODE	DESCRIPTION
8ES1-8ES2	5CAN08061	Single acting on A or B port
8ES3	5CAN08062	Double acting

7 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SOL412012	Coil type **D12,** ISO4400 conn,12VDC

For complete available coils list see page 104.

8 Port valves page 67

TYPE	CODE	DESCRIPTION
U025	5KIT330025	Setting: 25 bar (*360 psi*)

For complete list see following pages.

Working section parts ordering codes (electrohydraulic)

flow on ports A/B (l/min) — Valve setting (bar) port A / port B

DPX100 / PZ - E101(80/80) - 8EZ3 LQF3 . U1(100) U2(120) - ..... - 12VDC

1A, 1B — 2 — 3 — 4 — 6 — 7 — 3

DPX100 = standard pressure valve
DPX100HP = High Pressure valve
For working conditions and guide confuguration see pages 4/6

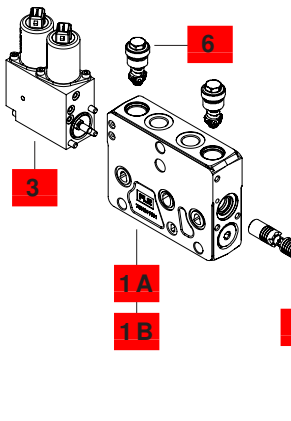
DPX100/QZ-E101(80/80)- 8ZR3T1 LQF3 - ..... - 12VDC

3 — 4 — 7 — 3

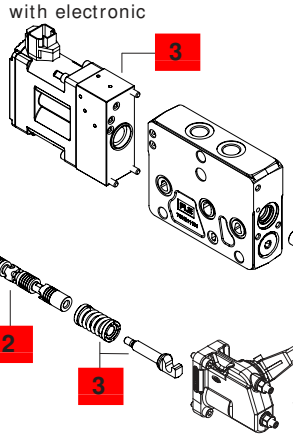
DPX100/QE-E101(80/80)- 8EB3TF3 - ..... -12VDC

5 — 7 — 5

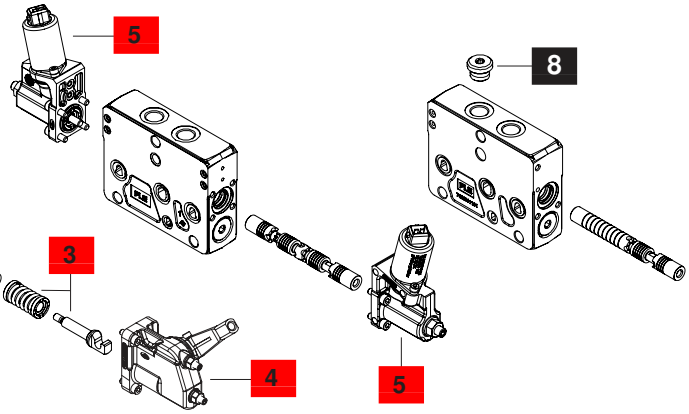
one-side el.hydraulic control



one-side el.hydraulic control with electronic



two-side el.hydraulic control



1A Std press. working section kit* page 46

<u>For two-side electrohydraulic control</u>
TYPE: **DPX100/QE-SAE** CODE: 5EL1045012
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100/PE-SAE** CODE: 5EL1045002
DESCRIPTION: With port valves arrangement
<u>For one-side electrohydraulic control</u>
TYPE: **DPX100/QZ-SAE** CODE: 5EL1047021
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100/PZ-SAE** CODE: 5EL1047006
DESCRIPTION: With port valves arrangement

1B High press. working section kit* page 48

<u>For two-side electrohydraulic control</u>
TYPE: **DPX100HP/QE-SAE** CODE: 5EL1045015
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100HP/PE-SAE** CODE: 5EL1045005
DESCRIPTION: With port valves arrangement
<u>For one-side electrohydraulic control</u>
TYPE: **DPX100HP/QZ-SAE** CODE: 5EL1045018
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100HP/PZ-SAE** CODE: 5EL1045006
DESCRIPTION: With port valves arrangement

2 Spool page 49

Flow is referred to 14 bar (*200 psi*) stand-by (margin pressure)

TYPE	CODE	DESCRIPTION
<u>Double acting with A and B closed in neutral position</u>		
E101(80)	3CU7710101	80 l/min (*21 US gpm*) flow
E108(60)	3CU7710108	60 l/min (*16 US gpm*) flow
E105(40)	3CU7710105	40 l/min (*10.5 US gpm*) flow
E106(20)	3CU7710106	20 l/min (*5.3 US gpm*) flow
E110(10)	3CU7710110	10 l/min (*2.6 US gpm*) flow
<u>Double acting with A and B partially to tank in neutral position</u>		
E2H01(80)	3CU7710202	80 l/min (*21 US gpm*) flow
E2H05(60)	3CU7724004	60 l/min (*16 US gpm*) flow
E2H04(40)	3CU7724003	40 l/min (*10.5 US gpm*) flow
E2H06(20)	3CU7724005	20 l/min (*5.3 US gpm*) flow
E2H03(10)	3CU7724002	10 l/min (*2.6 US gpm*) flow
<u>Single acting on A or B, other port plugged: need SAE8 plug</u>		
E301-E401(80)	3CU7710301	80 l/min (*21 US gpm*) flow
E305-E405(60)	3CU7731305	60 l/min (*16 US gpm*) flow
E304-E404(40)	3CU7731304	40 l/min (*10.5 US gpm*) flow
E303-E403(20)	3CU7731303	20 l/min (*5.3 US gpm*) flow
<u>Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: needs control kit type 13EB3 or 13EZ3</u>		
E504(60)	3CU7742504	60 l/min (*16 US gpm*) flow
E503(20)	3CU7742503	20 l/min (*5.3 US gpm*) flow

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

Working section parts ordering codes (electrohydraulic)

3 One-side electrohydr. control page 66

TYPE	CODE	DESCRIPTION
Without on-board electronic		
8EZ3-12VDC	5IDR604300	With AMP connector
8EZ3-24VDC	5IDR604301	With AMP conector
8EZ34-12VDC	5IDR604302	With Deutsch connector
8EZ34-24VDC	5IDR604303	With Deutsch connector
Without on-board electronic: for floating circuit (spool E5)		
13EZ3-12VDC	5IDR604300	With AMP connector
13EZ3-24VDC	5IDR604301	With AMP connector
13EZ34-12VDC	5IDR604302	With Deutsch connector
13EZ34-24VDC	5IDR604303	With Deutsch connector
With on-board electronic		
8ZR3T1	5IDR604900	Voltage signal 0-5 V
8ZR3T2	5IDR604901	Can-bus type
With on-board electronic: for floating circuit (spool E5)		
13ZR3T1	5IDR614900	Voltage signal 0-5 V
13ZR3T2	5IDR614901	Can-bus type

4 "B" side options page 67

TYPE	CODE	DESCRIPTION
For one-side electrohydraulic control		
LQ	5LEV100700	Lever control
LQF3	5LEV100701	Lever control with spool stroke limiter
SLCQ	5COP204000	Endcap

6 Port valves page 68

TYPE	CODE	DESCRIPTION
UT	XTAP522442	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** (100 = setting (bar)) CODE: 5KIT330 100 (100 = setting (bar))

SETTING:

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

7 Section threading

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

8 Plug for single acting spool*

CODE	DESCRIPTION
3XTAP822150	SAE8 plug

5 Two-side electrohydr. control page 64

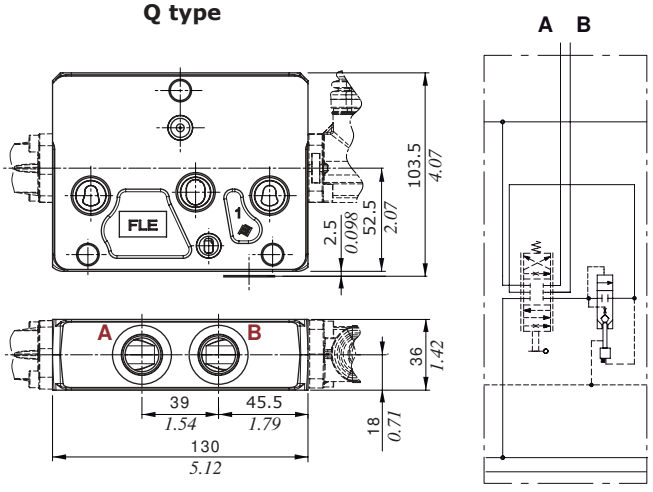
TYPE	CODE	DESCRIPTION
Without lever control		
8EB3T-12VDC	5IDR904214	With AMP connector
8EB3T-24VDC	5IDR904222	With AMP connector
8EB34T-12VDC	5IDR904236	With Deutsch connector
8EB34T-24VDC	5IDR904237	With Deutsch connector
8EB3TF3-12VDC	5IDR904217	With AMP connector with spool stroke limiter
8EB3TF3-24VDC	5IDR904224	As previous
8EB34TF3-12VDC	5IDR904235	With Deutsch connector with spool stroke limiter
8EB34TF3-24VDC	5IDR904238	As previous
Without lever control: for floating circuit (spool E5)		
13EB3T-12VDC	5IDR914201	With AMP connector
13EB3T-24VDC	5IDR914202	With AMP connector
13EB34T-12VDC	5IDR914214	With Deutsch connector
13EB34T-24VDC	5IDR914215	With Deutsch connector
With lever control		
8EB3TLH-12VDC	5IDR904215	With AMP connector
8EB3TLH-24VDC	5IDR904228	With AMP connector
8EB34TLH-12VDC	5IDR904219	With Deutsch connector
8EB34TLH-24VDC	5IDR904239	With Deutsch connector
8EB3TLHF3-12VDC	5IDR904229	With AMP connector with spool stroke limiter
8EB3TLHF3-24VDC	5IDR904218	As previous
8EB34TLHF3-12VDC	5IDR904240	With Deutsch connector with spool stroke limiter
8EB34TLHF3-24VDC	5IDR904241	As previous
With lever control: for floating circuit (spool E5)		
13EB3TLH-12VDC	5IDR914212	With AMP connector
13EB3TLH-24VDC	5IDR914211	With AMP connector
13EB34TLH-12VDC	5IDR914216	With Deutsch connector
13EB34TLH-24VDC	5IDR914217	With Deutsch connector
13EB3TLHF3-12VDC	5IDR914213	With AMP connector with spool stroke limiter
13EB3TLHF3-24VDC	5IDR914210	As previous
13EB34TLHF3-12VDC	5IDR914218	With Deutsch connector with spool stroke limiter
13EB34TLHF3-24VDC	5IDR914219	As previous

Working section

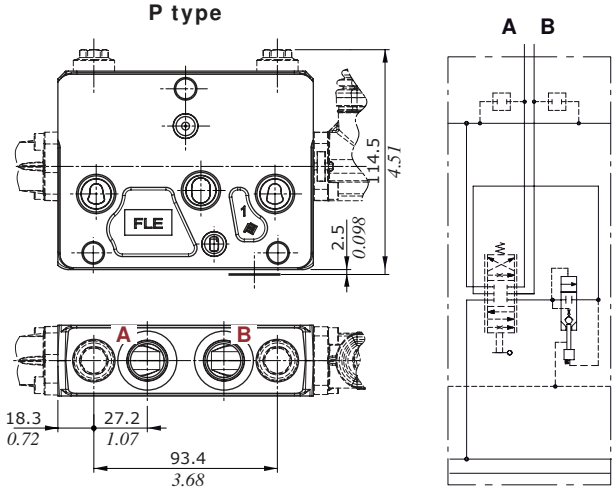
Dimensions and hydraulic circuit

For mechanical, hydraulic and solenoid controls

Q type

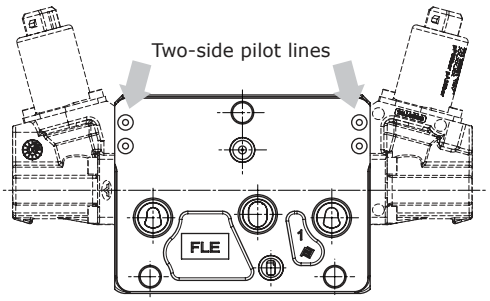


P type

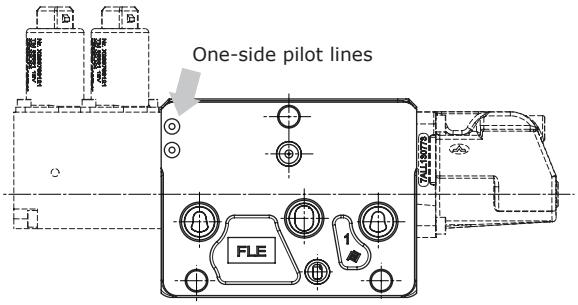


For electrohydraulic controls

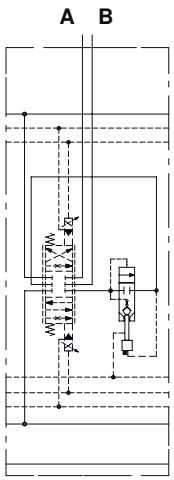
QE or PE type



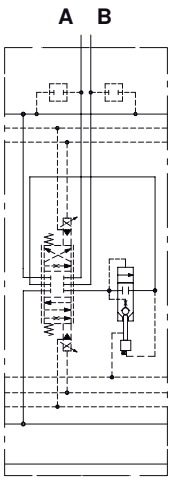
QZ or PZ type



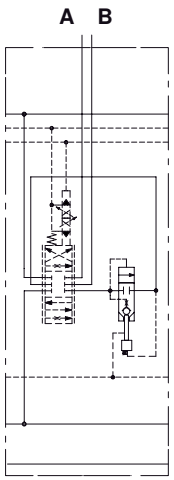
QE type



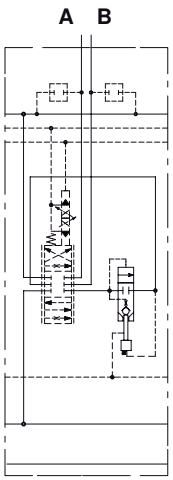
PE type



QZ type

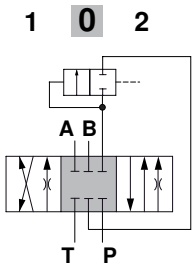


PZ type



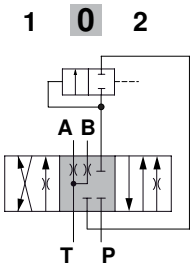
Spools

Spool type 1 (1../E1../S1..)
A, B closed in neutral position



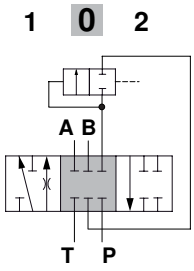
Spool stroke
position 1: + 6.5 mm *(- 0.26 in)*
position 2: - 6.5 mm *(+ 0.26 in)*

Spool type 2H(2H../E2H../S2H..)
A, B partially to tank in neutral pos.



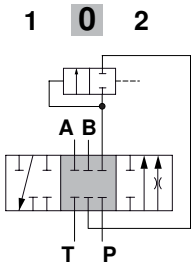
Spool stroke
position 1: + 6.5 mm *(- 0.26 in)*
position 2: - 6.5 mm *(+ 0.26 in)*

Spool type 3 (3../E3..)
single acting on A



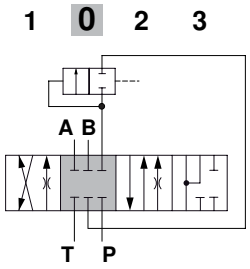
Spool stroke
position 1: + 6.5 mm *(- 0.26 in)*
position 2: - 6.5 mm *(+ 0.26 in)*

Spool type 4 (4../E4..)
single acting on B



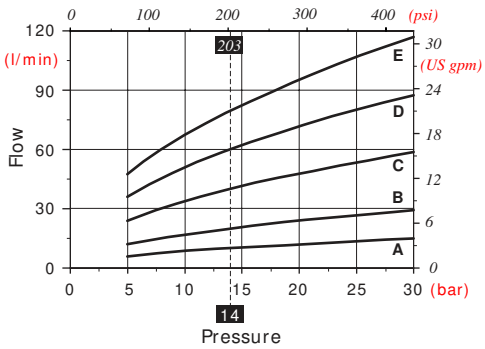
Spool stroke
position 1: + 6.5 mm *(- 0.26 in)*
position 2: - 6.5 mm *(+ 0.26 in))*

Spool type 5 (5../E5../I5..)
floating in 4th position (pos.3)



Spool stroke
position 1: + 6 mm *(- 0.24 in)*
position 2: - 6 mm *(+ 0.24 in)*
position 3: - 10.5 mm *(- 0.41 in)*

Spool flow vs. Stand-by pressure (margin pressure)



Curves with spool nominal flow
@ 14 bar *(200 psi)* stand-by (margin pressure)
A = 10 l/min *(2.6 US gpm)*
B = 20 l/min *(5.3 US gpm)*
C = 40 l/min *(10.6 US gpm)*
D = 60 l/min *(16 US gpm)*
E = 80 l/min *(21 US gpm)*

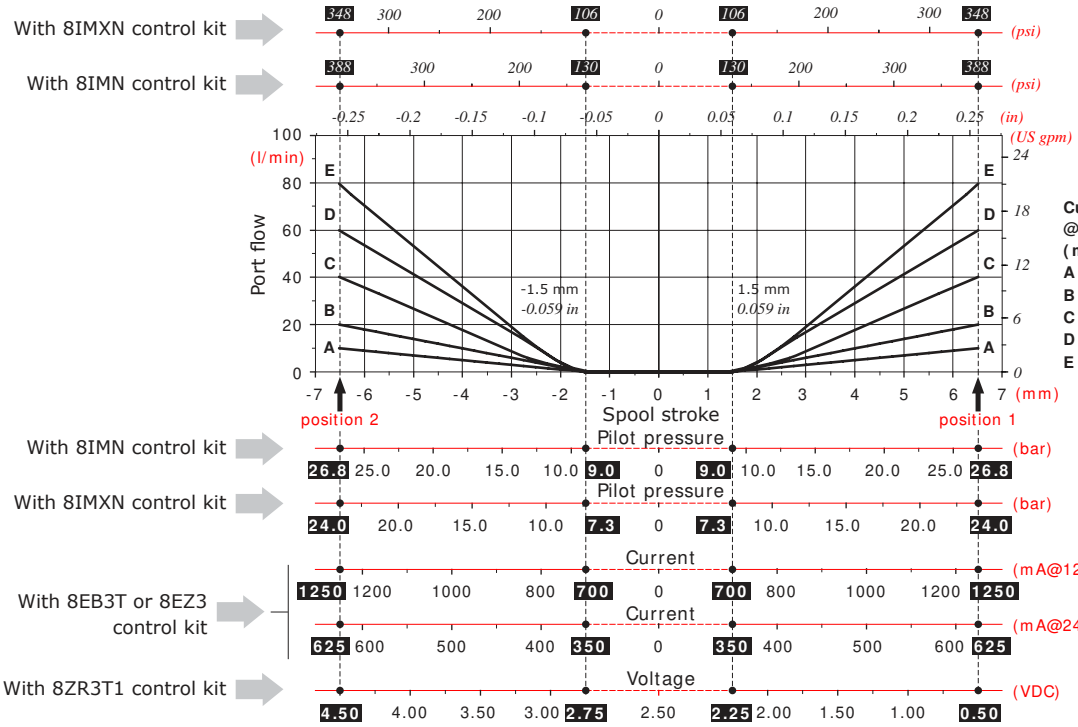
Working section

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.

3 positions spools metering curve

Qin = 90 l/min (*24 US gpm*) - Open center circuit

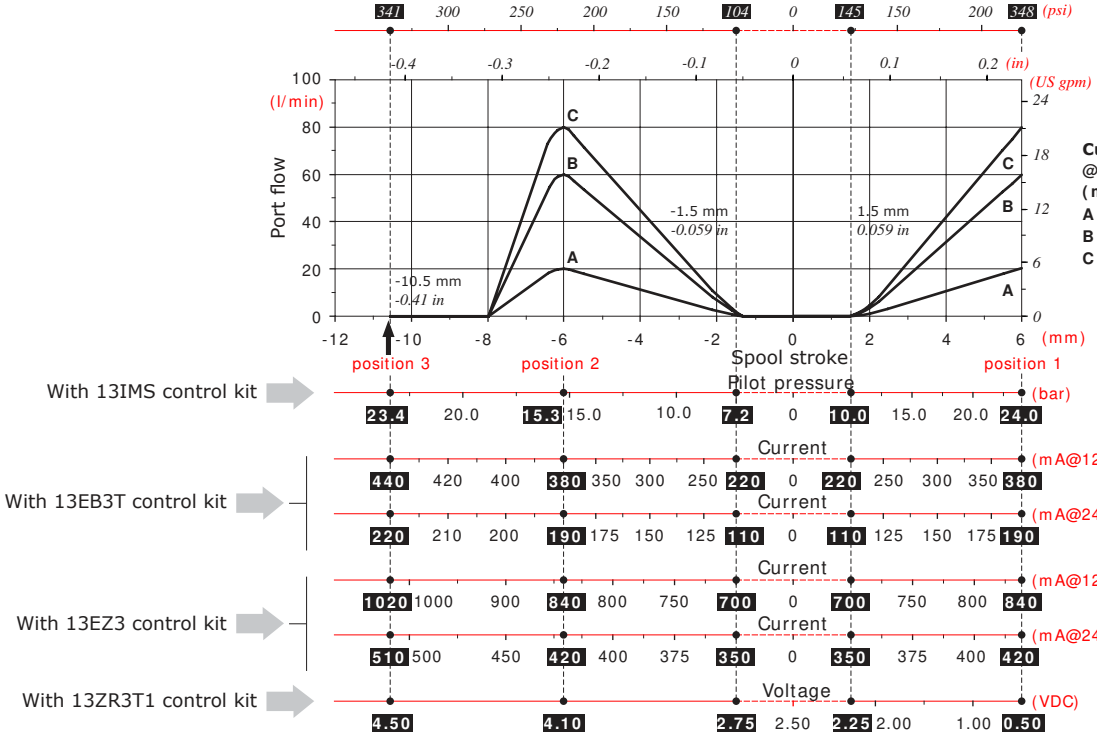


Curves with spool nominal flow @ 14 bar (*200 psi*) stand-by (margin pressure)

A = 10 l/min (*2.6 US gpm*)
B = 20 l/min (*5.3 US gpm*)
C = 40 l/min (*10.6 US gpm*)
D = 60 l/min (*16 US gpm*)
E = 80 l/min (*21 US gpm*)

Floating spool metering curve

Qin = 90 l/min (*24 US gpm*) - Open center circuit

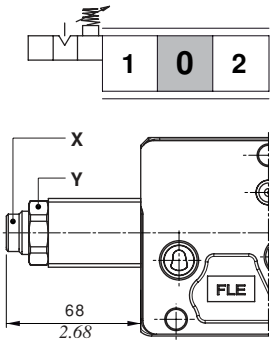


Curves with spool nominal flow @ 14 bar (*200 psi*) stand-by (margin pressure)

A = 20 l/min (*5.3 US gpm*)
B = 60 l/min (*16 US gpm*)
C = 80 l/min (*21 US gpm*)

"A" side spool positioners

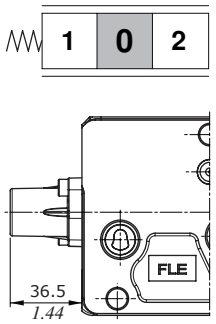
With friction, type 7FT



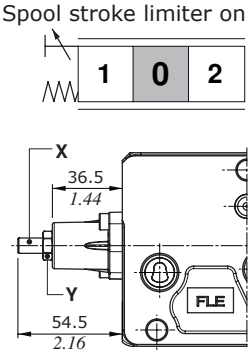
X = allen wrench 6
Y = wrench 30, manual tightening

With spring return to neutral position

Type 8

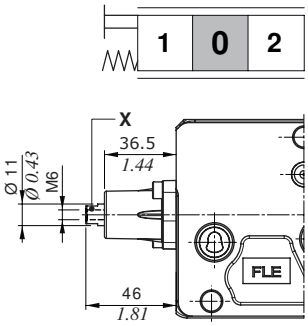


Type 8F2
Spool stroke limiter on Port B



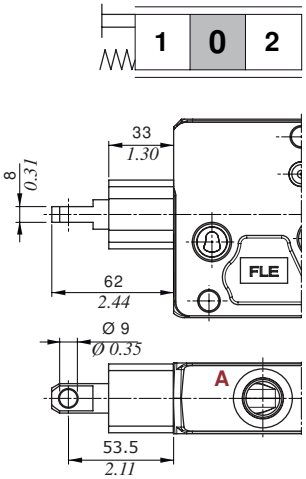
X = allen wrench 4
Y = wrench 13 / 24 Nm - *17.7 lbf*

Type 8D
External pin with M6 female thread

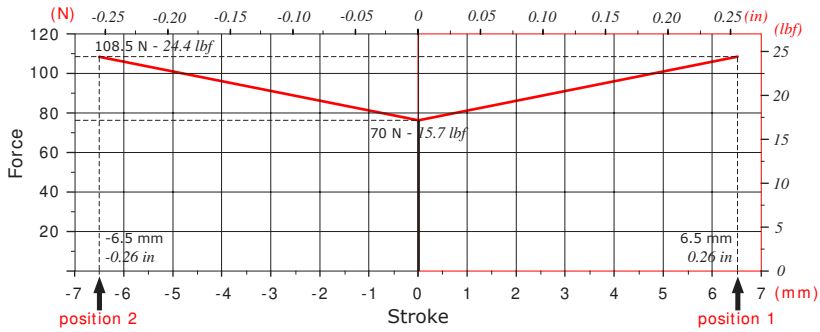


X = allen wrench 9

Type 8TL
Arrangement for double mechanical control



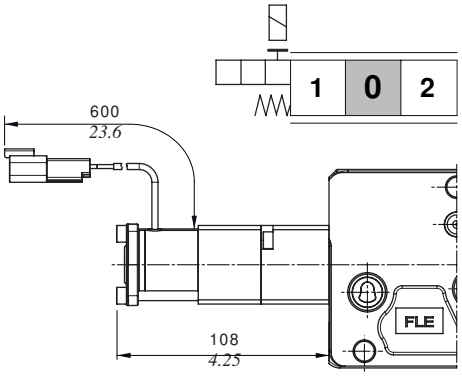
Force vs. Stroke diagram



Working section

"A" side spool positioners

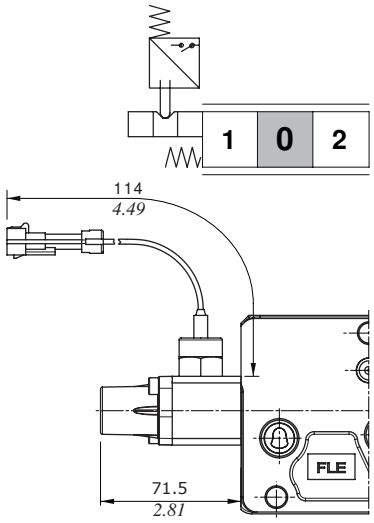
With electromagnetic detent in position 2, type 8RM2



Features

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

With microswitch for spool check in positions 1 and 2, type 8MG3



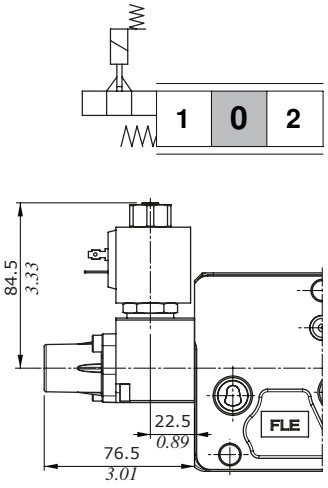
Features

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

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

Note (*): with integrated connector

With solenoid lock device in neutral position, type 8K



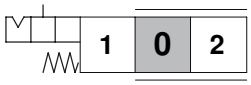
Complete controls			
	Coils connector		
Voltage	ISO 4400	Packard M-Mack	Deutsch DT04
12 VDC	5V08707112	5V08707613	5V08707412
24 VDC	5V08707124	5V08707624	5V08707424

For coil features and options see coil **BE** at page 104.

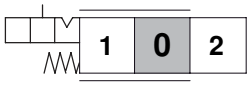
"A" side spool positioners

With detent and spring return to neutral position from either directions

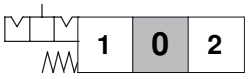
Type 9BZ
detent in position 1
(see curve A)

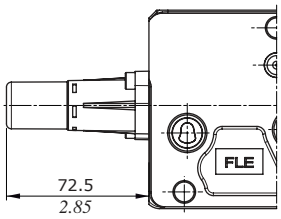


Type 10BZ
detent in position 2
(see curve B)

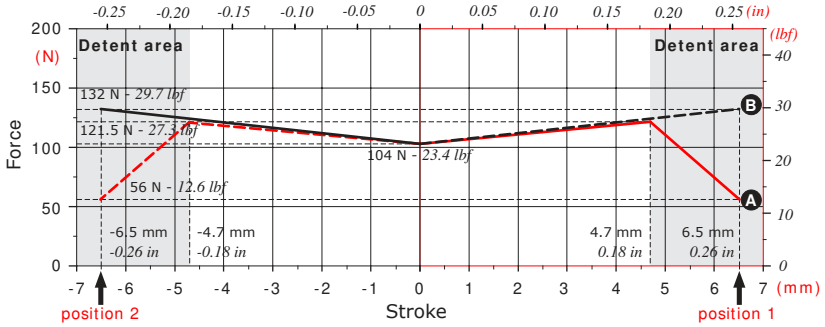


Type 11BZ
detent in positions 1
(curve A) and 2 (curve B)



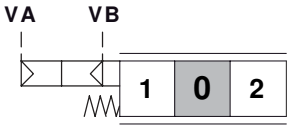


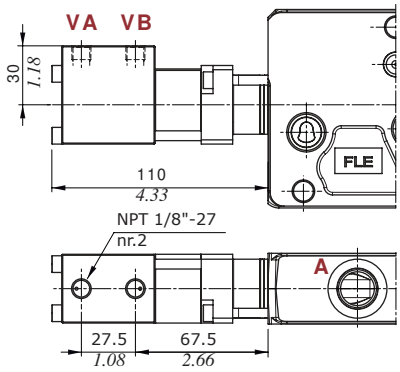
Force vs. Stroke diagram



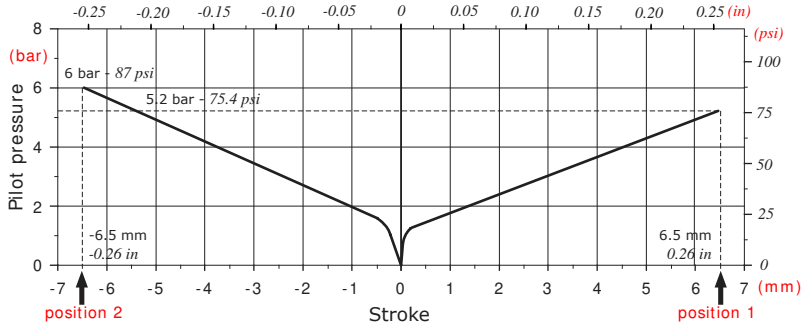
Release force 160 N ± 10 N (*36 lbf ± 2.2 lbf*)

Proportional pneumatic control, type 8PP





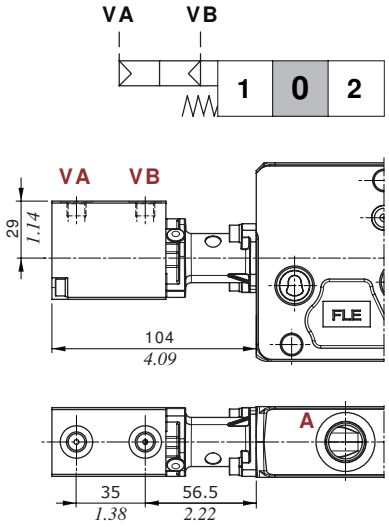
Stroke vs. Pilot pressure diagram

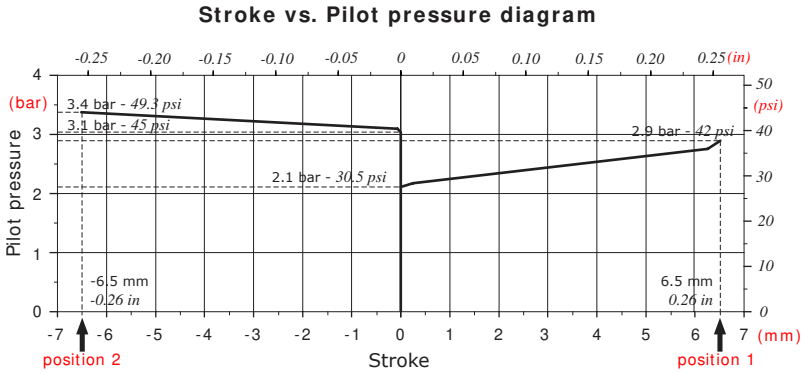


Working section

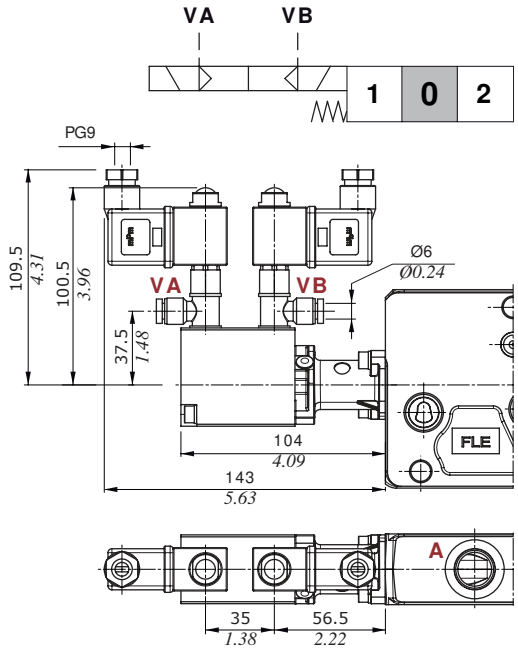
"A" side spool positioners

On/off pneumatic control, type 8PNB





On/off electropneumatic control, type 8EPNB3



Features

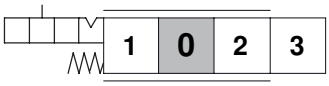
Pilot pressure . . . . . : 6 bar (max.15 bar)
87 psi (max. 218 psi)

For coil features and options see coil **BPV** at page 104.

