



DPX Series

Full Flow Sharing sectional valves

TECHNICAL CATALOGUE



Additional information

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

WARNING!

All specifications of this catalogue refer to the standard product at this date.
Walvoil, oriented to a continuous improvement, reserves the right to discontinue, modify or revise the specifications, without notice.

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

14th edition November 2022

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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. The DPX Series is available in three different sizes: DPX050, DPX100 and DPX160, also available in High Pressure configuration.



DPX050



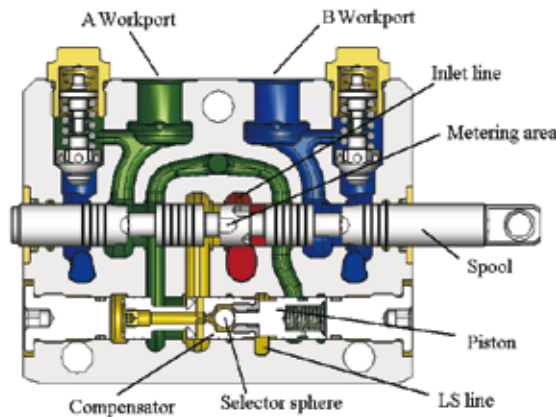
DPX100



DPX160

The Flow Sharing technology

The DPX Series control valves adds the benefit of Flow Sharing technology to the standard Load Sensing valve. The DPX Series patented compensator maintains the margin pressure as a constant 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):

$$Q \propto A \sqrt{\frac{\Delta P}{\rho}}$$

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 maintain control of all functions, though at reduced speed of active functions.

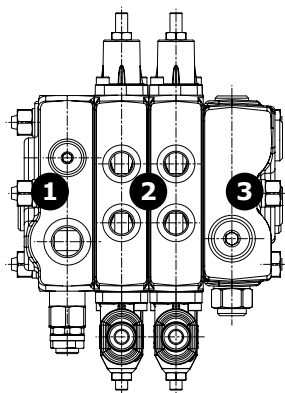
Advantages and options

- 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 please contact Sales Dept.

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

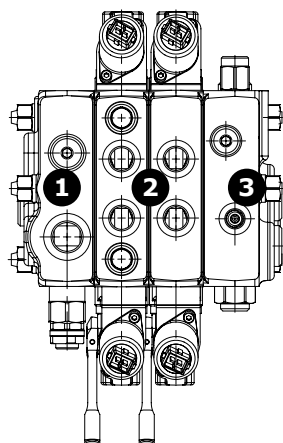
Configuration with only electrohydraulic or mixed controls

Electrohydraulic configuration (pic. 1) needs standard inlet sections, working and outlet sections with pilot lines.

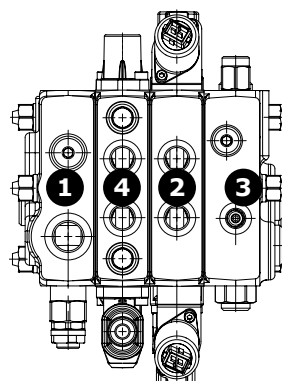
In a valve configured with electrohydraulic mixed sections (two-sides and one side type controls), the two-side control section have to be positioned after (on the right) one-side control section, close to the outlet one.

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 working sections 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

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	Std.	DPX100 HP	HF	DPX160 Std.	HP
Nominal flow rating	inlet port with compensator, with 14 bar - 200 psi stand-by (margin pressure)	80 l/min 21 US gpm	120 l/min 32 US gpm	120 l/min 32 US gpm	>120 l/min >32 US gpm	230 l/min 61 US gpm	
	working ports, with 14 bar - 200 psi stand-by (margin pressure)	50 l/min 13 US gpm	90 l/min 24 US gpm	90 l/min 24 US gpm	120 l/min 32 US gpm	160 l/min 42 US gpm	
Max. pressure	P inlet port	300 bar 4350 psi	300 bar 4350 psi	380 bar ⁽¹⁾ 5550 psi ⁽¹⁾	380 bar ⁽¹⁾ 5550 psi ⁽¹⁾	300 bar	380 bar ⁽³⁾
	A and B working ports	350 bar 5100 psi	300 bar 4350 psi	420 bar ⁽¹⁾ 6000 psi ⁽¹⁾	420 bar ⁽¹⁾ 6000 psi ⁽¹⁾	300 bar	420 bar ⁽³⁾
Back pressure (max.) on outlet T port	with mechanical devices			10 bar - 145 psi			
	with hydraulic/pneumatic devices			30 bar - 435 psi			
	with electric/electrohydraulic devices			see related pages			
Standard internal leakage A(B)->T	On std.working section						
	Δp=100 bar - 1450 psi	max. 6.5 cm ³ /min max. 0.40 in ³ /min		max. 9 cm ³ /min max. 0.55 in ³ /min		max. 12 cm ³ /min max. 0.73 in ³ /min	
	with port valves, Δp=100 bar - 1450 psi	max. 11.5 cm ³ /min max. 0.70 in ³ /min		max. 14 cm ³ /min max. 0.85 in ³ /min		max. 17 cm ³ /min max. 1.04 in ³ /min	
	On Low Leak section						
	Δp=180 bar	max. 3 cm ³ /min max. 0.18 in ³ /min	max. 3 cm ³ /min max. 0.18 in ³ /min	-	-	-	
	with port valves, Δp=180 bar - 2600 psi	max. 4 cm ³ /min max. 0.24 in ³ /min	max. 4 cm ³ /min max. 0.24 in ³ /min	-	-	-	
Fluid				Mineral oil			
Fluid temperature range	standard configuration		from -20°C to 100°C - from -4°F to 212°F				
Viscosity	operating range		from 15 to 75 mm ² /s - from 15 to 75 cSt				
	min.		12 mm ² /s - 12 cSt				
	max.		400 mm ² /s - 400 cSt				
Contamination level	max		19/18/15 - ISO 4406 - NAS 1638 class 9				
Environmental temperature for working conditions	with mechanical devices		from -40°C to 60°C - from -40°F to 140°F				
	with hydraulic/pneumatic devices		from -30°C to 60°C - from -22°F to 140°F				
	with electric/electrohydraulic devices		from -20°C to 50°C - from -4°F to 122°F				

NOTES: ⁽¹⁾ According to NFPA T 2.6.1., fatigue rating verified for 1 million cycles on 6 sample valves with test Pressure = 1.23 x Max. pressure indicated - ⁽²⁾ According to NFPA T 2.6.1., fatigue rating verified for 1 million cycles on 5 sample valves with test Pressure = 1.16 x Max. pressure indicated - ⁽³⁾ 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 ⁽⁴⁾	METRIC ISO ⁽⁴⁾	NPTF
THREAD ACCORDING TO	ISO 228/1	ISO 263			
	BS 2779	ANSI B1.1 unified	ISO 262	ISO 262	ANSI B1.20.3
CAVITY DIMENSION	ISO 1179	11926	9974-1	6149	
DIMENSION ACCORDING TO	SAE	J1926		J2244	J476a
	DIN 3852-2 shape X or Y		3852-1 shape X or Y		

NOTE ⁽⁴⁾: Metric threading is available on request

PORTS THREADING	DPX050		DPX100		DPX160	
	BSP	UN-UNF	BSP	UN-UNF	BSP	UN-UNF
P inlet	G 1/2	3/4-16 (SAE 8)	G 1/2 - G 3/4 ⁽⁵⁾	7/8-14 (SAE10) 1 1/16-12 (SAE12) ⁽⁵⁾	G 3/4	1 1/16-12 (SAE12)
A and B ports	G 3/8	9/16-18 (SAE 6)	G 3/8 G 1/2 ⁽⁵⁾ - G 3/4 ⁽⁶⁾	3/4-16 (SAE8) 1 1/16-12 (SAE12) ⁽⁶⁾	G 3/4	1 1/16-12 (SAE12)
T outlet	G 1/2	3/4-16 (SAE 8)	G 1/2 - G 3/4 ⁽⁵⁾	7/8-14 (SAE10) 1 1/16-12 (SAE12) ⁽⁵⁾	G 1	1 5/16-12 (SAE16)
V pilot	G 1/4	7/16-20 (SAE 4)	G 1/4	9/16-18 (SAE6)	G 1/4	9/16-18 (SAE6)
L drain	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		

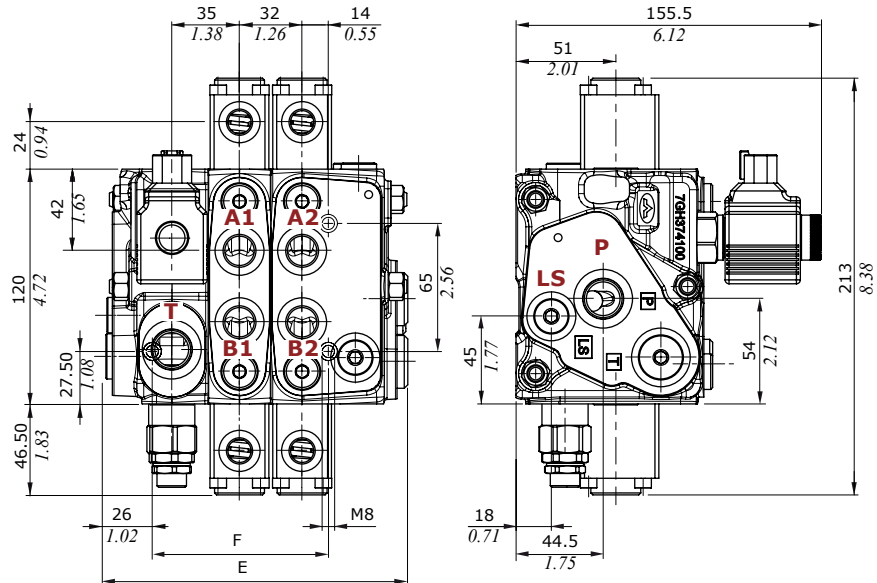
NOTE:

⁽⁵⁾ - Optional threading / ⁽⁶⁾ - only for High Flow sections

Content

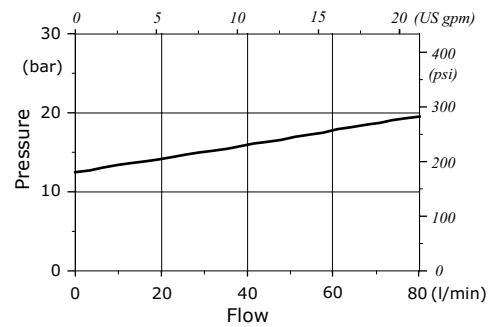
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Dimensional data and performance

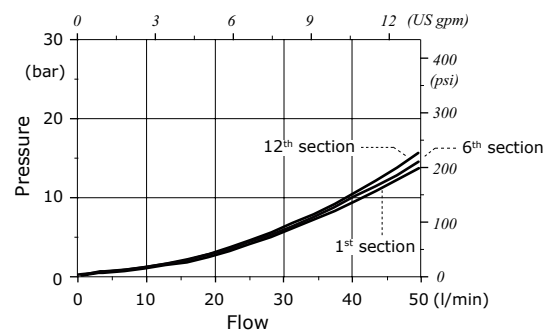


Type	E		F	
	mm	in	mm	in
DPX050/1	119	4.69	57.5	2.26
DPX050/2	151	5.95	89.5	3.52
DPX050/3	183	7.20	121.5	4.78
DPX050/4	215	8.46	153.5	6.04
DPX050/5	247	9.72	185.5	7.30
DPX050/6	279	10.98	217.5	8.56
DPX050/7	311	12.24	249.5	9.82
DPX050/8	343	13.50	281.5	11.08
DPX050/9	375	14.76	313.5	12.34
DPX050/10	407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

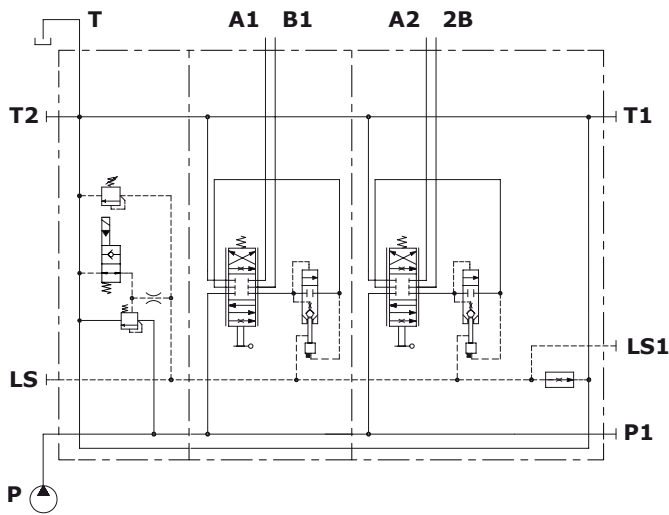
P⇒T Pressure drop inlet compensator (margin pressure)



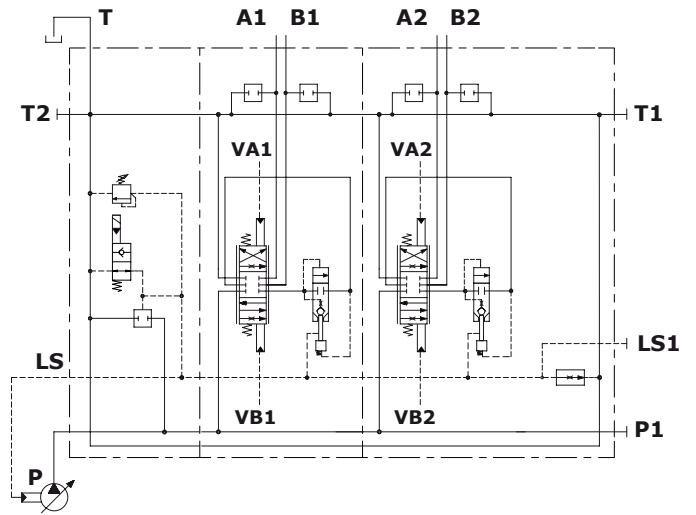
A(B)⇒T pressure drop (standard spool @ max.stroke)



Configuration example with mechanical and hydraulic controls

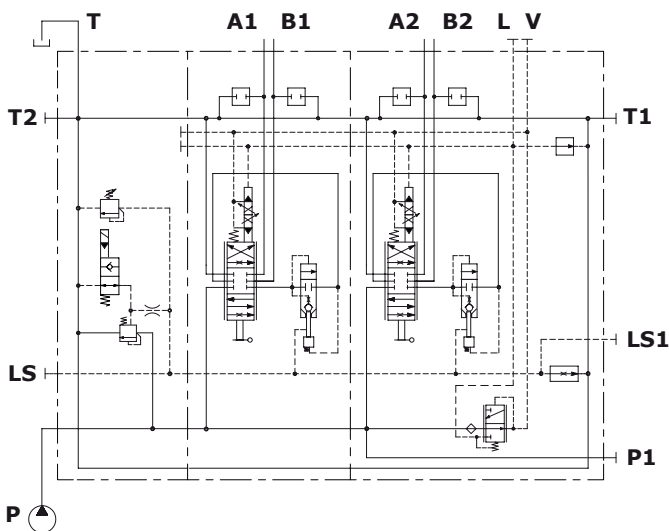


Open center circuit and lever control, with unloader valve, without port valve arrangement

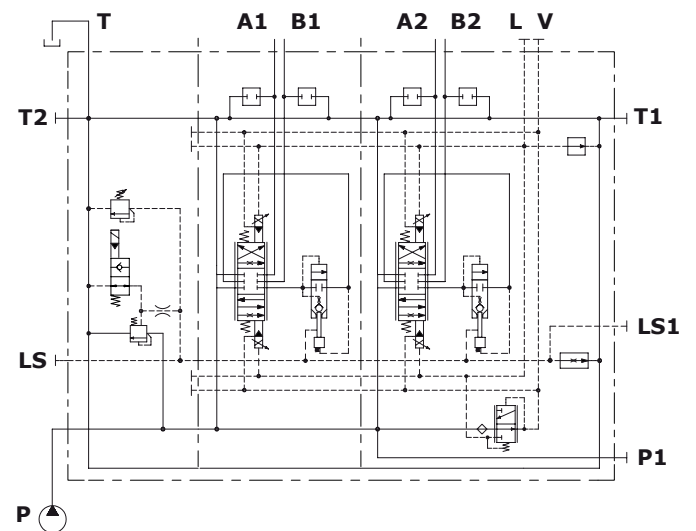


Closed center circuit and proportional hydraulic control, with unloader valve and port valve arrangement

Configuration example with electrohydraulic controls



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



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

Guide to configuration

Pressure peak 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 comfortable 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 peak reduction.

Standard configuration

Bidirectional restrictor on L.S. signal; it dampens the pressure peaks from L.S. line to inlet section 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 section 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.

Directional valve with Low Leak working sections

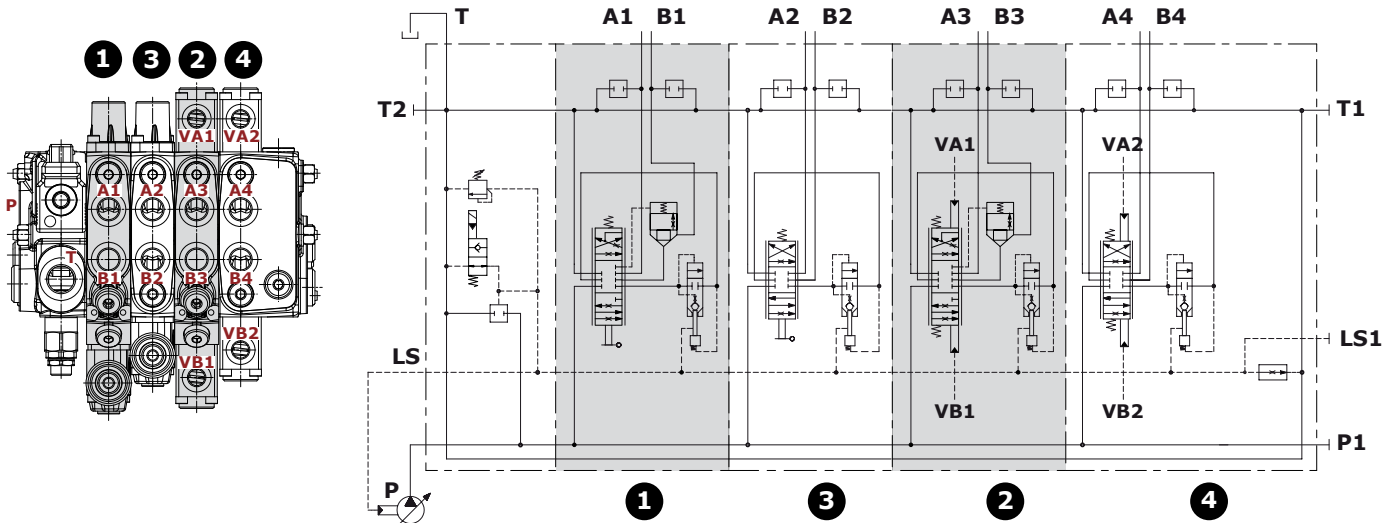
The DPX050 directional valve can be configured with working sections fitted with a Low Leak valve, and it can be used in all applications that require reduced leakage, such as: Tractors, Boom Mowers, Backhoe Loaders, Graders, Mini-excavator, Compact Wheel Loaders, Fork Lifts.

The working sections have the following features:

- Dedicated cast iron body to integrate hydraulic pilot Low Leak valves
- Port valves arrangement
- Capability to integrate the floating circuit with hydraulic release of the Low Leak valve
- They are configurable with standard controls: mechanical, proportional hydraulic and electrohydraulic
- Dedicated spools to Low Leak function.
- Compatible with inlet and outlet sections in the catalogue..

Valve with mechanical or hydraulic controls

The Low Leak working sections can be assembled in any point of the valve between the inlet section and the working and outlet section.



- 1: Low Leak working section with mechanical control
- 2: Low Leak working section with hydraulic control
- 3: Standard working section with mechanical control
- 4: Standard working section with hydraulic control

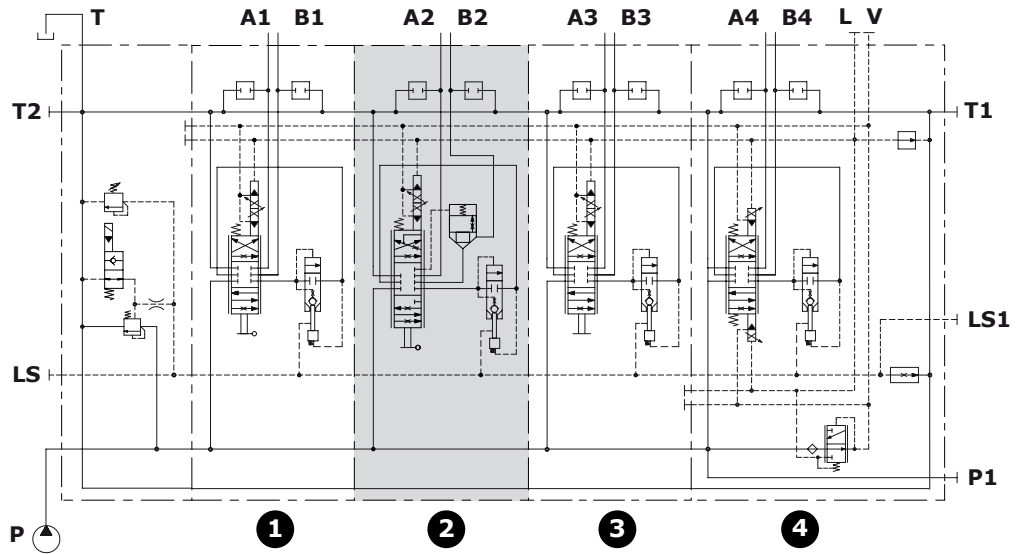
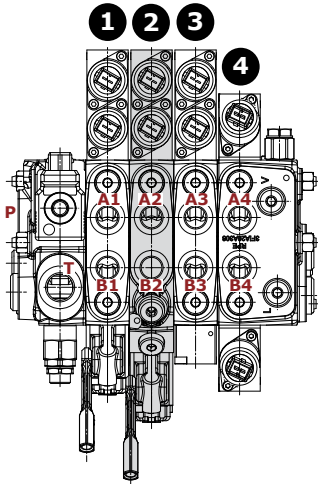
Directional valve with Low Leak working sections

Valve with electrohydraulic controls

The Low Leak working sections can only be fitted with one side electrohydraulic controls, and it can be assembled in any point of the valve between the inlet section and the working and outlet section..

Standard sections sections can be fitted indifferently with one-side or two-side controls, considering that the sections with two-side control must be assembled last.