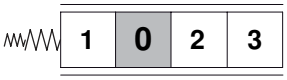
"A" side spool positioners

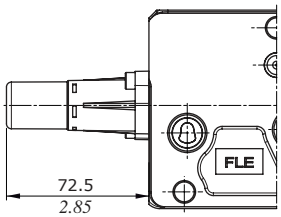
For floating circuit

Type 13
detent in position 3

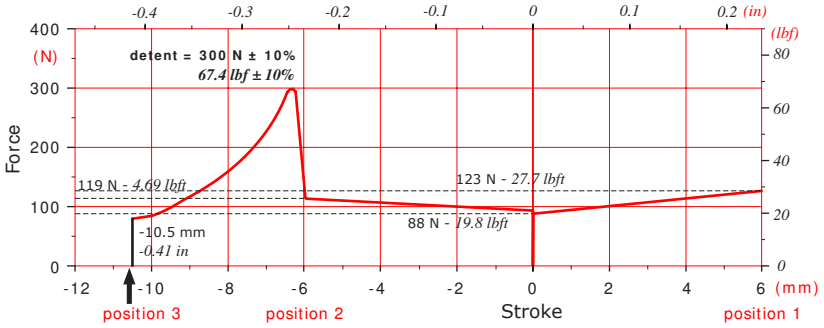


Type 13F
additional spring in position 3



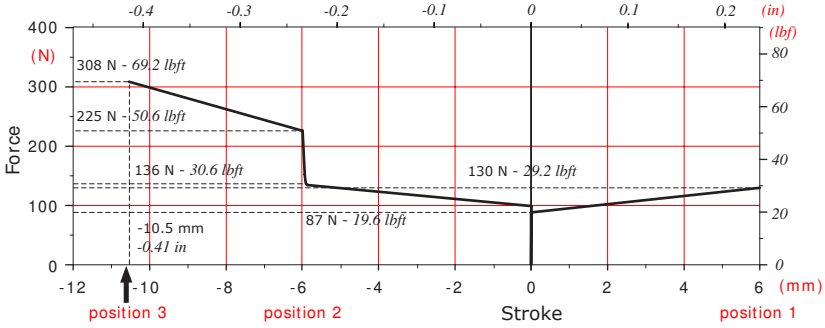


Type 13: Force vs. Stroke diagram



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

Type 13F: Force vs. Stroke diagram

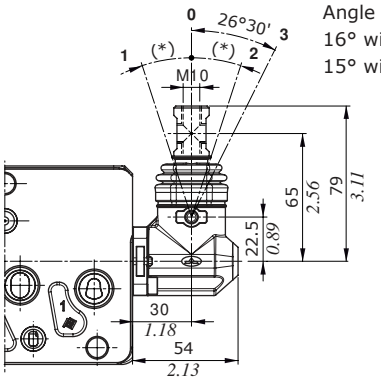


Working section

"B" side spool control kit

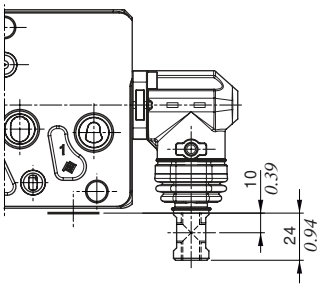
Standard lever boxes

Type L

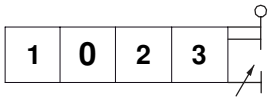


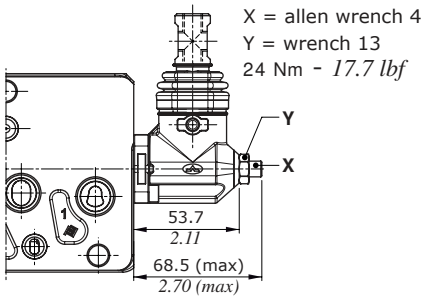
Angle (*)
16° with positioners type 8..
15° with positioners type 13..

Configuration L180



Type LF1
Spool stroke limiter on port A

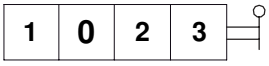


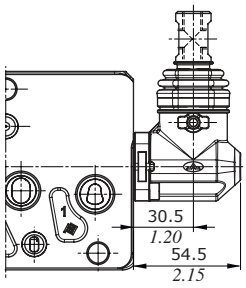


X = allen wrench 4
Y = wrench 13
24 Nm - *17.7 lbf*

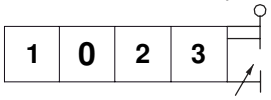
Waterproof lever boxes

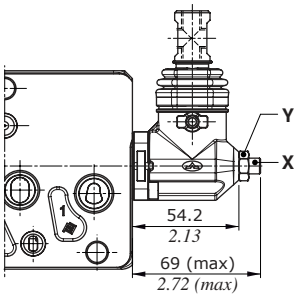
Type LSG





Type LSGF1
Spool stroke limiter on port A

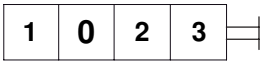


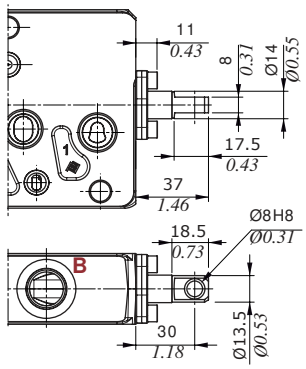


X = allen wrench 4
Y = wrench 13 / 24 Nm - *17.7 lbf*

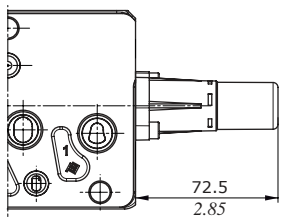
Without lever boxes

Type SLP
With dust-proof plate



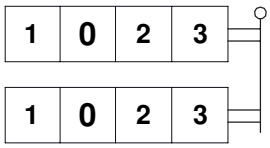


Type SLC
With endcap



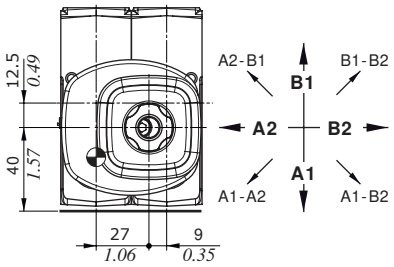
"B" side spool control kit

Joysticks for two sections operation



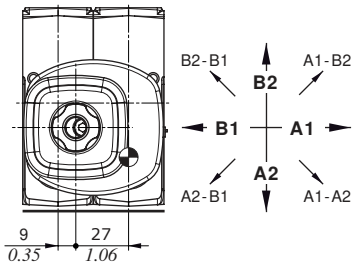
Type LCA1-4

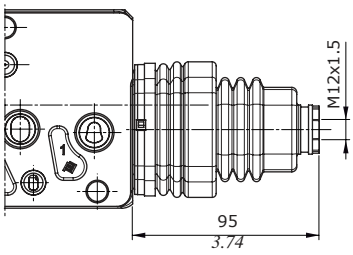
configuration LCA1



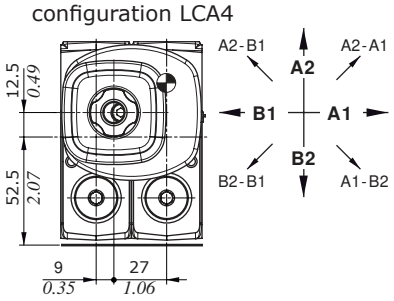
Type LCA2-3

configuration LCA2

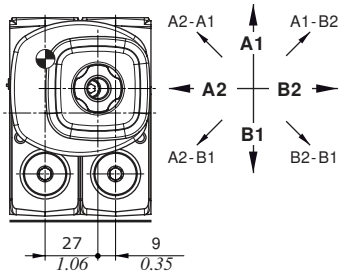


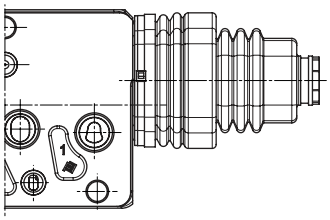


configuration LCA4

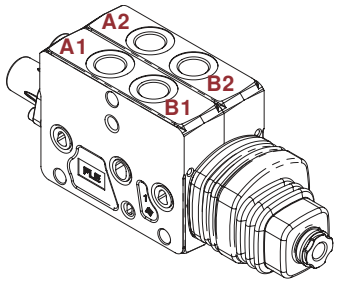


configuration LCA3



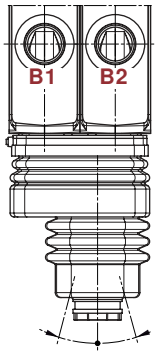


LCA2 configuration example

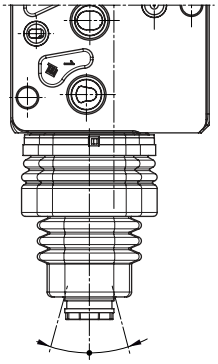


Working angles

Horizontal axis



Vertical axis

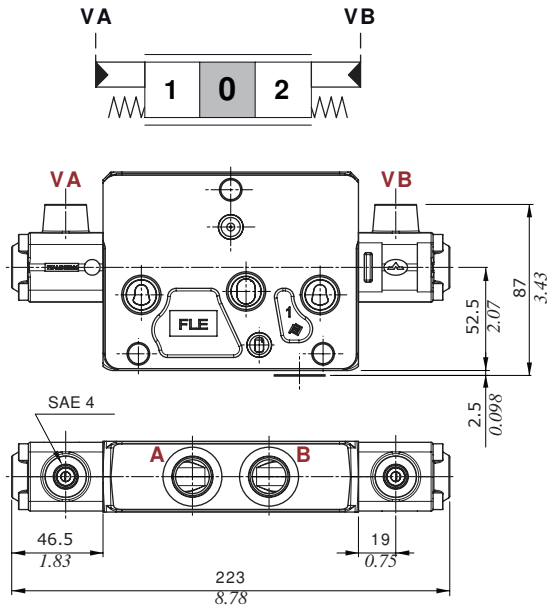


Max. working angles	Horizontal axis	Vertical axis
Single action operation	15°4'	15°4'
Single action operation with floating	25°2'	25°2'
Two section operation	15°52'	15°52'
Two section operation with floating	18°3'	18°3'

Working section

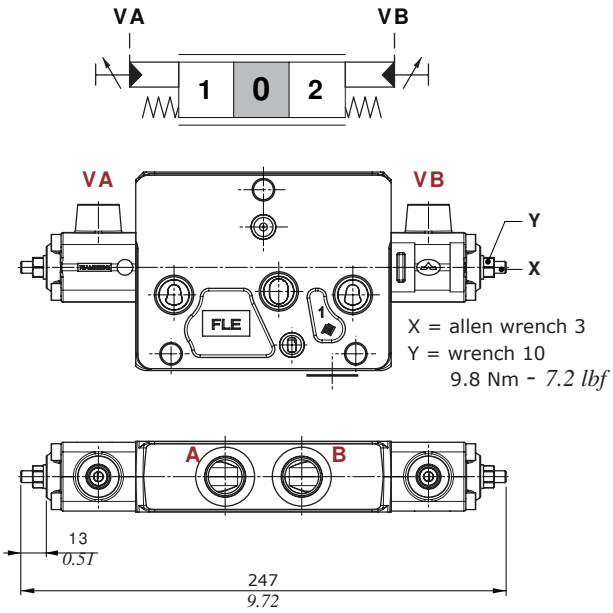
Proportional hydraulic control

Types 8IMN - 8IMXN



Types 8IMF3N - 8IMXF3N

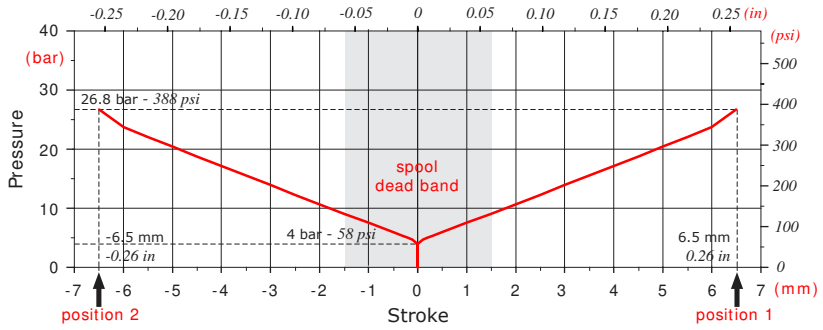
With spool stroke limiter on Ports A and B



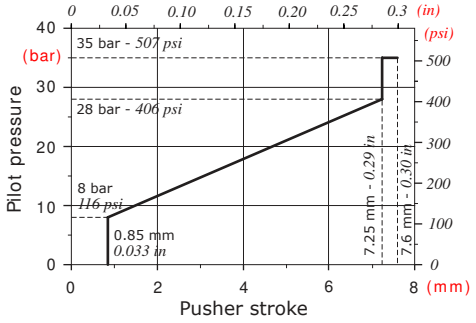
Features (all types)

Max. pressure. . . . . : 70 bar - *1015 psi*

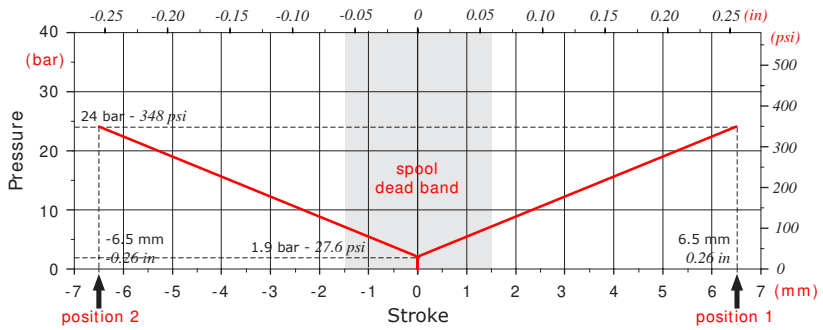
Types 8IMN-8IMF3N: Pressure vs. Stroke diagram



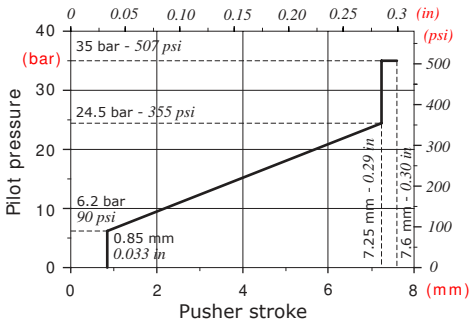
Suggested pressure control curve: 089



Types 8IMXN-8IMXF3N: Pressure vs. Stroke diagram

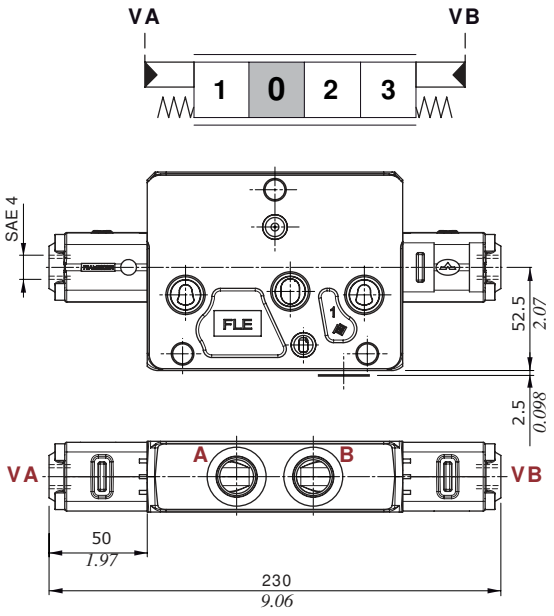


Suggested pressure control curve: 054



Proportional hydraulic control

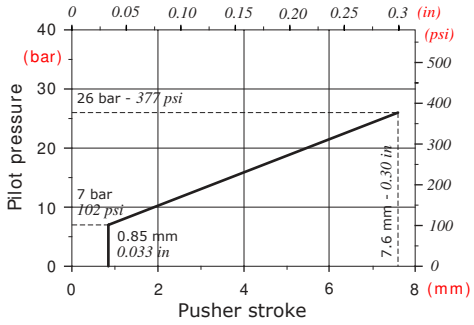
For floating circuit, type 13IMS



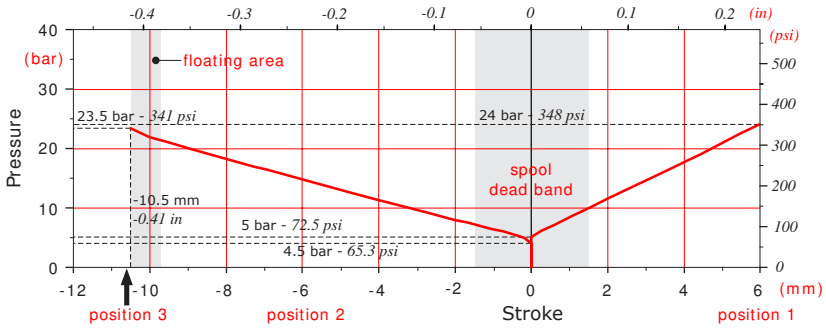
Features

Max. pressure. . . . . .: 70 bar - *1015 psi*

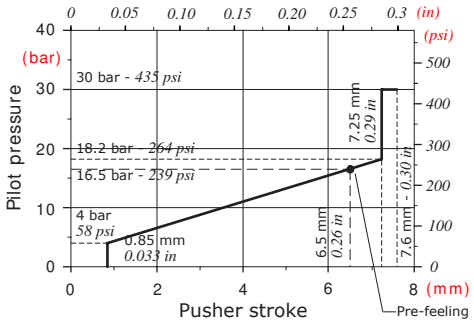
Suggested pressure control curve on port VA: type 098



Stroke vs. Pressure diagram



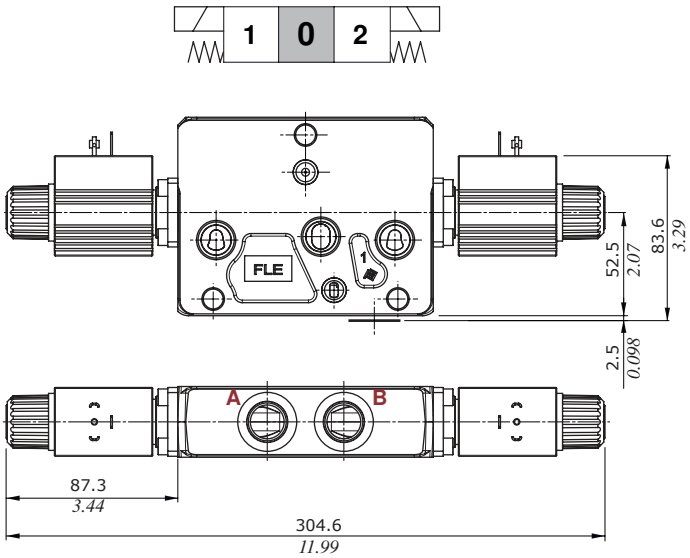
Suggested pressure control curve on port VB: type 086



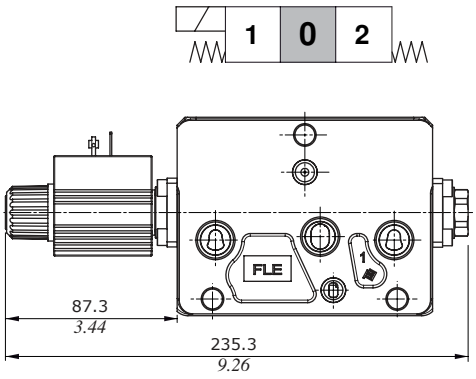
Working section

On/off solenoid control

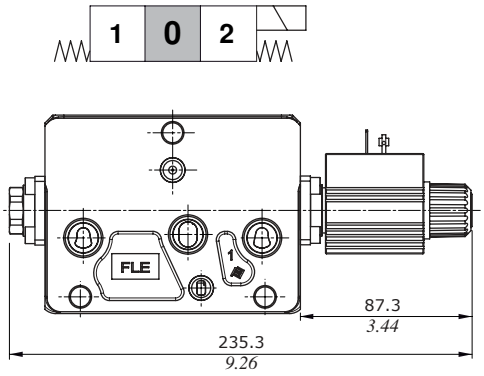
Type 8ES3
Double acting



Type 8ES1
Single acting in A



Type 8ES2
Single acting in A



Features
Internal leakage A(B)⇒T . . : 10 cm³/min @ 100 bar and 20°C)
0.61 in³/min @ 1450 psi and 68°F

For coil features and options see coil **D12** at page 104.

Electrohydraulic controls performace data

Following specifications are measured with:

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

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

Specifications		Spool control type			
		8EB3	13EB3	8EZ3	13EZ3
Electric specifications					
Coil impedance	12 VDC	4.72 Ω	4.72 Ω	4.72 Ω	4.72 Ω
	24 VDC	20.8 Ω	20.8 Ω	20.8 Ω	20.8 Ω
Max. operating current	12 VDC	1.5 A	1.5 A	1.5 A	1.5 A
	24 VDC	0.75 A	0.75 A	0.75 A	0.75 A
No load current consumption		0	0	0	0
Hysteresis max. (1)				Controls configured with lever box	
	external drain	3% 5% with lever	4% 7% with lever	7%	7%
	internal drain	4% 6% with lever	6% 9% with lever	9%	9%
Time response	from 0 ⇒ 100% and from 100% ⇒ 0 of stroke	< 50 ms	< 55 ms	< 50 ms	< 55 ms
Min. flow control signal	12 VDC	700 mA	220 mA	700 mA	700 mA
	24 VDC	350 mA	110 mA	350 mA	350 mA
Flow control signal	12 VDC	1250 mA	380 mA	1250 mA	840 mA
	24 VDC	625 mA	190 mA	625 mA	420 mA
Max. float flow control signal	12 VDC		440 mA		1020 mA
	24 VDC		220 mA		510 mA
Dither frequency	low frequency	150 Hz		150 Hz	
	high frequency	180 Hz - 200 mA		180 Hz - 200 mA	
Insertion		100%		100%	
Coil insulance		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 (type JPT) - IP69K (type DT)		IP65 (type JPT) - IP69K (type DT)	
Hydraulic specifications					
Max. pressure		40 bar (*580 psi*)		40 bar (*580 psi*)	
Max. back pressure		10 bar (*145 psi*)		10 bar (*145 psi*)	

Note (1) hysteresis is indicated at nominal supply voltage and f = 0.008 Hz for one cycle (one cycle = neutral ⇒ full A ⇒ neutral ⇒ full B ⇒ neutral).
For the calculation rules see "Appendix A" on page 111.

Working section

Electrohydraulic controls performace data

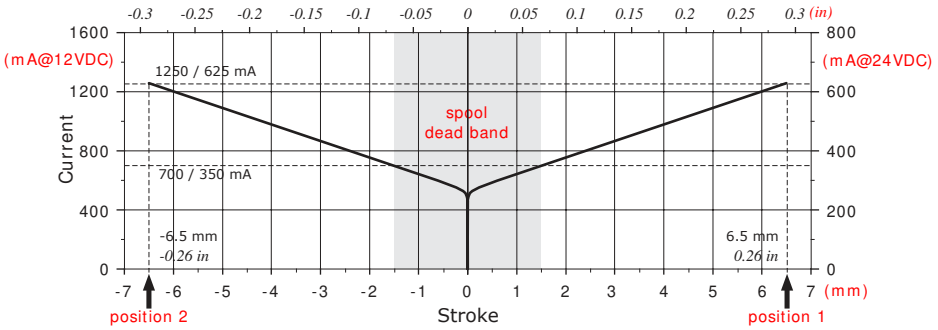
Following specifications are measured with:
- mineral oil of 46 mm²/s - *46 cSt* viscosity at 40°C - *104°F* temperature,
- standard spools, connecting P⇒A⇒B⇒T ports without flow multiplication,
- nominal voltage from 8.5 to 30 VDC, with tolerance ± 10%.

Specifications		Spool control type			
		8ZR3T1	13ZR3T1	8ZR3T2	13ZR3T2
Electric specifications					
Coil impedance		> 40 KΩ	> 40 KΩ	> 40 KΩ	> 40 KΩ
Max. operating current		750 mA	750 mA	750 mA	750 mA
No load current consumption		400 mA	400 mA	400 mA	400 mA
Hysteresis max. (1)		~ 0%	~ 0%	~ 0%	~ 0%
Time response	from 0 ⇒ 100% of stroke	< 95 ms	< 100 ms	< 95 ms	< 100 ms
	from 100% ⇒ 0 of stroke	< 65 ms	< 70 ms	< 65 ms	< 70 ms
Min. flow control signal (2)		P⇒A: 0.50 V P⇒B: 2.75 V	P⇒A: 0.50 V P⇒B: 2.75 V	CAN2.0B (SAEJ1939) Please refer to the document: "ZR3T2 CAN bus protocoll"	
Max. flow control signal (2)		P⇒A: 2.25 V P⇒B: 4.50 V	P⇒A: 2.25 V P⇒B: 4.10 V		
Float flow control signal (2)			4.50 V		
Insertion		100%		100%	
Coil insulance		Class H (180°C - *356°F*)		Class H (180°C - *356°F*)	
Connector type		Deutsch DT		Deutsch DT	
Weather protection (connector)		IP69K (type DT)		IP69K (type DT)	
Hydraulic specifications					
Max. pressure		35 bar (*508 psi*)		35 bar (*508 psi*)	
Max. back pressure		5 bar (*73 psi*)		5 bar (*73 psi*)	
General specifications					
Mechanical strenght according to		EN60068-2-29		EN60068-2-29	
EMC according to		ISO 7637		ISO 7637	

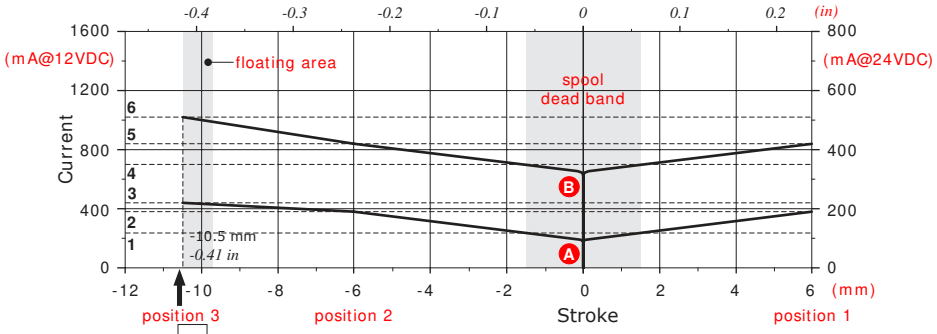
Note (1) hysteresis is indicated at nominal supply voltage and f = 0.008 Hz for one cycle (one cycle = neutral ⇒ full A ⇒ neutral ⇒ full B ⇒ neutral).
For the calculation rules see "Appendix A" on page 111.
Note (2) if control signal exceeds 4,5 V or is less then 0,25 V, the control will enter into error mode and the spool will be moved in neutral posiztion.

Electrohydraulic controls performace data

Types 8EB3T/8EZ3: Stroke vs. Current diagram



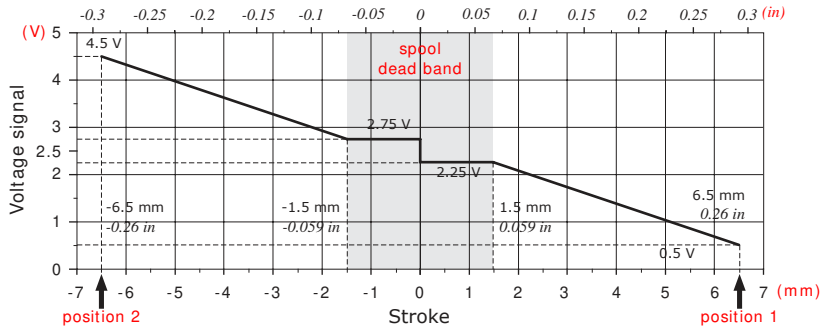
Types 13EB3T/13EZ3: Stroke vs. Current diagram



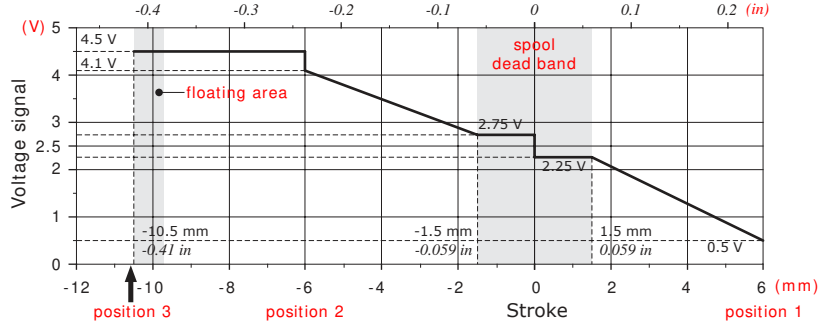
Curve A = 13EB3T control
1 = 220 mA @ 12 VDC - 110 mA @ 24 VDC
2 = 380 mA @ 12 VDC - 190 mA @ 24 VDC
3 = 440 mA @ 12 VDC - 220 mA @ 24 VDC

Curve B = 13EZ3 control
4 = 700 mA @ 12 VDC - 350 mA @ 24 VDC
5 = 840 mA @ 12 VDC - 420 mA @ 24 VDC
6 = 1020 mA @ 12 VDC - 510 mA @ 24 VDC

Type 8ZR3T1: Stroke vs. Voltage diagram



Type 13ZR3T1: Stroke vs. Voltage diagram



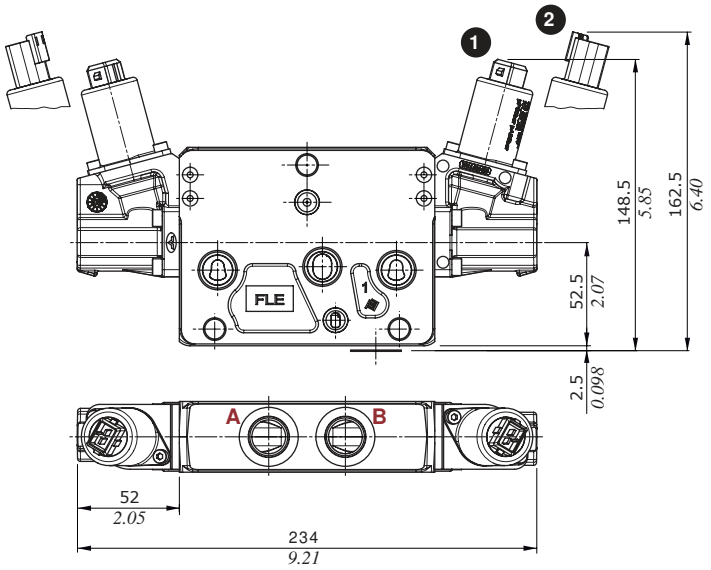
Working section

Two-side electrohydraulic control

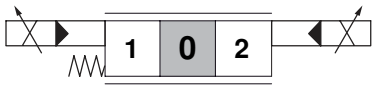
Without lever control

Control Types

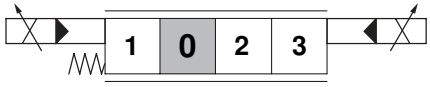
1 : With AMP JPT connector - mating connector AMP JPT, code: 5CON003
2 : With Deutsch DT04 connector - mating connector Deutsch DT06-2S code: 5CON140031

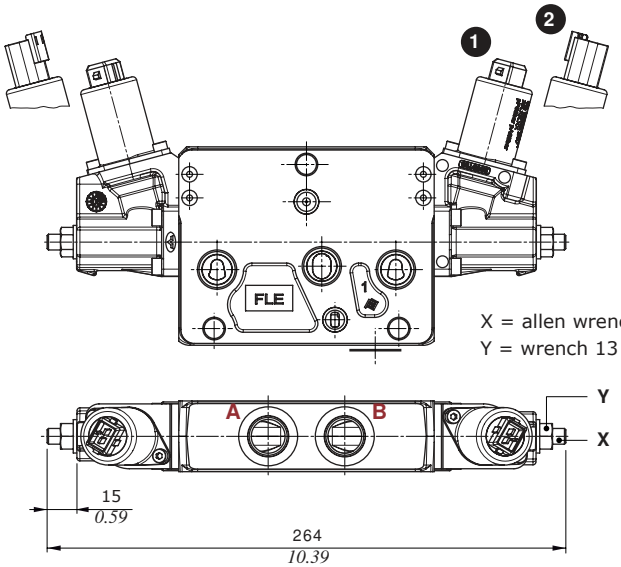


Types
8EB3T
8EB34T



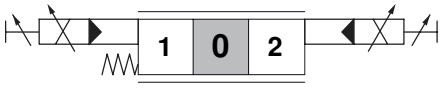
Types
13EB3T
13EB34T





X = allen wrench 4
Y = wrench 13 / 24 Nm - *17.7 lbf*

Types
8EB3TF3
8EB34TF3

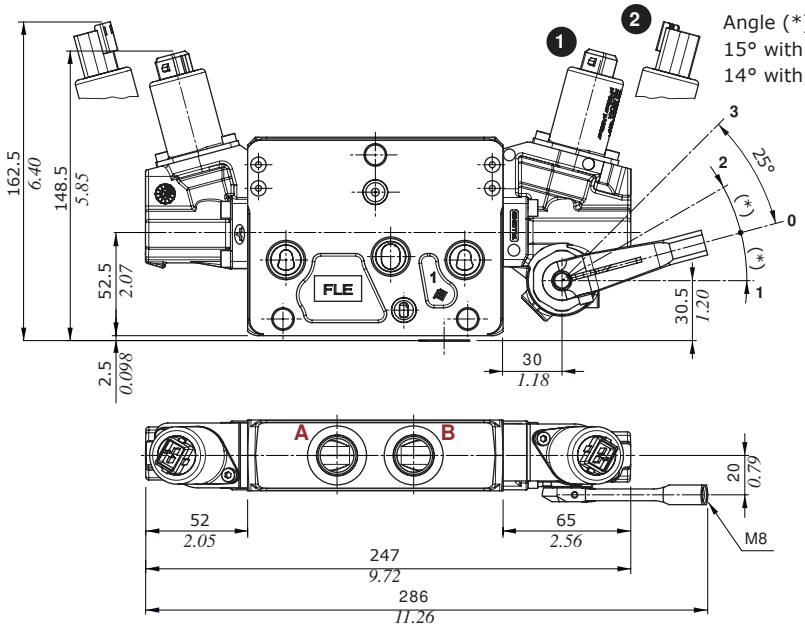


Two-side electrohydraulic control

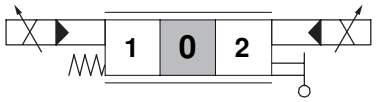
With lever control

Control Types

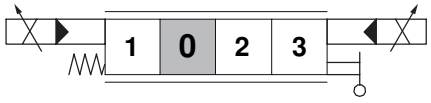
1 : With AMP JPT connector - mating connector AMP JPT, code: 5CON003
2 : With Deutsch DT04 connector - mating connector Deutsch DT06-2S code: 5CON140031

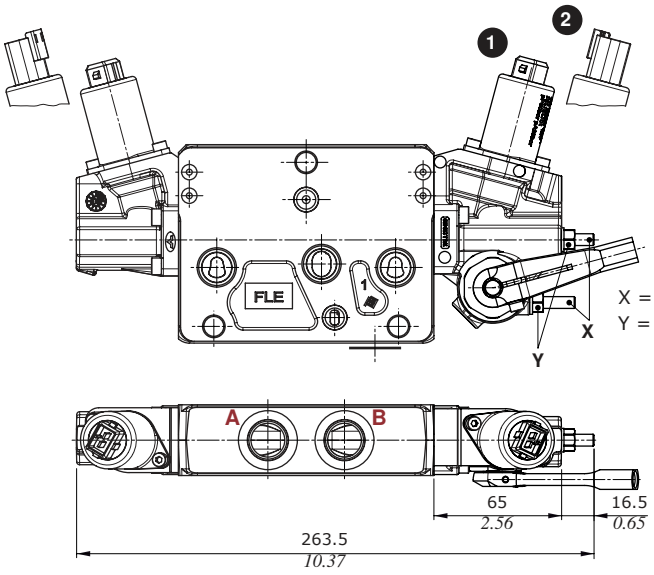


Types
8EB3TLH
8EB34TLH



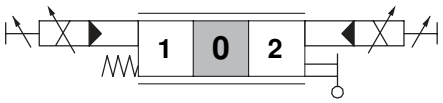
Types
13EB3TLH
13EB34TLH



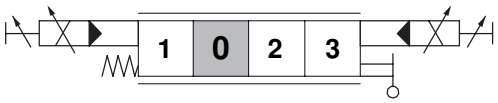


X = allen wrench 3
Y = wrench 10
9.8 Nm - *7.2 lbf*

Types
8EB3TLHF3
8EB34TLHF3



Types
13EB3TLHF3
13EB34TLHF3



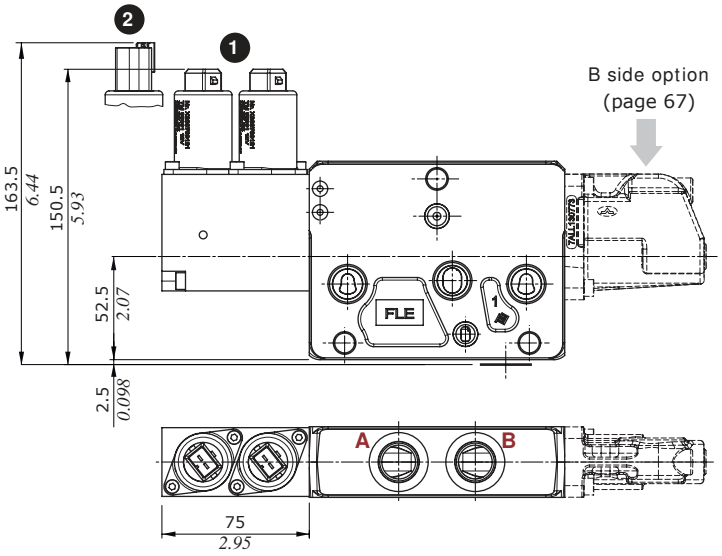
Working section

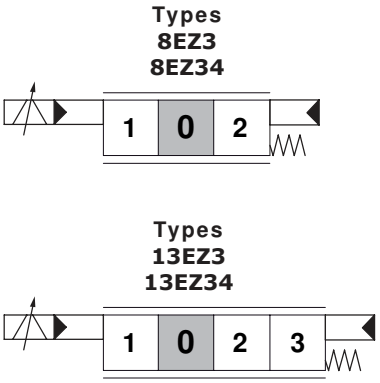
One-side electrohydraulic control without electronic

Control Types

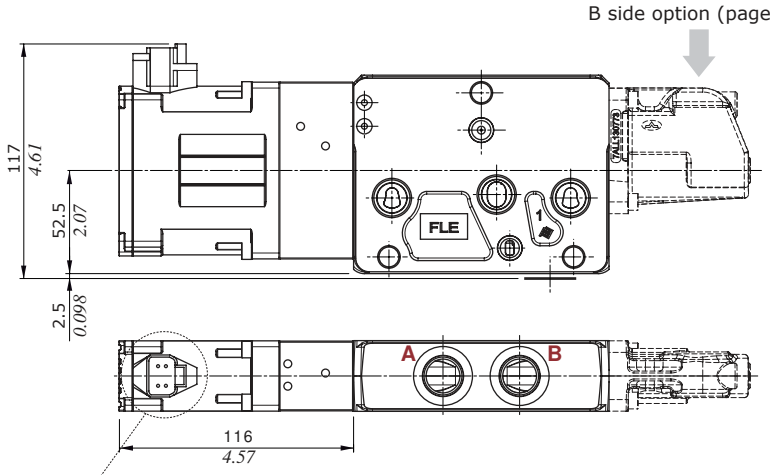
1 : With AMP JPT connector - mating connector AMP JPT, code: 5CON003

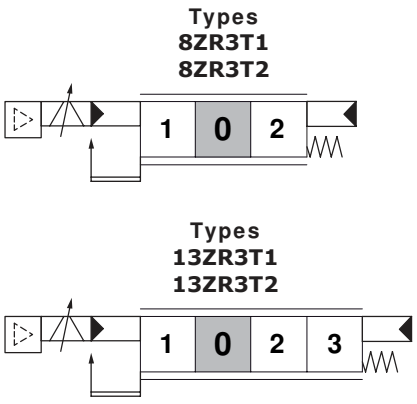
2 : With Deutsch DT04 connector - mating connector Deutsch DT06-2S code: 5CON140031

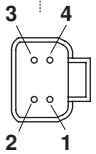




One-side electrohydraulic control with on-board electronic







Deutsch DT04-4P connector

Pin	8ZR3T1-13ZR3T1 Analog input	8ZR3T2-13ZR3T2 CAN bus interface
1	power supply (+)	power supply (+)
2	not connected	CAN_Lo
3	control signal	CAN_Hi
4	power supply GND (-)	power supply GND (-)

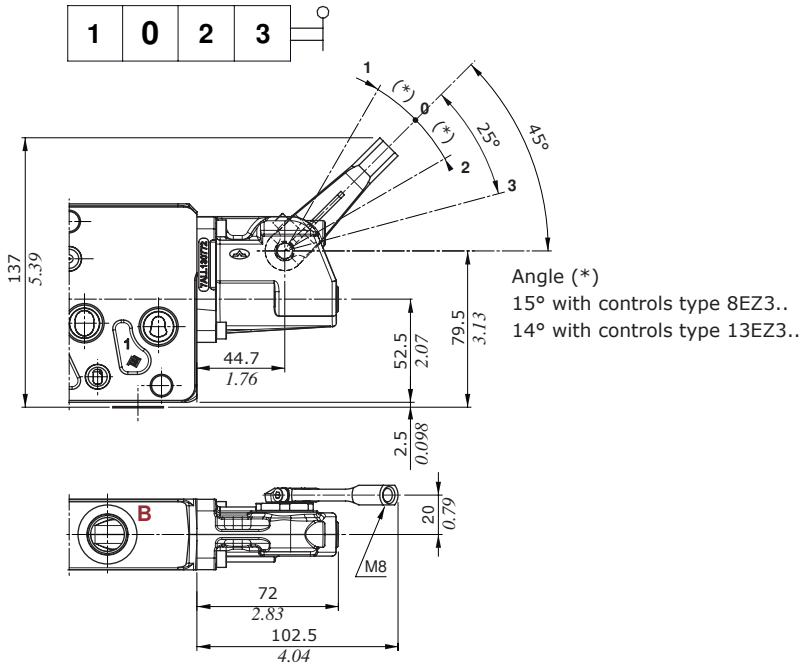
Mating connector Deutsch DT06-4S, code 5CON140051

"B" side options

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

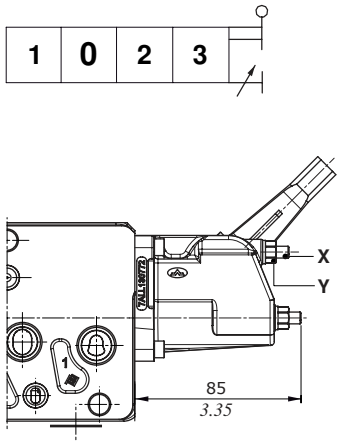
Lever boxes

Type LQ



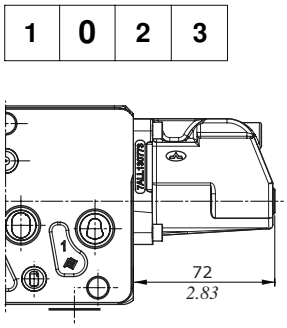
Angle (*)
15° with controls type 8EZ3..
14° with controls type 13EZ3..

Type LQF3
Spool stroke limiter on ports A and B



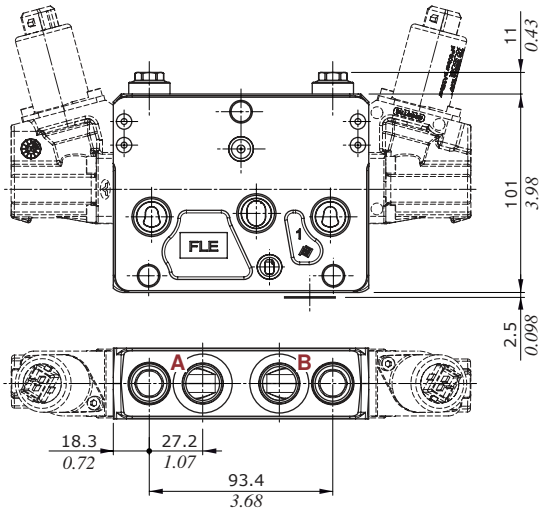
X = allen wrench 3
Y = wrench 10 / 9.8 Nm - *7.2 lbf*

Encap, type SLCQ



Working section

Port valves

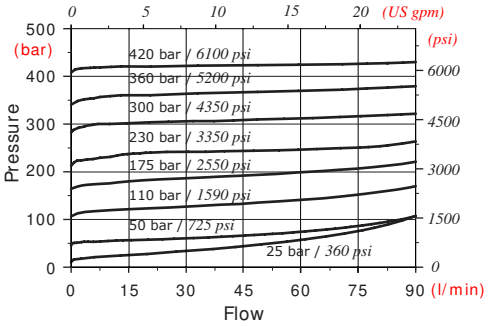


Type U

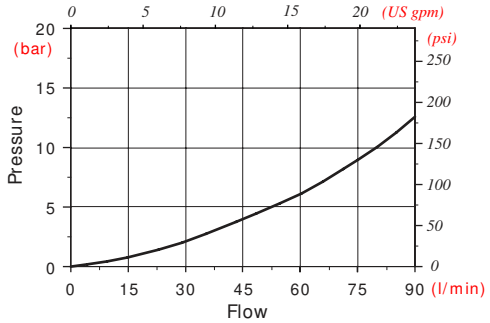
Type C

Type U: antishock valves with prefill

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

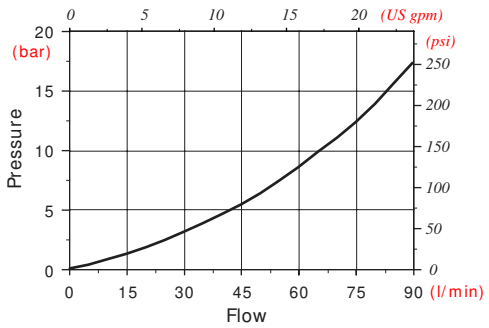


Pressure drop
(in anticavitation)



Type C: anticavitation valves

Pressure drop



Outlet section parts ordering codes

DPX100 / RF (04) - .....

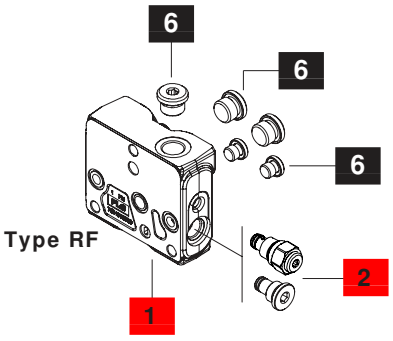
1 1 5

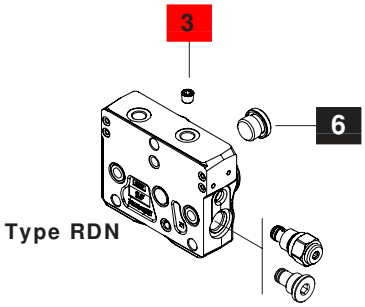
DPX100 / RDN (VBT) - NOTAP(VL) - .....

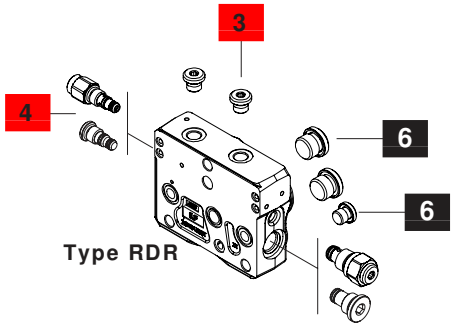
1 2 3 5

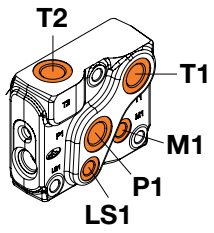
DPX100 / RDR (VBT / 03 / RT) - TAP(VL) - .....

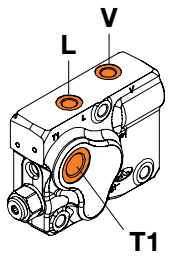
1 2 1 4 3 5

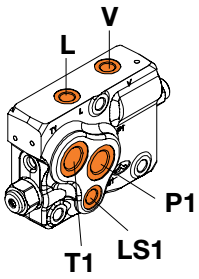












1 Outlet section kit* page 69

Outlet section is the same type for standard and High Pressure valve

For mechanical, hydraulic and solenoid controls

TYPE: **DPX100/RF-SAE** CODE: YFIA204700
DESCRIPTION: With upper port T2 port
TYPE: **DPX100/RF(04)-SAE** CODE: YFIA204705
DESCRIPTION: With upper port T2 and side ports P1, T1, LS1, M1

For electrohydraulic controls

TYPE: **DPX100/RDN-SAE** CODE: YFIA204791
DESCRIPTION: Without pressure reducing valve arrangement, side T1 and upper V and L ports
TYPE: **DPX100/RDR(03)-SAE** CODE: YFIA204702
DESCRIPTION: With pressure reducing valve arrangement, upper V and L ports, side P1, T1, LS1 ports

Note: for outlet sections with different port arrangement contact Sales Dpt.

2 Bleed valve

TYPE	CODE	DESCRIPTION
(-)	X138810000	Bleed valve
(VBT)	XTAP525320	Valve blanking plug

NOTE (*): *Codes are referred to **UN-UNF** thread.*
NOTE (-): "TYPE" omitted in outlet section description

3 Pilot and drain

TYPE	CODE	DESCRIPTION
NOTAP(VL)	4TAP310007	M10x1 DIN906 plug, for external drain
(-)	3XTAP817130	SAE6 plug, nr.2 for internal pilot and drain

4 Pressure reducing valve

TYPE	CODE	DESCRIPTION
(-)	X219740033	Press. reducing valve, 32 bar / *464 psi*
(RT)	XTAP418350	Valve blanking plug

5 Section threading

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

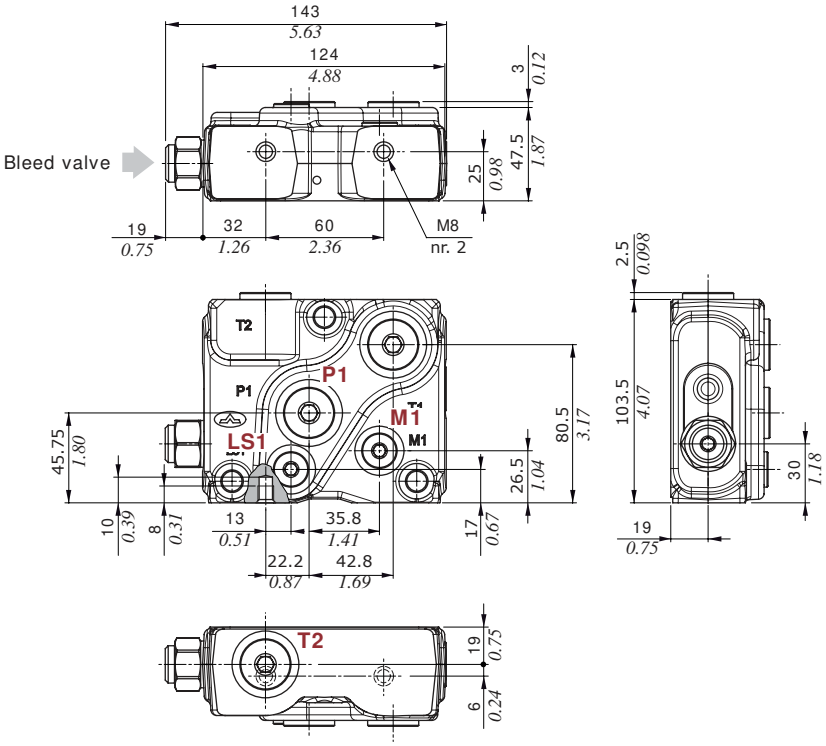
6 Parts *

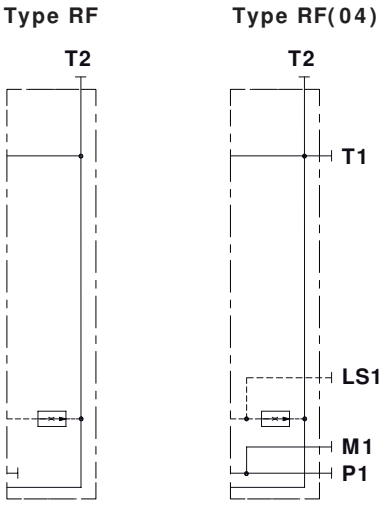
CODE	DESCRIPTION
3XTAP826160	SAE10 plug, nr.1 for RF and RDN section, nr.2 for RDN(03) section, nr.3 for RF(04) section
3XTAP817130	SAE6 plug, nr.1 for RDR(03) section, nr.2 for RF(04) section

Outlet section

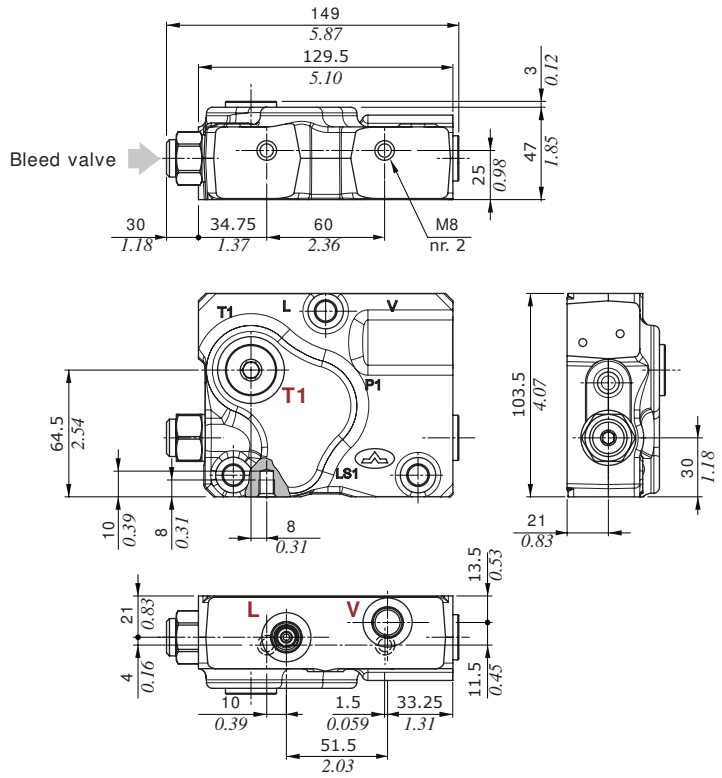
Dimensions and hydraulic circuit

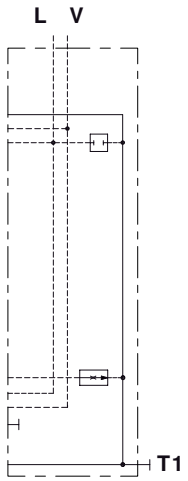
Example of RF(04) outlet section





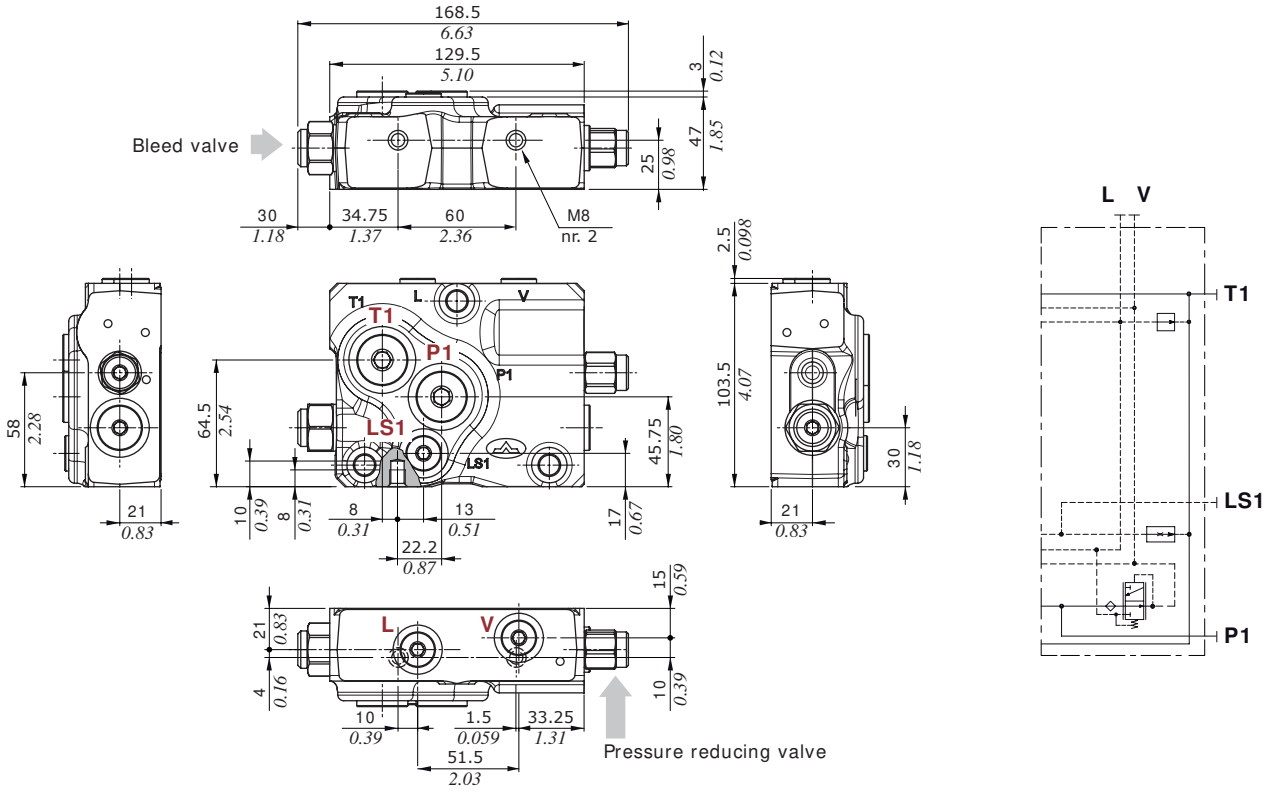
Example of RDN outlet section





Dimensions and hydraulic circuit

Example of RDR(04) outlet section



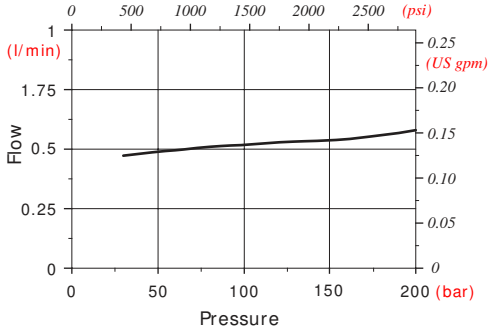
Bleed valve features

Max. inlet pressure . . . . . : 350 bar - *5100 psi*
Max. back pressure . . . . . : 25 bar - *363 psi*

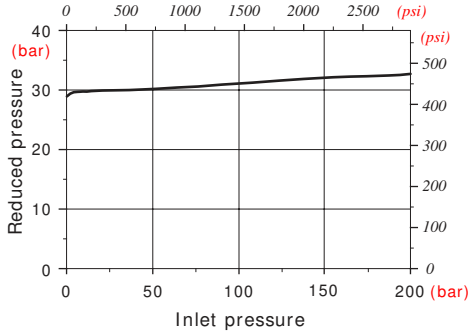
Pressure reducing valve features

Max. inlet pressure . . . . . : 380 bar - *5500 psi*
Max. back pressure . . . . . : 25 bar - *363 psi*

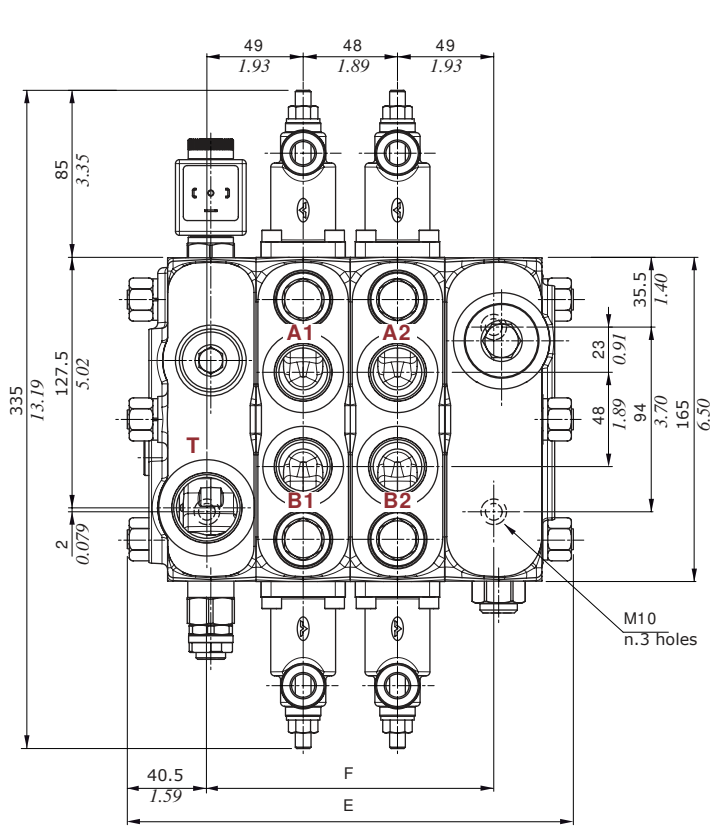
Bleed valve diagram
Flow vs. Pressure

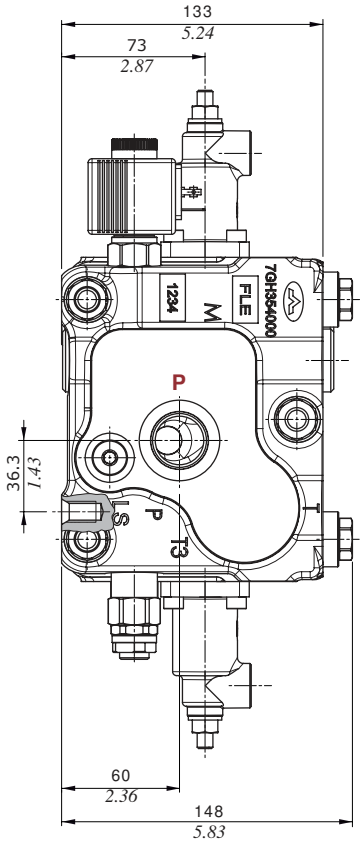


Pressure reducing valve diagram
Reduced pressure vs. Inlet pressure



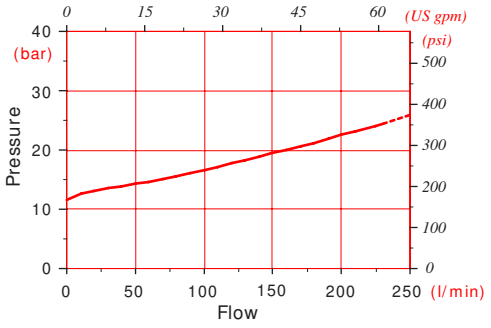
Dimensional data and performance



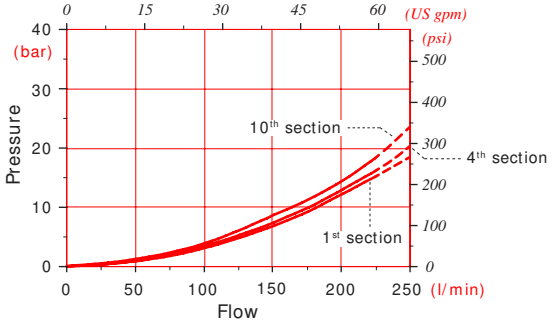


TYPE	E		F	
	mm	*in*	mm	*in*
DPX160/1	179	*7.05*	98	*3.86*
DPX160/2	227	*8.94*	146	*5.75*
DPX160/3	275	*10.83*	194	*7.64*
DPX160/4	323	*12.72*	242	*9.53*
DPX160/5	371	*14.61*	290	*11.42*
DPX160/6	419	*16.50*	338	*13.31*
DPX160/7	467	*18.39*	386	*15.20*
DPX160/8	515	*20.28*	434	*17.09*
DPX160/9	563	*22.17*	482	*18.98*
DPX160/10	611	*24.06*	530	*20.87*

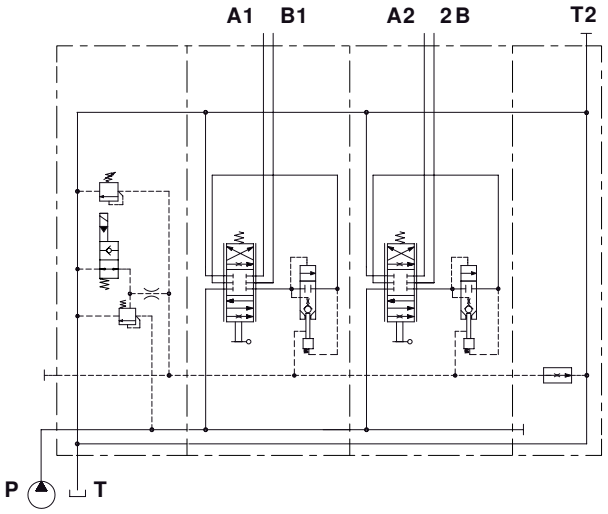
P⇒T Pressure drop inlet compensator (margin pressure)