Any standard section with one side electrohydraulic control assembled downstream of the Low Leak section must be without lever control.



- 1: Standard working section with one side electrohydraulic control
- 2: Low Leak working section with one side electrohydraulic control
- 3: Standard working section with one side electrohydraulic control (without lever control on B side)
- 4: Standard working and outlet section with two side electrohydraulic control

Complete section ordering codes

A Mechanical or hydraulic controls configuration

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

Nr. of working sections

1

2

3

4

5

B Electrohydraulic controls configuration

DPX050/3/AM2(TGW3-175\ELN)/QZ-I104(40\40)-8EZ3LQF3/QE-I104(40\40)-8EB3F3/RQ-1I04(40\40)-8EB3F3-.....-12VDC

1

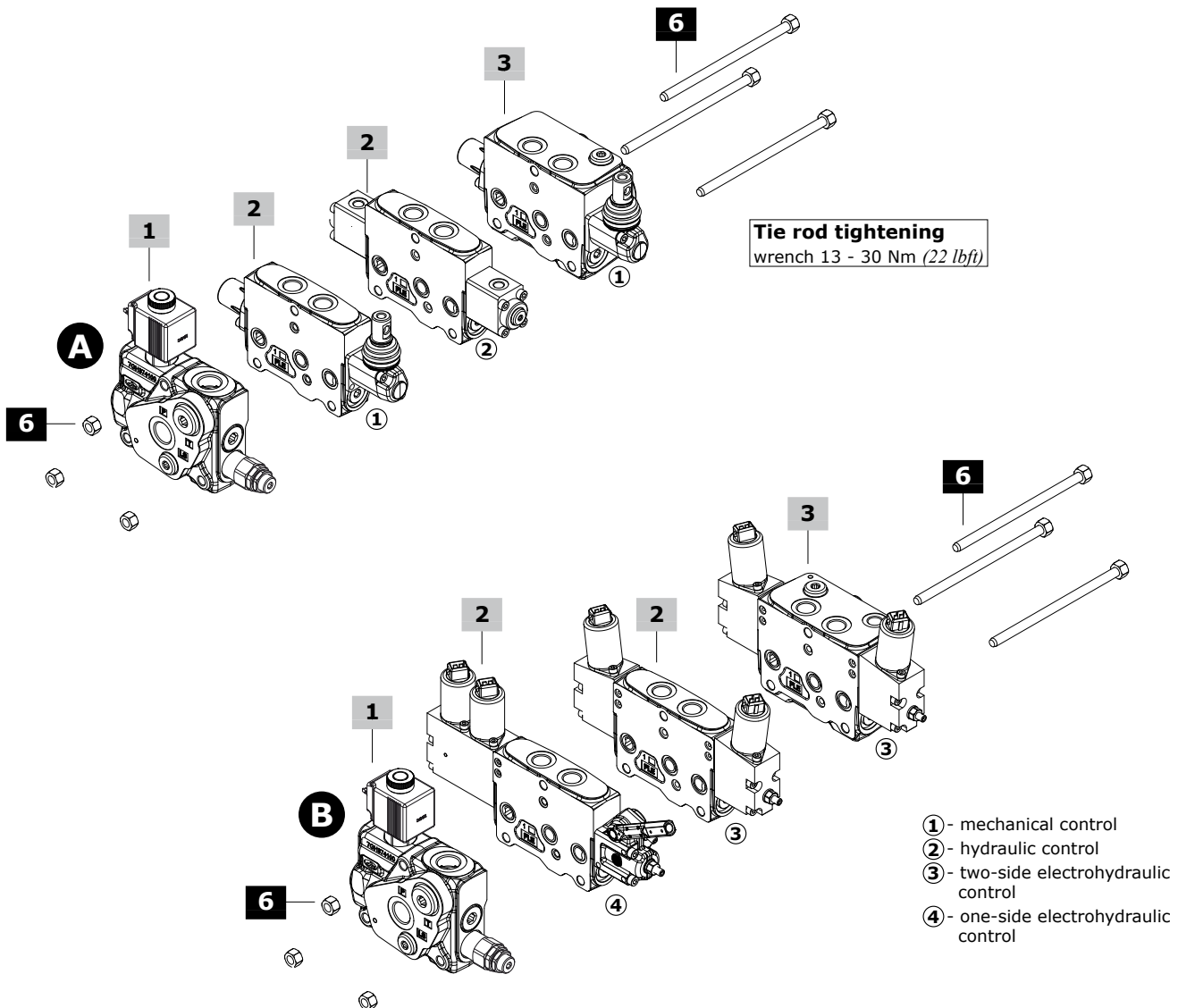
2

2

3

4

5



Complete section ordering codes

1 Complete inlet section ***Open Center circuit**TYPE: **DPX050/AM2(TGW3-175\ELN4)-SAE-12VDC**

CODE: 660205011S

DESCRIPTION: With compensator, pressure relief valve and unloader valve, with P-T-T2-LS ports (T2-LS plugged)

TYPE: **DPX050/AM2(SO\TGW3-195\ELP4)-SAE-12VDC**

CODE: 660205009S

DESCRIPTION: As previous one with non-return flow limiter from inlet section to working section and by-pass valve

TYPE: **DPX050/AM2(SU\TGW3-195\ELN)-SAE-12VDC**

CODE: 660205021S

DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve

Closed Center circuitTYPE: **DPX050/AN2(TGW3-175\ELN)-SAE-12VDC**

CODE: 660205003S

DESCRIPTION: Without compensator, with pressure relief valve and unloader valve, with P-T-T2-LS ports (T2 plugged)

TYPE: **DPX050/AN2(SO\TGW3-175\ELN)-SAE-12VDC**

CODE: 660205005S

DESCRIPTION: As previous one 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: 660205004S

DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve

2 Complete working section ***Mechanical control**TYPE: **DPX050/Q-104(40\40)-8L-SAE**

CODE: 660155001S

DESCRIPTION: Lever control without port valves arrangement

TYPE: **DPX050/P-104(40\40)-8L.U3T-SAE**

CODE: 660105005S

DESCRIPTION: As previous one with port valve arrangement

Proportional hydraulic controlTYPE: **DPX050/Q-I104(40\40)-8IM-SAE-FPM**

CODE: 660115002V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX050/P-I104(40\40)-8IM.U3T-SAE**

CODE: 660105006S

DESCRIPTION: With port valve arrangement

Two-side proportional electrohydraulic controlTYPE: **DPX050/QE-I104(40\40)-8EB3F3-12VDC-SAE-FPM**

CODE: 660115003V

DESCRIPTION: With spool stroke limiter, without port valve arrangement

TYPE: **DPX050/PE-I104(40\40)-8EB3F3.U3T-SAE-12VDC**

CODE: 660105010S

DESCRIPTION: As previous one with port valve arrangement

One-side proportional electrohydraulic controlTYPE: **DPX050/QZ-I104(40\40)-8EZ3LQF3-SAE-12VDC**

CODE: 660105007S

DESCRIPTION: With lever and spool stroke limiter, without port valve arrangement

TYPE: **DPX050/PZ-I104(40\40)-8EZ3LQF3.U3T-SAE-12VDC**

CODE: 660105008S

DESCRIPTION: As previous with port valve arrangement

3 Complete working section with outlet ***Mechanical control**TYPE: **DPX050/RQ-104(40\40)-8L-SAE**

CODE: 660305001S

DESCRIPTION: Lever control, with bleed valve and P1-T1-LS1 side ports (plugged), without port valve arrangement

TYPE: **DPX050/RP-104(40\40)-8L.U3T-SAE**

CODE: 660305002S

DESCRIPTION: As previous with port valve arrangement

Hydraulic controlTYPE: **DPX050/RQ-I104(40\40)-8IM-SAE**

CODE: 660305011S

DESCRIPTION: With bleed valve and P1-T1-LS1 side ports (plugged), without port valve arrangement

TYPE: **DPX050/RP-I104(40\40)-8IM.U3T-SAE**

CODE: 660305012S

DESCRIPTION: As previous one with port valve arrangement

Two-side proportional electrohydraulic controlTYPE: **DPX050/RQE-I104(40\40)-8EB3F3-SAE-12VDC**

CODE: 660305005S

DESCRIPTION: With spool stroke limiter, bleed valve, pressure reducing valve and P1-T1-LS1 side ports (plugged), V pilot and L drain ports plugged, without port valve arrangement

TYPE: **DPX050/RPER-I104(40\40)-8EB3F3.U3T-SAE-12VDC**

CODE: 660305006S

DESCRIPTION: As previous one with port valve arrangement

One-side proportional electrohydraulic controlTYPE: **DPX050/RQZ-I104(40\40)-8EZ3LQF3-SAE-12VDC**

CODE: 660305013S

DESCRIPTION: With lever and spool stroke limiter, bleed valve, pressure reducing valve and P1-T1-LS1 side ports (plugged), V pilot and L drain ports plugged, without port valve arrangement

TYPE: **DPX050/RPZ-I104(40\40)-8EZ3LQF3.U3T-SAE-12VDC**

CODE: 660305014S

DESCRIPTION: As previous one with port valve arrangement

4 Valve threading

Only specify if it is different from BSP standard (see page 7).

5 Voltage

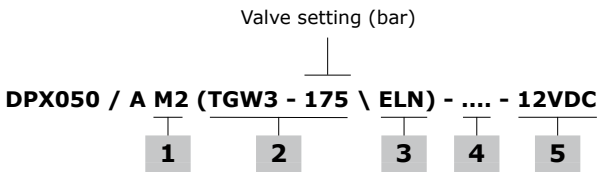
Specify the voltage of electric devices.

6 Assembling kit

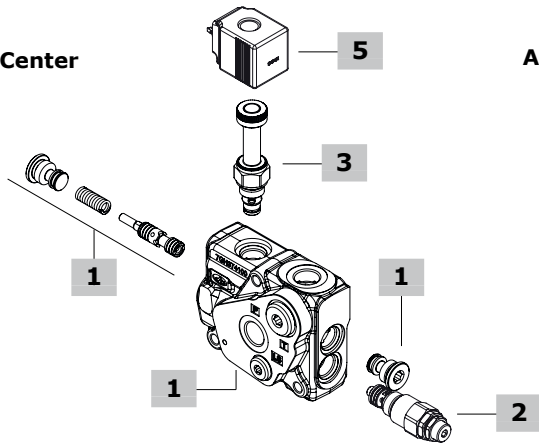
CODE	DESCRIPTION	CODIE	DESCRIPTION
5TIR108125	For 1 section valve	5TIR108320	For 7 sections valve
5TIR108157	For 2 sections valve	5TIR108349	For 8 sections valve
5TIR108192	For 3 sections valve	5TIR108381	For 9 sections valve
5TIR108222	For 4 sections valve	5TIR108413	For 10 sections valve
5TIR108253	For 5 sections valve	5TIR108446	For 11 sections valve
5TIR108285	For 6 sections valve	5TIR108477	For 12 sections valve

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

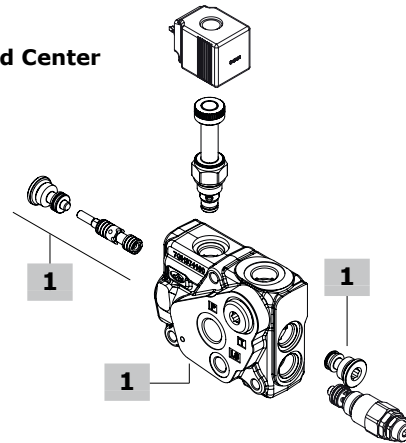
Inlet section part ordering codes



AM: Open Center



AN: Closed Center



1 Inlet section kit* page 17

Open Center circuit

TYPE: **DPX050/M2-SAE/EL** CODE: 5FIA150740S

DESCRIPTION: With P-T-T2-LS ports (T2-LS plugged) arranged for unloader valve

TYPE: **DPX050/M2(SU)-SAE/EL** CODE: 5FIA150730S

DESCRIPTION: As previous one with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX050/M2(SO)-SAE/EL** CODE: 5FIA150731S

DESCRIPTION: As M2 type with non return flow limiter from inlet section to working section and by-pass valve

Closed Center circuit

TYPE: **DPX050/N2-SAE/EL** CODE: 5FIA150741S

DESCRIPTION: With P-T-T2-LS ports, arranged for unloader valve (T2 plugged)

TYPE: **DPX050/N2(SU)-SAE/EL** CODE: 5FIA150732S

DESCRIPTION: As previous one with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX050/N2(SO)-SAE/EL** CODE: 5FIA150733S

DESCRIPTION: As N2 type with non return flow limiter from inlet section to working section and by-pass valve

2 Main pressure relief valve page 19

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

TYPE CODE DESCRIPTION

(TGW2-80) OMC09002000 Range 10-120 bar (145-1750 psi)
std setting 80 bar (1160 psi)

(TGW3-175) OMC09002001 Range 40-220 bar (580-3200 psi)
std setting 175 bar (2550 psi)

(TGW4-250) OMC09002002 Range 200-350 bar (2900-5100 psi)
std setting 250 bar (3600 psi)

SV XTAP524340D Relief valve blanking plug

3 Solenoid operated unloading valve page 19

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	XTAP510320	Unloading valve blanking plug

4 Section threading

Only specify if it is different from BSP standard (see page 7).

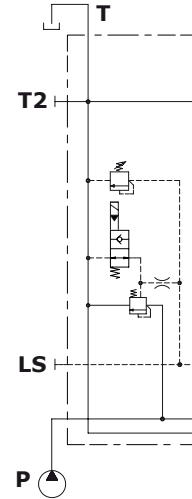
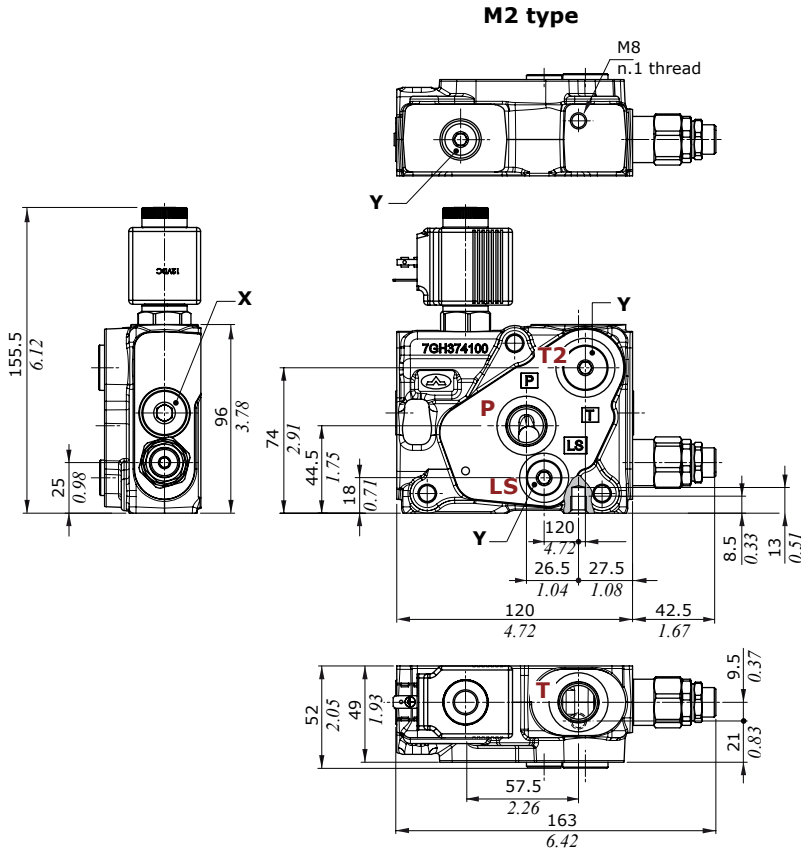
5 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200A	12VDC coil type BER , ISO4400 connector For complete available coil list see page 160.

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

Dimensions and hydraulic circuit

Example of M type Open Center section



Wrenches and tightening torques

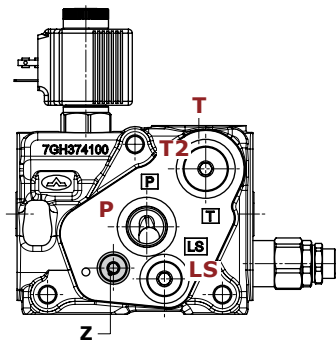
X = allen wrench 8 - 24 Nm (17.7 lbf_t)

Y = allen wrench 6 - 24 Nm (17.7 lbf_t)

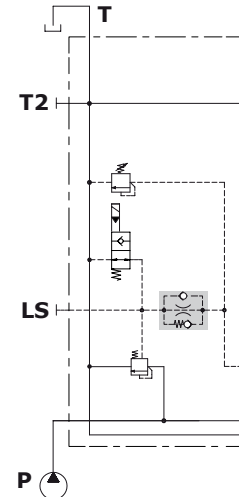
Z = allen wrench 5 - 9.8 Nm (7.2 lbf_t)

NOTE: for valves wrench and torque see related pages

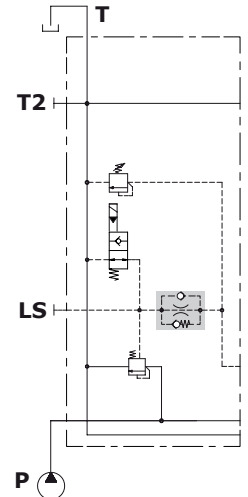
M2(SO) or M2(SU) type



M2(SU) type



M2(SO) type

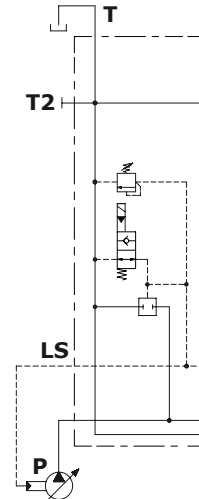
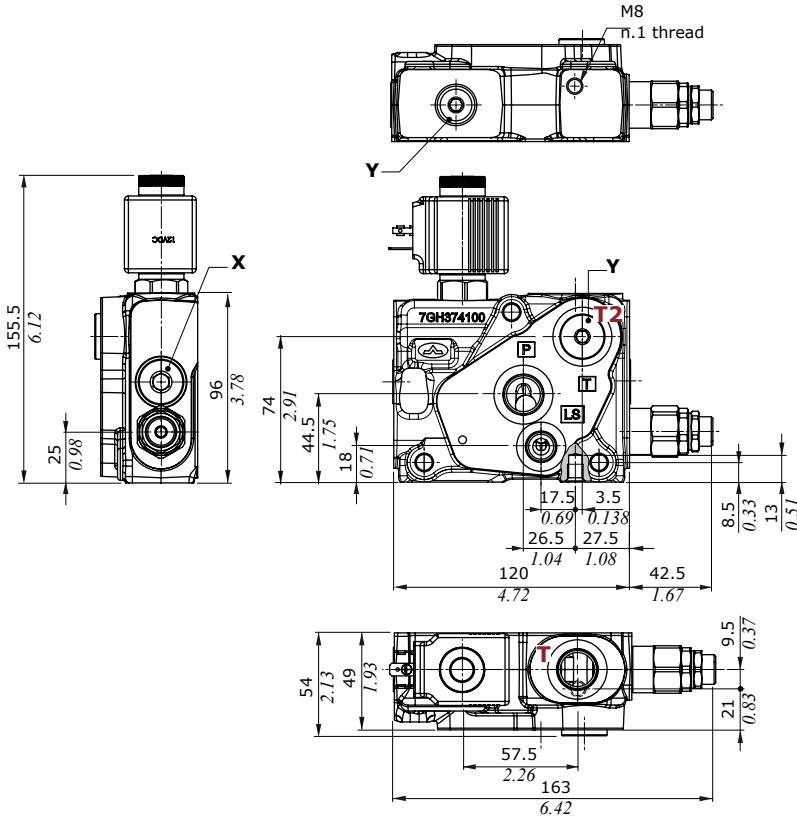


Inlet section

Dimensions and hydraulic circuit

Example of N type Closed Center section

N2 type



Wrenches and tightening torques

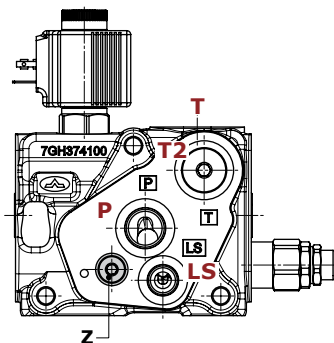
X = allen wrench 8 - 24 Nm (17.7 lbf_t)

Y = allen wrench 6 - 24 Nm (17.7 lbf_t)

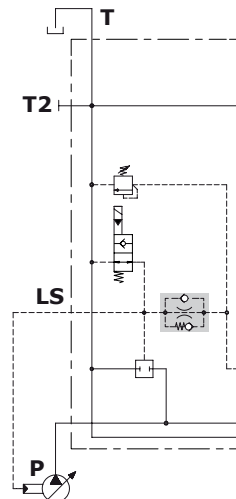
Z = allen wrench 5 - 9.8 Nm (7.2 lbf_t)