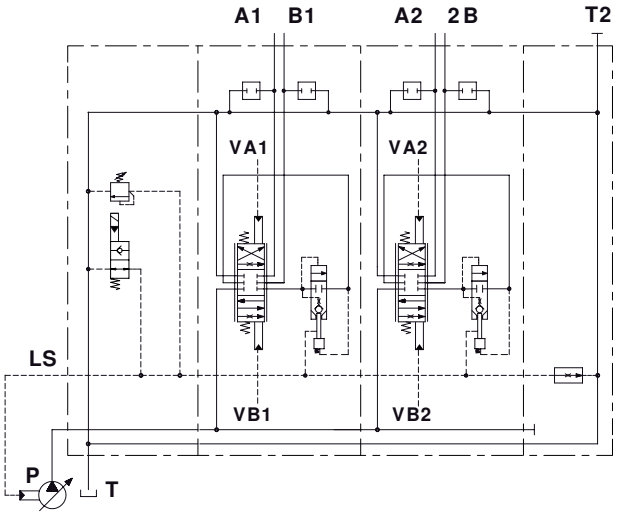
A(B)⇒T pressure drop (standard spool @ max.stroke)



Configuration example with mechanical and hydraulic controls

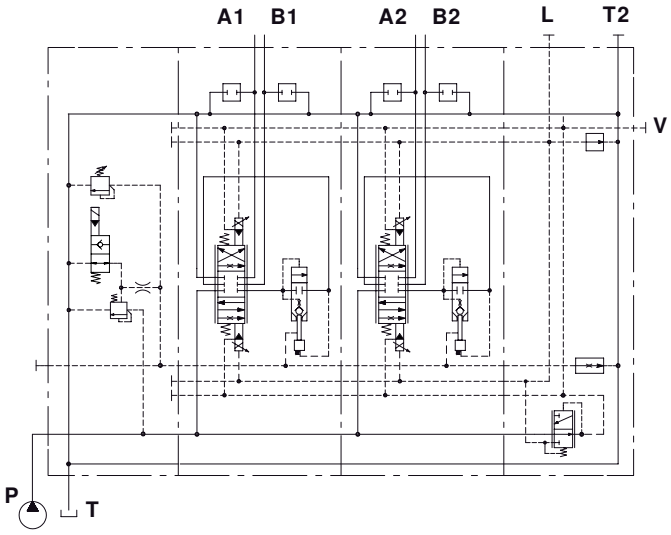


Open center circuit and lever control, with unloader valve, without port valves arrangement

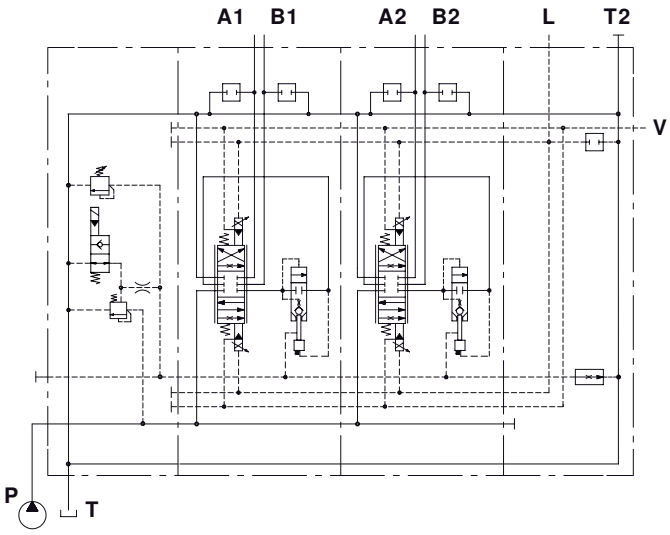


Closed center circuit and proportional hydraulic control, with unloader valve and port valves arrangement

Configuration example with electrohydraulic controls



Open center circuit and two-side proportional electrohydraulic control, with unloader valve, port valves arrangement and pressure reducing valve, internal pilot and drain



Open center circuit and two-side proportional electrohydraulic control, with unloader valve and port valves arrangement, without pressure reducing valve, external pilot and drain

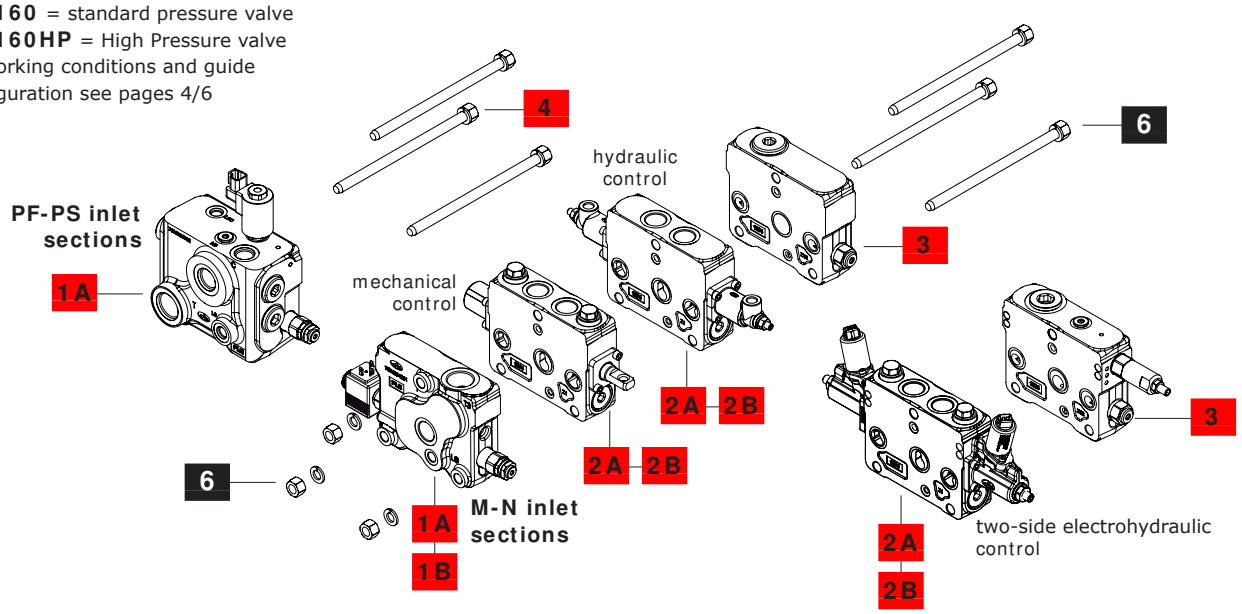
Complete sections ordering codes

Nr. of working sections

DPX160/2/AN1A(TGW3-175/ELN)/P-108(150/150)-8SLP.U3T/Q-E108(150/150)-8IMF3N/RC1A-.....-12VDC

1A 1B 2A 2B 3 4 5

DPX160 = standard pressure valve
DPX160HP = High Pressure valve
For working conditions and guide confuguration see pages 4/6



1A Std pressure inlet section *

Open Center circuit
TYPE: **DPX160/M3B(TGW3-175/ELN)-SAE-12VDC**
CODE: 650205017
DESCRIPTION: With compensator, press. relief valve and unloader valve, with P-T-LS-M ports (LS-M plugged)
TYPE: **DPX160/M3B(SO/TGW3-175/ELN)-SAE-12VDC**
CODE: 650205019
DESCRIPTION: As previous with non-return flow limiter from inlet section to working section and by-pass valve
TYPE: **DPX160/M3B(SU/TGW3-175/ELN)-SAE-12VDC**
CODE: 650205018
DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve
TYPE: **DPX160/M4B(TGW3-175/ELN)-SAE-12VDC**
CODE: 650205020
DESCRIPTION: As type M3, with side T3 outlet port (plugged)
TYPE: **DPX160/PF1A\TGW3-175\VP-D(1)-SB10-Q40\CF(1)-SB14-SAE**
CODE: 650205301
DESCRIPTION: **Designed for steering**, with compensator, priority valve,shut-off valve and pressure relief valve, with ports P-T-LS-M3-C-LSC (M3-LS plugged). Needs special tie rods
Closed Center circuit
TYPE: **DPX160/N1A(TGW3-175/ELN)-SAE-12VDC**
CODE: 650205013
DESCRIPTION: Without compensator, with pressure relief valve and unloader valve, with P-T-LS ports
TYPE: **DPX160/N1A(SO/TGW3-175/ELN)-SAE-12VDC**
CODE: 650205015
DESCRIPTION: As previous with non-return flow limiter from inlet section to working section and by-pass valve
TYPE: **DPX160/N1A(SU/TGW3-175/ELN)-SAE-12VDC**
CODE: 650205014
DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve
TYPE: **DPX160/N2A(TGW3-175/ELN)-SAE-12VDC**
CODE: 650205016
DESCRIPTION: As type N1, with side T3 outlet port (plugged)
TYPE: **DPX160/PS1A\TGW3-175\VP-D(1)-SB10-Q40\ESO32N/SAE-12VDC**
CODE: 650205302
DESCRIPTION: **Designed for steering,** without compensator, with priority valve and pressure relief valve, with port P-T-LS-M3-C-LSC (M3-LS plugged). Need special tie rods

1B High pressure inlet section *

Open Center circuit
TYPE: **DPX160HP/M3B(TGW5-350/ELN)-SAE-12VDC**
CODE: 650205021
DESCRIPTION: With compensator, press. relief valve and unloader valve, with P-T-LS-M ports (LS-M plugged)
TYPE: **DPX160HP/M3B(SO/TGW5-350/ELN)-SAE-12VDC**
CODE: 650205023
DESCRIPTION: As previous with non-return flow limiter from inlet section to working section and by-pass valve
TYPE: **DPX160HP/M3B(SU/TGW5-350/ELN)-SAE-12VDC**
CODE: 650205022
DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve
Closed Center circuit
Refer to "Std pressure" inlet sections (except PS section)

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

Complete sections ordering codes

2A Std pressure working section *

Mechanical control
TYPE: **DPX160/Q-108(150/150)-8SLP-SAE**
CODE: 650115002
DESCRIPTION: With dust-proof plate, without port valves arrang.
TYPE: **DPX160/P-108(150/150)-8SLP.UL3T-SAE**
CODE: 650105002
DESCRIPTION: As previous with port pressure relief valves arrang.
TYPE: **DPX160/P-108(150/150)-8SLP.US3T-SAE**
CODE: 650105002
DESCRIPTION: W+ith port antishock valves arrangement
Proportional hydraulic control
TYPE: **DPX160/Q-E108(150/150)-8IMF3N-SAE**
CODE: 650115006
DESCRIPTION: With spool stroke limiter, without port valves arrang.
TYPE: **DPX160/P-E108(150/150)-8IMF3N.UL3T-SAE**
CODE: 650105020
DESCRIPTION: As previous with port pressure relief valves arrang.
TYPE: **DPX160/P-E108(150/150)-8IMF3N.US3T-SAE**
CODE: 650105021
DESCRIPTION: With port antishock valves arrangement
Two-side proportional electrohydraulic control
TYPE: **DPX160/QE-E108(150/150)-8EB3F3-SAE-12VDC**
CODE: 650115004
DESCRIPTION: With spool stroke limiter, without port valves arrang.
TYPE: **DPX160/PE-E108(150/150)-8EB3F3.UL3T-SAE-12VDC**
CODE: 650105022
DESCRIPTION: As previous with port pressure relief valves arrang.
TYPE: **DPX160/PE-E108(150/150)-8EB3F3.US3T-SAE-12VDC**
CODE: 650105023
DESCRIPTION: With port antishock valves arrangement

2B High pressure working section *

Mechanical control
TYPE: **DPX160HP/Q-108(150/150)-8SLP-SAE**
CODE: 650115007
DESCRIPTION: With dust-proof plate, without port valves arrang.
TYPE: **DPX160HP/P-108(150/150)-8SLP.US3T-SAE**
CODE: 650105032
DESCRIPTION: As previous with port antishock valves arrangement
Proportional hydraulic control
TYPE: **DPX160HP/Q-E108(150/150)-8IMF3N-SAE**
CODE: 650115008
DESCRIPTION: With spool stroke limiter, without port valves arrang.
TYPE: **DPX160HP/P-E108(150/150)-8IMF3N.US3T-SAE**
CODE: 650105033
DESCRIPTION: As previous with port antishock valves arrangement
Two-side proportional electrohydraulic control
TYPE: **DPX160HP/QE-E108(150/150)-8EB3F3-SAE-12VDC**
CODE: 650115009
DESCRIPTION: With spool stroke limiter, without port valves arrang.
TYPE: **DPX160HP/PE-E108(150/150)-8EB3F3.US3T-SAE-12VDC**
CODE: 650105034
DESCRIPTION: As previous with port antishock valves arrangement

3 Outlet section *

Outlet section is the same type for standard and High Pressure valve
For mechanical or hydraulic configuration
TYPE: **DPX160/RC1A-SAE** CODE: 650305002
DESCRIPTION: With Bleed valve and upper T2 port (plugged)
TYPE: **DPX160/RC3A-SAE** CODE: 650305004
DESCRIPTION: With Bleed valve and T2, side P1-T1-LS1 ports (plugged)
TYPE: **DPX160/RC3A-CL-SAE-12VDC** CODE: 650305020
DESCRIPTION: As previous, with clamp release function
For electrohydraulic or mixed configuration
TYPE: **DPX160/RCN1A-SAE** CODE: 650305014
DESCRIPTION: Without pressure reducing valve, external pilot and drain (V-L ports), with Bleed valve and upper T2 port (plugged)
TYPE: **DPX160/RCN3A-SAE** CODE: 650305016
DESCRIPTION: As previous, with side P1-T1-LS1 ports (plugged)
TYPE: **DPX160/RCN3A-CL-SAE-12VDC** CODE: 650305021
DESCRIPTION: As previous, with clamp release function
TYPE: **DPX160/RCR1A(VLT)-SAE** CODE: 650305005
DESCRIPTION: With pressure reducing valve and Bleed valve, internal pilot and drain (V-L ports plugged), with upper T2 port (plugged)
TYPE: **DPX160/RCR3A(VLT)-SAE** CODE: 650305017
DESCRIPTION: As previous, with side P1-T1-LS1 ports (plugged)
TYPE: **DPX160/RCN3A(VLT)-CL-SAE-12VDC** CODE: 650305022
DESCRIPTION: As previous, with clamp release function
Note: for outlet sections with different port arrangement contact Sales Dpt.

4 Valve threading

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

5 Voltage

Specify the voltage of electric devices.

6 Assembling kit

CODE	DESCRIPTION
Standard tie rods: for M and N inlet sections	
5TIR112179	Tie rod kit for 1 working section directional valve
5TIR112227	Tie rod kit for 2 working sections directional valve
5TIR112275	Tie rod kit for 3 working sections directional valve
5TIR112323	Tie rod kit for 4 working sections directional valve
5TIR112371	Tie rod kit for 5 working sections directional valve
5TIR112419	Tie rod kit for 6 working sections directional valve
5TIR112467	Tie rod kit for 7 working sections directional valve
5TIR112515	Tie rod kit for 8 working sections directional valve
5TIR112563	Tie rod kit for 9 working sections directional valve
5TIR112611	Tie rod kit for 10 working sections directional valve
Special tie rods: for PF and PS inlet sections	
5TIR112141	Tie rod kit for 1 working section directional valve
5TIR112189	Tie rod kit for 2 working sections directional valve
5TIR112237	Tie rod kit for 3 working sections directional valve
5TIR112285	Tie rod kit for 4 working sections directional valve
5TIR112333	Tie rod kit for 5 working sections directional valve
5TIR112381	Tie rod kit for 6 working sections directional valve
5TIR112429	Tie rod kit for 7 working sections directional valve
5TIR112477	Tie rod kit for 8 working sections directional valve
5TIR112525	Tie rod kit for 9 working sections directional valve
5TIR112573	Tie rod kit for 10 working sections directional valve

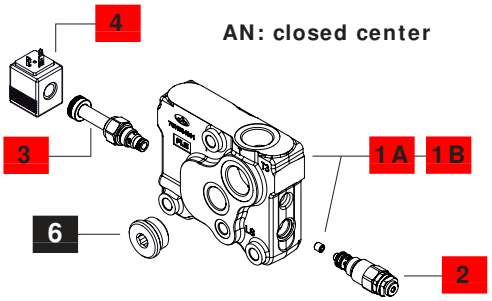
Inlet section parts ordering codes

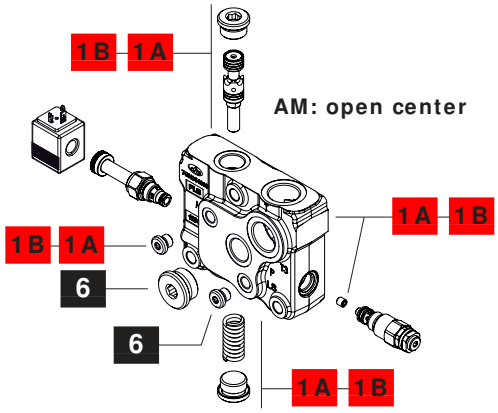
Valve setting (bar)

DPX160 / A N1 (TGW3 - 175 / ELN) - ..... - 12VDC

1A 1B 2 3 5 4

DPX160 = standard pressure valve
DPX160HP = High Pressure valve
For working conditions and guide confuguration see pages 4/6





1A Std pressure inlet section kit* page 78

Open Center circuit

TYPE: **DPX160/M3-SAE/EL** CODE: YFIA105709
DESCRIPTION: With compensator, P-T-LS-M ports (M plugged), arranged for unloader valve

TYPE: **DPX160/M3(SU)-SAE/EL** CODE: YFIA105710
DESCRIPTION: As previous with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX160/M3(SO)-SAE/EL** CODE: YFIA105711
DESCRIPTION: With non return flow limiter from inlet section to working section and by-pass valve

TYPE: **DPX160/M4-SAE/EL** CODE: YFIA105708
DESCRIPTION: As type M3, with side T3 outlet port

Closed Center circuit

TYPE: **DPX160/N1-SAE/EL** CODE: YFIA105720
DESCRIPTION: Without compensator, with P-T-LS ports, arranged for unloader valve

TYPE: **DPX160/N1(SU)-SAE/EL** CODE: YFIA105727
DESCRIPTION: As previous with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX160/N1(SO)-SAE/EL** CODE: YFIA105728
DESCRIPTION: As previous with non return flow limiter from inlet section to working section and by-pass valve

TYPE: **DPX160/N2-SAE/EL** CODE: YFIA105715
DESCRIPTION: As type N1, with side T3 outlet port

1B High pressure inlet section kit* page 78

Open Center circuit

TYPE: **DPX160HP/M3-SAE/EL** CODE: YFIA105714
DESCRIPTION: With compensator, P-T-LS-M ports (M plugged), arranged for unloader valve

TYPE: **DPX160HP/M3(SU)-SAE/EL** CODE: YFIA105712
DESCRIPTION: As previous with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX160HP/M3(SO)-SAE/EL** CODE: YFIA105713
DESCRIPTION: With non return flow limiter from inlet section to working section and by-pass valve

Closed Center circuit

Refer to "Std pressure" inlet sections

2 Main pressure relief valve page 82

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

TYPE	CODE	DESCRIPTION
(TGW2-80)	0MC09002000	Range 10-120 bar / *145-1750 psi* std setting 80 bar / *1160 psi*
(TGW3-175)	0MC09002001	Range 40-220 bar / *580-3200 psi* std setting 175 bar / *2550 psi*
(TGW4-250)	0MC09002002	Range 200-350 bar / *2900-5100 psi* std setting 250 bar / *3600 psi*
(TGW5-300)	0MC09002003	Range 290-385 bar / *4200-5600 psi* std setting 300 bar / *4350 psi*
SV	XTAP524340	Relief valve blanking plug

3 Solenoid operated unloading valve page 82

TYPE	CODE	DESCRIPTION
ELN	0EF08002000	Without emergency override
ELV	0EF08002003	With screw type emergency override
ELP	0EF08002002	With push-button emergency override
ELT	0EF08002004	With “twist & push” emergency override
LT	3XTP3533700	Unloading valve blanking plug

4 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SL2000121	Coil type **BER,** ISO4400 conn., 12VDC

For complete available coils list see page 104.

5 Section threading

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

6 Plugs*

CODE	DESCRIPTION
3XTAP838200	SAE16 plug, nr.1 for M4 and N2 section
3XTAP817130	SAE6 plug, nr.1 for Open Center sections

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

Inlet section parts ordering codes

Valve setting (bar) — Priority valve stand-by (bar) — Steering max flow — Compensator stand-by (bar)

DPX160 / PF1A \ TGW3-175 \ VP-D(1)-SB10-Q40 \ CF(1)-SB14 - .....

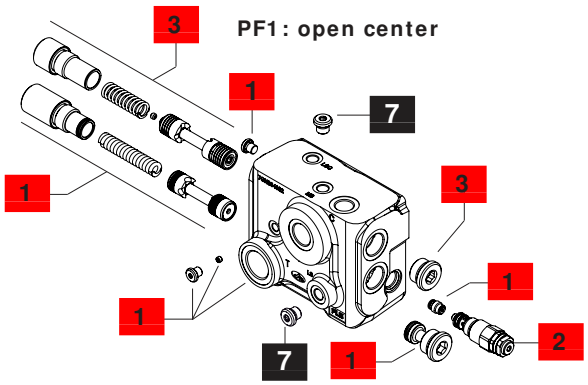
1 2 3 1 6

DPX160 = standard pressure valve

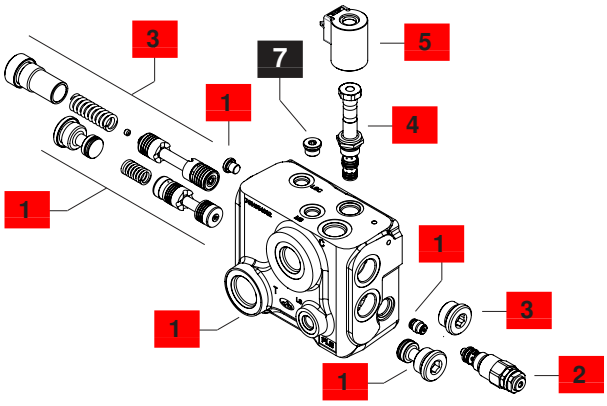
DPX160 / PS1A \ TGW3-175 \ VP-D(1)-SB10-Q40 \ ESO32N - ..... - 12VDC

1 2 3 4 6 5

PF1: open center



PS1: closed center



1 Inlet section kit* page 80

Following sections are suitable only for standard pressure valve

Open Center circuit

TYPE: **DPX160/PF1-SAE** CODE: YFIA105750
DESCRIPTION: With compensator, ports P-T-LS-M3-C-LSC

Closed Center circuit

TYPE: **DPX160/PS1-SAE** CODE: YFIA105751
DESCRIPTION: With shut-off spool, ports P-T-LS-M3-C-LSC
TYPE: **DPX160/PST1-SAE** CODE: YFIA105752
DESCRIPTION: With shut-off blanking kit, ports P-T-LS-M3-C-LSC

2 Main relief valve page 82

See previous page

3 Priority valve kit page 83

TYPE	CODE	DESCRIPTION
Regulated flow = 40 l/min *(10.5 US gpm)*		
D(1)-SB10-Q40	5CAS322100A	Stand-by (margin pressure) 10 bar (*145 psi*)
D(1)-SB07-Q40	5CAS322100B	Stand-by (margin pressure) 7 bar (*100 psi*)
D(1)-SB04-Q40	5CAS322100C	Stand-by (margin pressure) 4 bar (*58 psi*)
Regulated flow = 20 l/min *(5.3 US gpm)*		
D(1)-SB10-Q20	5CAS323099A	Stand-by (margin pressure) 10 bar (*145 psi*)
D(1)-SB07-Q20	5CAS323099B	Stand-by (margin pressure) 7 bar (*100 psi*)
D(1)-SB04-Q20	5CAS323099C	Stand-by (margin pressure) 4 bar (*58 psi*)

4 Solenoid operated shut-off valve page 83

TYPE	CODE	DESCRIPTION
ESO32A	0EJ08002035	Without emergency override
ESO32V	0EJ08002042	With screw type emergency override
EST	3XTP3534800	Valve blanking plug, only for PST inlet section

5 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SL3000120	Coil type **BT,** ISO4400 connector, 12VDC

For complete available coils list see page 104.

6 Section threading

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

7 Plugs

CODE	DESCRIPTION
3XTAP817130	SAE6 plug, nr.1 for PS section, nr.2 for PF section

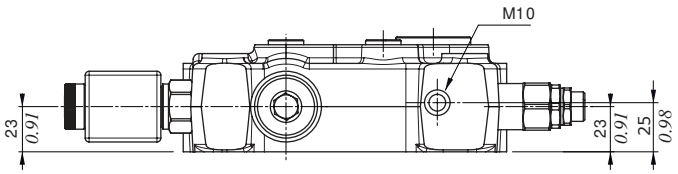
NOTE (*): *Codes are referred to **UN-UNF** thread.*

Inlet section

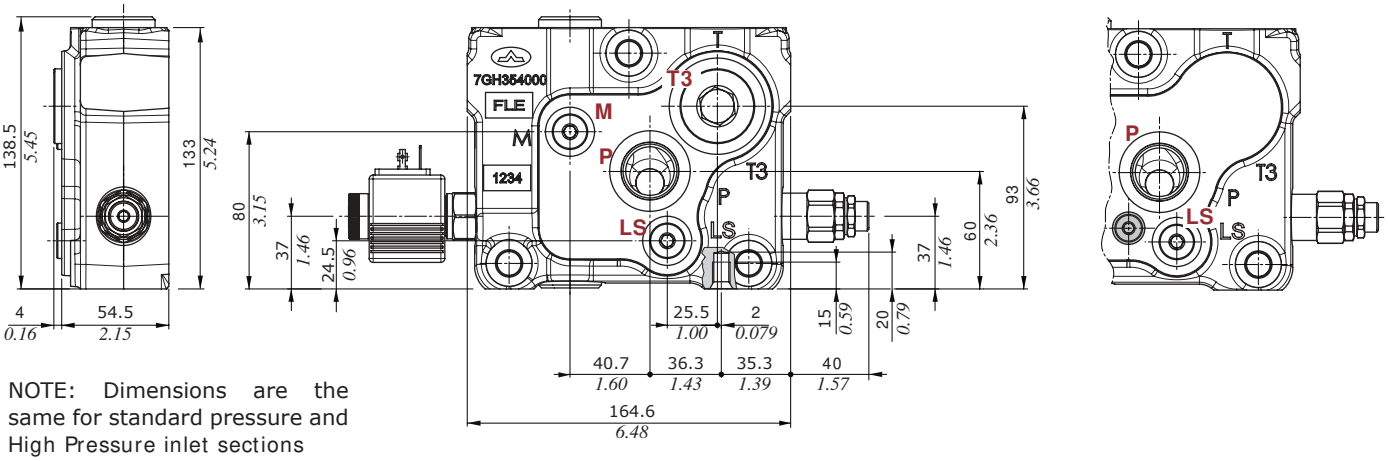
Dimensions and hydraulic circuit

Example of M Open Center section

M4 type

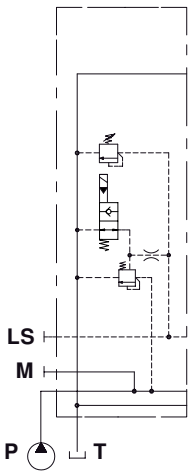


M3(SO) or M3(SU) type

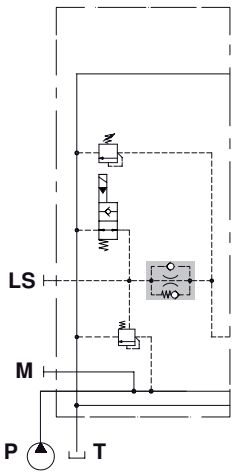


NOTE: Dimensions are the same for standard pressure and High Pressure inlet sections

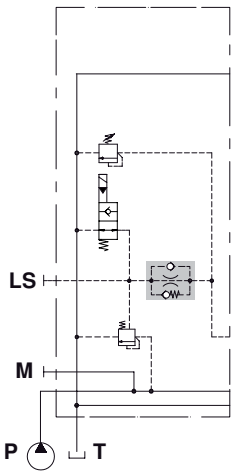
M3 type



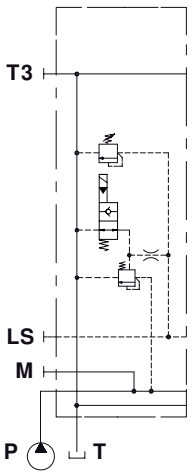
M3(SU) type



M3(SO) type



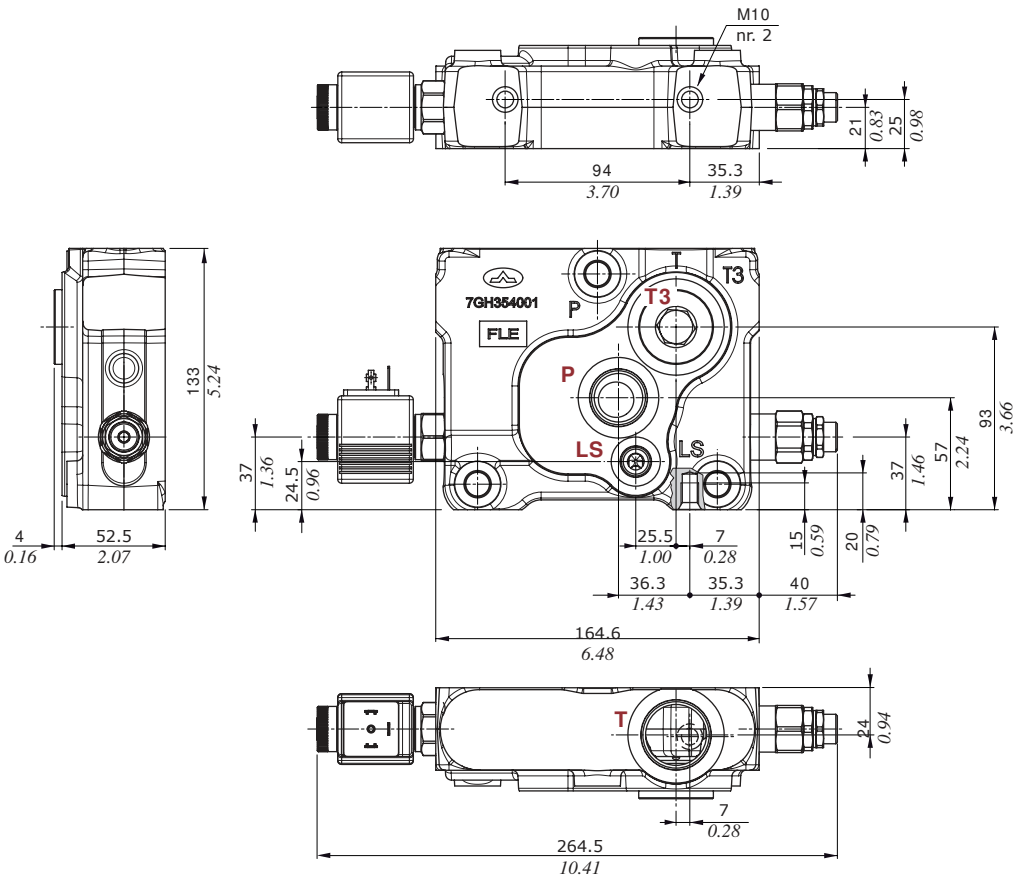
M4 type



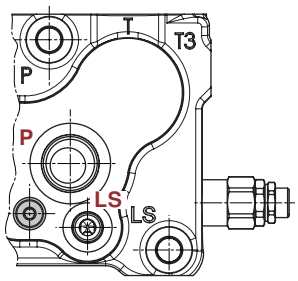
Dimensions and hydraulic circuit

Example of N Closed Center section

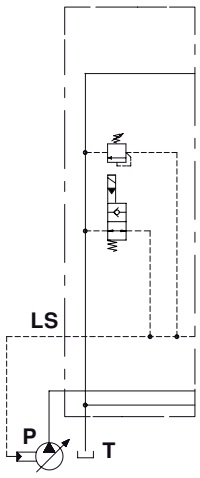
N2 type



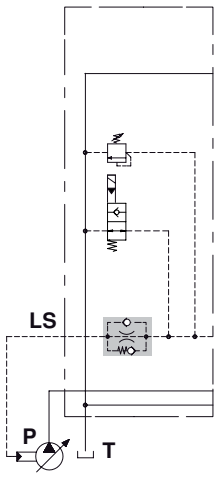
N1(SO) or N1(SU) type



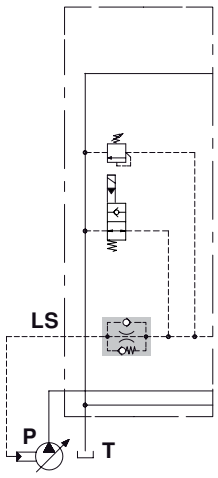
N1 type



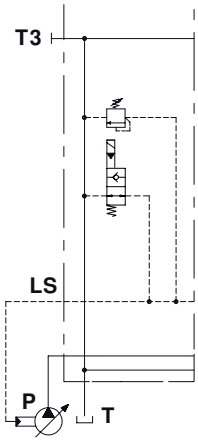
N1(SU) type



N1(SO) type



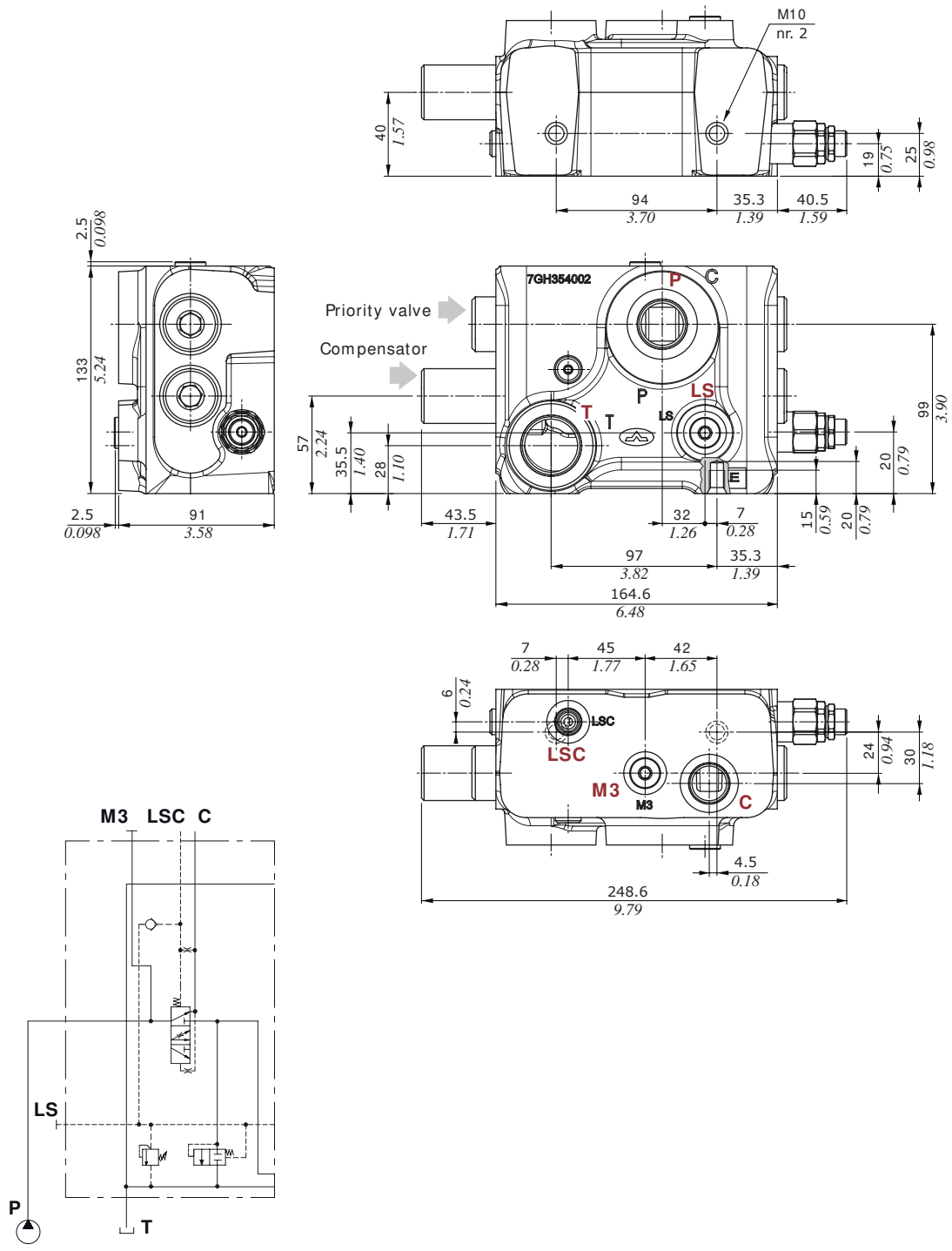
N2 type



Inlet section

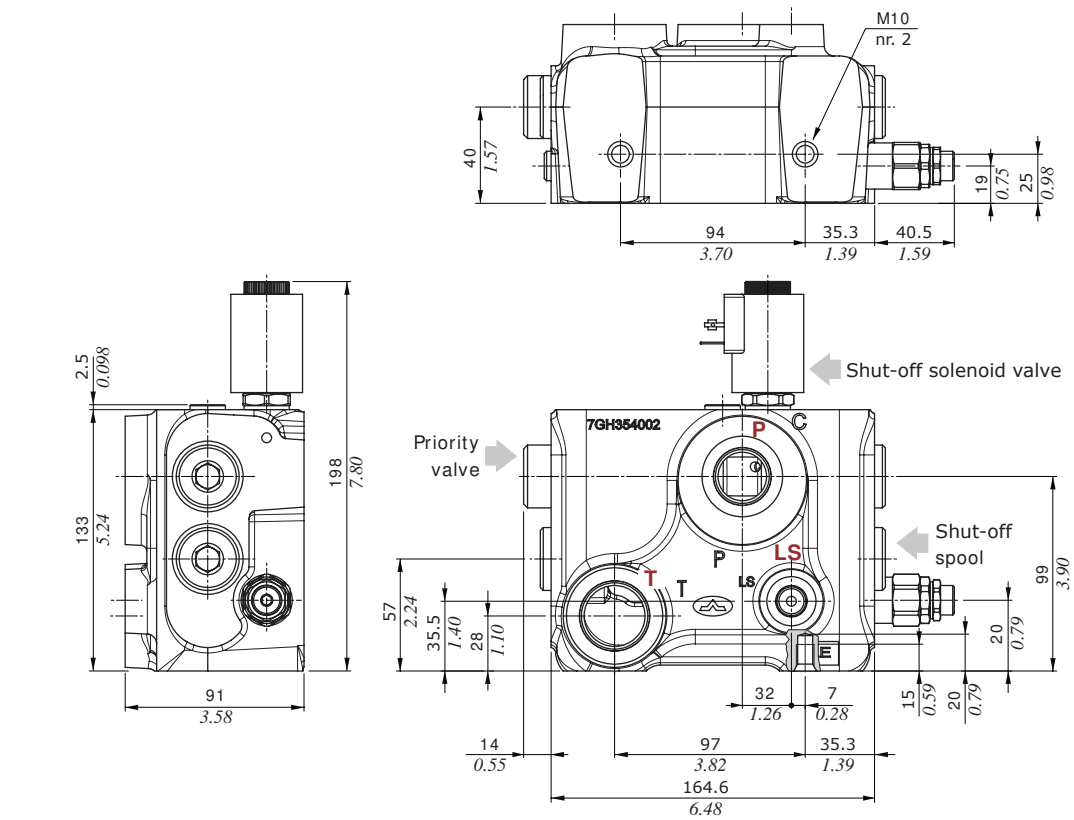
Dimensions and hydraulic circuit

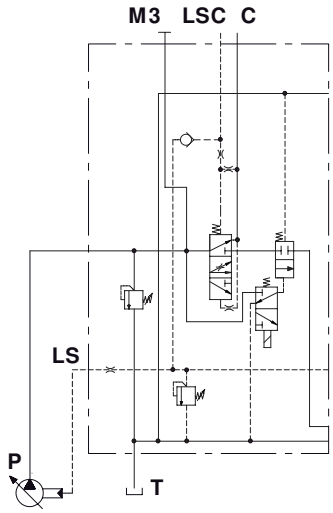
PF1 Open Center section with priority valve



Dimensions and hydraulic circuit

PS1 Closed Center section with priority valve and shut-off

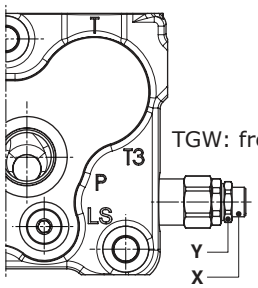




Inlet section

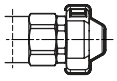
Main pressure relief valve

Setting types



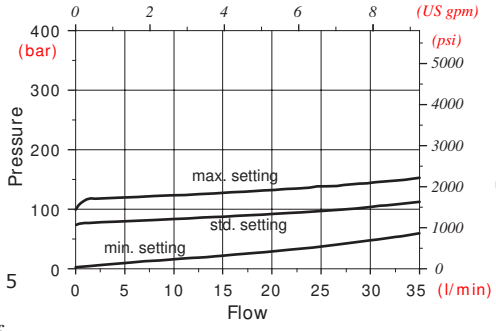
TGW: free setting

X = allen wrench 5
Y = wrench 19
20 Nm - *14.7 lbf*

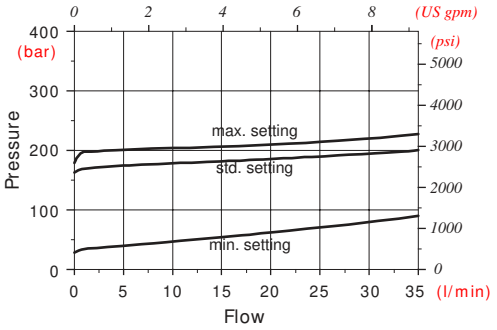


TZW: valve set and locked
(cap code 4COP126301, n.2 pcs)
RAL3003 pigmented

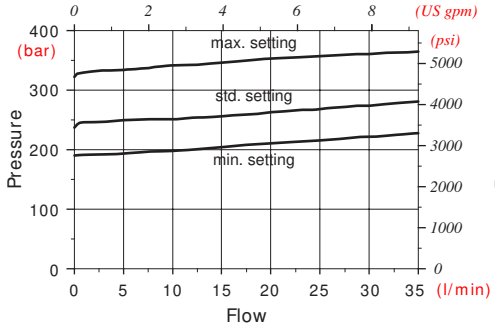
Setting range: type TGW2



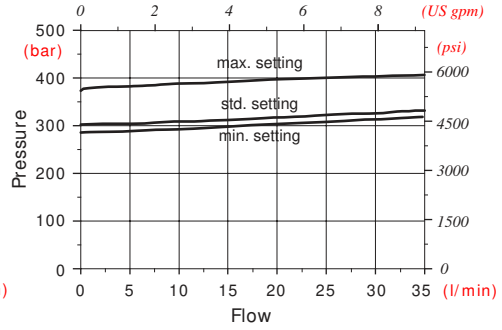
Setting range: type TGW3



Setting range: type TGW4



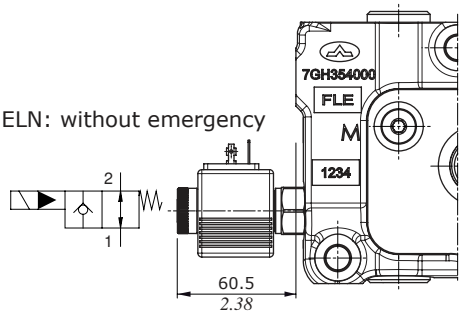
Setting range: type TGW5



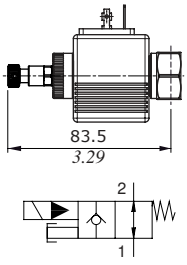
Solenoid operated unloading valve

Manual emergency types

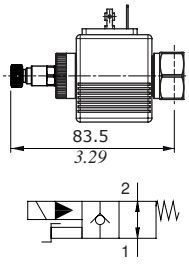
ELN: without emergency



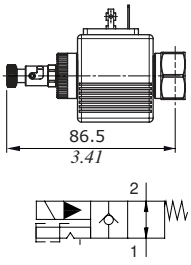
ELP: push button type



ELV: screw type



ELT: "push & twist" type

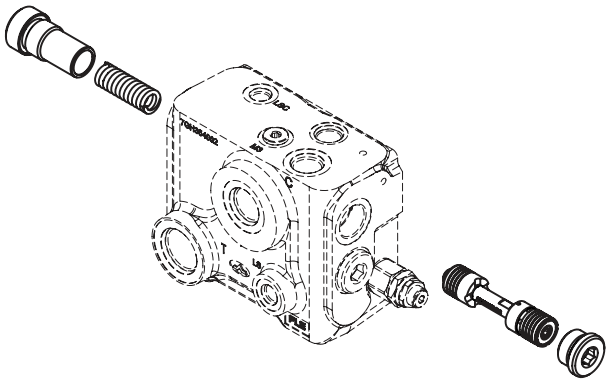


Features

Max. flow . . . . . : 40 l/min - *10.6 US gpm*
Max. pressure. . . . . : 350 bar - *5100 psi*
Internal leakage . . . . . : 0.25 cm³/min @ 210 bar
0.015 in³/min @ 3050 psi

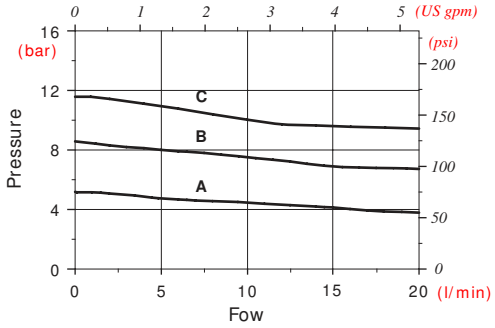
For coil features and options see coil **BER** at page 104.

Priority valve kit



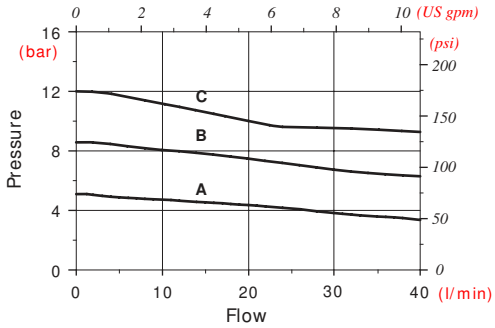
Stand-by (margin pressure) vs. regulated flow

Regulate flow = 20 l/min (*5.3 US gpm*)



Stand-by (margin pressure) vs. regulated flow

Regulate flow = 40 l/min (*10.6 US gpm*)

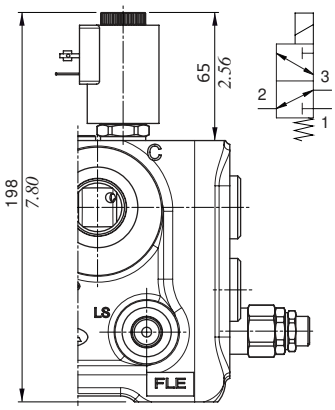


A = spring for 4 bar / *58 psi*
B = spring for 7 bar / *102 psi*
C = spring for 10 bar / *145 psi*

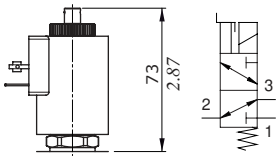
Shut-off solenoid valve

Manual emergency types

ELSN: without emergency



ELSV: screw type



Features

Max. flow . . . . . .: 3 l/min - *0.796 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 options see coil **BT** at page 104.

Working section parts ordering codes (mechanical, hydraulic)

flow on ports A/B (l/min) — Valve setting (bar) port A / port B

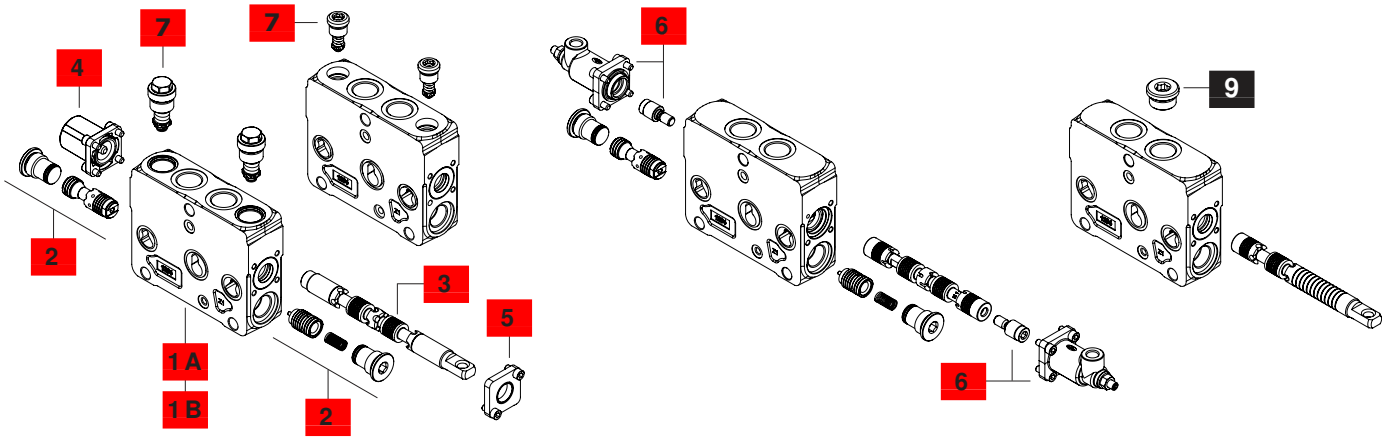
DPX160 / P - 108(150/150) - 8 SLP . UL1(100) UL2(120) - .....

1A, 1B, 3, 4, 5, 7, 8

DPX160 = standard pressure valve
DPX160HP = High Pressure valve
For working conditions and guide confuguration see pages 4/6

DPX160 / Q - E108(150/150) - 8IMF3N - .....

6, 8



1A Std press. working section kit* page 88

For mechanical control
TYPE: **DPX160/Q-SAE** CODE: 5EL1057011
DESCRIPTION: Without port valves arrangement
TYPE: **DPX160/P(UL)-SAE** CODE: 5EL1057000
DESCRIPTION: With port pressure relief valves arrangement
TYPE: **DPX160/P(US)-SAE** CODE: 5EL1057001
DESCRIPTION: With port antishock valves arrangement
For hydraulic control
TYPE: **DPX160/Q-IM-SAE** CODE: 5EL1057011A
DESCRIPTION: Without port valves arrangement
TYPE: **DPX160/P(UL)-IM-SAE** CODE: 5EL1057000A
DESCRIPTION: With port pressure relief valves arrangement
TYPE: **DPX160/P(US)-IM-SAE** CODE: 5EL1057001A
DESCRIPTION: With port antishock valves arrangement

1B High press. working section kit* page 88

For mechanical control
TYPE: **DPX160HP/Q-SAE** CODE: 5EL1057014
DESCRIPTION: Without port valves arrangement
TYPE: **DPX160HP/P(US)-SAE** CODE: 5EL1057007
DESCRIPTION: With port antishock valves arrangement
For hydraulic and solenoid control
TYPE: **DPX160HP/Q-IM-SAE** CODE: 5EL1057014A
DESCRIPTION: Without port valves arrangement
TYPE: **DPX160HP/P(US)-IM-SAE** CODE: 5EL1057007A
DESCRIPTION: With port antishock valves arrangement

2 Compensator kit

CODE	DESCRIPTION
5CAS321061	Compensator

Working section parts ordering codes (mechanical, hydraulic)

3 Spool page 89

Flow is referred to 14 bar (*200 psi*) stand-by (margin pressure)

TYPE	CODE	DESCRIPTION
For mechanical control		
Double acting with A and B closed in neutral position		
108(150)	3CU8110108	150 l/min (*39.5 US gpm*) flow
107(130)	3CU8110107	130 l/min (*34.3 US gpm*) flow
106(110)	3CU8110106	110 l/min (*29 US gpm*) flow
105(90)	3CU8110105	90 l/min (*23.8 US gpm*) flow
104(70)	3CU8110104	70 l/min (*18.5 US gpm*) flow
103(50)	3CU8110103	50 l/min (*13.2 US gpm*) flow
102(30)	3CU8110102	30 l/min (*7.9 US gpm*) flow
109(20)	3CU8110109	20 l/min (*5.3 US gpm*) flow
101(10)	3CU8110101	10 l/min (*2.6 US gpm*) flow
Double acting with A and B partially to tank in neutral position		
2H08(150)	3CU8110209	150 l/min (*39.5 US gpm*) flow
2H07(130)	3CU8110223	130 l/min (*34.3 US gpm*) flow
2H06(110)	3CU8110222	110 l/min (*29 US gpm*) flow
2H05(90)	3CU8110224	90 l/min (*23.8 US gpm*) flow
2H04(70)	3CU8110221	70 l/min (*18.5 US gpm*) flow
2H03(50)	3CU8110220	50 l/min (*13.2 US gpm*) flow
2H02(30)	3CU8110219	30 l/min (*7.9 US gpm*) flow
2H09(20)	3CU8110218	20 l/min (*5.3 US gpm*) flow
2H01(10)	3CU8110217	10 l/min (*2.6 US gpm*) flow
Single acting on A, B plugged: needs SAE12 plug		
308(150)	3CU8110308	150 l/min (*39.5 US gpm*) flow
306(110)	3CU8110306	110 l/min (*29 US gpm*) flow
303(50)	3CU8110303	50 l/min (*13.2 US gpm*) flow
309(20)	3CU8110309	20 l/min (*5.3 US gpm*) flow
Single acting on B, A plugged: needs SAE12 plug		
408(150)	3CU8110408	150 l/min (*39.5 US gpm*) flow
406(110)	3CU8110406	110 l/min (*29 US gpm*) flow
403(50)	3CU8110403	50 l/min (*13.2 US gpm*) flow
409(20)	3CU8110409	20 l/min (*5.3 US gpm*) flow
Double acting with A and B closed in neutral pos., 4 positions, floating in 4th position with spool in: needs positioner type 13		
508(150)	3CU8110508	150 l/min (*39.5 US gpm*) flow
504(70)	3CU8110504	70 l/min (*18.5 US gpm*) flow
For hydraulic control		
Double acting with A and B closed in neutral position		
E108(150)	3CU871E108	150 l/min (*39.5 US gpm*) flow
E107(130)	3CU871E107	130 l/min (*34.3 US gpm*) flow
E106(110)	3CU871E106	110 l/min (*29 US gpm*) flow
E105(90)	3CU871E105	90 l/min (*23.8 US gpm*) flow
E104(70)	3CU871E104	70 l/min (*18.5 US gpm*) flow
E103(50)	3CU871E103	50 l/min (*13.2 US gpm*) flow
E102(30)	3CU871E102	30 l/min (*7.9 US gpm*) flow
E113(20)	3CU871E113	20 l/min (*5.3 US gpm*) flow
E101(10)	3CU871E101	10 l/min (*2.6 US gpm*) flow
Double acting with A and B partially to tank in neutral position		
E2H08(150)	3CU871E209	150 l/min (*39.5 US gpm*) flow
E2H07(130)	3CU871E223	130 l/min (*34.3 US gpm*) flow
E2H06(110)	3CU871E222	110 l/min (*29 US gpm*) flow
E2H05(90)	3CU871E215	90 l/min (*23.8 US gpm*) flow
E2H04(70)	3CU871E221	70 l/min (*18.5 US gpm*) flow
E2H03(50)	3CU871E220	50 l/min (*13.2 US gpm*) flow
E2H02(30)	3CU871E219	30 l/min (*7.9 US gpm*) flow
E2H13(20)	3CU871E218	20 l/min (*5.3 US gpm*) flow
E2H01(10)	3CU871E217	10 l/min (*2.6 US gpm*) flow
Single acting on A or B, other port plugged: needs SAE12 plug		
E308-E408(150)	3CU871E308	150 l/min (*39.5 US gpm*) flow
E306-E406(110)	3CU871E306	110 l/min (*29 US gpm*) flow
E303-E403(50)	3CU871E303	50 l/min (*13.2 US gpm*) flow
E309-E409(20)	3CU871E313	20 l/min (*5.3 US gpm*) flow
Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: needs control type 13IM		
I508(150)	YCU871E508	150 l/min (*39.5 US gpm*) flow

4 "A" side spool positioner page 91

TYPE	CODE	DESCRIPTION
8MD	5V08109000	3 postions with spring return to neutral position
For floating circuit (spool 5)		
13	5V13109000	4 positions, detent in 4th position with spring return to neutral position

5 "B" side spool control kit page 92

TYPE	CODE	DESCRIPTION
L	5LEV110000	Standard lever box
LFG	5LEV110700	Lever box with spool stroke limiter on both ports
SLP	5COP110000	Without lever with dust-proof plate
LCB	5CLO216100	Joystick for 2 sections operation

6 Proportional hydraulic control* page 94

TYPE	CODE	DESCRIPTION
8IMN-SAE	5IDR209704	Range 8-28 bar (*116-406 psi*)
8IMF3N-SAE	5IDR209705	As previous with spool stroke limiter
For floating circuit (spool I5)		
13IM-SAE	5IDR209703	Range 3.1-25.6 / 0-30 bar (*45-371 / 0-435 psi*)
13IMP-SAE	5IDR209714	Range 2-17 / 2-30 bar (*29-247 / 29-435 psi*)

7 Port valves page 100

TYPE	CODE	DESCRIPTION
Pressure relief valves		
UL(50)	5KIT340050L	Setting: 50 bar (*725 psi*)
Antishock valves		
US(25)	5KIT326025	Setting: 25 bar (*360 psi*)

For complete list see following page.

8 Section threading

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

9 Plug for single acting spool*

CODE	DESCRIPTION
3XTAP832200	SAE12 plug

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

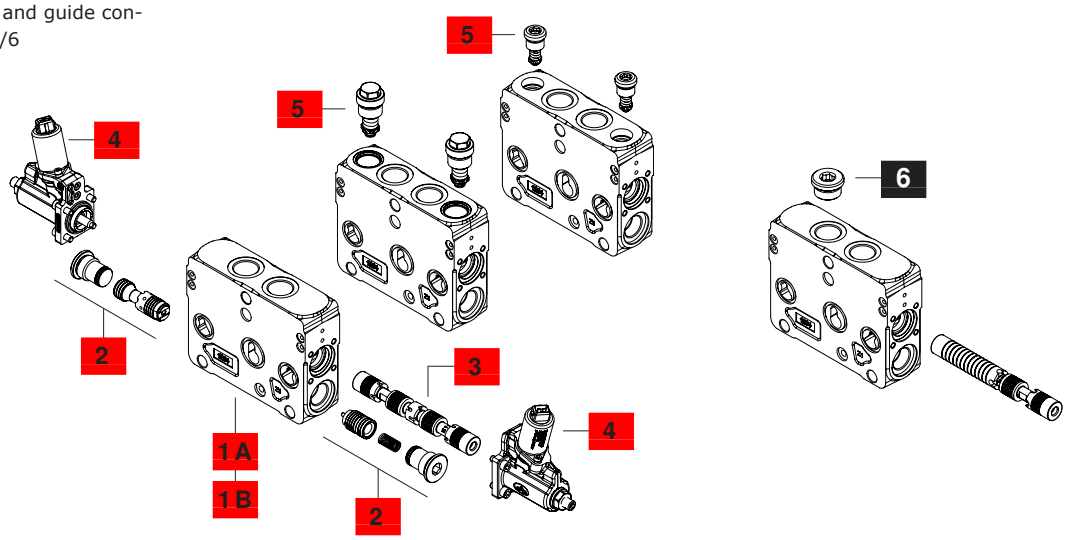
Working section parts ordering codes (electrohydraulic)

flow on ports A/B (l/min) — Valve setting (bar) port A / port B

DPX160 / PE - E108(150/150) - 8EB3F3 . UL1(100) UL2(120) - ..... - 12VDC

1A / 1B — 3 — 4 — 5 — 6 — 4

DPX160 = standard pressure valve
DPX160HP = High Pressure valve
For working conditions and guide configuration see pages 4/6



1A Std press. working section kit* page 88

TYPE: **DPX160/QE-SAE** CODE: 5EL1057010
DESCRIPTION: Without port valves arrangement
TYPE: **DPX160/PE(UL)-SAE** CODE: 5EL1057002
DESCRIPTION: With port pressure relief valves arrangement
TYPE: **DPX160/PE(US)-SAE** CODE: 5EL1057003
DESCRIPTION: With port antishock valves arrangement

1B High press.working section kit* page 89

TYPE: **DPX160HP/QE-SAE** CODE: 5EL1057015
DESCRIPTION: Without port valves arrangement
TYPE: **DPX160HP/PE(US)-SAE** CODE: 5EL1057008
DESCRIPTION: With port antishock valves arrangement

2 Compensator kit

TYPE	CODE	DESCRIPTION
-	5CAS321061	Compensator

3 Spool page 89

Flow is referred to 14 bar (*200 psi*) stand-by (margin pressure)

TYPE	CODE	DESCRIPTION
Double acting with A and B closed in neutral position		
E108(150)	3CU871E108	150 l/min (*39.5 US gpm*) flow
E107(130)	3CU871E107	130 l/min (*34.3 US gpm*) flow
E106(110)	3CU871E106	110 l/min (*29 US gpm*) flow
E105(90)	3CU871E105	90 l/min (*23.8 US gpm*) flow
E104(70)	3CU871E104	70 l/min (*18.5 US gpm*) flow
E103(50)	3CU871E103	50 l/min (*13.2 US gpm*) flow
E102(30)	3CU871E102	30 l/min (*7.9 US gpm*) flow
E113(20)	3CU871E113	20 l/min (*5.3 US gpm*) flow
E101(10)	3CU871E101	10 l/min (*2.6 US gpm*) flow
Double acting with A and B partially to tank in neutral position		
E2H08(150)	3CU871E209	150 l/min (*39.5 US gpm*) flow
E2H07(130)	3CU871E223	130 l/min (*34.3 US gpm*) flow
E2H06(110)	3CU871E222	110 l/min (*29 US gpm*) flow
E2H05(90)	3CU871E215	90 l/min (*23.8 US gpm*) flow
E2H04(70)	3CU871E221	70 l/min (*18.5 US gpm*) flow
E2H03(50)	3CU871E220	50 l/min (*13.2 US gpm*) flow
E2H02(30)	3CU871E219	30 l/min (*7.9 US gpm*) flow
E2H13(20)	3CU871E218	20 l/min (*5.3 US gpm*) flow
E2H01(10)	3CU871E217	10 l/min (*2.6 US gpm*) flow
Single acting on A or B, other port plugged: needs SAE8 plug		
E308-E408(150)	3CU871E308	150 l/min (*39.5 US gpm*) flow
E306-E406(110)	3CU871E306	110 l/min (*29 US gpm*) flow
E303-E403(50)	3CU871E303	50 l/min (*13.2 US gpm*) flow
E309-E409(20)	3CU871E313	20 l/min (*5.3 US gpm*) flow
Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: needs control kit type 13EB3...		
E508(150)	3CU871E508	150 l/min (*39.5 US gpm*) flow
E504(70)	3CU871E504	70 l/min (*18.5 US gpm*) flow

Working section parts ordering codes (electrohydraulic)

4 Two-side electrohydr. control page 98

TYPE	CODE	DESCRIPTION
Without lever control		
8EB3-12VDC	5IDR909312	With AMP connector
8EB3-24VDC	5IDR909325	With AMP connector
8EB34-12VDC	5IDR909329	With Deutsch connector
8EB34-24VDC	5IDR909330	With Deutsch connector
8EB3F3-12VDC	5IDR909313	With AMP connector with spool stroke limiter
8EB3F3-24VDC	5IDR909317	As previous
8EB34F3-12VDC	5IDR909314	With Deutsch connector with spool stroke limiter
8EB34F3-24VDC	5IDR909331	As previous
Without lever control: for floating circuit (spool E5)		
13EB3-12VDC	5IDR919312	With AMP connector
13EB3-24VDC	5IDR919324	With AMP connector
13EB34-12VDC	5IDR919317	With Deutsch connector
13EB34-24VDC	5IDR919318	With Deutsch connector
With lever control		
8EB3LH-12VDC	5IDR909315	With AMP connector
8EB3LH-24VDC	5IDR909326	With AMP connector
8EB34LH-12VDC	5IDR909332	With Deutsch connector
8EB34LH-24VDC	5IDR909333	With Deutsch connector
8EB3LHF3-12VDC	5IDR909316	With AMP connector with spool stroke limiter
8EB3LHF3-24VDC	5IDR909327	As previous
8EB34LHF3-12VDC	5IDR909334	With Deutsch connector with spool stroke limiter
8EB34LHF3-24VDC	5IDR909335	As previous
With lever control: for floating circuit (spool E5)		
13EB3LH-12VDC	5IDR919313	With AMP connector
13EB3LH-24VDC	5IDR919325	With AMP connector
13EB34LH-12VDC	5IDR919319	With Deutsch connector
13EB34LH-24VDC	5IDR919320	With Deutsch connector
13EB3LHF3-12VDC	5IDR919314	With AMP connector with spool stroke limiter
13EB3LHF3-24VDC	5IDR919326	As previous
13EB34LHF3-12VDC	5IDR919321	With Deutsch connector with spool stroke limiter
13EB34LHF3-24VDC	5IDR919322	As previous

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

5 Port valves page 100

TYPE	CODE	DESCRIPTION
"UL" size valves		
ULT	XTAP528520	Valve blanking plug
CL	5KIT409000	Anticavitation valve (for UL cavity)

Fixed setting pressure relief valves: setting is referred to 10 l/min *(2.6 US gpm)*

TYPE: **UL (100)** CODE: 5KIT340 100 L
(100) = setting (bar); 100 = 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*)		

"US" size valves		
UST	XTAP221340	Valve blanking plug
CS	5KIT426270	Anticavitation valve (for US cavity)

Fixed setting antishock and anticavitation valves with pressure relief function: setting is referred to 5 l/min *1.3 US gpm)*

TYPE: **US (100)** CODE: 5KIT326 100
(100) = setting (bar); 100 = setting (bar)

SETTING:

25 bar (*360 psi*)	40 bar (*725 psi*)	50 bar (*725 psi*)
60 bar (*870 psi*)	70 bar (*1010 psi*)	80 bar (*1150 psi*)
90 bar (*1300 psi*)	100 bar (*1450 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*)	250 bar (*3600 psi*)	260 bar (*3750 psi*)
280 bar (*4050 psi*)	300 bar (*4350 psi*)	320 bar (*4650 psi*)
340 bar (*4950 psi*)	360 bar (*5200 psi*)	380 bar (*5500 psi*)
400 bar (*5800 psi*)	420 bar (*6100 psi*)	

6 Section threading

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

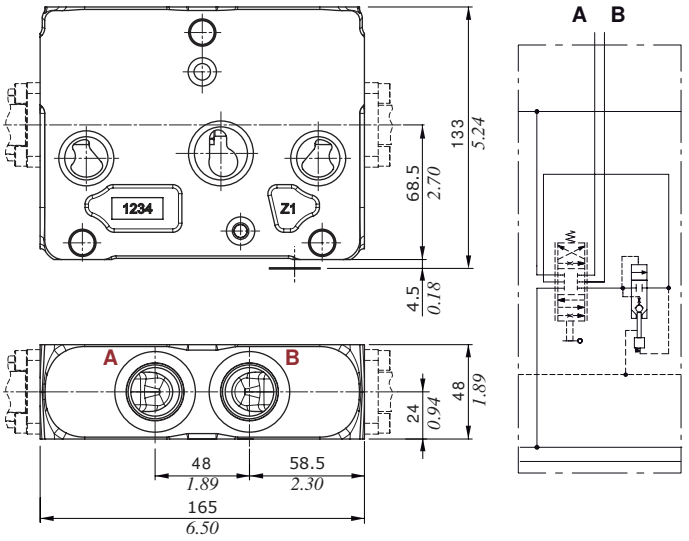
7 Plug for single acting spool*

CODE	DESCRIPTION
3XTAP832200	SAE12 plug

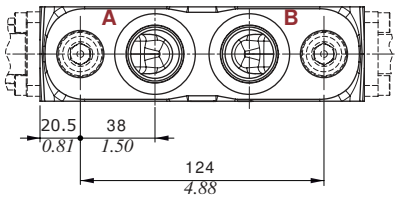
Working section

Dimensions and hydraulic circuit

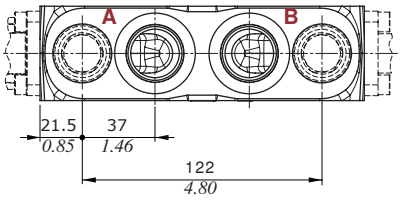
For mechanical and hydraulic controls

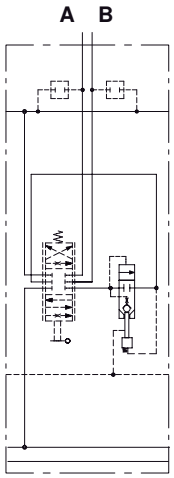


P(US) type



P(UL) type

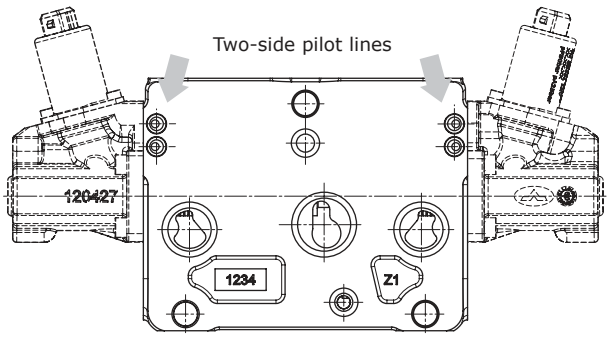




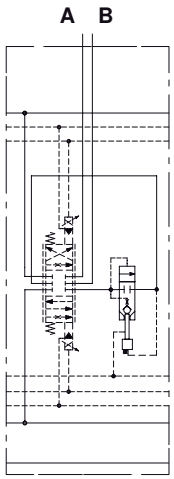
NOTE: US and UL auxiliary valves are not interchangeable: they need dedicate working sections

For electrohydraulic controls

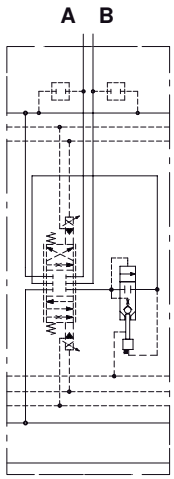
QE, PE(US) or PE(UL) type



QE type

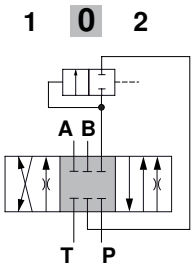


PE type



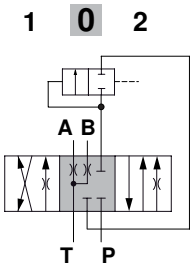
Spools

Spool type 1 (1../E1..)
A, B closed in neutral position



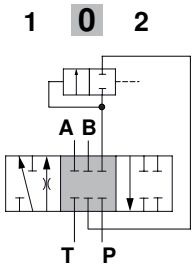
Spool stroke
position 1: + 8 mm *(- 0.31 in)*
position 2: - 8 mm *(+ 0.31 in)*

Spool type 2H(2H../E2H..)
A, B partially to tank in neutral pos.



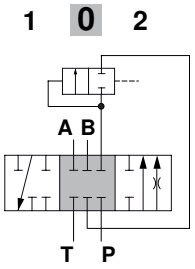
Spool stroke
position 1: + 8 mm *(- 0.31 in)*
position 2: - 8 mm *(+ 0.31 in)*

Spool type 3 (3../E3..)
single acting on A



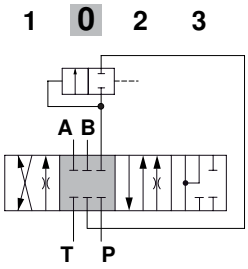
Spool stroke
position 1: + 8 mm *(- 0.31 in)*
position 2: - 8 mm *(+ 0.31 in)*

Spool type 4 (4../E4..)
single acting on B



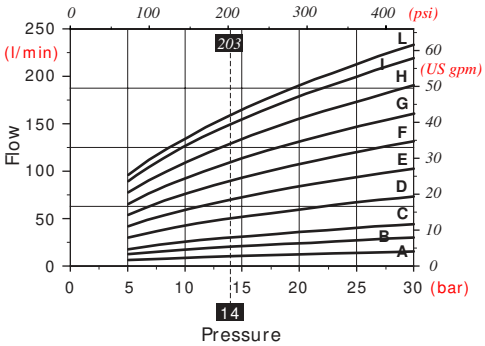
Spool stroke
position 1: + 8 mm *(- 0.31 in)*
position 2: - 8 mm *(+ 0.31 in)*

Spool type 5 (5../E5../I5..)
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)*

Spool flow vs. Stand-by pressure (margin pressure)



Curves with spool nominal flow @ 14 bar *(200 psi)* stand-by (margin pressure)
A = 10 l/min *(2.6 US gpm)*
B = 20 l/min *(5.3 US gpm)*
C = 30 l/min *(7.9 US gpm)*
D = 50 l/min *(13.2 US gpm)*
E = 70 l/min *(18.5 US gpm)*
F = 90 l/min *(23.8 US gpm)*
G = 110 l/min *(29.0 US gpm)*
H = 130 l/min *(34.3 US gpm)*
I = 150 l/min *(39.5 US gpm)*
L = 160 l/min *(42.3 US gpm)*

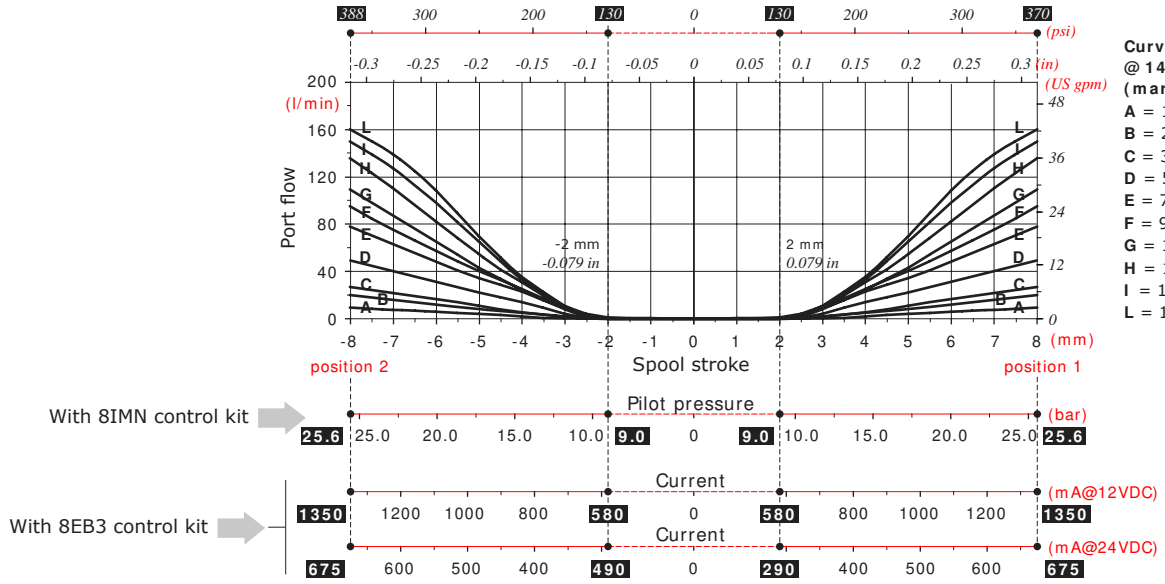
Working section

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.

3 positions spools metering curve

Qin = 160 l/min (*42.3 US gpm*) - Open center circuit

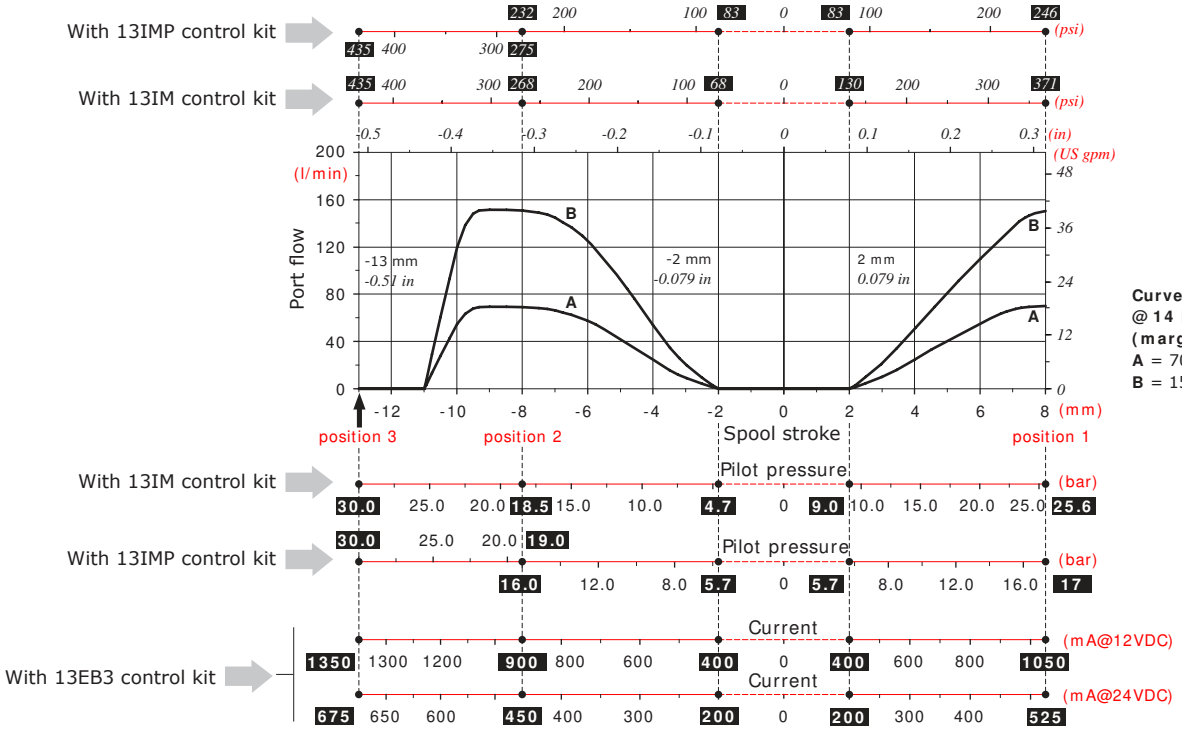


Curves with spool nom. flow @ 14 bar *(200 psi)* stand-by (margin pressure)

A = 10 l/min (*2.6 US gpm*)
B = 20 l/min (*5.3 US gpm*)
C = 30 l/min (*7.9 US gpm*)
D = 50 l/min (*13.2 US gpm*)
E = 70 l/min (*18.5 US gpm*)
F = 90 l/min (*23.8 US gpm*)
G = 110 l/min (*29.0 US gpm*)
H = 130 l/min (*34.3 US gpm*)
I = 150 l/min (*39.5 US gpm*)
L = 160 l/min (*42.3 US gpm*)

Floating spool metering curve

Qin = 160 l/min (*42.3 US gpm*) - Open center circuit



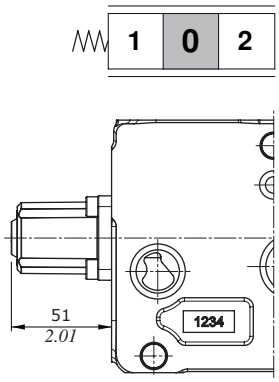
Curves with spool nom. flow @ 14 bar *(200 psi)* stand-by (margin pressure)

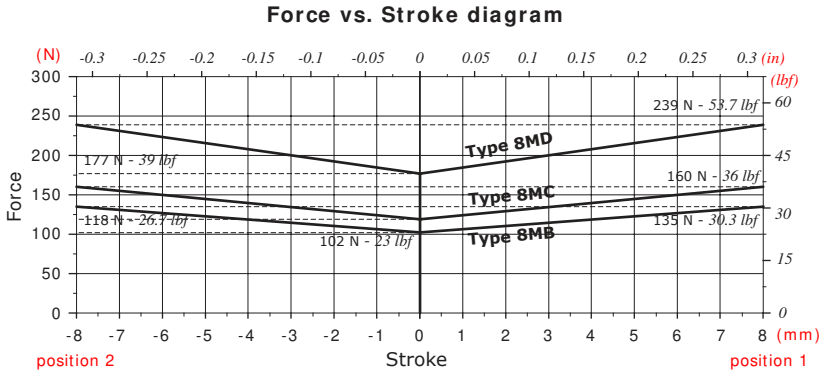
A = 70 l/min (*18.5 US gpm*)
B = 150 l/min (*39.5 US gpm*)

"A" side spool positioners

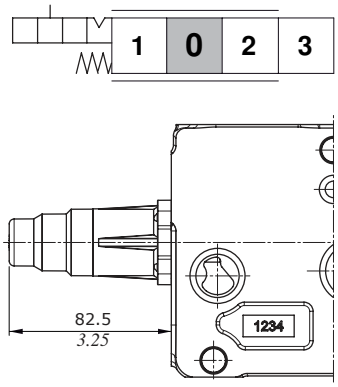
With spring return to neutral position, type 8MD

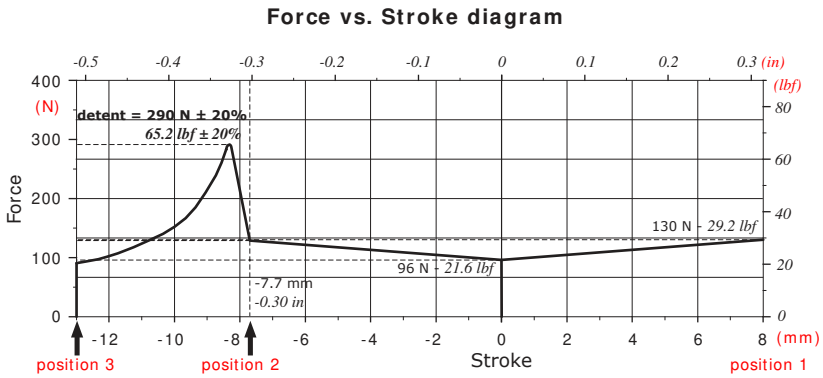
It's configured with spring type D, as standard (see diagram); it's also available with lighter springs type C (8MC code: 5V08109002) or type B (8MB code 5V08109003).





For floating circuit, type 13





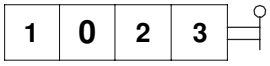
Release force from pos.3: 260 N ± 20% (*58.5 lbf ± 20%*)

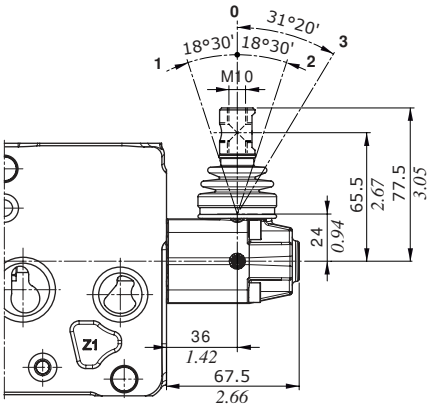
Working section

"B" side spool control kit

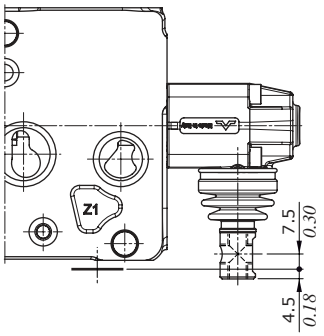
Lever boxes

Type L



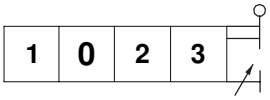


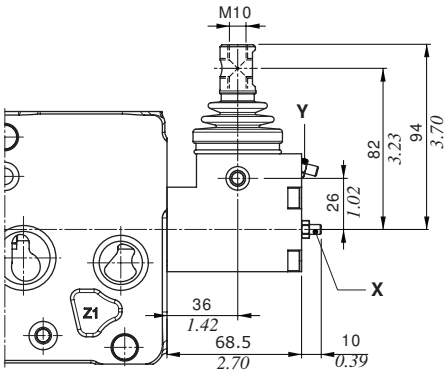
Type L180



Type LFG

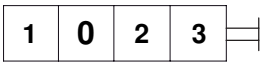
Spool stroke limiter on both ports

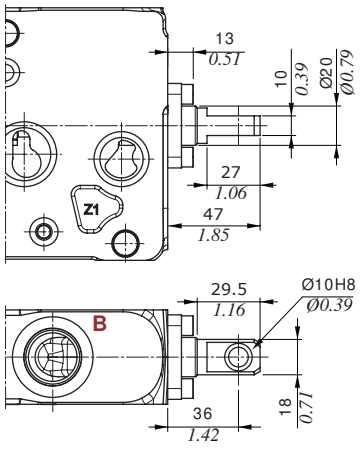




X = allen wrench 2.5
Y = wrench 8 / 6.6 Nm - *4.9 lbf*

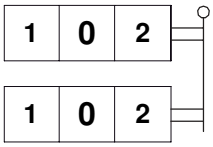
Dust-proof plate, type SLP



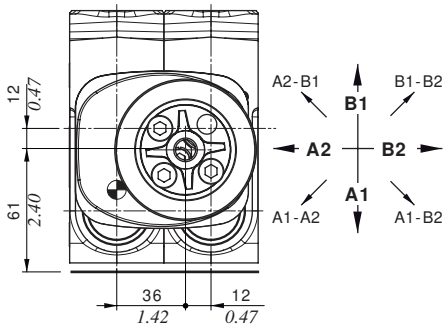


"B" side spool control kit

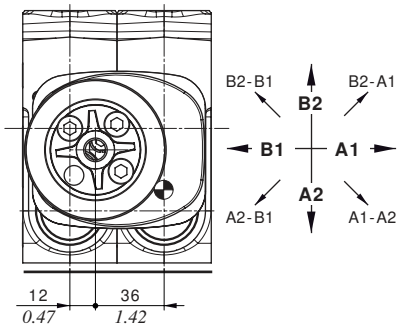
Joysticks for two sections operation

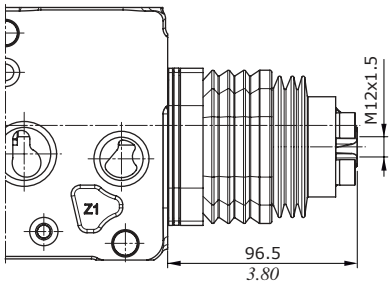


configuration LCB1

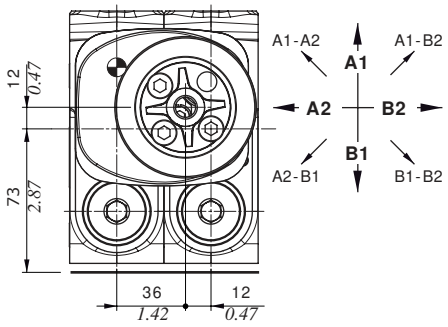


configuration LCB2

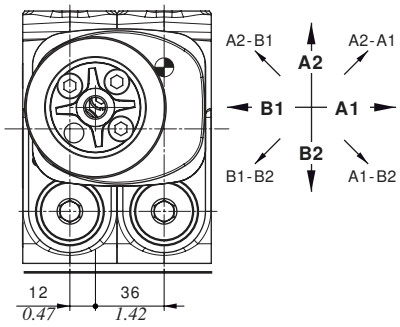


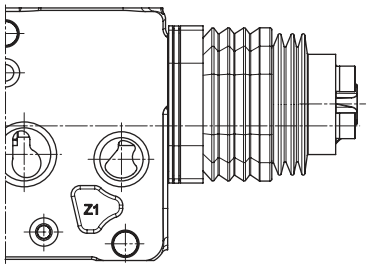


configuration LCB3

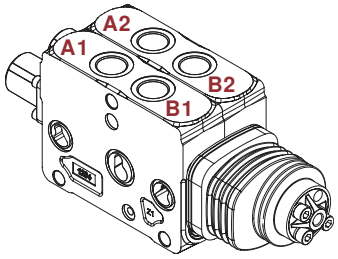


configuration LCB4



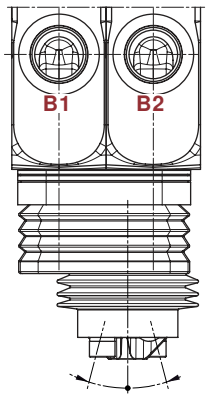


LCB1 configuration example

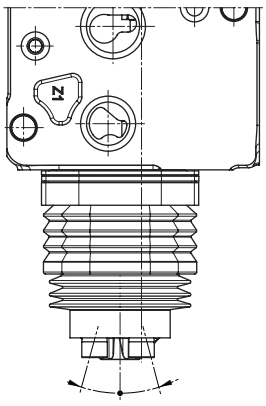


Working angles

Horizontal axis



vertical axis

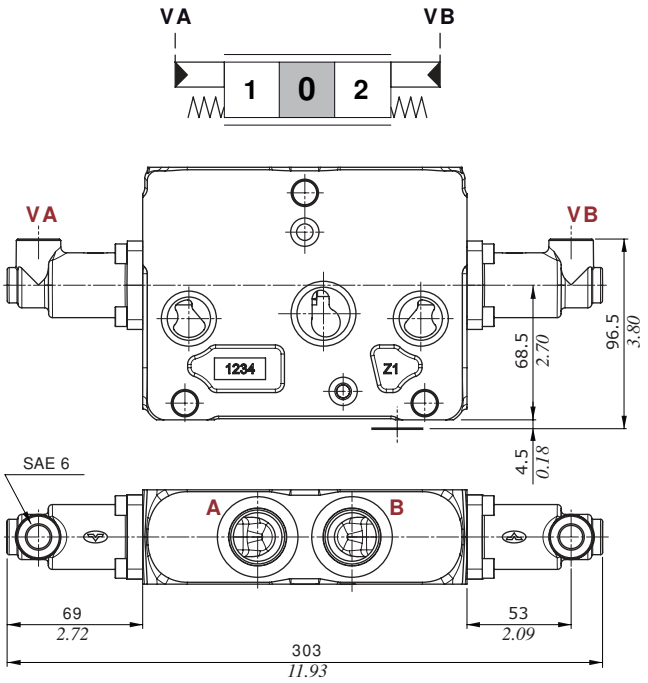


Max. working angles	Horizontal axis	Vertical axis
Single action operation	19°42'	19°41'
Single action operation with floating	operation not available	operation not available
Two section operation	21°22'	19°41'
Two section operation with floating	operation not available	operation not available

Working section

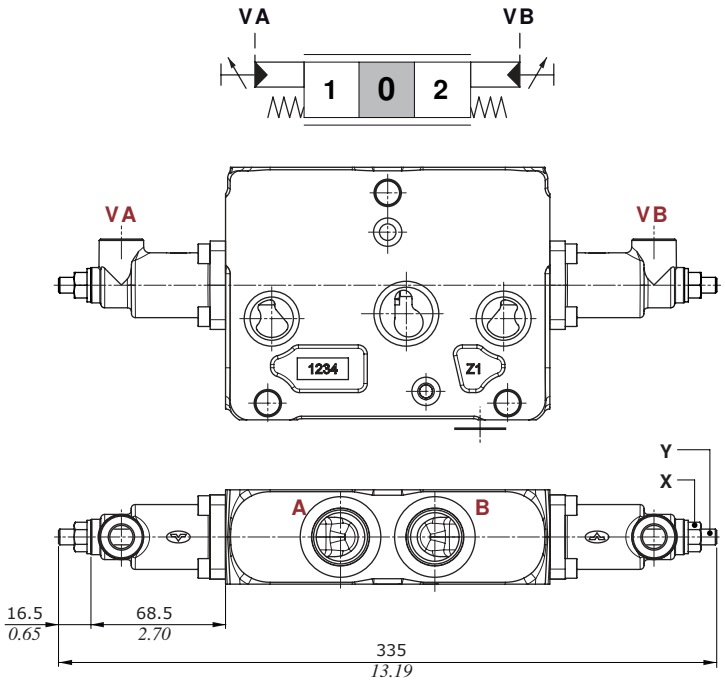
Proportional hydraulic control

Type 8IMN



Type 8IMF3N

With spool stroke limiter on ports A and B



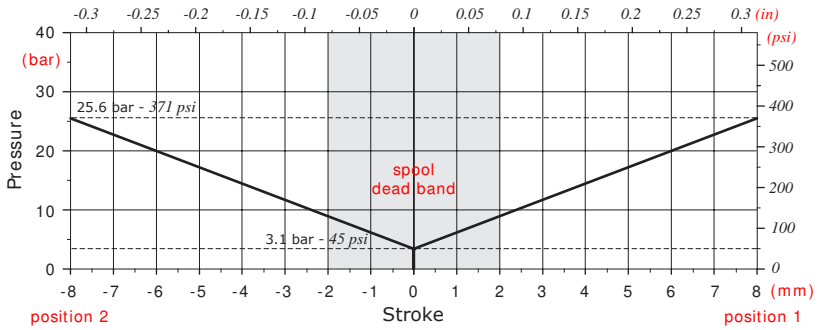
Features (all types)

Max. pressure. . . . . : 50 bar - *725 psi*

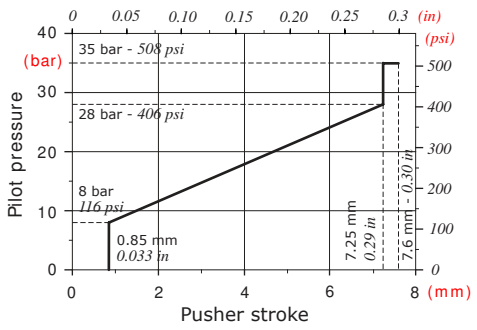
X = allen wrench 4

Y = wrench 13 / 24 Nm - *17.7 lbf*

Stroke vs. Pressure diagram

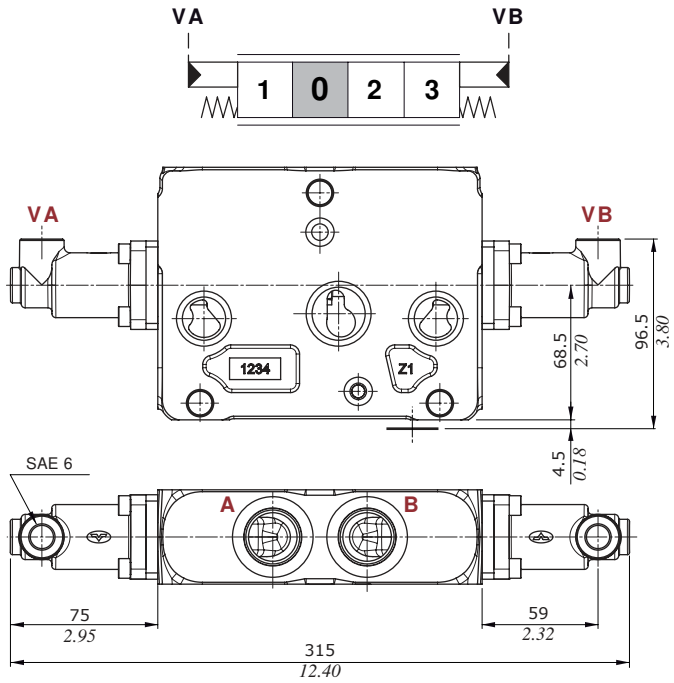


Suggested pressure control curve: 089



Proportional hydraulic control

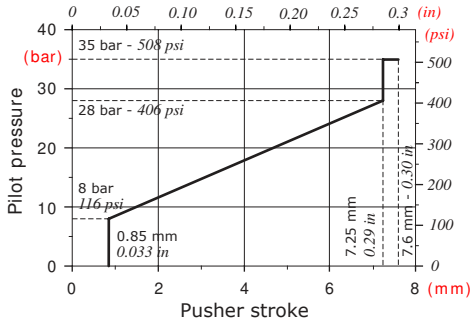
For floating circuit, types 13IM - 13IMP



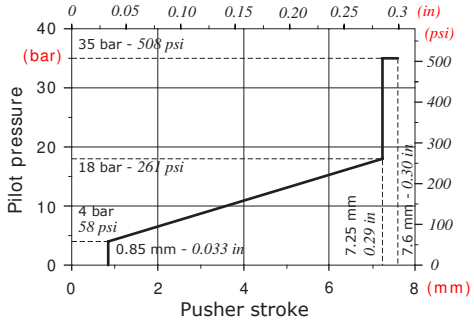
Features

Max. pressure. . . . . .: 50 bar - *725 psi*

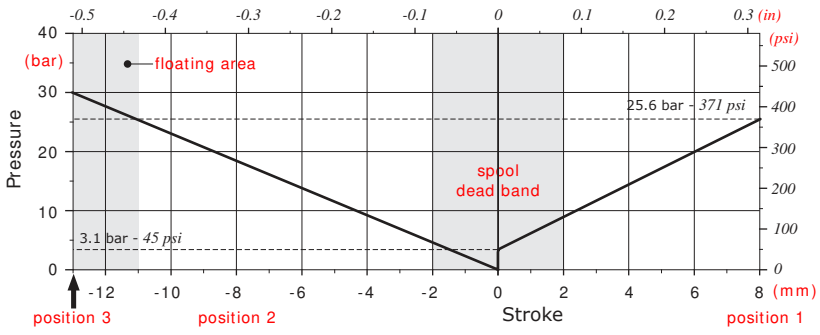
Type 13IM: suggested pressure control curve on port VA: type 089



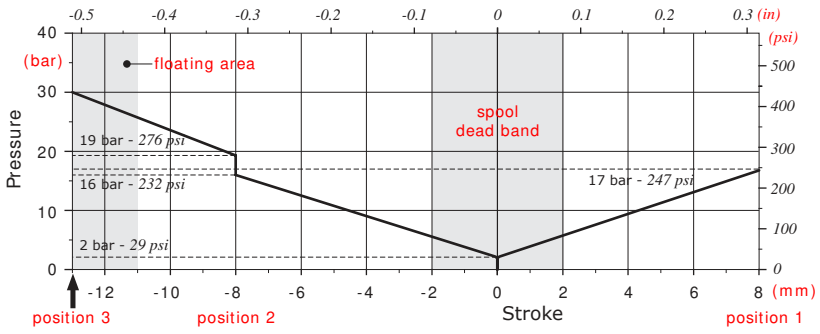
Type 13IMP: suggested pressure control curve on port VA: type 073



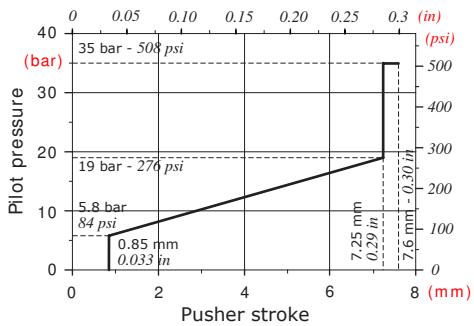
Type 13IM: Stroke vs. Pressure diagram



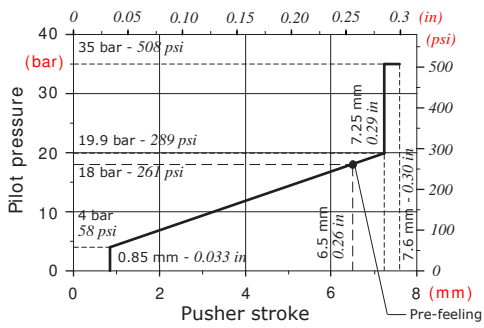
Type 13IMP: Stroke vs. Pressure diagram



Type 13IM: suggested pressure control curve on port VB: type 033



Type 13IMP: suggested pressure control curve on port VB: type E073



Working section

Electrohydraulic controls performace data

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

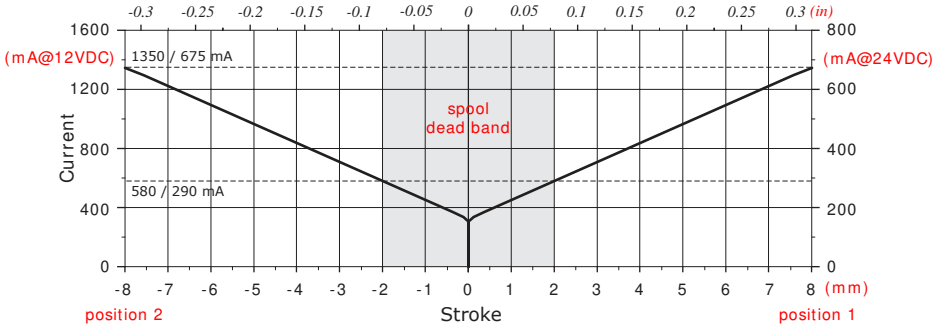
Following electrohydraulic controls need CED100X or CED400X electronic unit; for information contact Sales Department.