NOTE: for valves wrench and torque see related pages

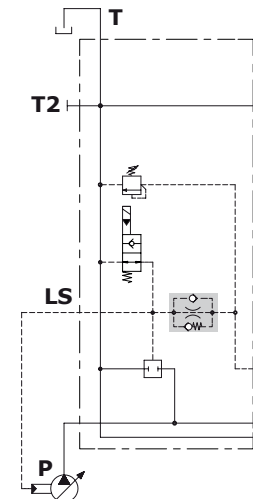
N2(SO) or N2(SU) type



N2(SU) type

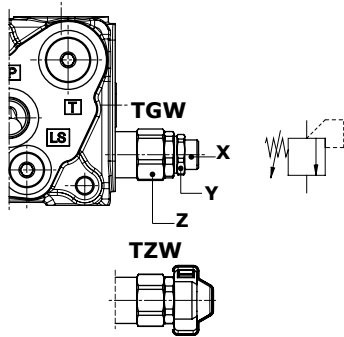


N2(SO) type

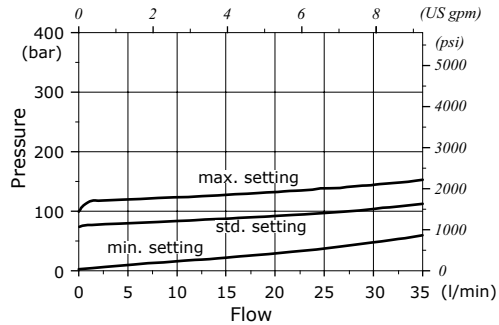


Main pressure relief valve

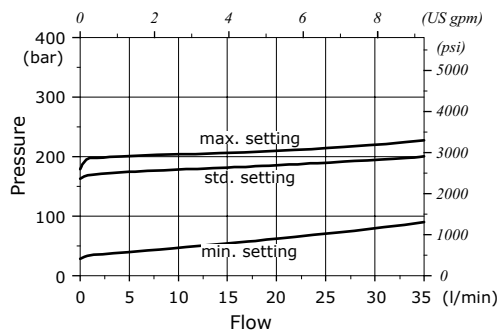
Setting types



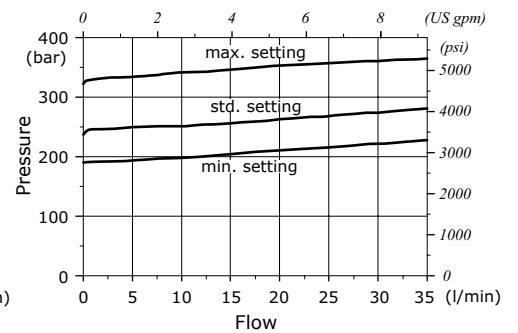
Setting range: TGW2 type



Setting range: TGW3 type



Setting range: TGW4 type

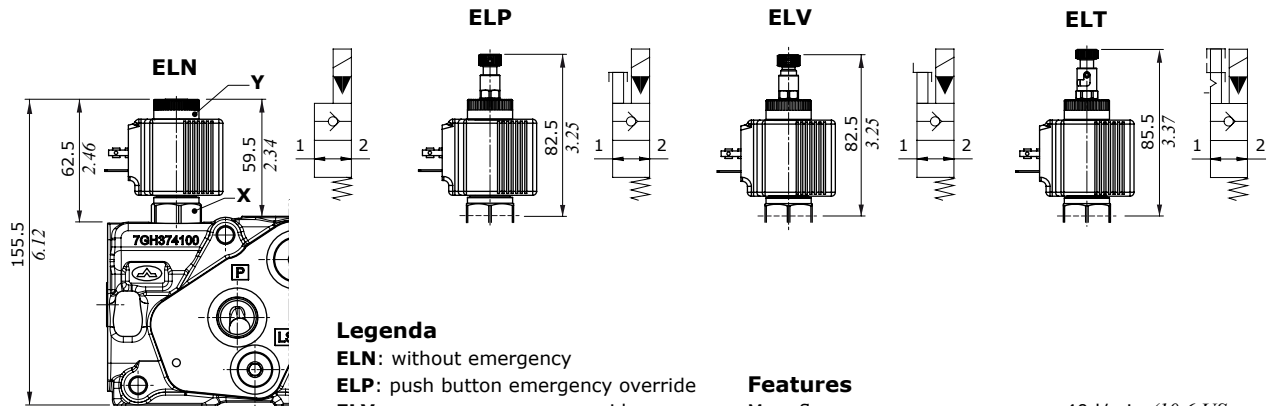


Legenda

- TGW: free setting
- TZW: valve set and locked (cap code 4COP126301, n.2 pcs) RAL3003 pigmented
- Wrenches and tightening torques**
- X = allen wrench 5
- Y = wrench 19 - 20 Nm (14.7 lbf)
- Z = wrench 24 - 42 Nm (31 lbf)

Solenoid operated unloading valve

Manual emergency types



Legenda

- ELN: without emergency
- ELP: push button emergency override
- ELV: screw emergency override
- ELT: "push&twist" emergency override
- Wrenches and tightening torques**
- X = wrench 24 - 30 Nm (22 lbf)
- Y = manual tightening

Features

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

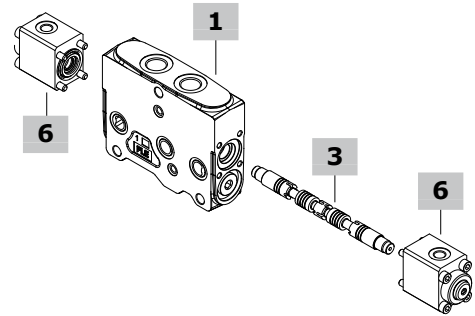
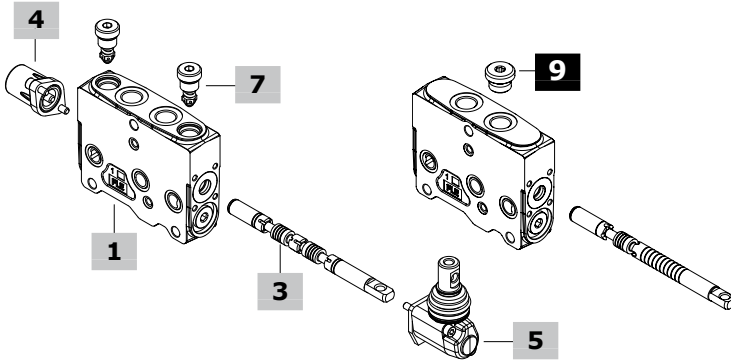
For coil features and options see **BER** type coil at page 160.

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

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

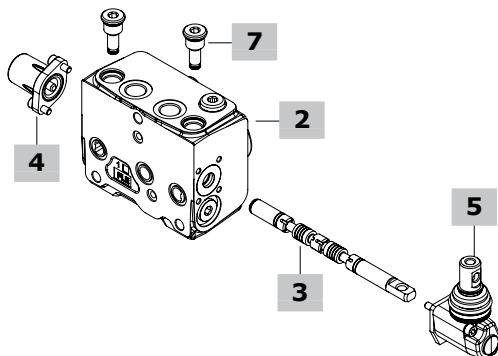
DPX050 / P - 104(40\40) - 8 L . U1(100) U2(120) - DPX050 / Q - I104(40\40) - 8IM -

1 3 4 5 7 8 1 3 6 8



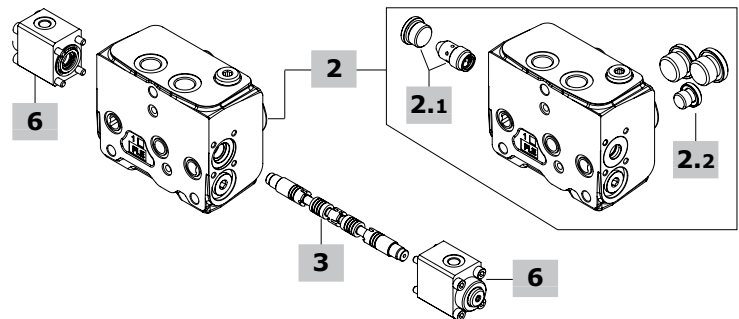
DPX050 / RP - 104(40\40) - 8 L . U3T-

2 3 4 5 7 8



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

2 2 3 6 2.1 2.2 8



1 Working section kit* page 24

For mechanical control

TYPE: **DPX050/Q-SAE-FPM** CODE: 5EL10A7010V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX050/P-SAE-FPM** CODE: 5EL10A7000V

DESCRIPTION: With port valve arrangement

For hydraulic control

TYPE: **DPX050/Q-IM-SAE-FPM** CODE: 5EL10A7010AV

DESCRIPTION: Without port valve arrangement

TYPE: **DPX050/P-IM-SAE-FPM** CODE: 5EL10A7000AV

DESCRIPTION: With port valve arrangement

2 Working section kit with outlet* page 25

For mechanical control

TYPE: **DPX050/RQ-SAE** CODE: 5FIA20A710S

DESCRIPTION: With bleed valve, with P1-T1-LS1 port plugged, without port valve arrangement

TYPE: **DPX050/RP-SAE** CODE: 5FIA20A700S

DESCRIPTION: As previous one with port valve arrangement

For hydraulic control

TYPE: **DPX050/RQ-IM-SAE** CODE: 5FIA20A710AS

DESCRIPTION: With bleed valve, with P1-T1-LS1 port plugged, without port valve arrangement

TYPE: **DPX050/RP-IM-SAE** CODE: 5FIA20A700AS

DESCRIPTION: As previous one with port valve arrangement

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

2.1 Bleed valve page 26

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

Both options need cavity plug:
3XTAP822151 SAE8 plug, nr.1

2.2 Parts*

TYPE	CODE	DESCRIPTION
<u>P1-T1-LS1 plugged ports</u>		
-	XTAP822150	SAE8 plug, nr.2
	3XTAP817130	SAE6 plug, nr.1
<u>P1-T1 plugged ports, LS1 open</u>		
F1	3XTAP822150	SAE8 plug, nr.2

3 Spool page 27

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

TYPE	CODE	DESCRIPTION
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For mechanical control

Double acting with A and B closed in neutral position, floating circuit with 13RZ type positioner (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 to tank in neutral position

202(20)	3CUA123002	20 l/min (5.3 US gpm) flow
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201(10)	3CUA123001	10 l/min (2.6 US gpm) flow
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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: G3/8 plug is required

305(50)	3CUA131005	50 l/min (13 US gpm) flow
----------------	------------	---------------------------

302(20)	3CUA131002	20 l/min (5.3 US gpm) flow
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For hydraulic control

Double acting with A and B closed in neutral position, floating circuit with 4 positions 13IMP type control

1105(50)	3CUA310005	50 l/min (13 US gpm) flow
1104(40)	3CUA310004	40 l/min (10.5 US gpm) flow
1103(30)	3CUA310003	30 l/min (7.9 US gpm) flow
1102(20)	3CUA310002	20 l/min (5.3 US gpm) flow
1101(10)	3CUA310001	10 l/min (2.6 US gpm) flow
1106(5)	3CUA310006	5 l/min (1.3 US gpm) flow

Double acting with A and B to tank in neutral position

1204(40)	3CUA325004	40 l/min (10.5 US gpm) flow
-----------------	------------	-----------------------------

1203(30)	3CUA325003	30 l/min (7.9 US gpm) flow
-----------------	------------	----------------------------

1202(20)	3CUA325002	20 l/min (5.3 US gpm) flow
-----------------	------------	----------------------------

1201(10)	3CUA325001	10 l/min (2.6 US gpm) flow
-----------------	------------	----------------------------

1206(5)	3CUA325006	5 l/min (1.3 US gpm) flow
----------------	------------	---------------------------

Double acting with A and B partially to tank in neutral position

12H05(50)	3CUA324005	50 l/min (13 US gpm) flow
------------------	------------	---------------------------

12H04(40)	3CUA324004	40 l/min (10.5 US gpm) flow
------------------	------------	-----------------------------

12H08(30)	3CUA324008	30 l/min (7.9 US gpm) flow
------------------	------------	----------------------------

12H07(20)	3CUA324007	20 l/min (5.3 US gpm) flow
------------------	------------	----------------------------

12H01(10)	3CUA324001	10 l/min (2.6 US gpm) flow
------------------	------------	----------------------------

12H06(5)	3CUA324006	5 l/min (1.3 US gpm) flow
-----------------	------------	---------------------------

Single acting on A or B, other port plugged: G3/8 plug is required

1305-1405(50)	3CUA331005	50 l/min (13 US gpm) flow
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1302-1402(20)	3CUA331002	20 l/min (5.3 US gpm) flow
----------------------	------------	----------------------------

4 "A" side spool positioners page 29

TYPE	CODE	DESCRIPTION
7FT	5V0710A001	With friction and neutral position notch
8	5V08102000	3 pos. with spring return to neutral position
8F2	5V0810A001	Spool stroke limiter on B port
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 pos., detent in 4 th position with spool in, spring return to neutral position
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5 "B" side spool control kit page 31

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

6 Proportional hydraulic control* page 32

TYPE	CODE	DESCRIPTION
8IM-SAE	5IDR20A700V	Range 8-27 bar (116-392 psi)
8IMX-SAE	5IDR20A701V	Range 3.5-20 bar (51-290 psi)
8IMF3-SAE	5IDR20A702V	Range 8-27 bar (116-392 psi), with spool stroke limiter on A and B ports
8IMXF3-SAE	5IDR20A703V	Range 3.5-20 bar (51-290 psi), with spool stroke limiter on A and B ports

For floating circuit (standard spool)

13IMP-SAE	5IDR20A710V	Range 4-16.5-28 bar (58-239-406 psi)
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7 Port valves page 40

TYPE	CODE	DESCRIPTION
UT	XTAP518370V	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	CODE: 5KIT308 100
└─taratura (bar)	└─taratura (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)
300 bar (4350 psi)	340 bar (4950 psi)	

7 Section threading

Only specify if it is different from BSP standard (see page 7).

8 Plug for single acting spool *

CODE	DESCRIPTION
3XTAP817130	SAE6 plug

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

NOTE (-): "Type" omitted in section description

Working and outlet section part ordering codes (electrohydraulic)

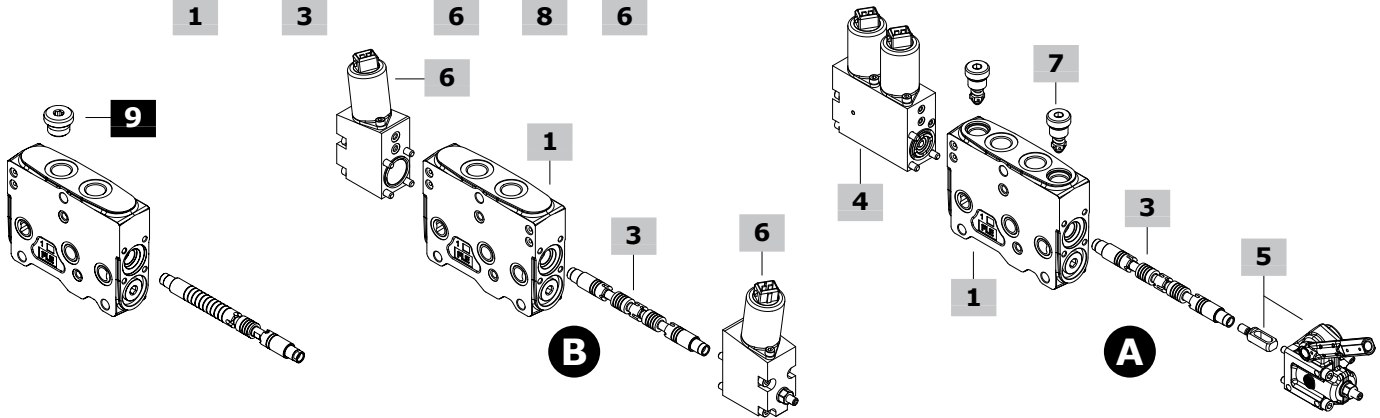
A DPX050 / PZ - I104(40\40) - 8EZ3 LQF3 . U1(100) U2(120) - - 12VDC

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

1 3 4 5 7 8 4

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

1 3 6 8 6

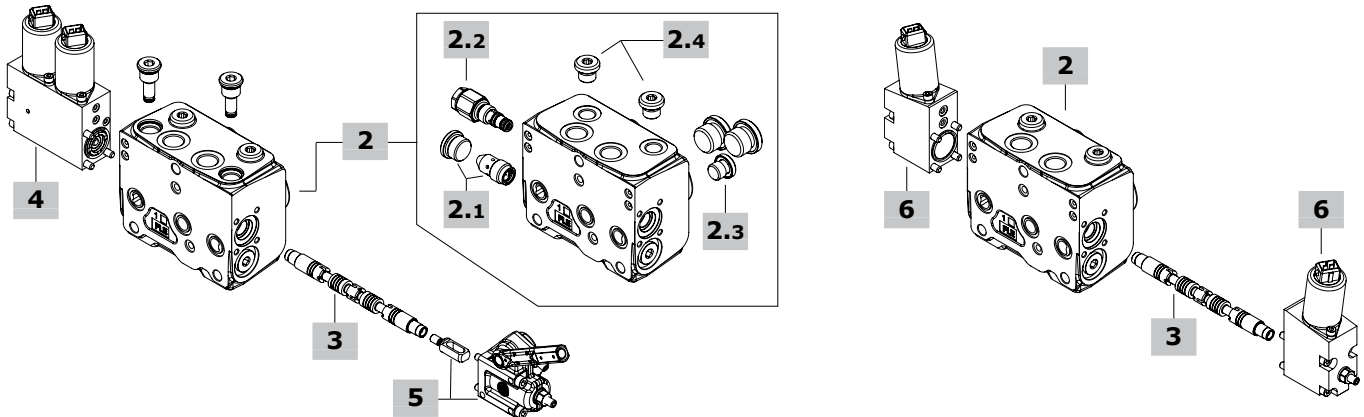


D DPX050 / RQZ - I104(40\40) - 8EZ3 LQF3 . U3T - (VBT \ RT) - F1 - NOTAP(VL) - - 12VDC

2 3 4 5 7 2.1 2.2 2.3 2.4 8 4

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

2 3 6 8 6



1 Working section kit* page 24

For two-side electrohydraulic control

TYPE: **DPX050/QE-SAE-FPM** CODE: 5EL10A7012V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX050/PE-SAE-FPM** CODE: 5EL10A7002V

DESCRIPTION: With port valve arrangement

For one-side electrohydraulic control

TYPE: **DPX050/QZ-SAE-FPM** CODE: 5EL10A7210V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX050/PZ-SAE-FPM** CODE: 5EL10A7200V

DESCRIPTION: With port valve arrangement

2 Working section kit with outlet* page 25

For two-side electrohydraulic control

TYPE: **DPX050/RQE-SAE** CODE: 5FIA20A711S

DESCRIPTION: With bleed valve, with P1-T1-LS1 port plugged, without port valve arrangement

TYPE: **DPX050/RPE-SAE** CODE: 5FIA20A701S

DESCRIPTION: As previous with port valves arrangement

For one-side electrohydraulic control

TYPE: **DPX050/RQZ-SAE** CODE: 5FIA20A721S

DESCRIPTION: With bleed valve, with P1-T1-LS1 port plugged, without port valve arrangement

TYPE: **DPX050/RPZ-SAE** CODE: 5FIA20A720S

DESCRIPTION: As previous with port valve arrangements

Working and outlet section part ordering codes (electrohydraulic)

2.1 Bleed valve page 26

TYPE	CODE	DESCRIPTION
(-)	X138850000	Bleed valve
(VBT)	4TAP416810	Valve blanking plug
Both options need cavity plug:		
	3XTAP822151	SAE8 plug, nr.1

2.2 Pressure reducing valve page 26

Codes are referred to parts with FPM seals.

TYPE	CODE	DESCRIPTION
(-)	X219740035V	Pressure reducing valve, 30-45 bar (435-650 psi)
(RT)	XTAP418350V	Valve blanking plug

2.3 Parts*

TYPE	CODE	DESCRIPTION
<u>P1-T1-LS1 plugged ports</u>		
-	3XTAP727180	G1/2 plug, nr.2
	3XTAP719150	G1/4 plug, nr.1
<u>P1-T1 plugged ports, LS1 open</u>		
F1	3XTAP727180	G1/2 plug, nr.2

2.4 Pilot and drain*

TYPE	CODE	DESCRIPTION
(-)	3XTAP719150	G1/4 plug, nr.2 for internal pilot and drain
NOTAP(VL)	4TAP310007	M10x1 DIN906 plug, for external drain

3 Spool page 27

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, floating circuit with 4 positions controls (13.. type)</u>		

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 to tank in neutral position

I204(40)	3CUA325004	40 l/min (10.5 US gpm) flow
I203(30)	3CUA325003	30 l/min (7.9 US gpm) flow
I202(20)	3CUA325002	20 l/min (5.3 US gpm) flow
I201(10)	3CUA325001	10 l/min (2.6 US gpm) flow
I206(5)	3CUA325006	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: G3/8 plug is required

I305-I405(50)	3CUA331005	50 l/min (13 US gpm) flow
I302-I402(20)	3CUA331002	20 l/min (5.3 US gpm) flow

4 One-side electrohydr.control; "A" side page 38

These controls must be coupled with "B" side options

TYPE	CODE	DESCRIPTION
8EZ3-12VDC	5V0810A780V	AMP connector
8EZ3-24VDC	5V0810A785V	AMP connector
8EZ3F2-12VDC	5V0810A781V	AMP conn., spool stroke limiter
8EZ3F2-24VDC	5V0810A782V	As previous one
8EZ34-12VDC	5V0810A786V	Deutsch connector
8EZ34-24VDC	5V0810A787V	Deutsch connector
8EZ34F2-12VDC	5V0810A783V	Deutsch conn., spool stroke limiter
8EZ34F2-24VDC	5V0810A784V	As previous one
<u>For floating circuit (standard spool)</u>		
13EZ3P-12VDC	5V1310A780V	With Step, with AMP connector
13EZ3P-24VDC	5V1310A781V	As previous one
13EZ34P-12VDC	5V1310A782V	With Step, with Deutsch conn.
13EZ34P-24VDC	5V1310A783V	As previous one
<u>With spool position sensor</u>		
8EZ3SPSD-12VDC	5V0810A790V	AMP connector and digital sensor
8EZ3SPSD-24VDC	5V0810A791V	As previous one

5 One-side electrohydr.option; "B" side page 39

These options must be coupled with "A" side controls

TYPE	CODE	DESCRIPTION
LQ	5LEV10A005V	Lever control
LQ180	5LEV10A006V	As previous one, turned of 180°
LQF3	5LEV10A004V	As LQ, spool stroke limiter on A, B ports
LQF3180	5LEV10A003V	As previous one, turned of 180°
SLC	5COP150010V	Endcap
SLCF1	5COP150011V	Endcap with spool stroke limiter

6 Two-side electrohydr. control page 37

TYPE	CODE	DESCRIPTION
8EB3-12VDC	5IDR90A200V	AMP connector
8EB3-24VDC	5IDR90A201V	AMP connector
8EB34-12VDC	5IDR90A202V	Deutsch connector
8EB34-24VDC	5IDR90A203V	Deutsch connector
8EB3F3-12VDC	5IDR90A204V	AMP connector, spool stroke limiter on A and B ports
8EB3F3-24VDC	5IDR90A205V	As previous one
8EB34F3-12VDC	5IDR90A206V	Deutsch connector, spool stroke limiter on A and B ports
8EB34F3-24VDC	5IDR90A207V	As previous one
<u>For floating circuit (standard spool)</u>		
13EB3P-12VDC	5IDR91A200V	With Step, AMP connector
13EB3P-24VDC	5IDR91A201V	As previous one
13EB34P-12VDC	5IDR91A202V	With Step, Deutsch connector
13EB34P-24VDC	5IDR91A203V	As previous one

7 Port valves page 40

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

For complete list see previous pages.

8 Section threading

Only specify if it is different from BSP standard (see page 7).