Specifications		Spool control type 8EB3	Spool control type 13EB3
Electric specifications			
Coil impedance	12 VDC	4.72 Ω	4.72 Ω
	24 VDC	20.8 Ω	20.8 Ω
Max. operating current	12 VDC	1.5 A	1.5 A
	24 VDC	0.75 A	0.75 A
No load current consumption		0	0
Hysteresis max. (1)	external drain	3% 4% with lever	6% 8% with lever
	internal drain	4% 5% with lever	7% 10% with lever
Time response	from 0 ⇒ 100% of stroke	< 80 ms	< 100 ms
	from 100% ⇒ 0 of stroke	< 60 ms	< 80 ms
Min. flow control signal	12 VDC	580 mA	400 mA
	24 VDC	290 mA	200 mA
Max. flow control signal	12 VDC	1350 mA	P⇒A: 1050 mA P⇒B: 900 mA
	24 VDC	675 mA	P⇒A: 525 mA P⇒B: 450 mA
Float flow control signal	12 VDC		1350 mA
	24 VDC		675 mA
Dither frequency	low frequency	150 Hz	150 Hz
	high frequency	180 Hz - 350 mA	180 Hz - 350 mA
Insertion		100%	100%
Coil insulance		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 (type JPT) - IP69K (type DT)	IP65 (type JPT) - IP69K (type DT)
Hydraulic specifications			
Max. pressure		50 bar (*725 psi*)	50 bar (*725 psi*)
Max. back pressure		20 bar (*290 psi*)	20 bar (*290 psi*)

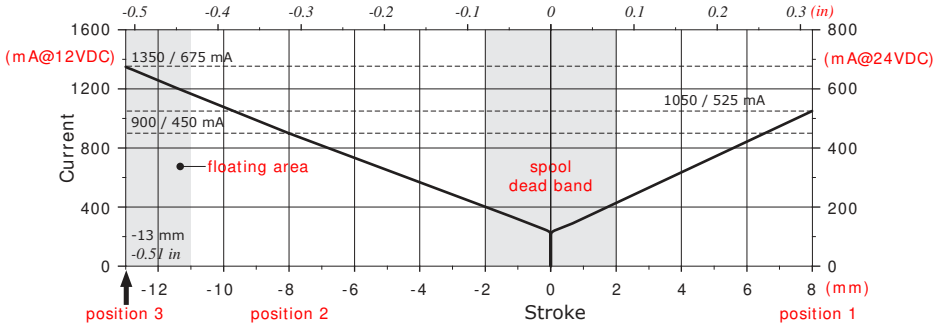
Note (1) hysteresis is indicated at nominal supply voltage and f = 0.008 Hz for one cycle (one cycle = neutral ⇒ full A ⇒ neutral ⇒ full B ⇒ neutral).
For the calculation rules see "Appendix A" on page 111.

Electrohydraulic controls performace data

Types 8EB3: Stroke vs. Current diagram



Types 13EB3: Stroke vs. Current diagram



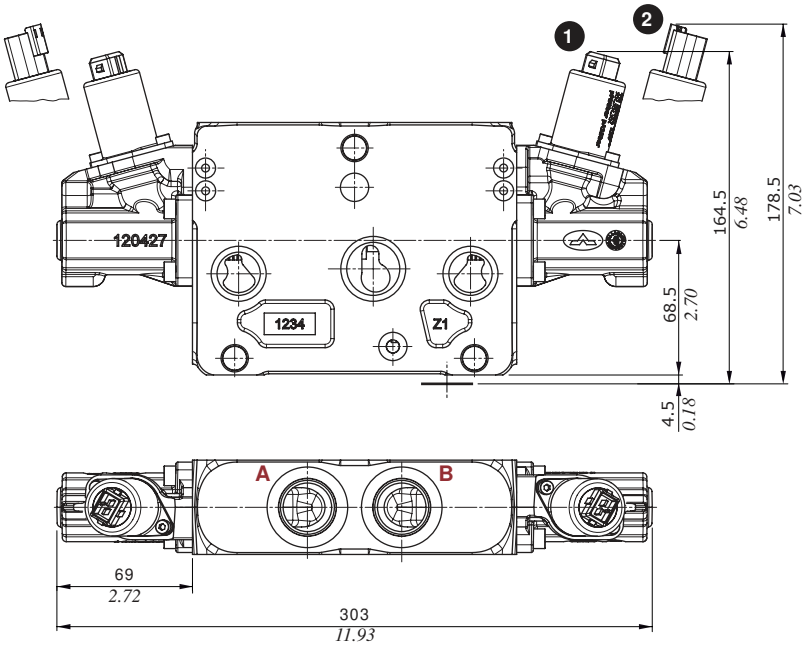
Working section

Two-side electrohydraulic control

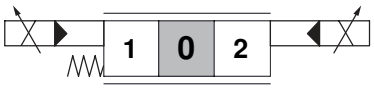
Without lever control

Control Types

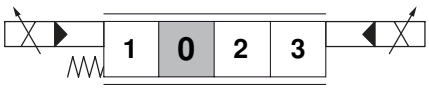
1 : With AMP JPT connector - mating connector AMP JPT, code: 5CON003
2 : With Deutsch DT04 connector - mating connector Deutsch DT06-2S code: 5CON140031

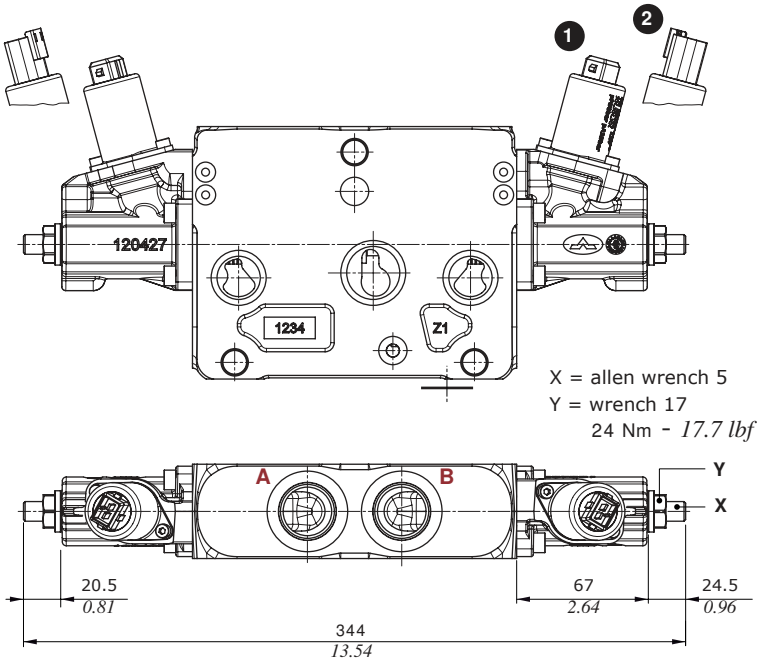


Types
8EB3
8EB34



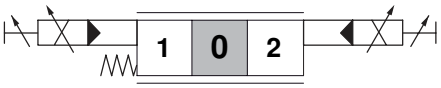
Types
13EB3
13EB34





X = allen wrench 5
Y = wrench 17
24 Nm - *17.7 lbf*

Types
8EB3F3
8EB34F3



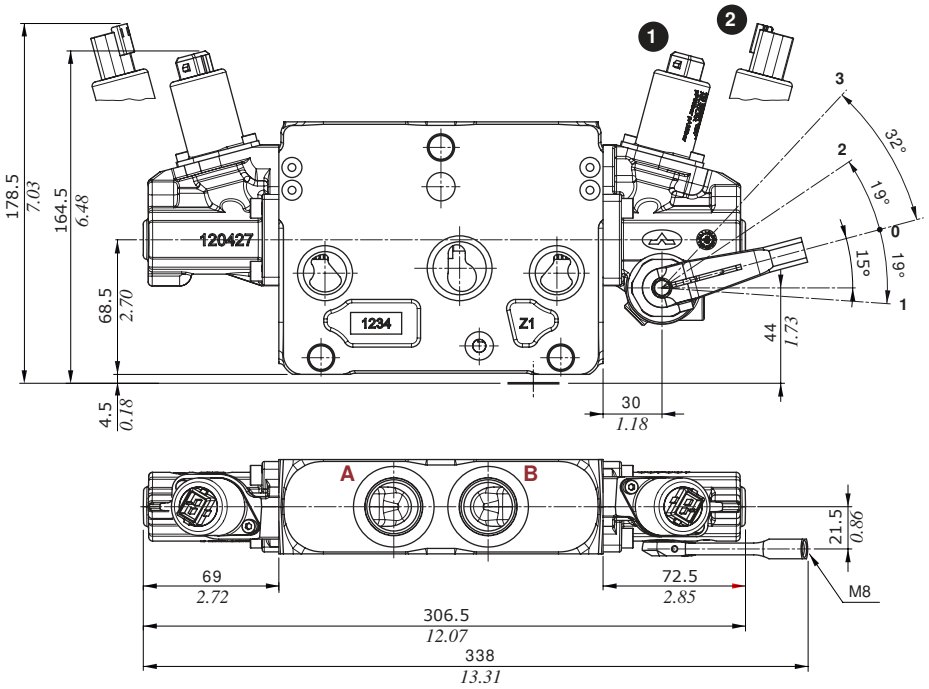
Two-side electrohydraulic control

With lever control

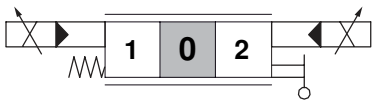
Control Types

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

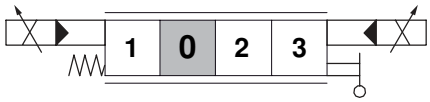
2 : With Deutsch DT04 connector - mating connector Deutsch DT06-2S code: 5CON140031

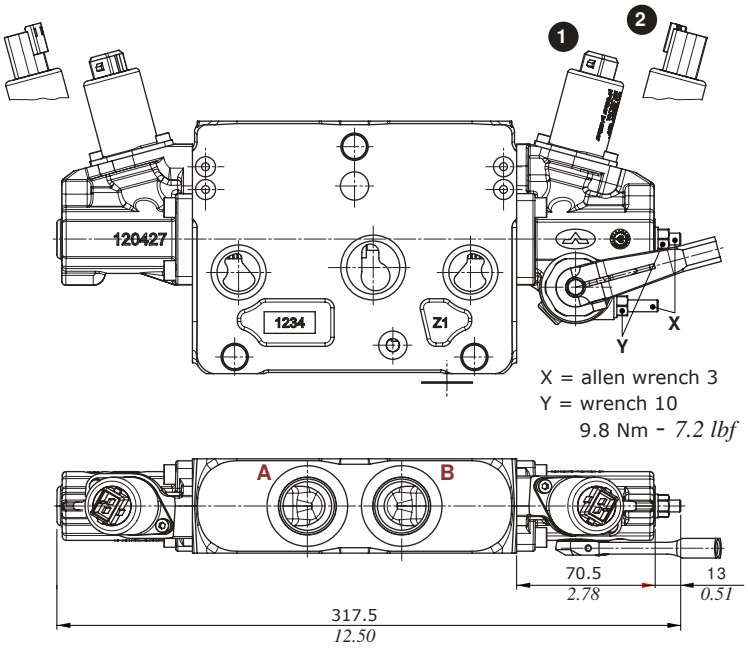


Types
8EB3LH
8EB34LH



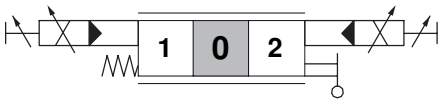
Types
13EB3LH
13EB34LH



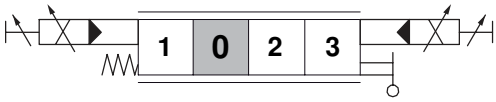


X = allen wrench 3
Y = wrench 10
9.8 Nm - *7.2 lbf*

Types
8EB3LHF3
8EB34LHF3



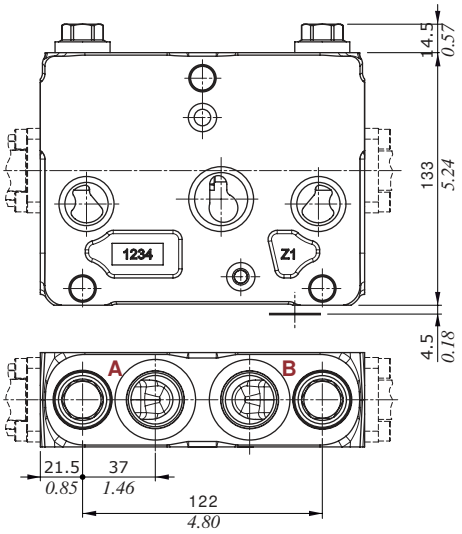
Types
13EB3LHF3
13EB34LHF3



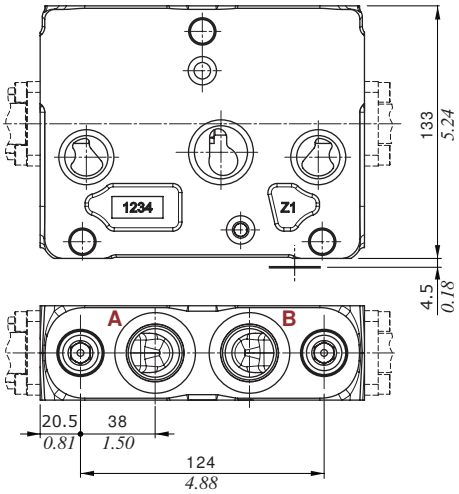
Working section

Port valves

Pressure relief valves, type UL
Anticavitation valve, type CL



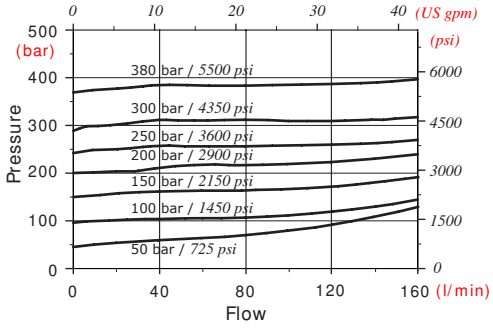
Antishock valves, type US
Anticavitation valve, type CS



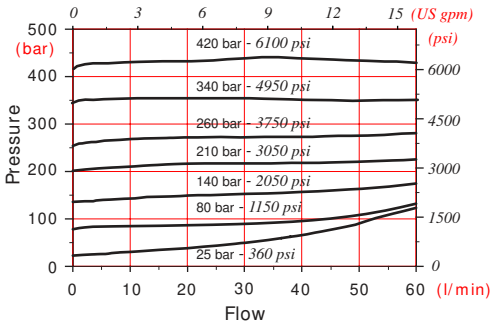
Types UL-US

Types CL-CS

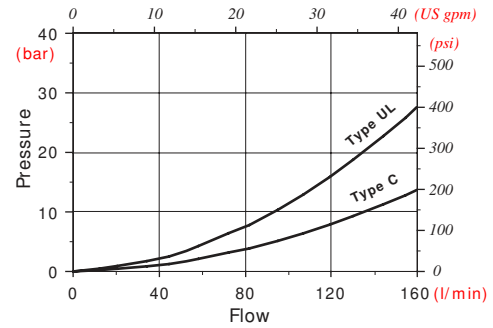
Type UL, setting example
(5 l/min - *1.3 Us gpm*)



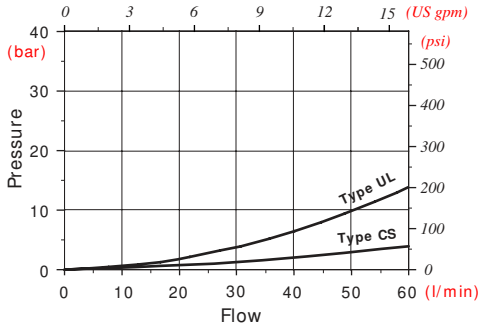
Type US, setting example
(10 l/min - *2.6 Us gpm*)



Types UL-CL, pressure drop
(in anticavitation)



Types US-CS, pressure drop
(in anticavitation)



Outlet section parts ordering codes

DPX160 / RC3A - CL - ... - 12VDC

1 5 6 5

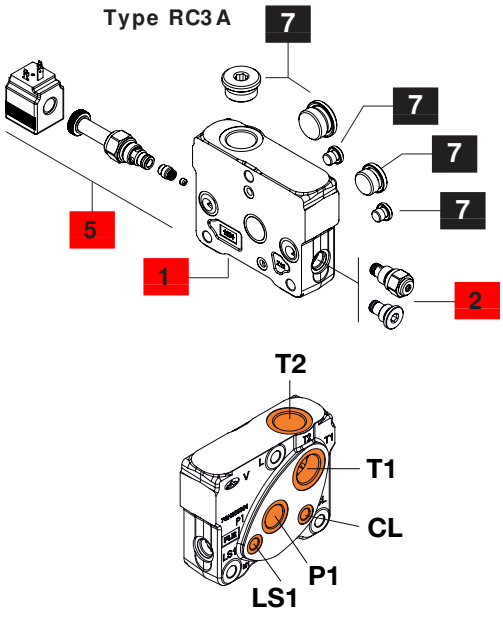
DPX160 / RCN3A (VBT) - ...

1 2 6

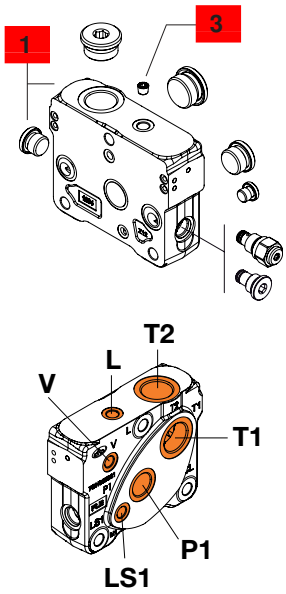
DPX160 / RCR3A (RT) (VLT) (VBT) - ...

1 4 3 2 6

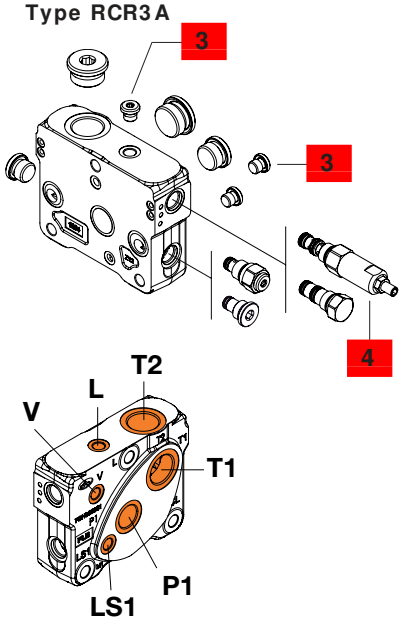
Type RC3A



Type RCN3A



Type RCR3A



1 Outlet section kit* page 102

Outlet section is the same type for standard and High Pressure valve

For mechanical and hydraulic controls

TYPE: **DPX160/RC1-SAE** CODE: YFIA205700
DESCRIPTION: With upper port T2 port
TYPE: **DPX160/RC3-SAE** CODE: YFIA205702
DESCRIPTION: With upper port T2 and side ports P1, T1, LS1
TYPE: **DPX160/RC3-CL-SAE** CODE: YFIA205714
DESCRIPTION: As previous with clamps release arrang.and port CL

For electrohydraulic controls

TYPE: **DPX160/RCN1-SAE** CODE: YFIA205706
DESCRIPTION: Without pressure reducing valve arrangement, upper L and side V ports, upper T2 port
TYPE: **DPX160/RCN3-SAE** CODE: YFIA205713
DESCRIPTION: As previous with side ports P1, T1, LS1
TYPE: **DPX160/RCN3-CL-SAE** CODE: YFIA205715
DESCRIPTION: As previous with clamps release arrang. and port CL
TYPE: **DPX160/RCR1-SAE** CODE: YFIA205703
DESCRIPTION: With pressure reducing valve arrangement, upper L and side V ports, upper T2 port
TYPE: **DPX160/RCR3-SAE** CODE: YFIA205707
DESCRIPTION: As previous with side ports P1, T1, LS1
TYPE: **DPX160/RCR3-CL-SAE** CODE: YFIA205716
DESCRIPTION: As previous with clamps release arrang. and port CL

Note: for outlet sections with different port arrangement contact Sales Dpt.

2 Bleed valve page 102

TYPE	CODE	DESCRIPTION
(-)	X138810000	Bleed valve
(VBT)	XTAP525320	Valve blanking plug

3 Pilot and drain

TYPE	CODE	DESCRIPTION
(-)	4TAP306006	M6-DIN906 plug, for external drain
(VLT)	3XTAP817130	SAE6 plug, nr.2 for int. pilot and drain

4 Pressure reducing valve page 103

TYPE	CODE	DESCRIPTION
(-)	4AC9539900	Press. reducing valve, 32 bar / *464 psi*
(RT)	3XTP3535100	Valve blanking plug (SAE 08/3)

5 Clamps release kit page 103

TYPE	CODE	DESCRIPTION
CL	5KIT409010	Clamp release kit - 12VDC

6 Section threading

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

7 Parts*

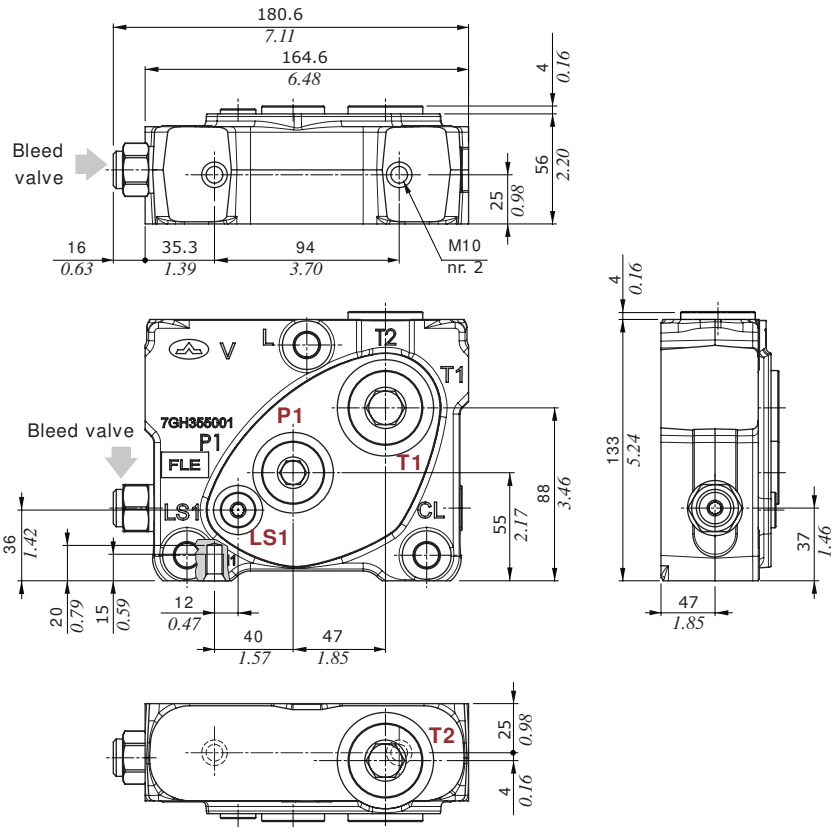
CODE	DESCRIPTION
3XTAP838200	SAE16 plug: for RC1/RCN1/RCR1 = nr. 1 for RC3/RCN3/RCR3 = 2
3XTAP832200	SAE12 plug, for RC1/RCN1/RCR1 = nr. 0 for RC3/RCN3/RCR3 = 1
3XTAP817130	SAE6 plug, for RC1/RCN1/RCR1 = nr. 0 for RC3/RCN3/RCR3 = 1 for RC3-CL/RCN3-CL/RCR3-CL = 2

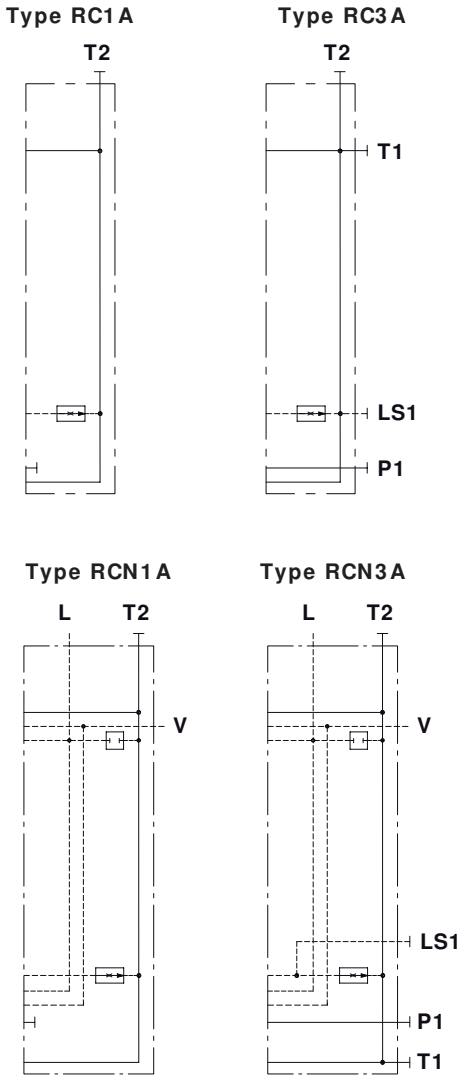
NOTE (*): *Codes are referred to **UN-UNF** thread.*
NOTE (-): "TYPE" omitted in outlet section description

Outlet section

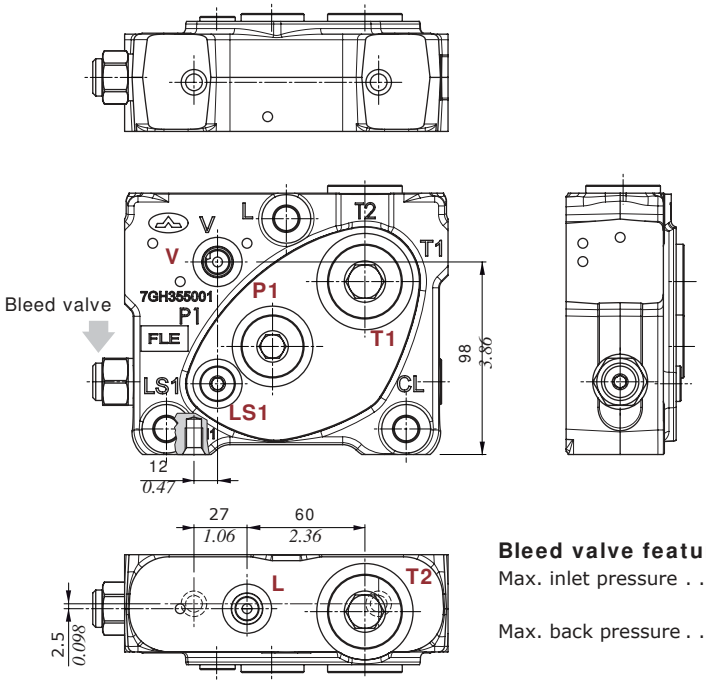
Dimensions and hydraulic circuit

Example of RC3A outlet section





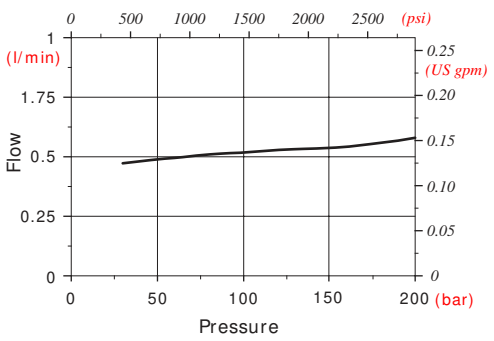
Example of RCN3A outlet section



Bleed valve features

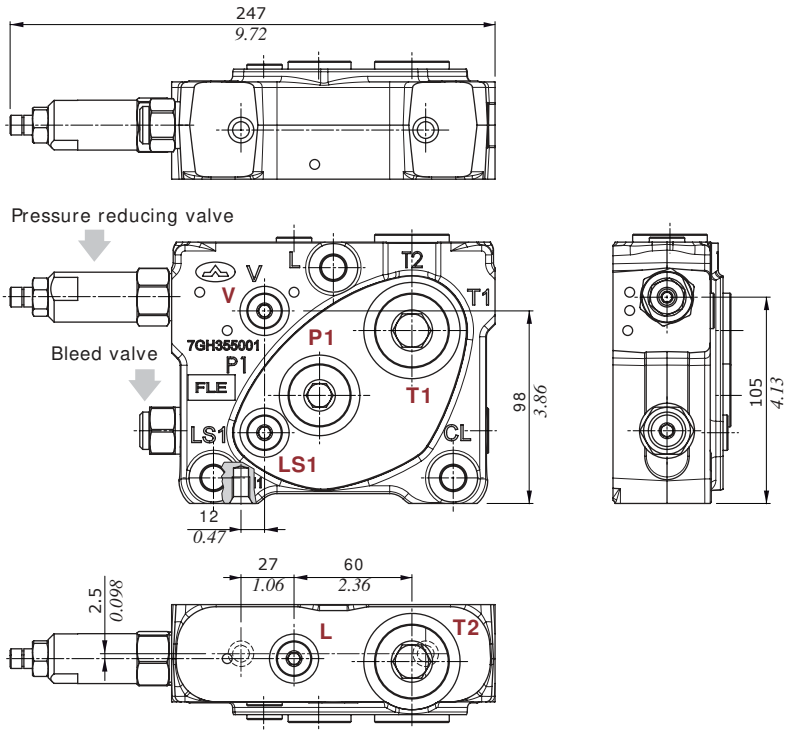
Max. inlet pressure . . . : 350 bar
5100 psi
Max. back pressure . . . : 25 bar
363 psi

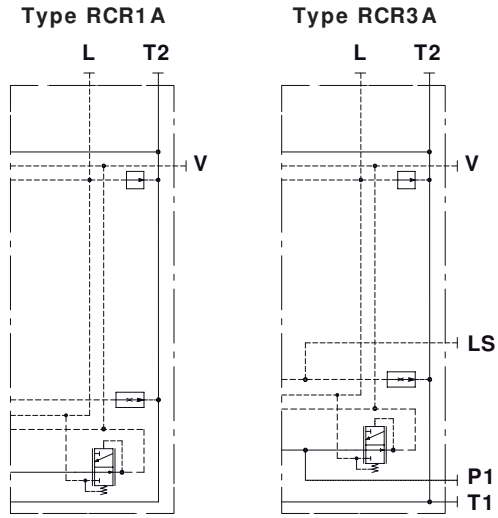
Bleed valve diagram
Flow vs. Pressure



Dimensions and hydraulic circuit

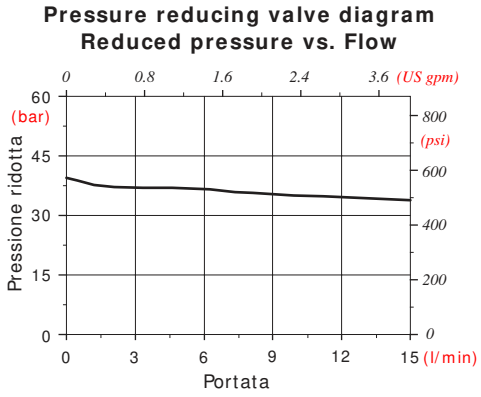
Example of RCR3A outlet section



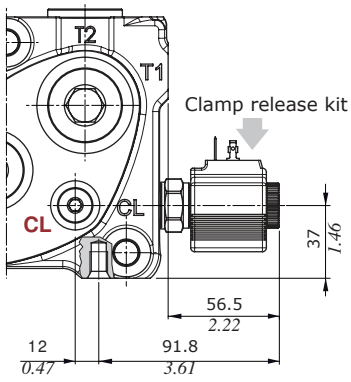


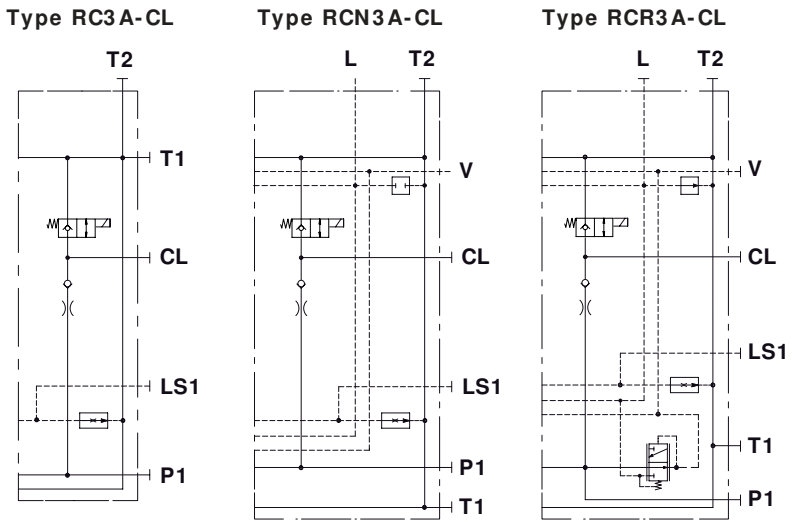
Pressure reducing valve features

Reduced press. range . : from 3.5 to 35 bar
: *from 50 to 500 psi*
Max. inlet pressure . . . : 420 bar - *5500 psi*
Nominal flow . . . . . : 15 l/min - *4 US gpm*



Outlet sections with clamp release kit





Features

Max. flow . . . . . : 45 l/min - *12 US gpm*
Max. pressure. . . . . : 315 bar - *4600 psi*
Internal leakage . . . . . : max. 3 cm³/min @ 100 bar
max. 0.018 in³/min @ 1450 psi

For coil features and options see coil **BER** at page 104.

Coils and connectors

Coil type	Voltage	Connectors					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
BER	10 VDC	4SLE001000	-	-	-	-	-
	12 VDC	4SLE001200 4SLE001217(3)	4SLE001201(5) 4SLE001209(3-5) 4SLE001202(6) 4SLE001216(3-6) 4SLE001206(2)	4SLE001203(5) 4SLE001211(3-5)	4SLE001210(2)	4SLE001214(2)	4SLE001207
	24 VDC	4SLE002400 4SLE002408(3) 4SLE302400(1)	4SLE002401(5) 4SLE002407(3-5) 4SLE002402(6)	4SLE002403(5)	-	-	4SLE002404
	48 VDC	4SLE004800 4SLE304800(1)	-	-	-	-	-
	110VDC	4SLE011000 4SLE311000(1)	-	-	-	-	-
	220 VDC	4SLE022000 4SLE322000(1)	-	-	-	-	-
BE	12 VDC	4SL1000120	4SL1000123(6) 4SL1000140(3-6) 4SL1000124(2)	-	-	-	4SL1000122
	24 VDC	4SL1000240 4SL1030240(1)	4SL1002401(6)	-	-	-	-
	110 VDC	4SL1011100 4SL1031100(1)	-	-	-	-	-
	220 VDC	4SL1022200 4SL1032200(1)	-	-	-	-	-
BT	10 VDC	4SL3000100					
	12 VDC	4SL3000120 4SL3000126(4)	4SL3000130(6) 4SL3000134(3-6) 4SL3000128(2)	4SL3000122(5) 4SL3001200(3-5)	4SL3000124(2)	4SL3000127(2)	4SL300012C
	24 VDC	4SL3000240 4SL3030240(1)	4SL3000249(6) 4SL300024C(3-6)	4SL3000248(5)	-	-	4SL3000246
	26 VDC	4SL3000260	-	-	-	-	-
	48 VDC	4SL3000480 4SL3030480(1)	-	-	-	-	-
	110 VDC	4SL3001100 4SL3031100(1)	-	-	-	-	-
	220 VDC	4SL3002200 4SL3032200(1)	-	-	-	-	
BPV	12 VDC	4SLA001200	-	-	-	-	-
	24 VDC	4SLA002400	-	-	-	-	-
D12	10,5 VDC	4SOL412011	4SOL412111(2)	-			-
	12 VDC	4SOL412012 4SOL412016(3)	4SOL412013(6) 4SOL412112(2) 4SOL412015(3-6) 4SOL412113(2-3)	-	-	-	4SOL412017(3)
	24 VDC	4SOL412024	4SOL412025(6) 4SOL412124(2) 4SOL412027(3-6)	4SOL412224(2)	-	-	-
Mating connectors (For connector with rectifier sse following table)		4CN1009995	5CON140031	5CON003	5CON001	5CON017	-

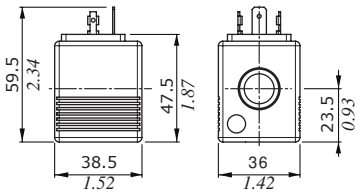
Notes: (1) supply with AC and use only with rectifier connector - (2) with flying leads - (3) with bidirectional diode - (5) with unidirectional diode (5) integrated perpendicular type - (6) integrated parallel type

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

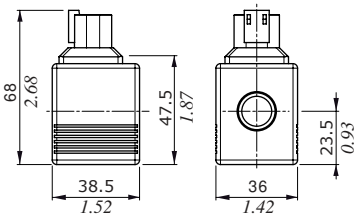
Coils and connectors

Type BER

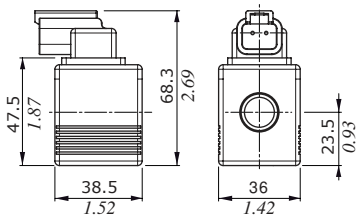
ISO4400 connector



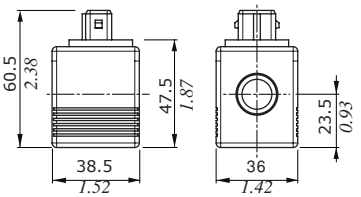
DEUTSCH DT04 connector
(perpendicular type)



DEUTSCH DT04 connector
(parallel type)



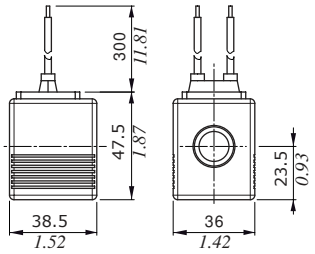
AMP JPT connector



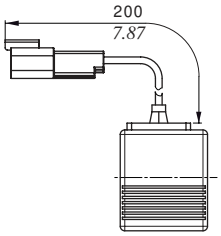
Features

Nominal voltage tolerance : ±10%
Power rating . . . . . : 19.2 W - 10/12/24/48/ 110/220 VDC
: 19 W - 24/110/220 RAC
: 19.2 W - 48 RAC
Max. operating current . . : 1.9 A - 10 VDC
: 1.61 A - 12 VDC
: 0.80 A - 24 VDC
: 0.40 A - 48 VDC
: 0.17 A - 110 VDC
: 0.09 A - 220 VDC
: 0.89 A - 24 RAC
: 0.45 A - 48 RAC
: 0.19 A - 110 RAC
: 0.09 A - 220 RAC
Coil insulance . . . . . : Class H (180°C - *356°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
: IP67 - Weatherpack
: IP67 - Metri-pack
Insertion . . . . . : 100%

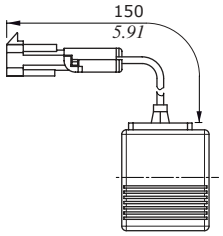
Flying leads



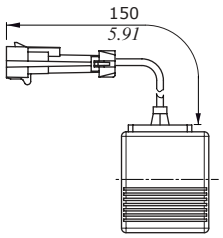
Flying leads with DEUTSCH DT04 connector



Flying leads with PACKARD WEATHER-PACK connector

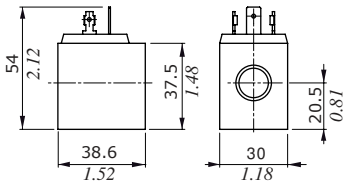


Flying leads with PACKARD METRI-PACK connector

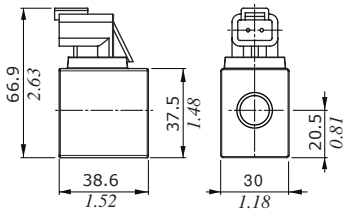


Type BE

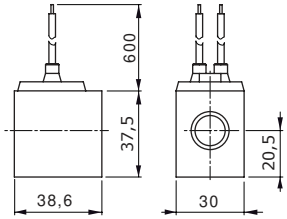
ISO4400 connector



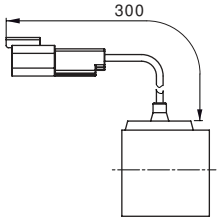
DEUTSCH DT04 connector



Flying leads



Flying leads with DEUTSCH DT04 connector



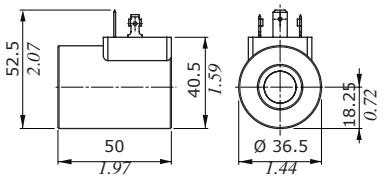
Features

Nominal voltage tolerance : ±10%
Power rating . . . . . : 18.7 W - 12 VDC
: 18.6 W - 24 VDC
: 17.3 W - 110 VDC
: 15.7 W - 220 VDC
: 18.3 W - 24 RAC
: 16 W - 110 RAC
: 16 W- 220 RAC
Max. operating current . . : 1.56 A - 12 VDC
: 0.77 A - 24 VDC
: 0.157 A - 110 VDC
: 0.08 A - 220 VDC
: 0.85 A - 24 RAC
: 0.16 A - 110 RAC
: 0.08 A - 220 RAC
Coil insulance . . . . . : Class F (155°C - *311°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
Insertion . . . . . : 100%

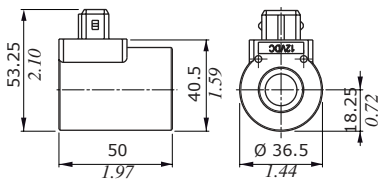
Coils and connectors

Type BT

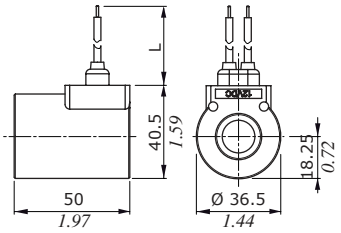
ISO4400 connector



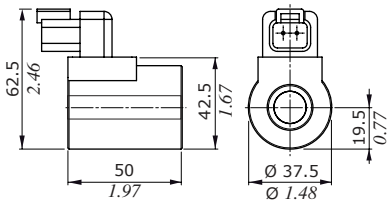
AMP JPT connector



Flying leads



DEUTSCH DT04 connector

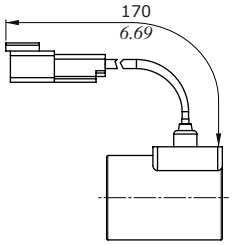


Coil type	Dimension L (mm)	(in)
12VDC	247	9.72
24VDC	307	12.09

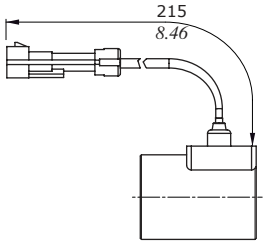
Features

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 insulance . . . . . : Class F (155°C - *311°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
: IP67 - Weatherpack
: IP67 - Metri-pack
Insertion . . . . . : 100%

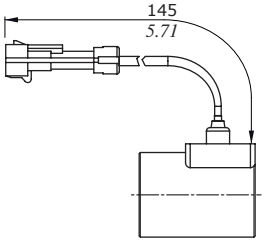
Flying leads with DEUTSCH DT04 connector



Flying leads with PACKARD WEATHER-PACK connector

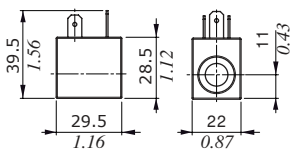


Flying leads with PACKARD METRI-PACK connector

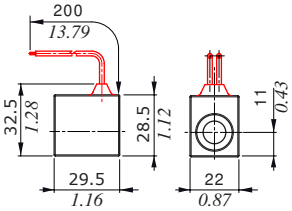


Type BPV

ISO4400 connector



Flying leads



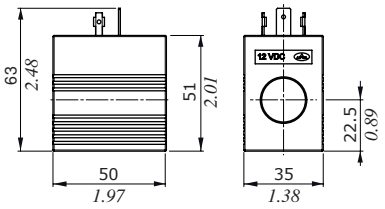
Features

Nominal voltage tolerance : ±10%
Power rating . . . . . : 8 W - 12/24 VDC
Max. operating current . . : 0,67 A - 12 VDC
: 0,33 A - 24VDC
Coil Insulance . . . . . : Class H (180°C - *356°F*)
Weather protection . . . . . : IP65 - ISO4400
Insertion . . . . . : 100%

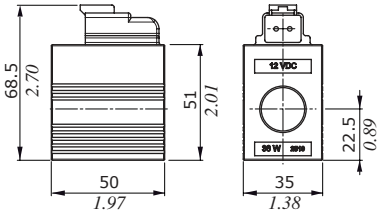
Coils and connectors

Type D12

ISO4400 connector



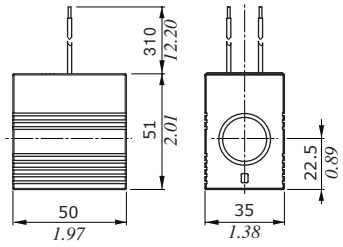
DEUTSCH DT04 connector
(with or without bidirectional diode)



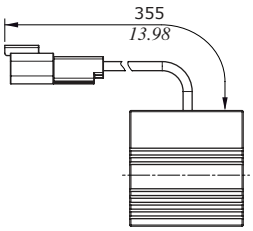
Features

Nominal voltage tolerance : ±10%
Power rating . . . . . : 36 W - 10.5/12/24 VDC
Max. operating current . . : 3.43 A - 10.5 VDC
: 3 A - 12 VDC
: 1.5 A - 24VDC
Coil insulance . . . . . : Class H (180°C - *356°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
Insertion . . . . . : 100%

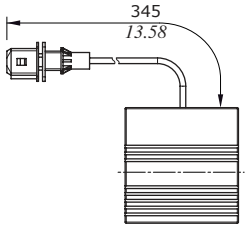
Flying leads



Flying leads with DEUTSCH DT04 connector



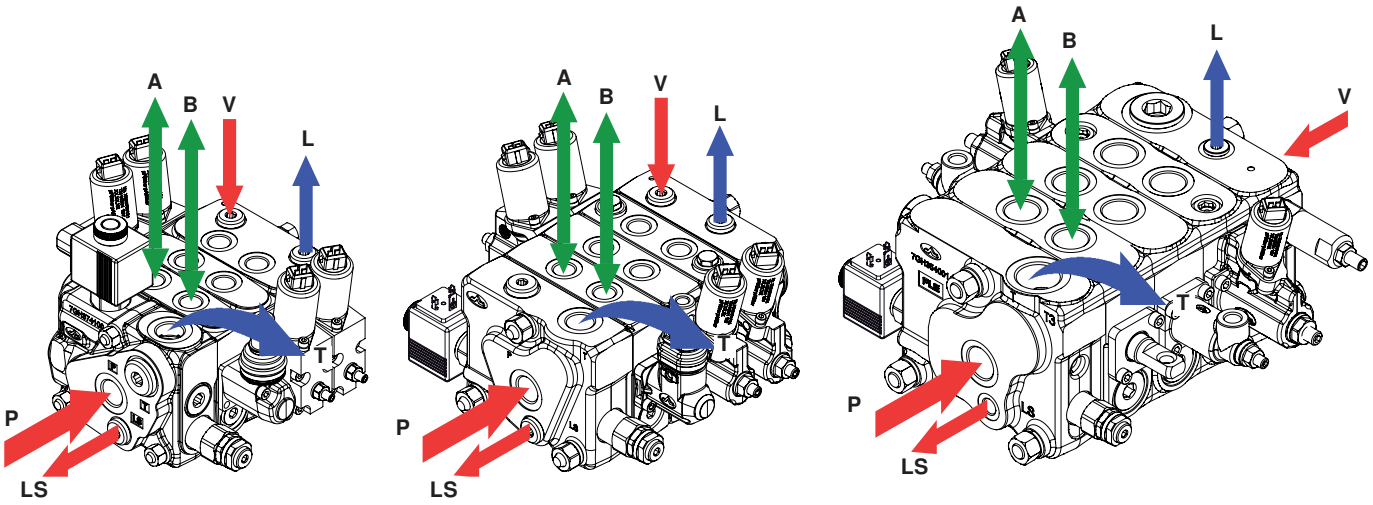
Flying leads with AMP JPT connector



Installation and maintenance

The valves of DPX series are assembled and tested as per the technical specification of this catalogue.
Before the final installation on your equipment, follow the below re commendations:

- 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 wash down directly on the valve;
- prior to painting, ensure plugs on normally open ports are tightly in place.



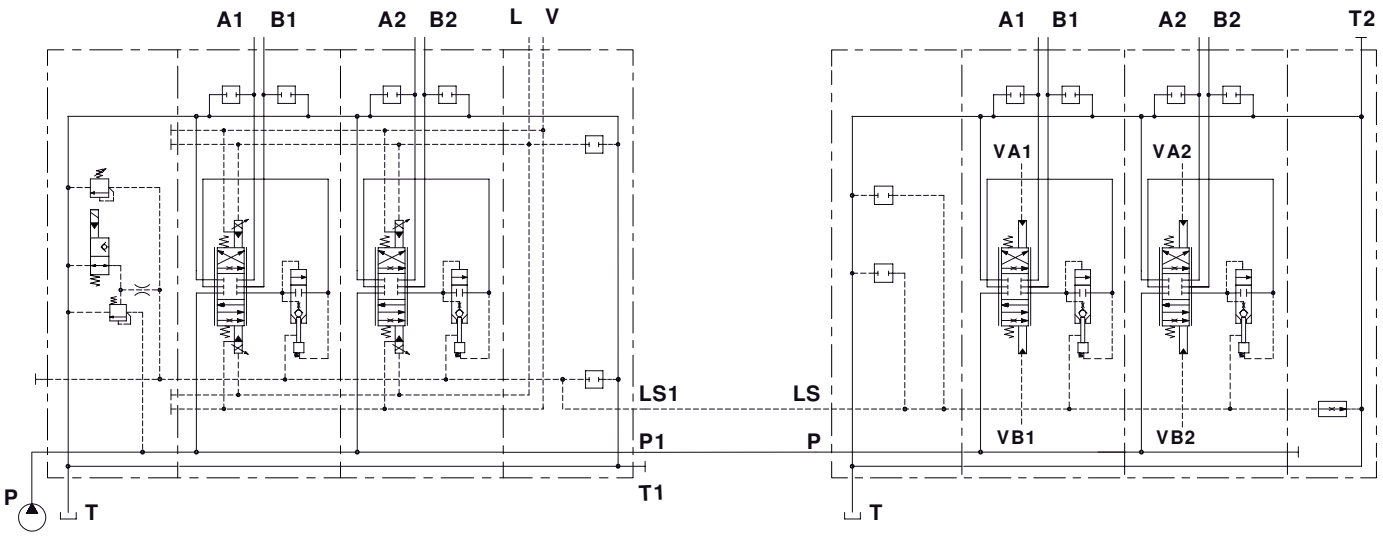
		FITTINGS TIGHTENING TORQUE - Nm / *lbft*							
	THREAD TYPE	P inlet port		A and B workports		T outlet port		LS signal port	V and L ports
DPX050	BSP	G 1/2		G 3/8		G 1/2		G 1/4	G 1/4
	With O-Ring seal	50 / *36.9*		35 / *35.8*		50 / *36.9*		25 / *18.4*	25 / *18.4*
	With copper washer	60 / *44.3*		40 / *29.5*		60 / *44.3*		30 / *22.1*	30 / *22.1*
	With steel and rubber washer	60 / *44.3*		30 / *22.1*		60 / *44.3*		16 / *11.8*	16 / *11.8*
	UN-UNF	3/4-16 (SAE 8)		6/16-18 (SAE 6)		3/4-16 (SAE 8)		9/16-18 (SAE 6)	9/16-18 (SAE 6)
	With O-Ring seal	35 / *25.8*		30 / *22.1*		35 / *25.8*		30 / *22.1*	30 / *22.1*
DPX100	BSP	G 1/2	G 3/4	G 3/8	G 1/2	G 1/2	G 3/4	G 1/4	G 1/4
	With O-Ring seal	50 / *36.9*	90 / *66.4*	50 / *36.9*	50 / *36.9*	50 / *36.9*	90 / *66.4*	25 / *18.4*	25 / *18.4*
	With copper washer	60 / *44.3*	90 / *66.4*	60 / *44.3*	60 / *44.3*	60 / *44.3*	90 / *66.4*	30 / *22.1*	30 / *22.1*
	With steel and rubber washer	60 / *44.3*	70 / *51.6*	60 / *44.3*	60 / *44.3*	60 / *44.3*	70 / *51.6*	16 / *11.8*	16 / *11.8*
	UN-UNF	7/8-14 (SAE 10)		3/4-16 (SAE 8)		7/8-14 (SAE 10)		9/16-18 (SAE 6)	9/16-18 (SAE 6)
	With O-Ring seal	90 / *66.4*		35 / *25.8*		90 / *66.4*		30 / *22.1*	30 / *22.1*
DPX160	BSP	G 3/4		G 3/4		G 1		G 1/4	G 1/4
	With O-Ring seal	90 / *66.4*		90 / *66.4*		100 / *73.8*		25 / *18.4*	25 / *18.4*
	With copper washer	90 / *66.4*		90 / *66.4*		90 / *66.4*		30 / *22.1*	30 / *22.1*
	With steel and rubber washer	70 / *51.6*		70 / *51.6*		100 / *73.8*		16 / *11.8*	16 / *11.8*
	UN-UNF	1 1/16-12 (SAE 12)		1 1/16-12 (SAE 12)		1 5/16-12 (SAE 16)		9/16-18 (SAE 6)	9/16-18 (SAE 6)
	With O-Ring seal	95 / *70.1*		95 / *70.1*		150 / *100.6*		30 / *22.1*	30 / *22.1*

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

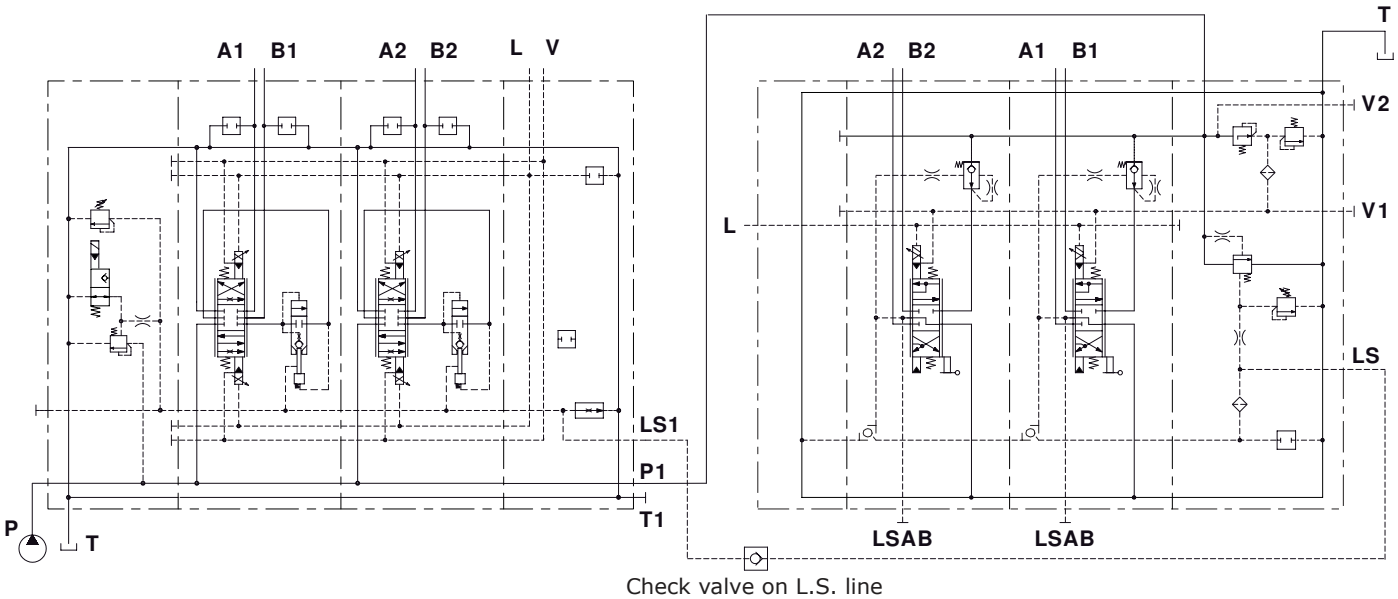
Connection between two directional valves

All the examples shown allow contemporary operatons of workports.
With two or more DPX Series valves connected as shown, only one Bleed valve is needed, placed on the last DPX and blanking plugs on the others.
However if DPX valves are far from each other or configured with many sections, the Bleed valve may be required on each directional valve.

Example 1: connection between DPX series valves, Open Center circuit



Example 2: connection between DPX series and DPC series valves, Open Center circuit

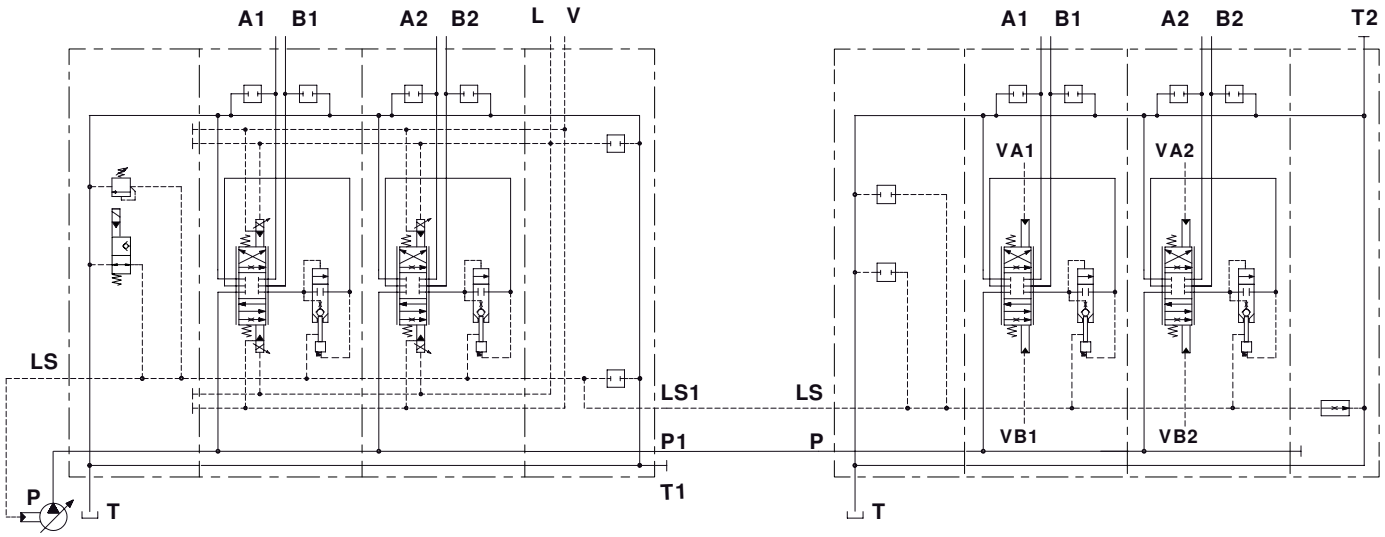


Check valve on L.S. line

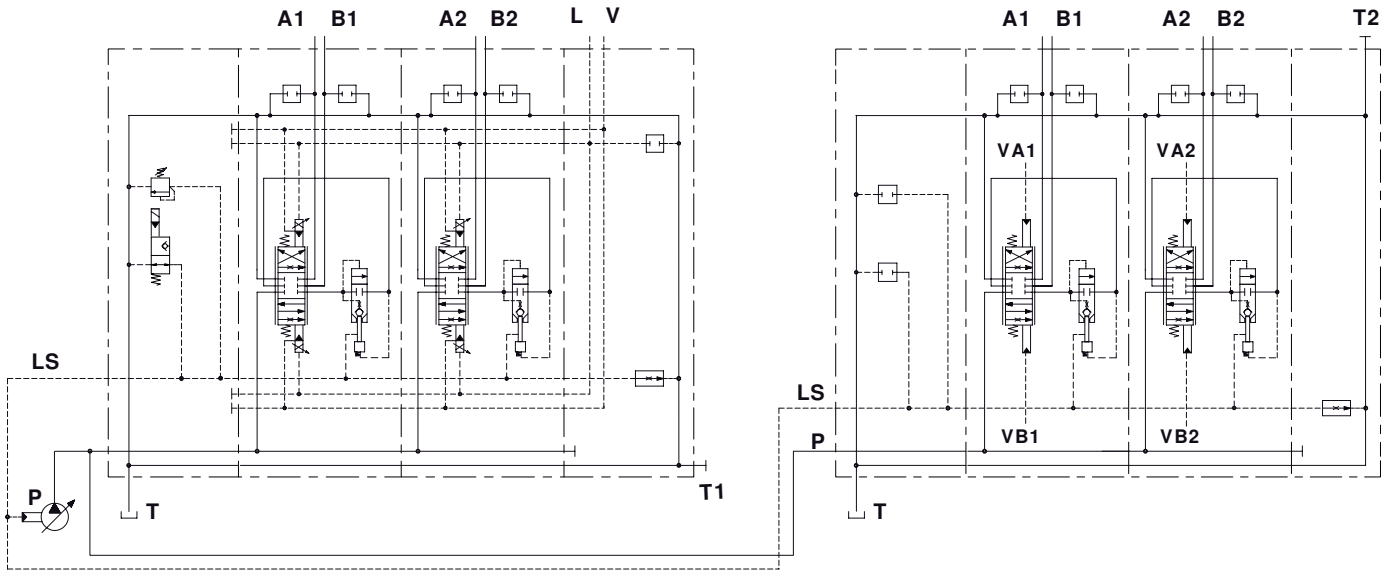
Installation and maintenance

Connection between two directional valves

Example 3: connection between DPX series valves, Closed Center circuit

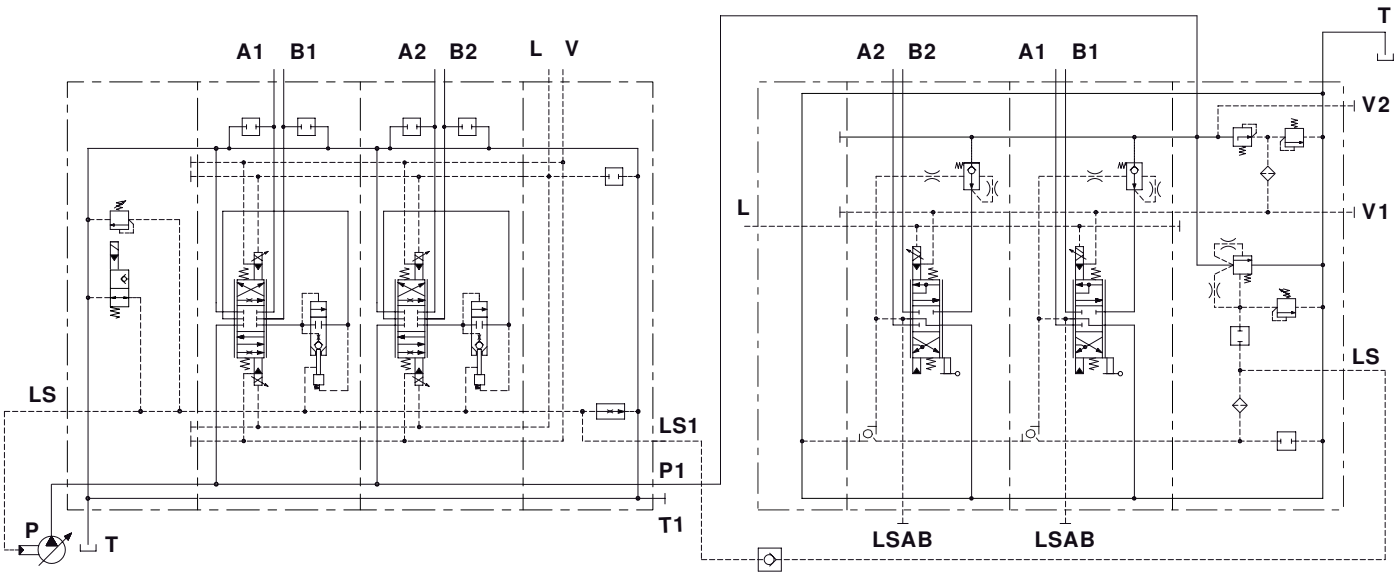


NOTE: if distance between the valves is great, it's advisable the following circuit.



Connection between two directional valves

Example 4: connection between DPX series and DPC series valves, Closed Center circuit



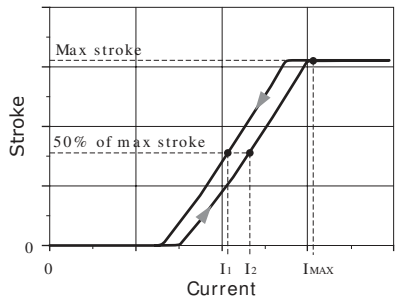
Check valve on L.S. line

Appendix A

Electrohydraulic controls: hysteresis calculation rule

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

Example diagram for data detection



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

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