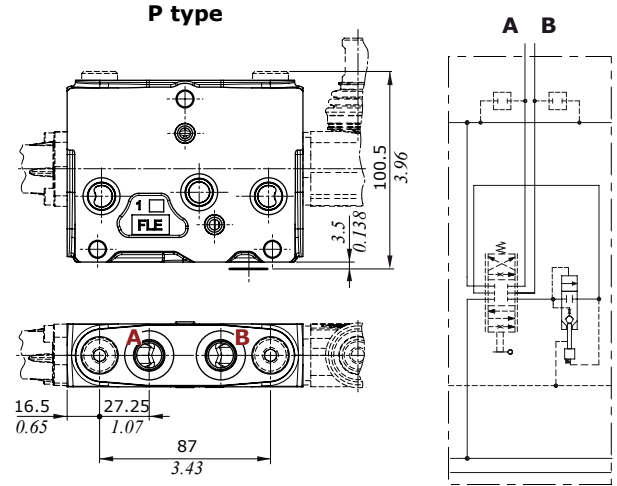
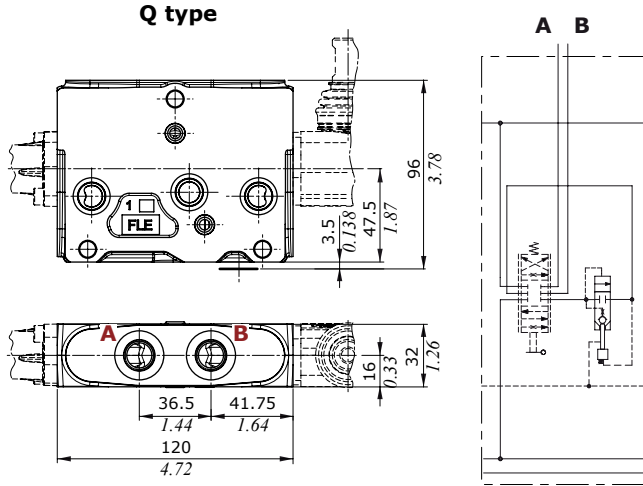
NOTE (*): Codes are referred to **UN-UNF** thread.

NOTE (-): "Type" omitted in section description

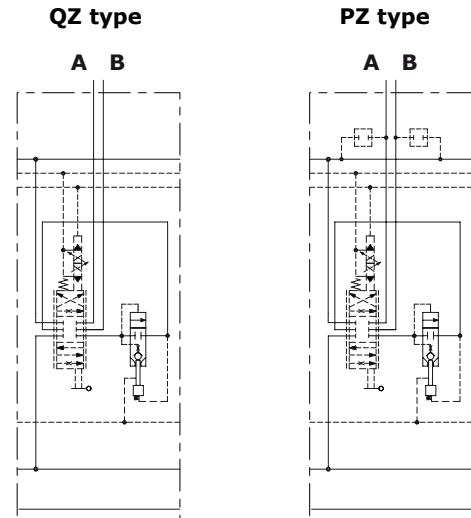
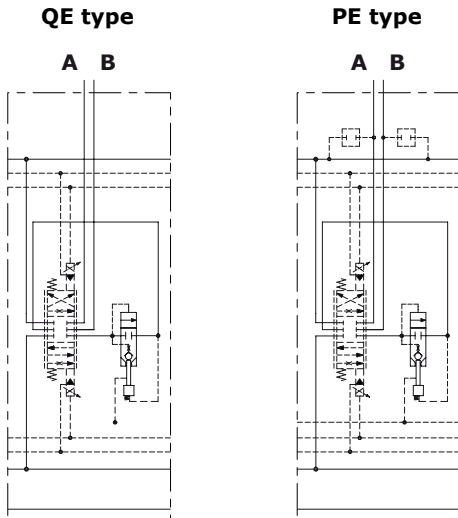
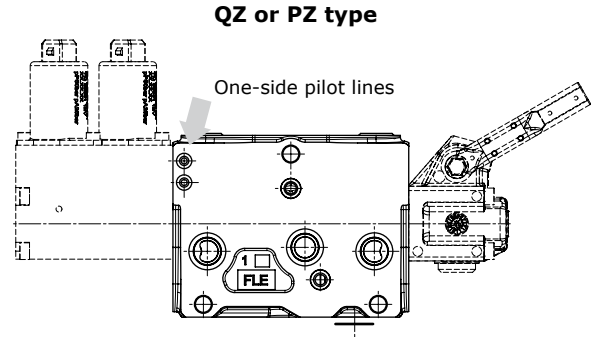
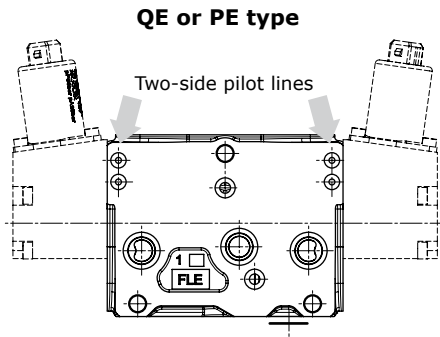
Working and outlet section

Dimensions and hydraulic circuit

Section for mechanical and hydraulic controls

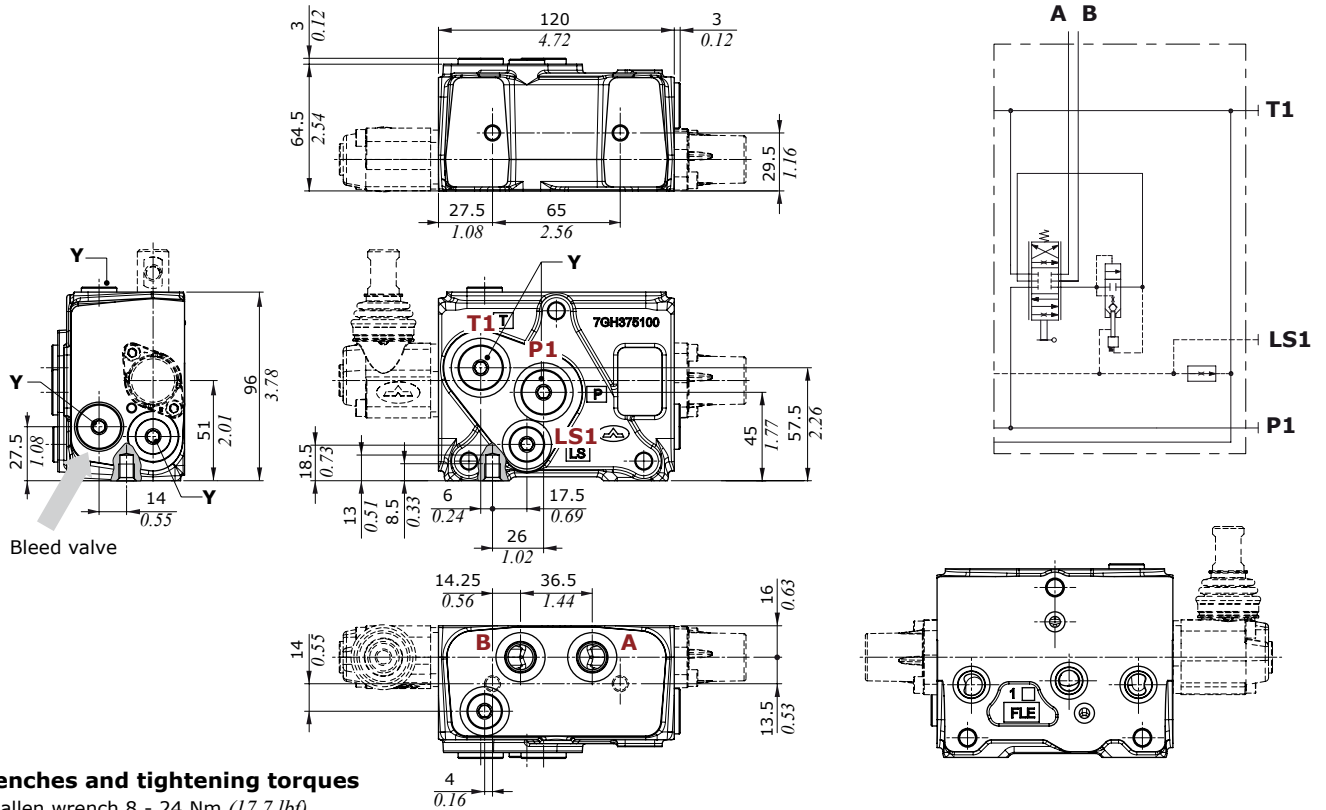


Section for electrohydraulic controls



Dimensions and hydraulic circuit

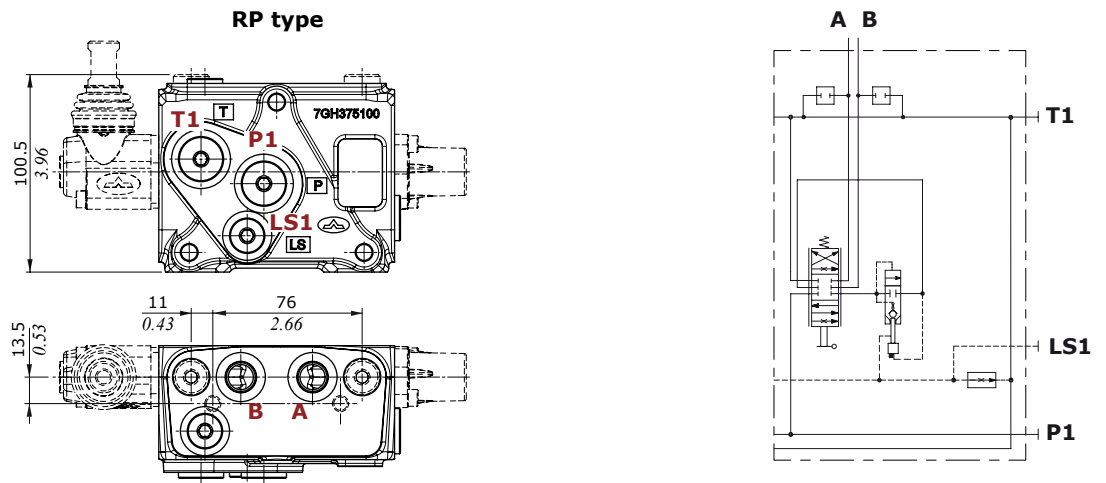
Section with outlet for mechanical and hydraulic controls



Wrenches and tightening torques

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

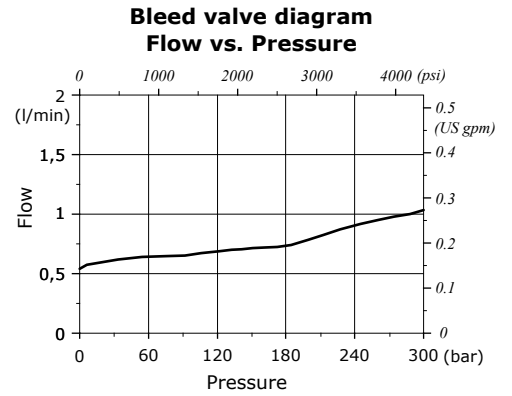
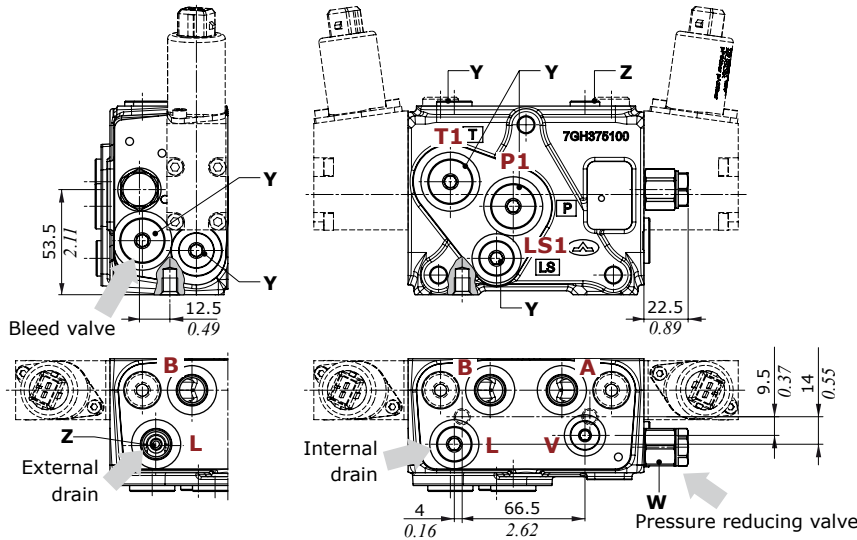
Y = allen wrench 6 - 24 Nm (17.7 lbf)



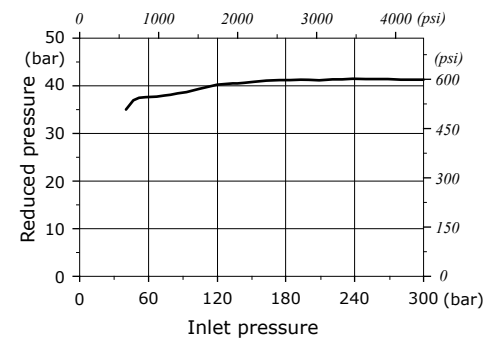
Working and outlet section

Dimensions and hydraulic circuit

Section with outlet for electrohydraulic controls



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



Wrenches and tightening torques

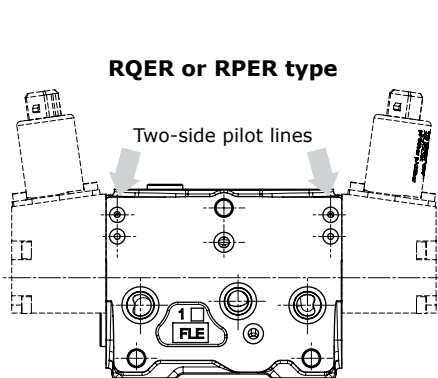
- X = allen wrench 8 - 24 Nm (17.7 lbf)
- Y = allen wrench 6 - 24 Nm (17.7 lbf)
- Z = allen wrench 5 - 9.8 Nm (7.2 lbf)
- W = wrench 19 - 24 Nm (17.7 lbf)

Bleed valve features

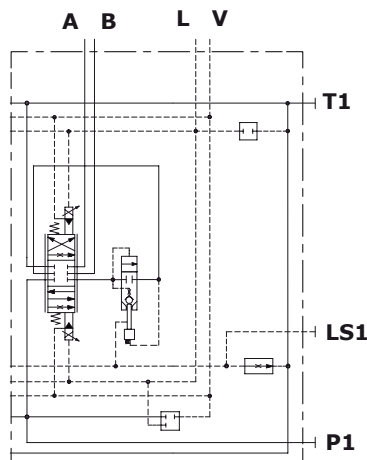
- Max. inlet pressure . . . : 300 bar (4350 psi)
- Max. back pressure . . . : 25 bar (363 psi)

Pressure reducing valve features

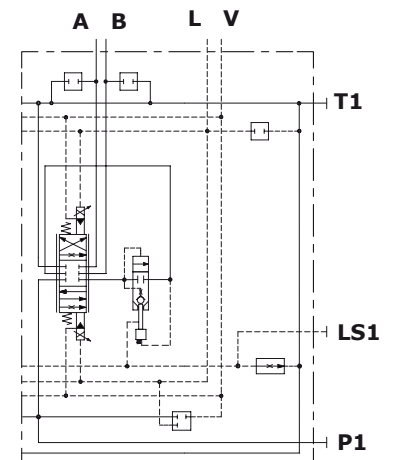
- Max. inlet pressure . . . : 380 bar (5500 psi)
- Reduced pressure . . . : 30-45 bar (435-650 psi)
- Max. back pressure . . . : 25 bar (363 psi)



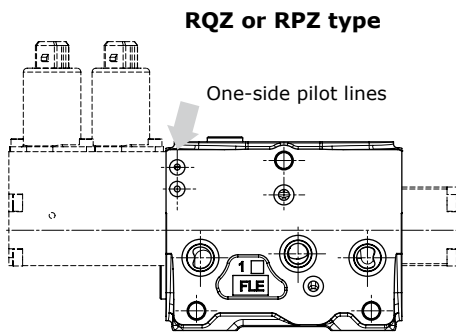
RQE type
(RT configuration; without pressure reducing valve, seat plugged)



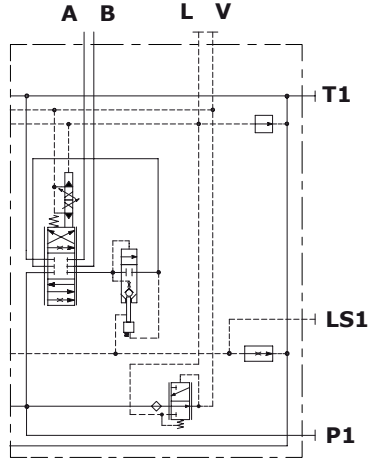
RPE type
(RT configuration; without pressure reducing valve, seat plugged)



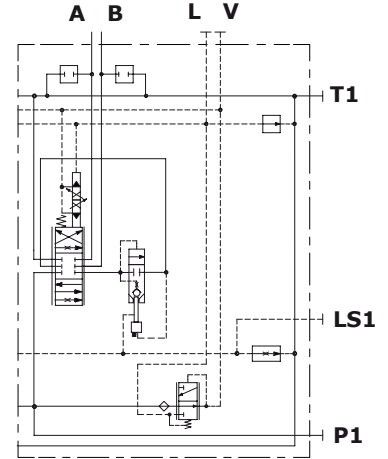
Dimensions and hydraulic circuit



RQZ type
(With pressure reducing valve)



RPZ type
(With pressure reducing valve)

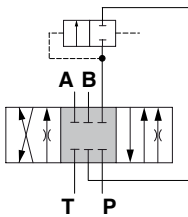


Spool

Type 1 (1../I1..) spool

A, B closed in neutral position
with 3 position control with 4 position control

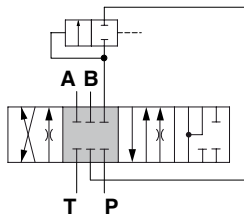
1 0 2



Spool stroke

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

1 0 2 3



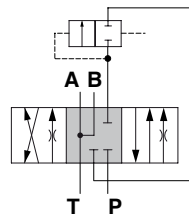
Spool stroke

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

Type 2H(2../I2..) spool

A, B to tank in neutral position

1 0 2



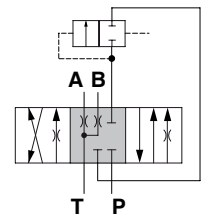
Spool stroke

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

Type 2H(2H../I2H..) spool

A, B partially to tank in neutral position

1 0 2



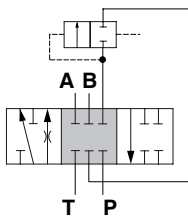
Spool stroke

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

Type 3 (3../I3..) spool

single acting on A

1 0 2



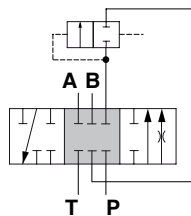
Spool stroke

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

Type 4 (4../I4..) spool

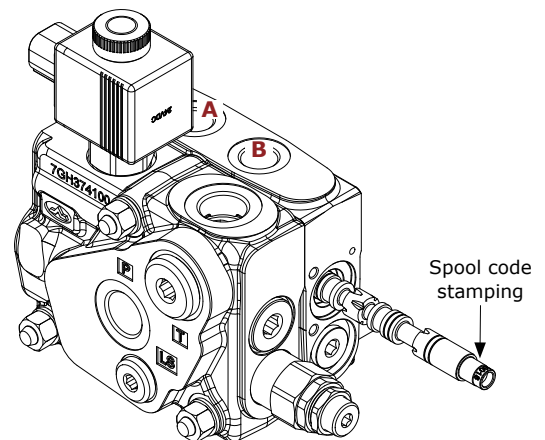
single acting on B

1 0 2



Spool stroke

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



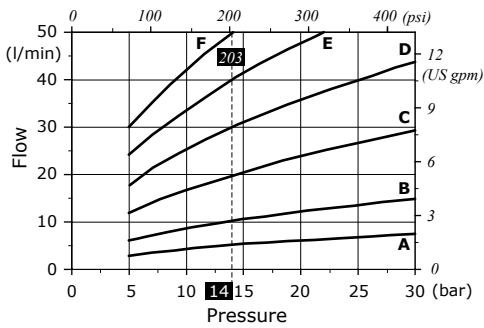
In case of spool replacement the code stamping must be oriented toward B port.

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.

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

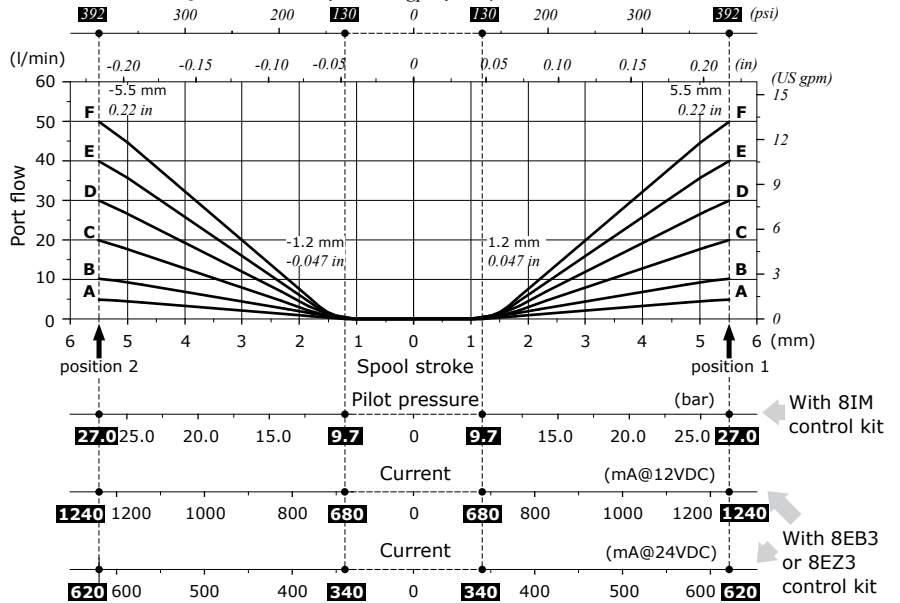


Curves with spool nominal flow @ 14 bar (200 psi) stand-by (margin pressure)

- 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)

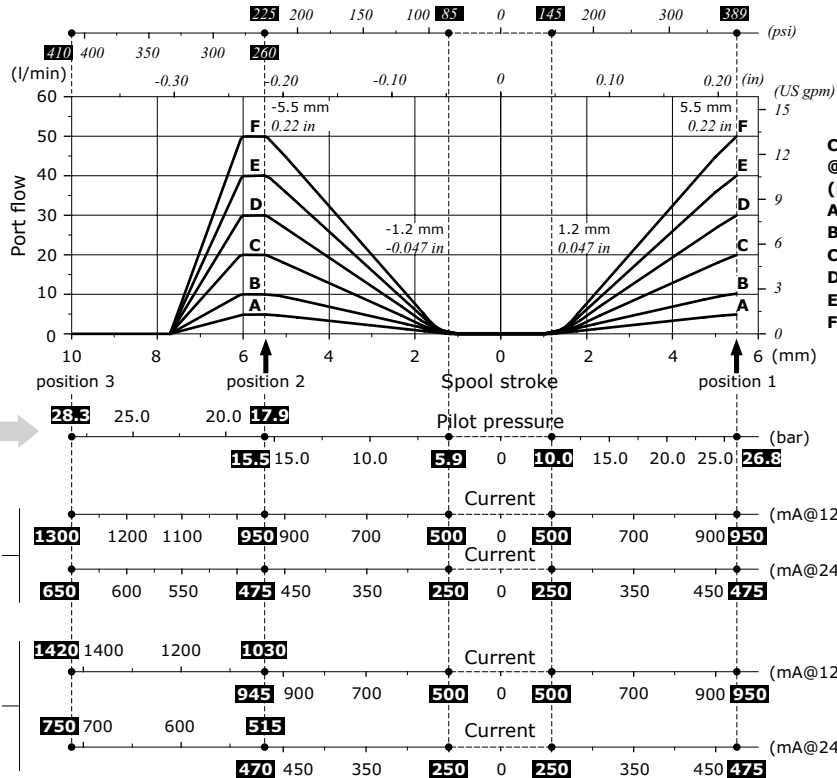
3 positions spools metering curve

Q_{in} = 50 l/min (13.2 US gpm) - Open center circuit



Floating spool metering curve

Q_{in} = 50 l/min (13.2 US gpm) - Open center circuit



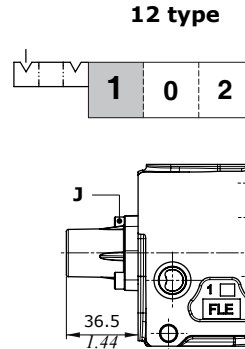
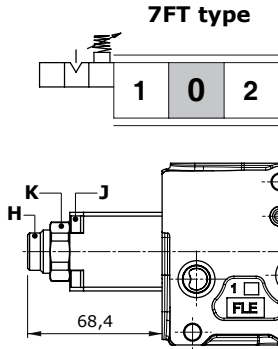
Curves with spool nominal flow @ 14 bar (200 psi) stand-by (margin pressure)

- 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 friction and neutral position notch

2 positions, with detent in position 1 and 2

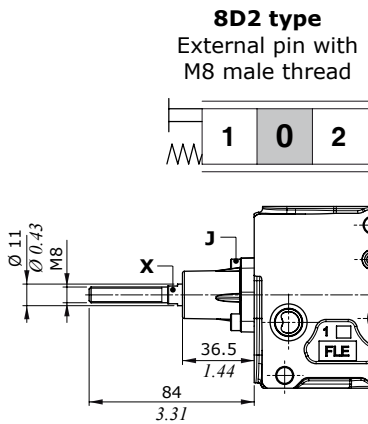
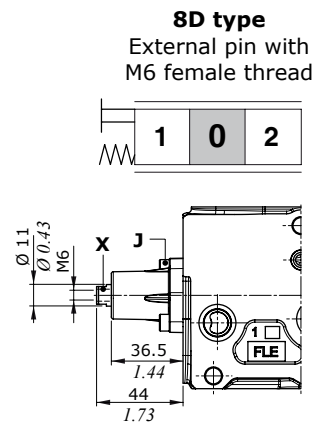
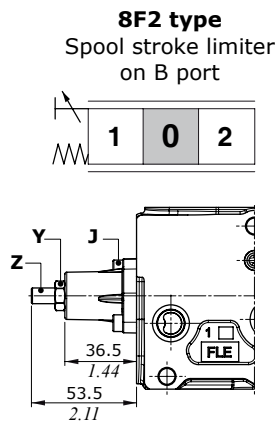
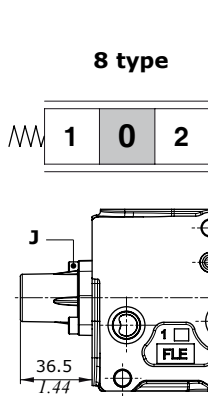


Release force $230\text{ N} \pm 10\text{ N}$
($51.7\text{ lbf} \pm 2.2\text{ lbf}$)

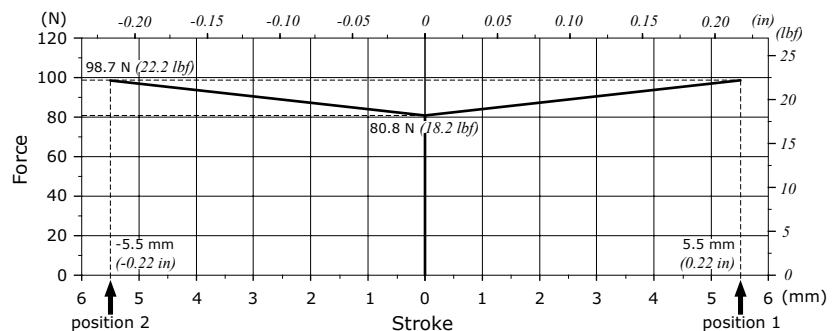
Wrenches and tightening torques

- J = allen wrench 4 - $6,6\text{ Nm}$ (4.9 lbf)
- H = allen wrench 4
- K = wrench 28 - manual tightening
- X = wrench 9
- Y = wrench 13 - 24 Nm (17.7 lbf)
- Z = allen wrench 4

With spring return to neutral position



Force vs. Stroke diagram



Working and outlet section

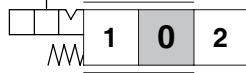
"A" side spool positioners

With detent and spring return to neutral position from either directions

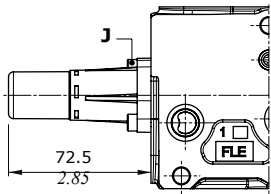
9BZ type
detent in position 1
(see A curve)



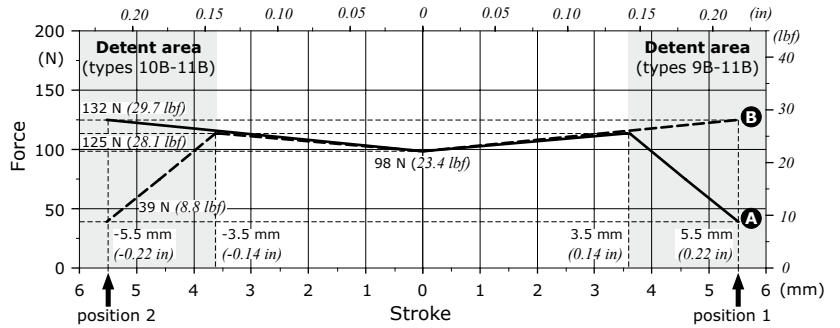
10BZ type
detent in position 2
(see B curve)



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

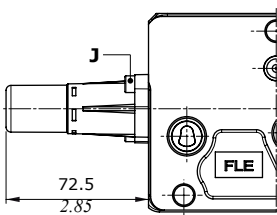
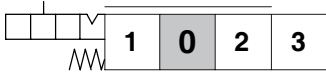


Force vs. Stroke diagram

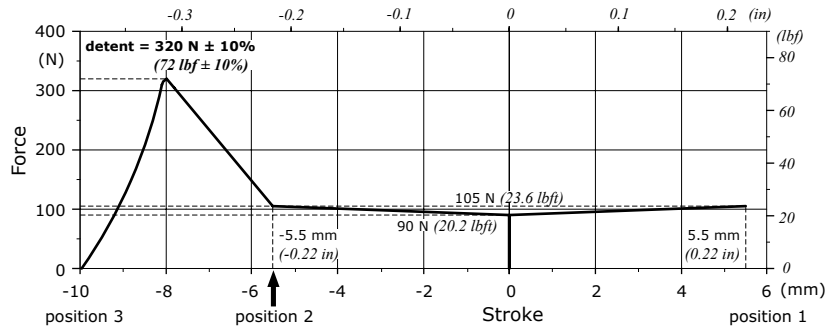


Release force 230 N ± 10% (51.7 lbf ± 10%)

For floating circuit, 13RZ type



Force vs. Stroke diagram



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

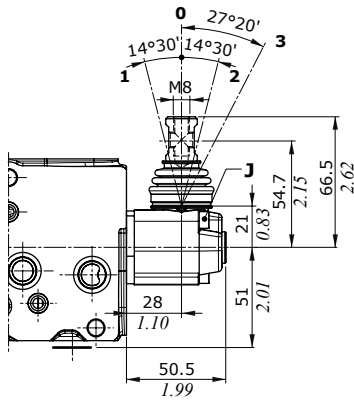
Wrenches and tightening torques

J = allen wrench 4 - 6,6 Nm (4.9 lbf)

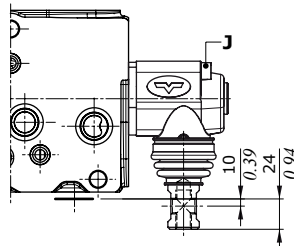
"B" side spool control kit

Lever boxes

L type

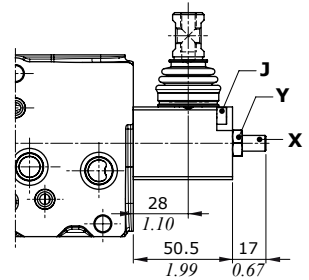
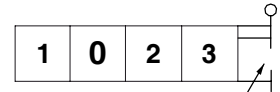


L180 type



LF1 type

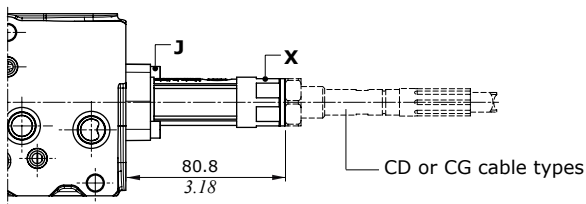
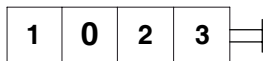
Spool stroke limiter on A port



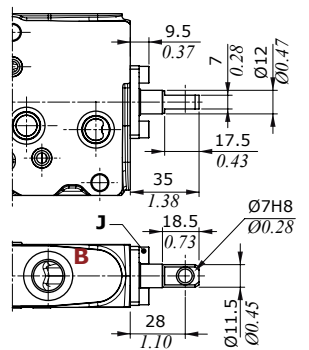
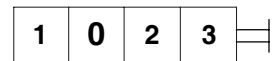
Wrenches and tightening torques

- K = wrench 24 (17.7 lbf)
- J = allen wrench 4 - 6.6 Nm (4.9 lbf)
- X = allen wrench 4
- Y = wrench 13 - 24 Nm (17.7 lbf)

Flexible cable connection, TQ type



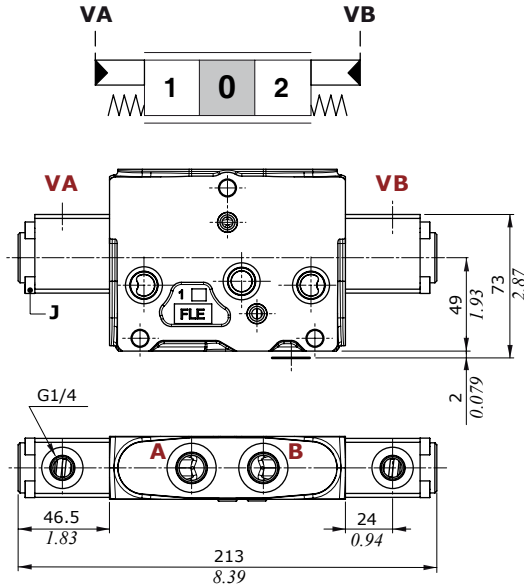
Dust-proof plate, SLP type



Working and outlet section

Proportional hydraulic control

8IM - 8IMX types

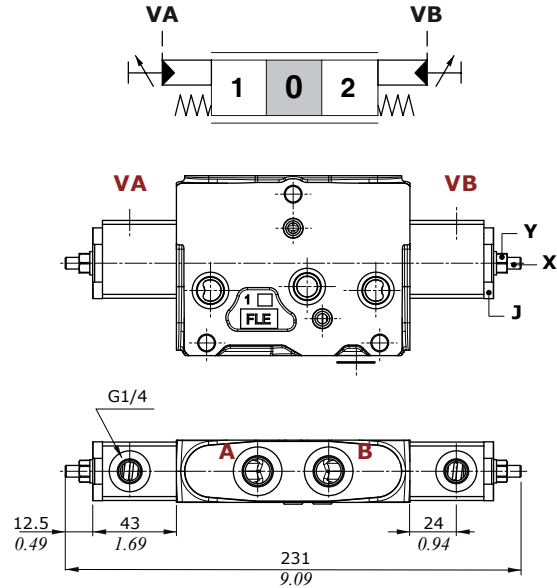


Features (all types)

Max. pressure. : 70 bar (1010 psi)

8IMF3 - 8IMXF3 types

With spool stroke limiter on A and B ports



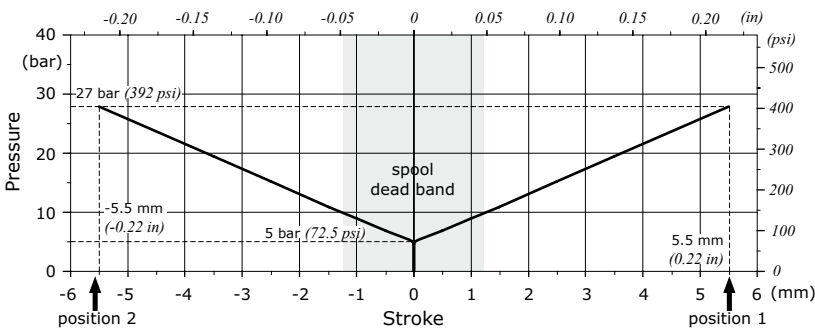
Wrenches and tightening torques

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

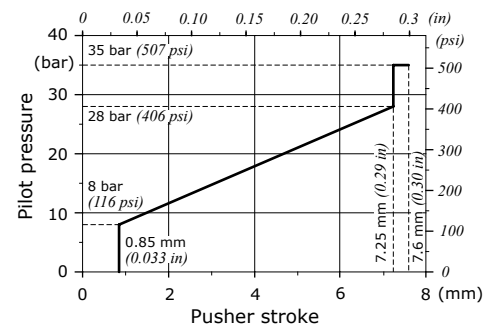
X = allen wrench 3

Y = wrench 10 - 9.8 Nm (7.2 lbf)

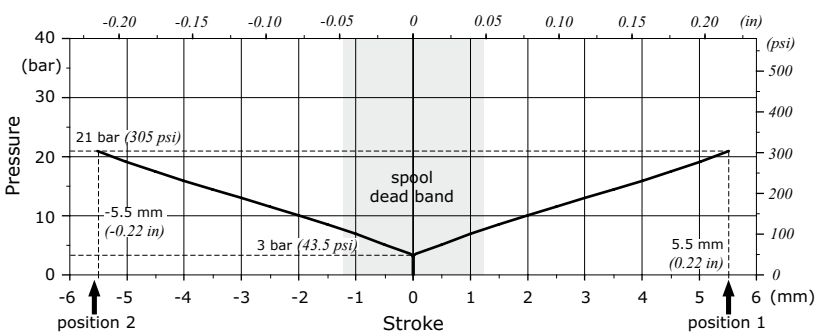
8IM-8IMF3 types: Stroke vs. Pressure diagram



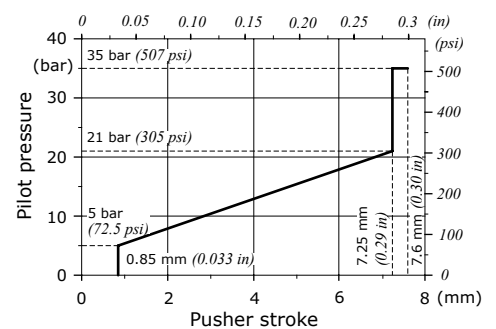
Suggested pressure control curve: 089 type



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



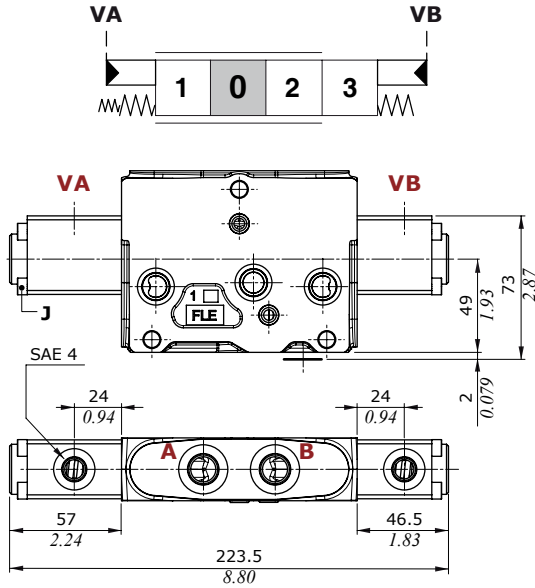
Suggested pressure control curve: 028 type



Working and outlet section

Proportional hydraulic control

For floating circuit, 13IMP type



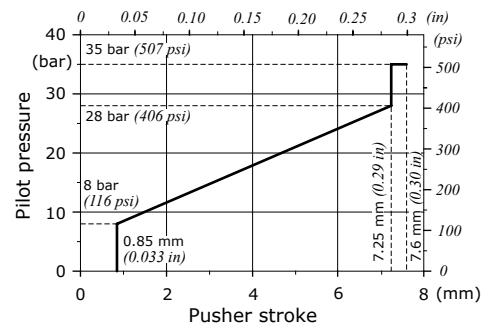
Wrenches and tightening torques

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

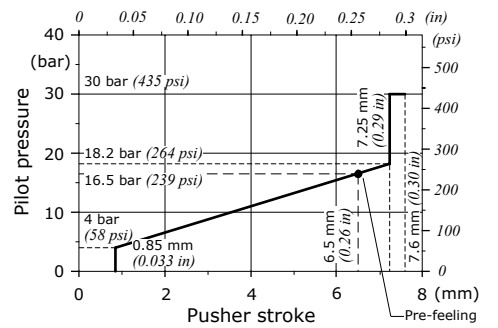
Features

Max. pressure. : 70 bar (1010 psi)

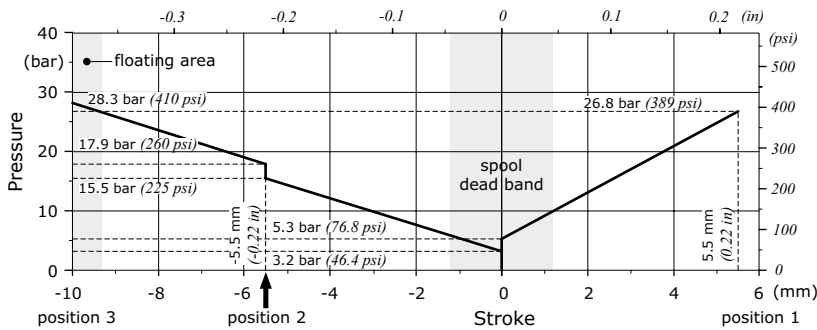
Suggested pressure control curve on VA port: 089 type



Suggested pressure control curve on VB port: 086 type



Stroke vs. Pressure diagram



Working and outlet section

Electrohydraulic control performance data

Following specifications are measured with:

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

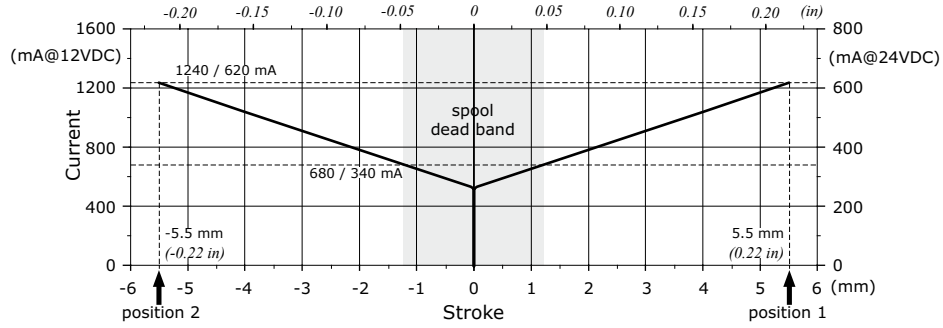
Following electrohydraulic controls need CED400W electronic unit; for information please contact Sales Department.

Specifications		Spool control type			
		8EB3	13EB3P	8EZ3	13EZ3P
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⁾	external drain	4%	4%	6%	6%
	internal drain	5%	5%	7%	7%
Time response	from 0 ⇒ 100% and from 100% ⇒ 0 of stroke	< 60 ms	< 85 ms	< 75 ms	< 85 ms
Min. flow control signal	12 VDC	680 mA	500 mA	680 mA	500 mA
	24 VDC	340 mA	250 mA	340 mA	250 mA
Max. flow control signal	12 VDC	1240 mA	P⇒A: 950 mA P⇒B: 945 mA 1030 mA	1240 mA	P⇒A: 950 mA P⇒B: 945 mA 1030 mA
	24 VDC	620 mA	P⇒A: 475 mA P⇒B: 470 mA 515 mA	620 mA	P⇒A: 475 mA P⇒B: 470 mA 515 mA
Float flow control signal	12 VDC		1420 mA		1420 mA
	24 VDC		710 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 insulation		Class H (180°C - 356°F)		Class H (180°C - 356°F)	
Connector type		AMP JPT - Deutsch DT		AMP JPT - Deutsch DT	
Weather protection (connector)		IP65 (JPT type) - IP69K (DT type)		IP65 (JPT type) - IP69K (DT type)	
Hydraulic specifications					
Max. pressure		40 bar (580 psi)		50 bar (725 psi)	
Max. back pressure		10 bar (145 psi)		10 bar (145 psi)	

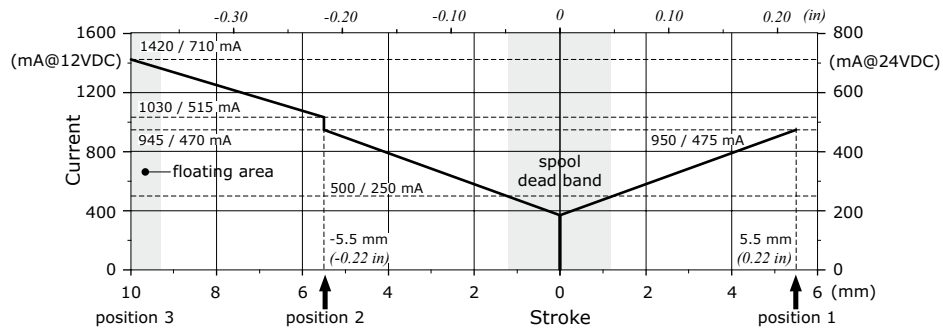
Note (1) hysteresis is indicated at nominal supply voltage and f = 0.008 Hz for one cycle (one cycle = neutral ⇒ full A ⇒ neutral ⇒ full B ⇒ neutral). For the calculation rules see "Appendix A" on page 170.

Electrohydraulic control performance data

8EB3-8EZ3 types: Stroke vs. Current diagram



13EB3P-13EZ3P types: Stroke vs. Current diagram



Working and outlet section

Electrohydraulic controls: spool position sensor

The sensor can be ordered exclusively through the EB and EZ type electrohydraulic controls; see page 23 for available control list.

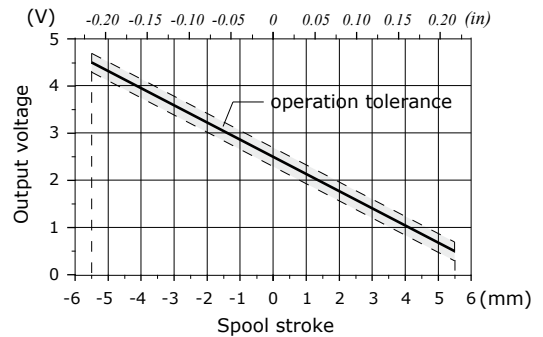
SPSL sensor

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

Working conditions

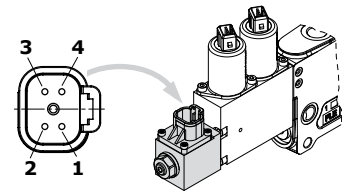
Voltage supply	5 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	DT04-4P Deutsch
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke	±10 mm (±0.39 in)
Max. mechanical stroke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

SPSL sensor output signal



Deutsch DT04-4P connector

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



Deutsch DT06-4S mating connector, code 5CON140072

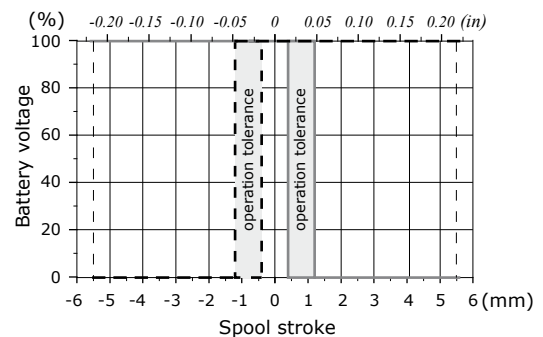
SPSD sensor

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

Working conditions

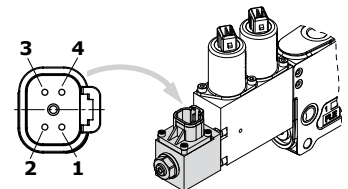
Voltage supply	from 9 to 32 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	DT04-4P Deutsch
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke	±10 mm (±0.39 in)
Max. mechanical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

SPSSD sensor output signal



Deutsch DT04-4P connector

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



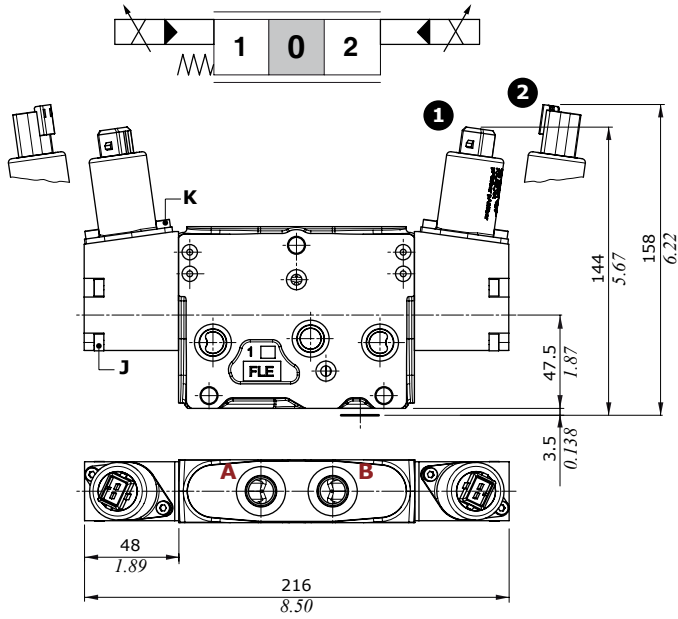
Deutsch DT06-4S mating connector, code 5CON140072

Two-side electrohydraulic control

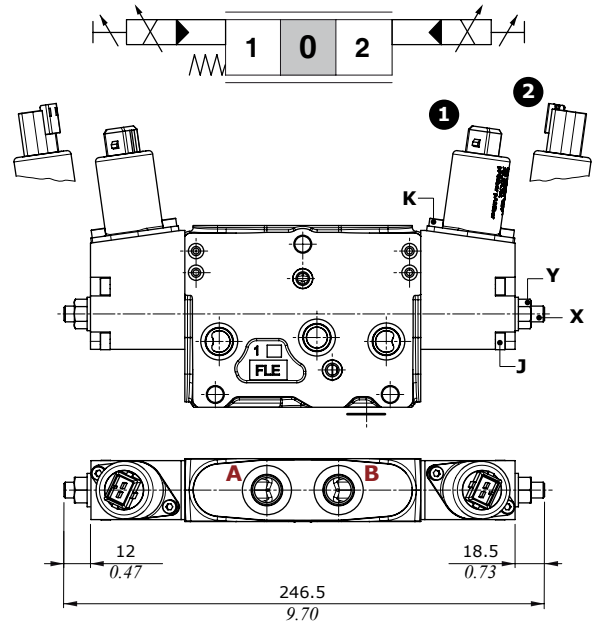
Control Types

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

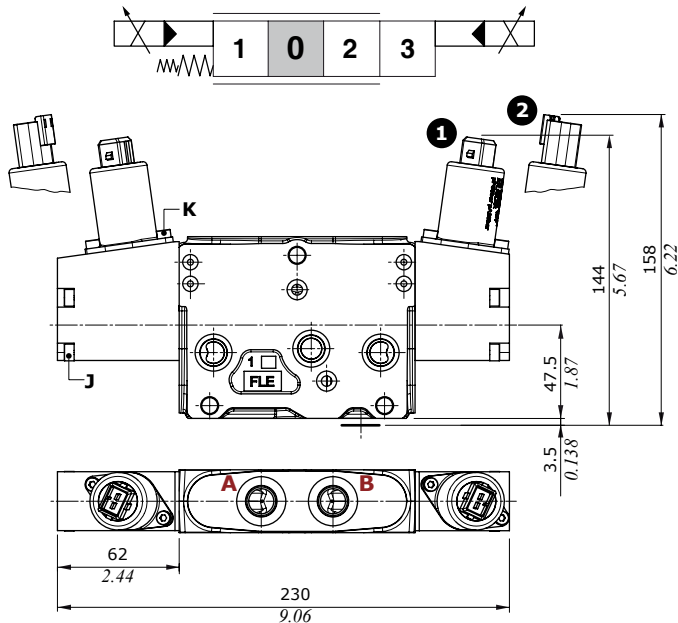
8EB3 - 8EB34 types



8EB3F3 - 8EB34F3 types



13EB3P - 13EB34P types



Wrenches and tightening torques

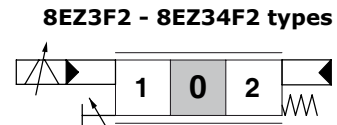
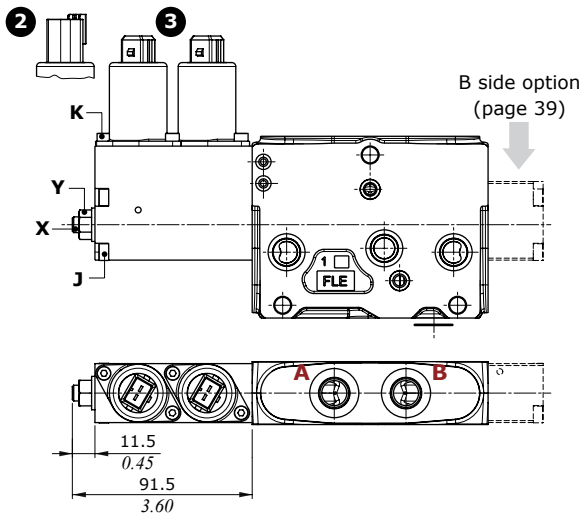
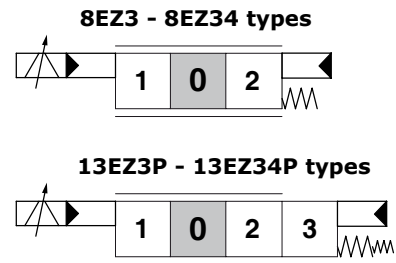
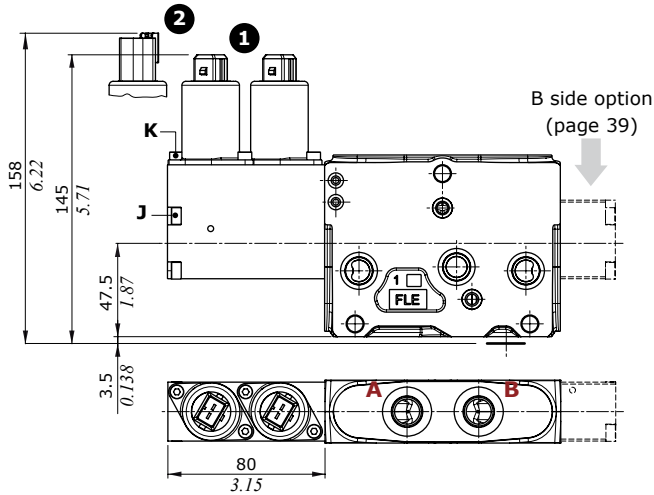
- J = allen wrench 4 - 6.6 Nm (4.9 lbf)
- K = allen wrench 3 - 5 Nm (3.7 lbf)
- X = allen wrench 4
- Y = wrench 13 - 24 Nm (17.7 lbf)

Working and outlet section

One-side electrohydraulic control: "A" side

Control Types

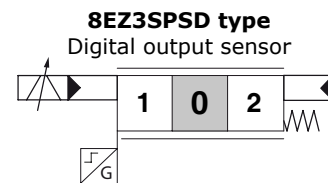
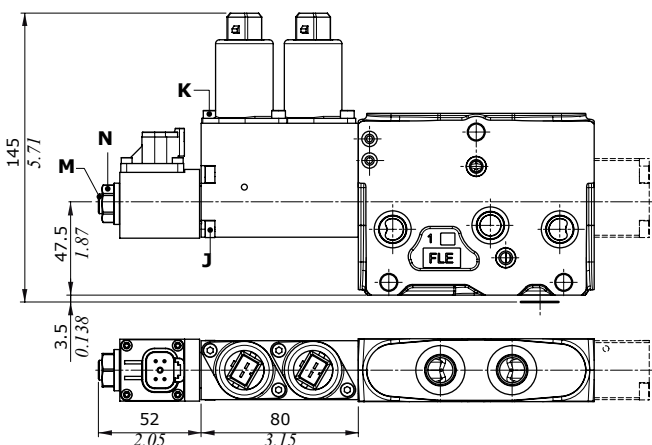
- 1 : With AMP JPT connector - AMP JPT mating connector, code: 5CON003
- 2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



Wrenches and tightening torques

- J = allen wrench 4 - 6.6 Nm (4.9 lbf)
- K = allen wrench 3 - 5 Nm (3.7 lbf)
- X = allen wrench 4
- Y = wrench 13 - 24 Nm (17.7 lbf)
- M = allen wrench 4 - 9.8 Nm (7.2 lbf)
- N = wrench 17 - 9.8 Nm (7.2 lbf)

With SPSP spool position sensor

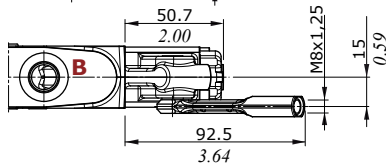
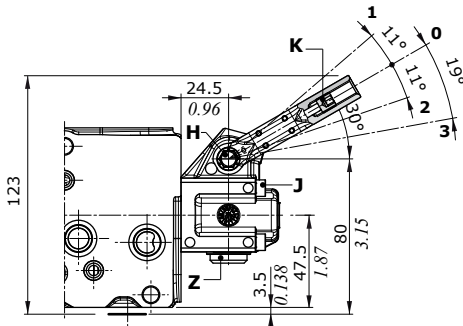
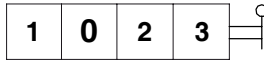


One-side electrohydraulic control: "B" side option

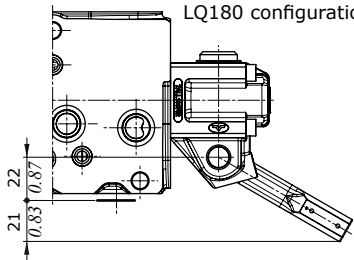
These options are available for one-side electrohydraulic controls only.

Lever boxes

LQ - LQ180 types

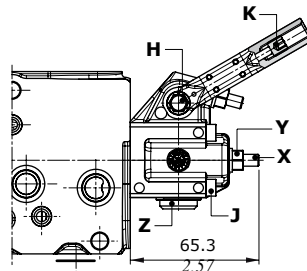


LQ180 configuration

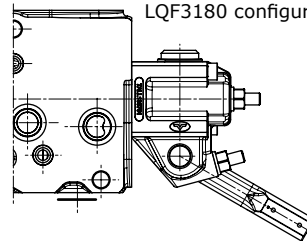


LQF3 - LQF3180 types

With stroke limiters on A and B ports



LQF3180 configuration

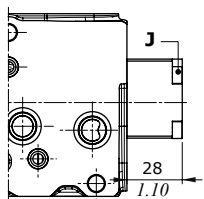
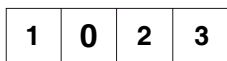


Wrenches and tightening torques

- H = wrench 8
- J = allen wrench 4 - 6.6 Nm (4.9 lbf)
- K = allen wrench 4 - 9.8 Nm (7.2 lbf)
- M = allen wrench 4
- N = wrench 13 - 24 Nm (17.7 lbf)
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbf)
- Z = allen wrench 6 - 24 Nm (17.7 lbf)

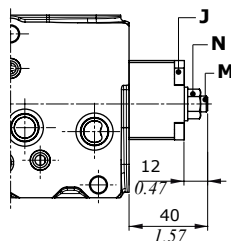
Endcaps

SLC type



SLCF1 type

spool stroke limiter on A port



Working and outlet section

Port valves

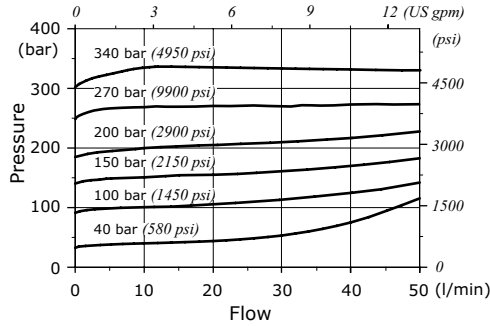
U type valve:
antishock valves with prefill



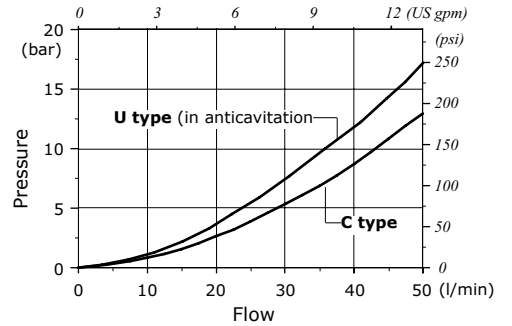
C type valve:
anticavitation



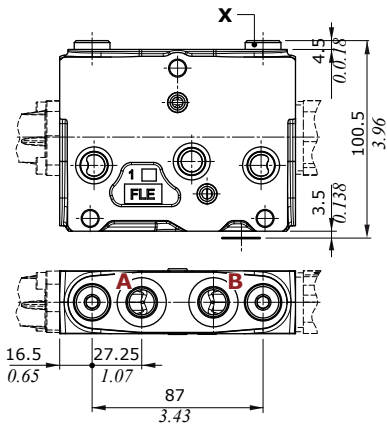
U type: setting example
(10 l/min - 2.6 US gpm)



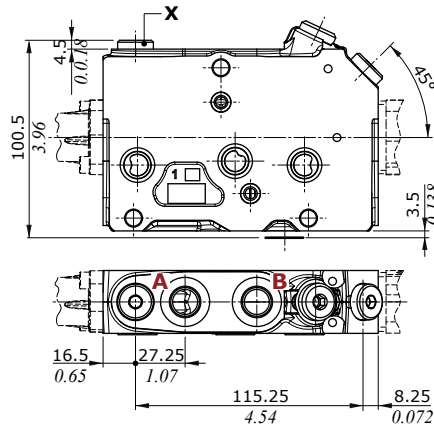
U and C types: pressure drops



On standard section



On Low Leak section



Wrenches and tightening torques

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

Complete section ordering codes

A Mechanical and hydraulic controls configuration:

Nr. of working sections
DPX050/4/AM2(TGW3-175\ELN)/PLL-I104(40\40)-8IM.U3T/Q-104(40\40)-8IM/RQ-104(40\40)-8L-.....-12VDC

1

2A

2B

3

4

5

DPX050: For working conditions and guide to mixed (Low Leak and Standard sections both) configuration see pages 5, 6, 12, 13.

B Electrohydraulic controls configuration:

DPX050/4/AM2(TGW3-175\ELN)/PZLL-I104(40\40)-8EZ3LQ.U3T/QZ-I104(40\40)-8EZ3SLC/

1

2A

2B

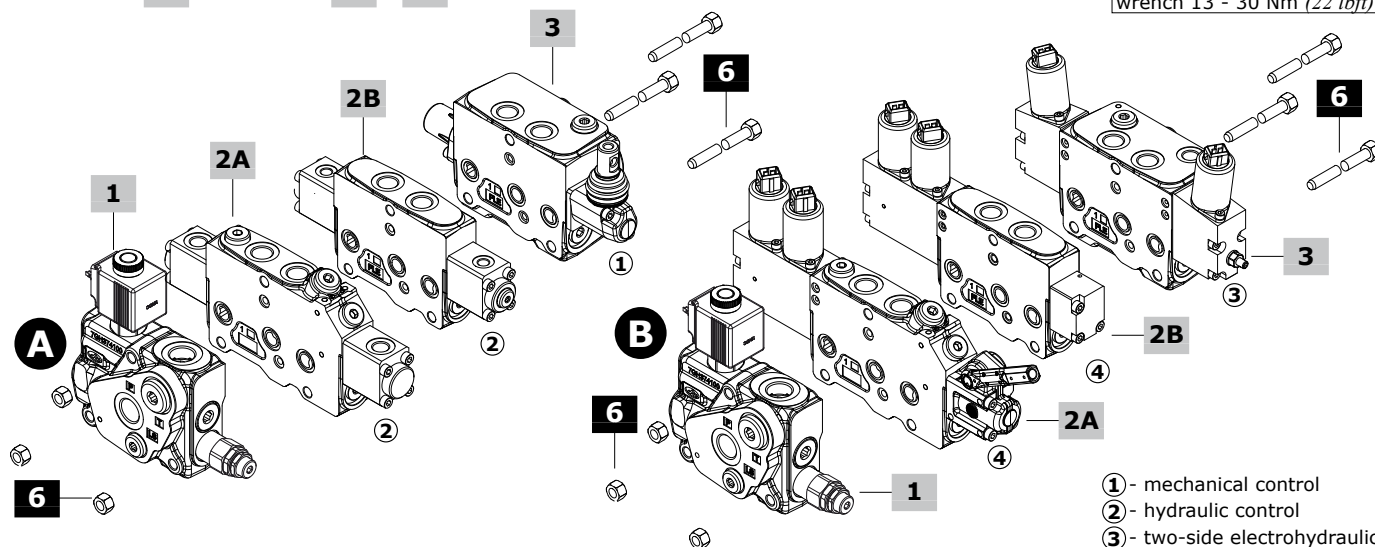
RQE-I104(40\40)-8EB3F3-.....-12VDC

3

4

5

Tie rod tightening
 wrench 13 - 30 Nm (22 lbf^{ft})



- ① - mechanical control
- ② - hydraulic control
- ③ - two-side electrohydraulic control
- ④ - one-side electrohydraulic control

1 Complete inlet section *

All inlet sections listed in the catalogue can be used; see page 15

2A Complete Low Leak working section *

Mechanical control

TYPE: **DPX050/QLL-104LL(40\40)-8L-SAE**

CODE: 660100007S

DESCRIPTION: Lever control without port valve arrangement

TYPE: **DPX050/PLL-104LL(40\40)-8L.U3T-SAE**

CODE: 660100008S

DESCRIPTION: As previous with port valve arrangement

Proportional hydraulic control

TYPE: **DPX050/QLL-I104LL(40\40)-8IM-SAE**

CODE: 660100009S

DESCRIPTION: Without port valve arrangement

TYPE: **DPX050/PLL-I104LL(40\40)-8IM.U3T-SAE**

CODE: 660100010S

DESCRIPTION: With port valve arrangement

One-side proportional electrohydraulic control

TYPE: **DPX050/QZLL-I104LL(40\40)-8EZ3LQF3-12VDC-SAE**

CODE: 660100011S

DESCRIPTION: With lever and spool stroke limiter, without port valve arrangement

TYPE: **DPX050/PZLL-I104LL(40\40)-8EZ3FLQF3.U3T-12VDC-SAE**

CODE: 660100012S

DESCRIPTION: As previous one with port valve arrangement

2B Complete Standard working section *

All sections listed in the catalogue can be used (see page 15), considering the configuration rules indicated on pages 12, 13.

3 Complete working section with outlet *

All inlet sections listed in the catalogue can be used, considering the configuration rules indicated on pages 12, 13.

4 Valve threading

Only specify if it is different from BSP standard (see page 7).

5 Voltage

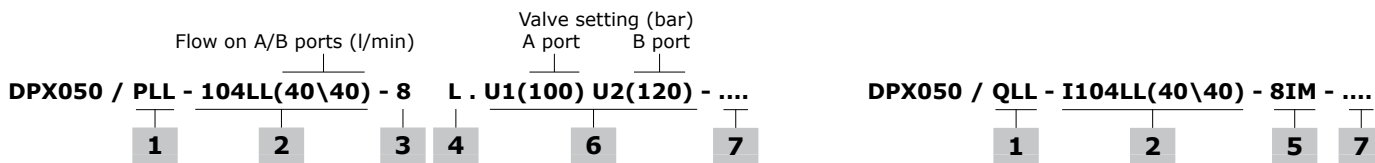
Specify the voltage of electric devices.

6 Assembling kit

Need standard tie rods; see page 15

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

Low Leak working section part ordering codes (mechanical and hydraulic)



1 Low Leak working section kit* page 44

For mechanical control

TYPE: **DPX050/QLL-SAE-FPM** CODE: 5EL10A7021LV

DESCRIPTION: Without port valve arrangement

TYPE: **DPX050/PLL-SAE-FPM** CODE: 5EL10A7020LV

DESCRIPTION: With port valve arrangement

For hydraulic control

TYPE: **DPX050/QLL-SAE-IM-FPM** CODE: 5EL10A7021ALV

DESCRIPTION: Without port valve arrangement

TYPE: **DPX050/PLL-SAE-IM-FPM** CODE: 5EL10A7004V

DESCRIPTION: With port valve arrangement

2 Low Leak spool page 45

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, floating circuit with 13RZ type positioner (4 position)

105LL(50) 3CUA110005L 50 l/min (13 US gpm) flow

104LL(40) 3CUA110004L 40 l/min (10.5 US gpm) flow

103LL(30) 3CUA110003L 30 l/min (7.9 US gpm) flow

102LL(20) 3CUA110002L 20 l/min (5.3 US gpm) flow

101LL(10) 3CUA110001L 10 l/min (2.6 US gpm) flow

106LL(5) 3CUA110006L 5 l/min (1.3 US gpm) flow

For hydraulic control

Double acting with A and B closed in neutral position, floating circuit with 4 positions 13IMP type contro

I105LL(50) 3CUA310005L 50 l/min (13 US gpm) flow

I104LL(40) 3CUA310004L 40 l/min (10.5 US gpm) flow

I103LL(30) 3CUA310003L 30 l/min (7.9 US gpm) flow

I102LL(20) 3CUA310002L 20 l/min (5.3 US gpm) flow

I101LL(10) 3CUA310001L 10 l/min (2.6 US gpm) flow

I106LL(5) 3CUA310006L 5 l/min (1.3 US gpm) flow

3 "A" side spool positioners page 29

TYPE	CODE	DESCRIPTION
7FT	5V0710A001	With friction and neutral position notch
8	5V08102000	3 pos. with spring return to neutral position
8F2	5V0810A001	Spool stroke limiter on B port
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 pos., detent in 4 th position with spool in, spring return to neutral position

4 "B" side spool control kit page 31

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

5 Proportional hydraulic control* page 32

TYPE	CODE	DESCRIPTION
IM-SAE	5IDR20A700V	Range 8-27 bar (116-392 psi)
8IMX-SAE	5IDR20A701V	Range 3.5-20 bar (51-290 psi)
8IMF3-SAE	5IDR20A702V	Range 8-27 bar (116-392 psi), with spool stroke limiter on A and B ports
8IMXF3-SAE	5IDR20A703V	Range 3.5-20 bar (51-290 psi), with spool stroke limiter on A and B ports
For floating circuit (standard spool)		
13IMP-SAE	5IDR20A710V	Range 4-16.5-28 bar (58-239-406 psi)

6 Port valves page 40

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

For complete list see page 21.

7 Section threading

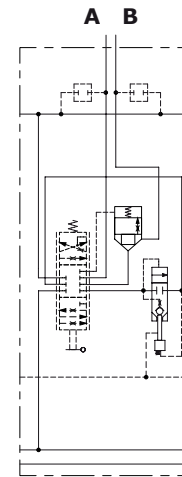
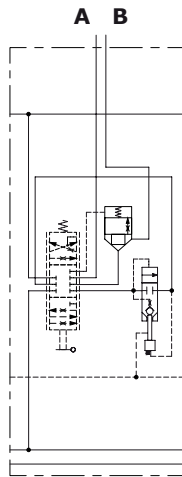
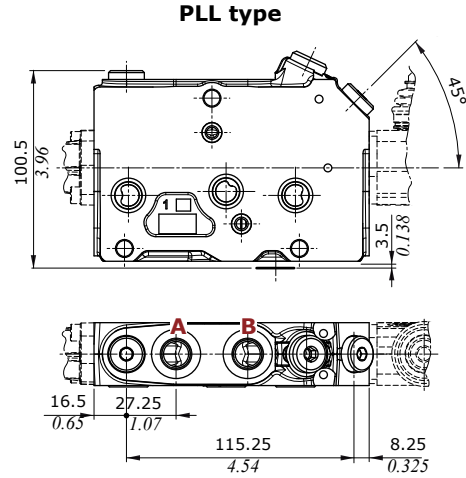
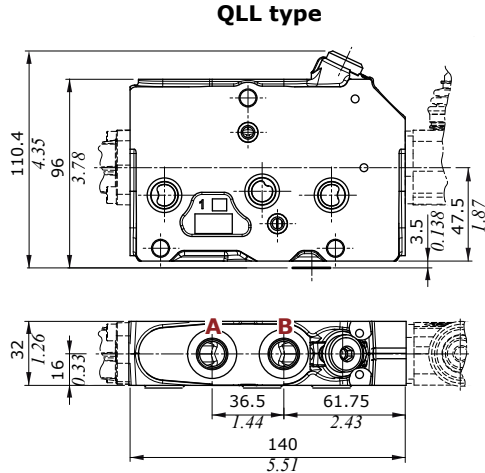
Da specificare solo se è differente da BSP standard (vedi pag. 7)

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

Low Leak working section

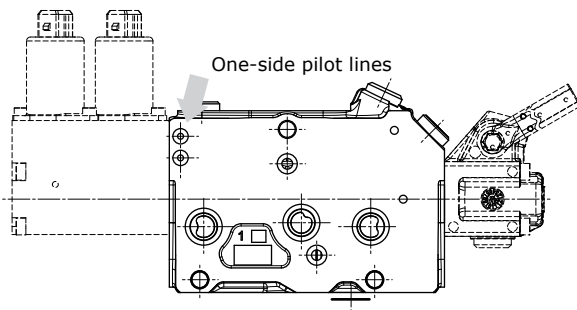
Dimensions and hydraulic circuit

Section for mechanical and hydraulic controls



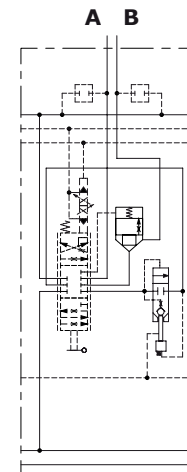
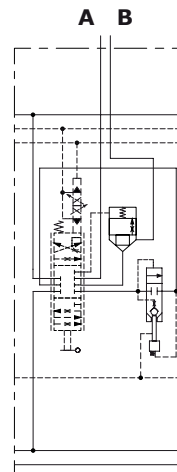
Section for electrohydraulic controls

QZLL or PZLL types



QZLL type

PZLL type



Spool

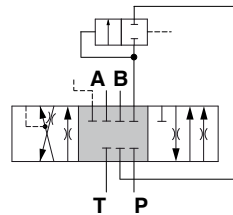
Low Leak spool metering curves are the same as the standard spools; see page 28

Type 1LL (1LL../I1LL..) spool

A, B closed in neutral position

with 3 position control

1 0 2

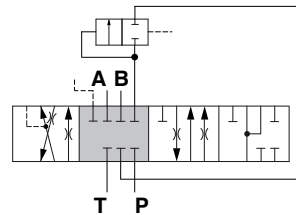


Spool stroke

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

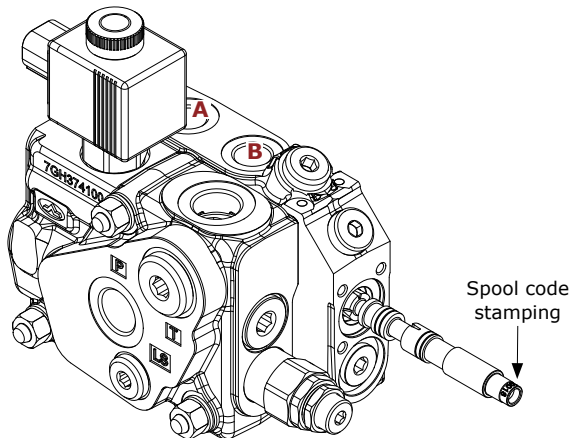
with 4 position control

1 0 2 3



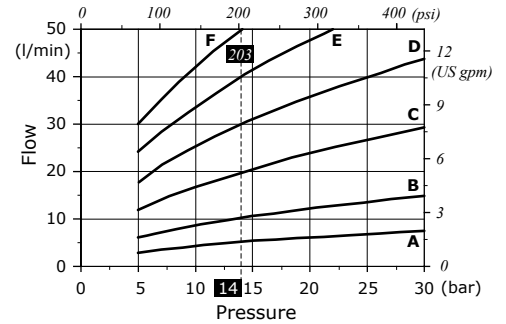
Spool stroke

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



In case of spool replacement the code stamping must be oriented toward B port.

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)

Content

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• **DPX100 High Flow**

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 One-side electrohydraulic control: "A" side 107

 One-side electrohydraulic control: "B" side options. 108

 Complete one-side electrohydraulic control 109

• **DPX100 Low leak**

 Complete section ordering codes. page 110

 Working section

 Parts ordering code page 112

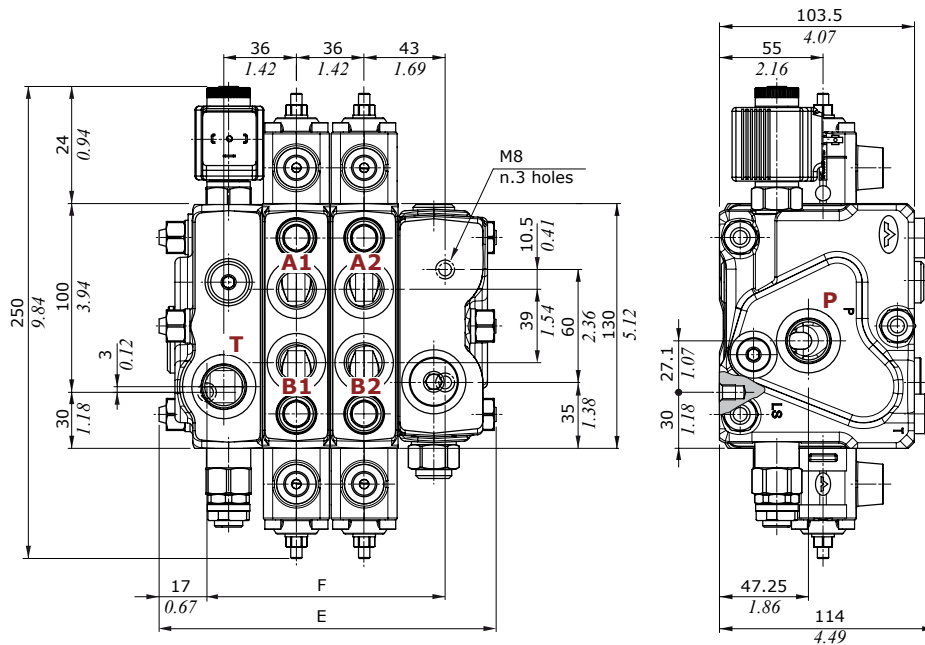
 Dimensional data and hydraulic circuit 114

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 One-side electrohydraulic control: "A" side 118

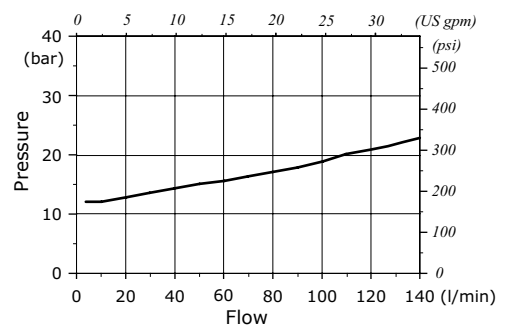
 One-side electrohydraulic control: "B" side options. 118

Dimensional data and performance

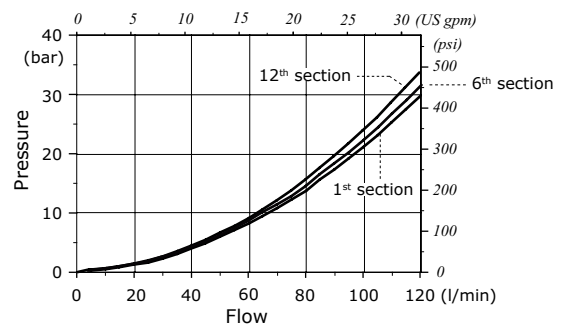


TYPE	E		F	
	mm	in	mm	in
DPX100/1	144	5.67	90.5	3.56
DPX100/2	180	7.09	126.5	4.98
DPX100/3	216	8.50	162.5	6.40
DPX100/4	252	9.92	198.5	7.81
DPX100/5	288	11.34	234.5	9.23
DPX100/6	324	12.76	270.5	10.65
DPX100/7	360	14.17	306.5	12.07
DPX100/8	396	15.59	342.5	13.48
DPX100/9	432	17.01	378.5	14.90
DPX100/10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

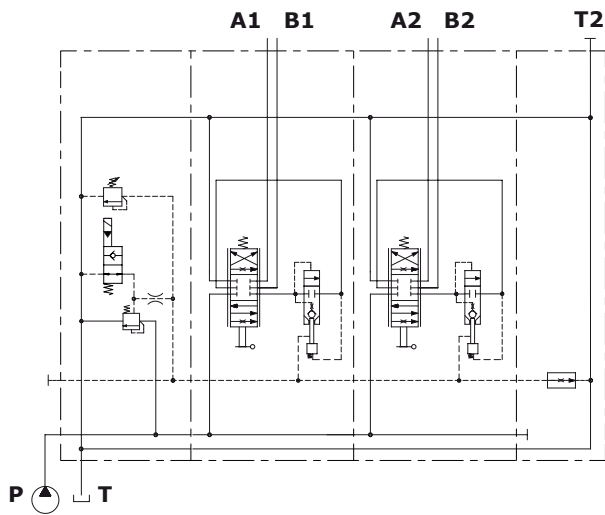
P→T Pressure drop inlet compensator (margin pressure)



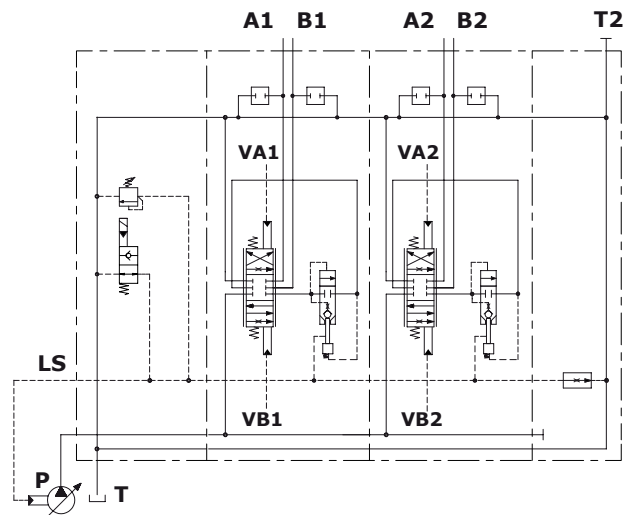
A(B)→T pressure drop (standard spool @ max.stroke)



Configuration example with mechanical and hydraulic controls

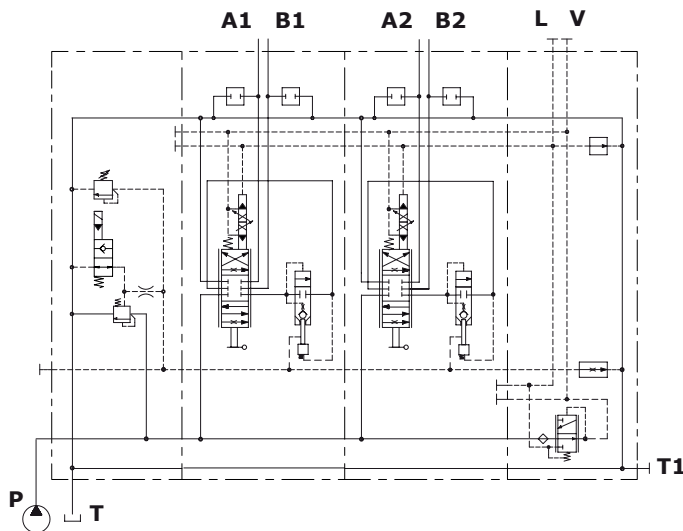


Open center circuit and lever control, with unloader valve, without port valve arrangement

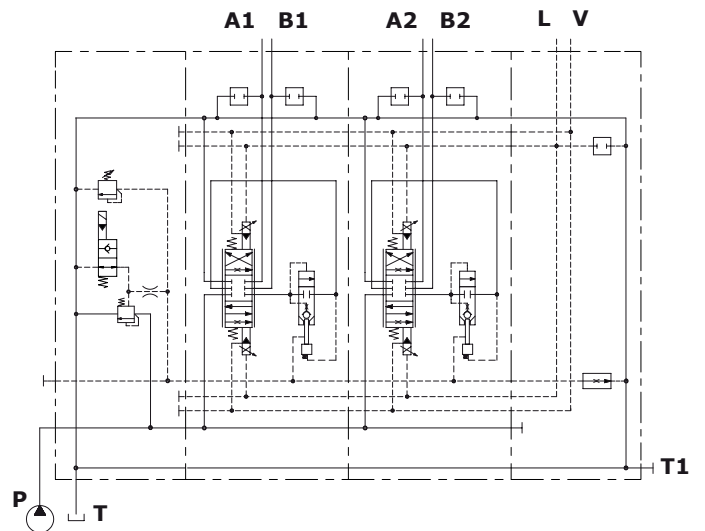


Closed center circuit and proportional hydraulic control, with unloader valve and port valve arrangement

Configuration example with electrohydraulic controls



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



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

Guide to configuration

Pressure peak 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 comfortable 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 peak reduction.

Standard configuration

Bidirectional restrictor on L.S. signal; it dampens the pressure peaks from L.S. line to inlet section 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 section 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.

High Pressure (HP) valve configuration

DPX100 Flow Sharing valves are available both for Standard and High pressure (HP) configuration..

The main difference between the two configurations is the max. reachable pressure.

In details:

DPX100

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

DPX100HP

- Max. pressure on P inlet port = 380 bar - 5550 psi
- Max. pressure on A/B working ports = 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 section: one single solution for Standard and HP pressures.

Open center type inlet section: separate solutions for Standard and HP pressures.

Priority inlet section: configuration available only for Standard pressure.

Working sections: separate solutions for Standard and HP pressures.

Outlet section: 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 or
Std pressure closed center inlet sections

Std Pressure working sections

Standard Pressure outlet section

Example of entirely High Pressure (HP) valve configuration

DPX100^{HP}/2/AM1(TGW5-300\ELN)/P-101(80\80)-8IMN.U3T/Q-101(80\80)-8IMN/RF-12VDC

HP open center inlet section or
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 or
Std pressure closed center inlet sections

Std Pressure working section

HP working section

Standard Pressure outlet section

Guide to configuration

High Flow (HF) valve configuration

It needs to flow up to 120 l/min (32 US gpm), the DPX100 valve can be configured with up to 4 HF (High Flow) working sections. In addition to an entirely for Standard flow or High Flow configuration, a mixed configuration – Standard/HF – is available by combining only the sections needed (the number of HF sections is always limited to 4). In this case, for hydraulic requirements, the HF sections must be positioned just downstream to the inlet. HF sections are suitable for use both in Standard Pressure and High Pressure (HP) valves. The inlet flow rate must not be less than 140 l/min (37 US gpm).

Example of entirely High Flow (HF) valve configuration, for Standard Pressure

DPX100 **HF**/4/AM1(TGW5-300\ELN)/P-E101(120\120)-8IMNF3.U3(100)/P-E101(120\120)-8IMNF3.U3(100)/

Std Pressure open center or Std pressure closed center inlet section, with G3/4 P port

HF working sections

P-E101(120\120)-8IMNF3.U3(100)/P-E101(120\120)-8IMNF3.U3(100)/RF-12VDC

HF working sections

Standard Pressure outlet section

Example of entirely High Flow (HF) valve configuration, for High Pressure (HP)

DPX100 **HF**/4/AM1(TGW5-300\ELN)/**HF**-P-E101(120\120)-8IMNF3.U3(320)/**HF**-P-E101(120\120)-8IMNF3.U3(320)/

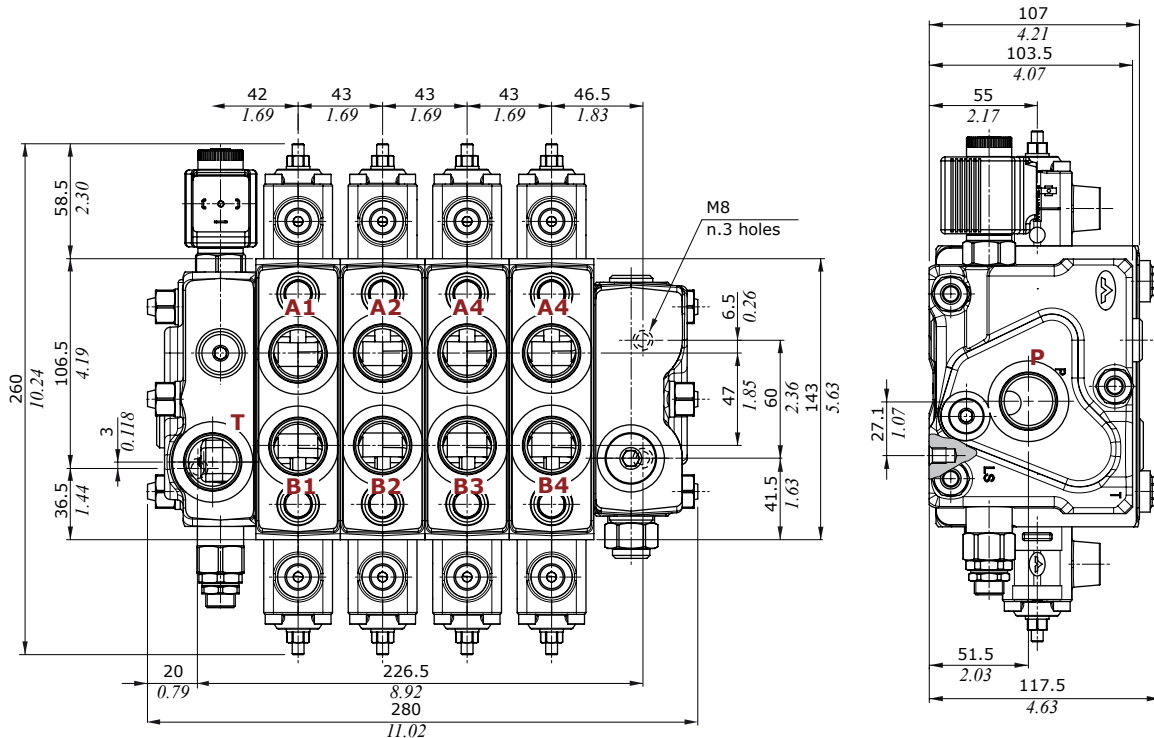
HP Pressure open center or Std pressure closed center inlet section, with G3/4 P port

HF working sections

HF-P-E101(120\120)-8IMNF3.U3(320)/**HF**-P-E101(120\120)-8IMNF3.U3(320)/RF-12VDC

HF working sections

Standard Pressure outlet section



High Flow (HF) valve configuration

Example of mixed - Standard/HF - valve configuration

DPX100/4/AM1(TGW5-300\ELN)/**HF**-P-E101(120\120)-8IMNF3.U3(100)/**HF**-P-1E01(120\120)-8IMNF3.U3(100)/

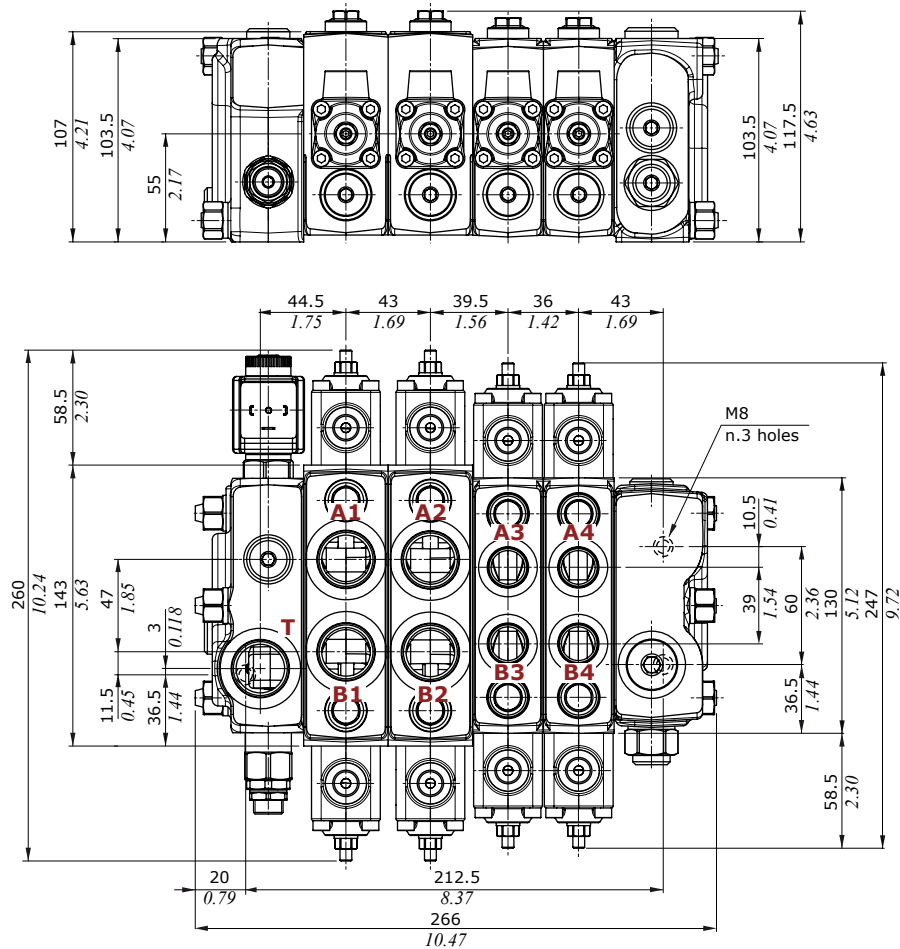
Std Pressure open center or Std pressure closed center inlet section, with G3/4 P port

HF working sections

P-E101(80\80)-8IMNF3.U3(100)/P-E101(80\80)-8IMNF3.U3(100)/RF-BSP34(PTA1B1A2B2)38(A3B4A4B4)-12VDC

Standard setting working sections

Standard Pressure outlet section



Guide to configuration

Directional valve with Low Leak working sections

The DPX100 directional valve can be configured with working sections fitted with a Low Leak valve, and it can be used in all applications that require reduced leakage, such as: Tractors, Boom Mowers, Backhoe Loaders, Graders, Mini-excavators, Compact Wheel Loaders, Fork Lifts.

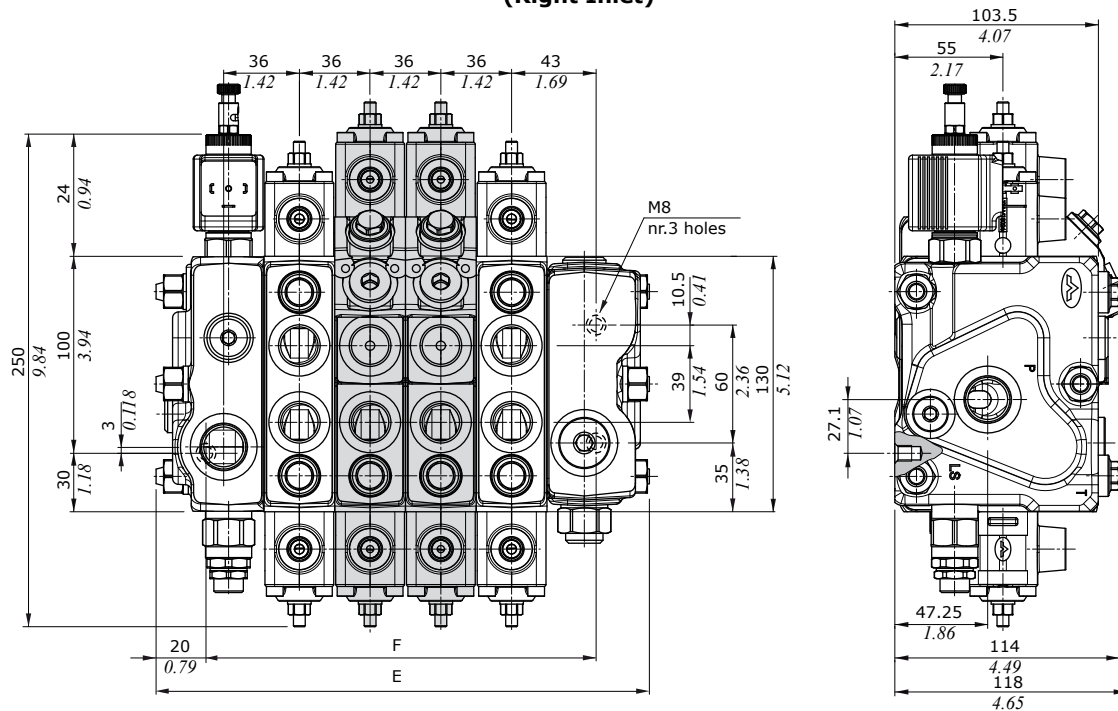
The working sections have the following features:

- Dedicated cast iron body to integrate hydraulic pilot Low Leak valves.
- Port valves arrangement.
- Capability to integrate the floating circuit with hydraulic release of the Low Leak valve.
- They are configurable with standard proportional hydraulic controls and dedicated electrohydraulic controls.
- Dedicated spools to Low Leak function.
- Compatible with inlet and outlet sections in the catalogue.

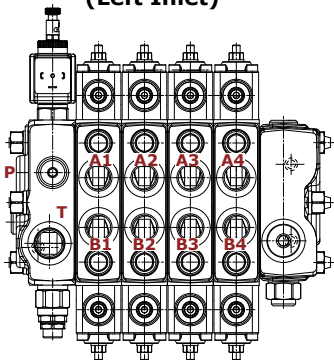
Low Leak sections can be assembled with Standard, HP or HF working sections

In a DPX100 valve with Low Leak sections, all working sections are configured as Right Inlet referred to the inlet section; the assignment of port name is the opposite type to the standard valve

Example of directional valve with Low Leak sections (Right Inlet)



Example of standard directional valve (Left Inlet)



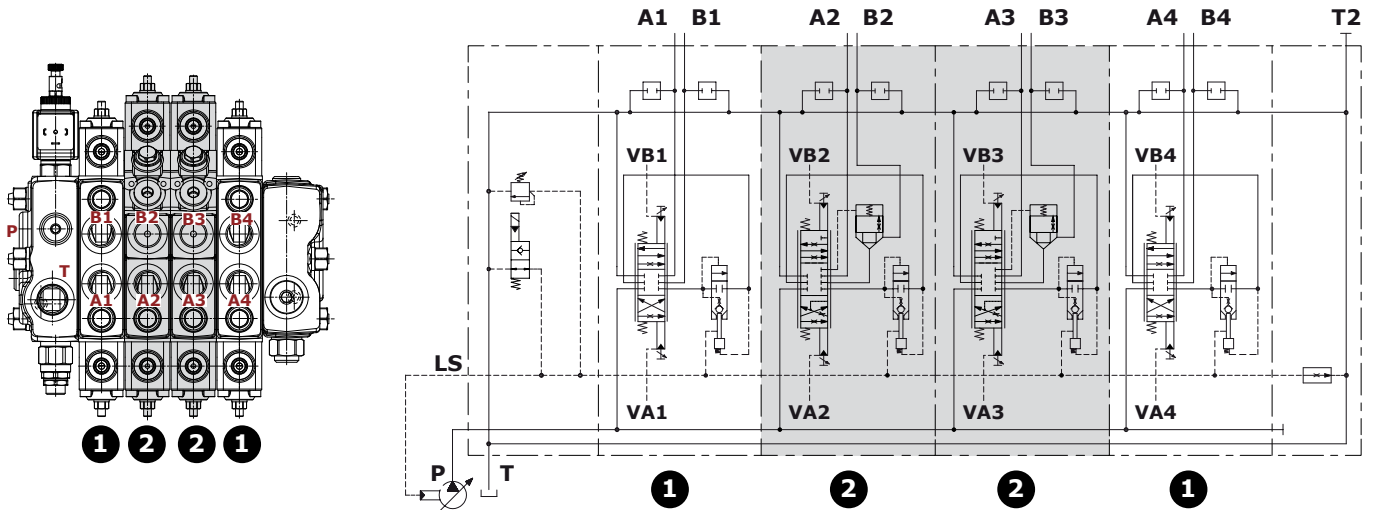
TYPE	E		F	
	mm	in	mm	in
DPX100/1	144	5.67	90.5	3.56
DPX100/2	180	7.09	126.5	4.98
DPX100/3	216	8.50	162.5	6.40
DPX100/4	252	9.92	198.5	7.81
DPX100/5	288	11.34	234.5	9.23
DPX100/6	324	12.76	270.5	10.65

TYPE	E		F	
	mm	in	mm	in
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	19.84	450.5	17.74
DPX100/12	540	21.26	486.5	19.15

Directional valve with Low Leak working sections

Valve with hydraulic controls

The Low Leak working sections can be assembled in any point of the valve between the inlet section and the outlet section.

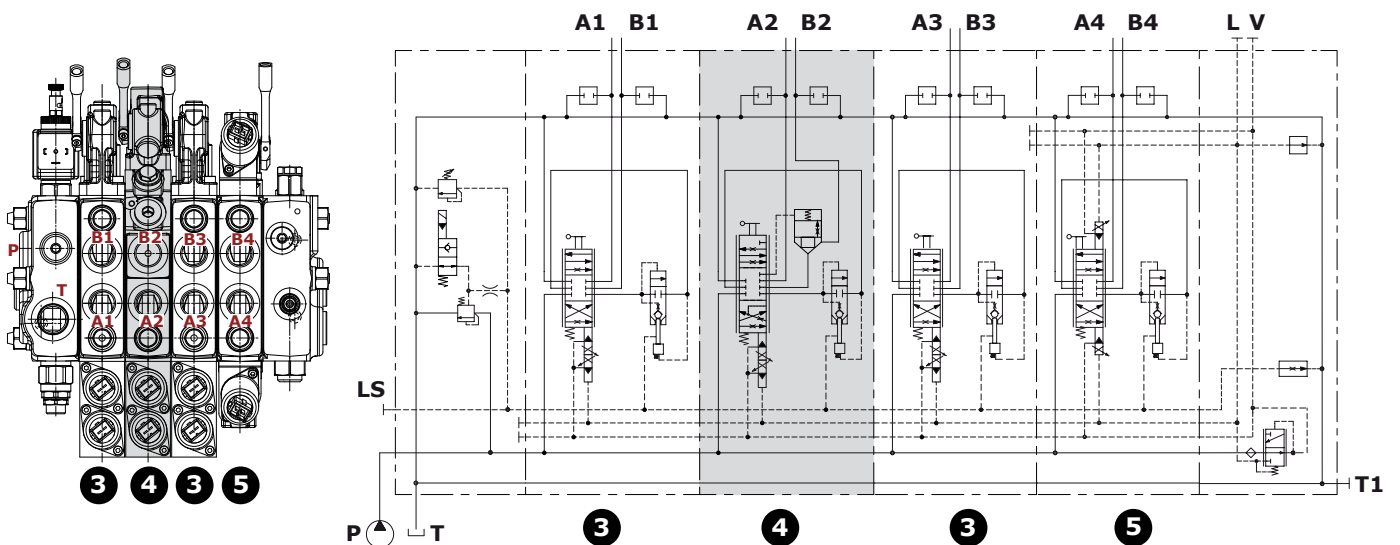


- 1: Hydraulic control working section in Right inlet configuration
- 2: Low Leak working section with hydraulic control (Right Inlet)

Valve with electrohydraulic controls

Low Leak sections can be fitted with one-side electrohydraulic controls only and these sections must be assembled immediately downstream the inlet section.

The other working sections (in Right Inlet configuration) can be fitted with one-side or two-side electrohydraulic controls; sections with two-side control must be assembled just upstream the outlet section.



- 3: One-side electrohydraulic control working section in Right inlet configuration
- 4: Low Leak working section with one-side electrohydraulic control (Right Inlet)
- 5: Two-side electrohydraulic control working section in Right inlet configuration

Complete section ordering codes

A Mechanical or hydraulic controls configuration

Nr. of working sections
DPX100/3/AM1(TGW3-175\ELN)/P-101(80\80)-8L.U1(100)U2(100)/HP-Q-E101(80\80)-8IMN/

Standard Pressure valve
 1A 1B 2A 2B

P-S102(60\60)-8ES3.U3T/RF-.....-12VDC

2A 3 4 5

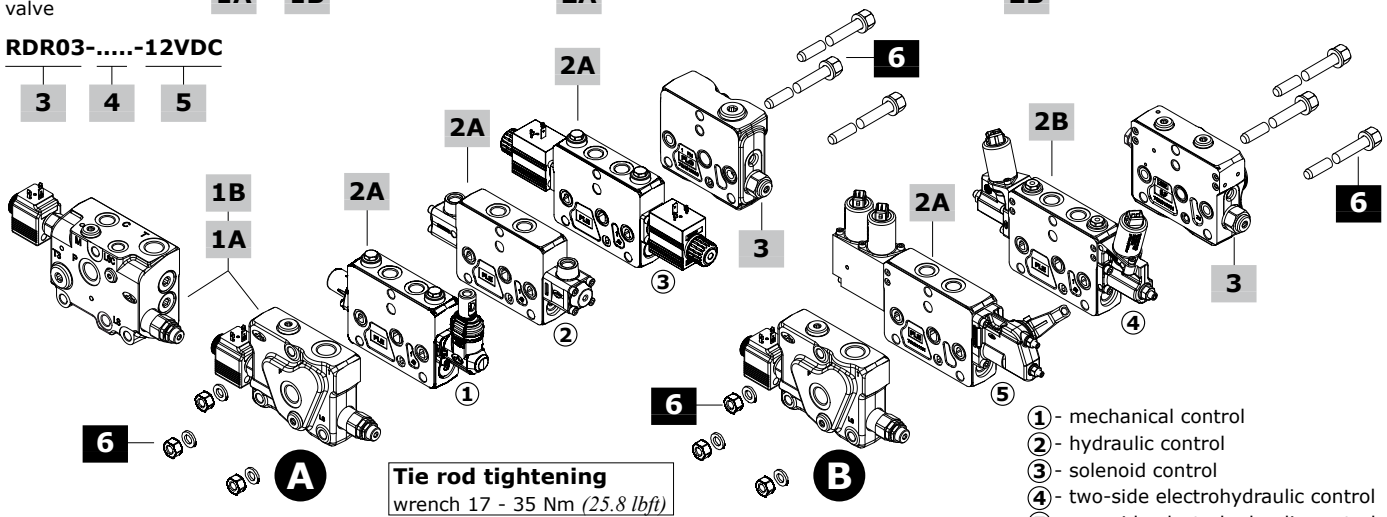
B Electrohydraulic controls configuration

DPX100/3/AM1(TGW3-175\ELN)/QZ-E101(80\80)-8EZ3LQF3/HPE-E101(80\80)-8EB3TF3.U1(100)U2(100)/

Standard pressure valve
 1A 1B 2A 2B

RDR03-.....-12VDC

3 4 5



- ① - mechanical control
- ② - hydraulic control
- ③ - solenoid control
- ④ - two-side electrohydraulic control
- ⑤ - one-side electrohydraulic control

1A.1 Std pressure inlet section *

Open Center circuit

TYPE: **DPX100/AM1(TGW3-175\ELN)-SAE-12VDC**
 CODE: 640205016S DESCRIPTION: With compensator, pressure relief valve and unloader valve, with P-T-LS ports (LS plugged)

TYPE: **DPX100/AM1(TGW3-175\ELN)-SAE12-12VDC**
 CODE: 640205030 DESCRIPTION: As previous one with SAE12 P and T ports

TYPE: **DPX100/AM1(SO\TGW3-175\ELN)-SAE-12VDC**
 CODE: 640205007S DESCRIPTION: As first one 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: 640205017S DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX100/APF4\TGW3-175\VP-D(1.2)-SB10-Q40-SAE**
 CODE: 640205302S DESCRIPTION: **Designed for steering**, compensator, priority and pressure relief valves, with P-T-T3-LS-M-C-LSC ports (T-M-LS plugged). Needs special tie rods

Closed Center circuit

TYPE: **DPX100/AN1(TGW3-175\ELN)-SAE-12VDC**
 CODE: 640205021S DESCRIPTION: Without compensator, with press. relief valve and unloader valve, with P-T-LS ports

TYPE: **DPX100/AN1(TGW3-175\ELN)-SAE12-12VDC**
 CODE: 640205032S DESCRIPTION: As previous one with SAE12 P and T ports. Not available for High Pressure valve configuration

TYPE: **DPX100/AN1(SO\TGW3-175\ELN)-SAE-12VDC**
 CODE: 640205009S DESCRIPTION: As first one (Closed Center) with non-return flow limiter from inlet section to working section and by-pass valve

1A.2 Std pressure inlet section *

TYPE: **DPX100/AN1(SU\TGW3-175\ELN)-SAE-12VDC**
 CODE: 640205022S DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX100/APFS4\TGW3-175\VP-D(1.2)-SB10-Q40\SB25-LSF(NOFC)\ESO22N-SAE-12VDC**
 CODE: 640205300S DESCRIPTION: **Designed for steering**, with flushing valve (stand-by 25 bar - 360 psi), priority, shut-off and pressure relief valves, P-T-T3-LS-M-C-LSC ports (T3-M plugged). Needs special tie rod. Not available for High Pressure valve configuration

1B High Pressure inlet section *

Open Center circuit

TYPE: **DPX100HP/AM1(TGW5-350\ELN)-SAE-12VDC**
 CODE: 640205023S DESCRIPTION: With compensator, press. relief valve and unloader valve, with P-T-LS ports (LS plugged)

TYPE: **DPX100HP/AM1(TGW5-350\ELN)-SAE12-12VDC**
 CODE: 640205031S DESCRIPTION: As previous one with SAE12 P and T ports

TYPE: **DPX100HP/AM1(SO\TGW5-350\ELT)-SAE-12VDC**
 CODE: 640205014S DESCRIPTION: As first one 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: 640205025S 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

Codici di ordinazione per sezioni complete

2A Std pressure working section ***Mechanical control**TYPE: **DPX100/Q-101(80\80)-8L-SAE**

CODE: 640115001S

DESCRIPTION: Lever control without port valve arrangement

TYPE: **DPX100/P-101(80\80)-8L.U3T-SAE**

CODE: 640105056S

DESCRIPTION: As previous one with port valve arrangement

Proportional hydraulic controlTYPE: **DPX100/Q-E101(80\80)-8IMN-SAE**

CODE: 640155002S

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100/P-E101(80\80)-8IMN.U3(100)-SAE**

CODE: 640105057S

DESCRIPTION: With antishock port valve

On/off solenoid controlTYPE: **DPX100/Q-S102(60\60)-8ES3-SAE-12VDC**

CODE: 640155003S

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100/P-S102(60\60)-8ES3.U3(100)-SAE-12VDC**

CODE: 640105064S

DESCRIPTION: With antishock port valve

Two-side proportional electrohydraulic controlTYPE: **DPX100/QE-E101(80\80)-8EB3TF3-SAE-12VDC**

CODE: 640105058S

DESCRIPTION: With spool stroke limiter, without port valves arrang.

TYPE: **DPX100/PE-E101(80\80)-8EB3TF3.U3T-SAE-12VDC**

CODE: 64010509S

DESCRIPTION: As previous one with port valve arrangement

TYPE: **DPX100/PE-E101(80\80)-8EB3TF3.U3(100)-SAE-12VDC**

CODE: 640105060S

DESCRIPTION: As previous one, with antishock port valves

One-side proportional electrohydraulic controlTYPE: **DPX100/QZ-E101(80\80)-8EZ3LQF3-SAE-12VDC**

CODE: 640105061SV

DESCRIPTION: With spool stroke limiter, without port valve arrang.

TYPE: **DPX100/PZ-E101(80\80)-8EZ3LQF3.U3T-SAE-12VDC**

CODE: 640105062S

DESCRIPTION: As previous one with port valve arrangement

TYPE: **DPX100/PZ-E101(80\80)-8EZ3LQF3.U3(100)-SAE-12VDC**

CODE: 640105063S

DESCRIPTION: As previous one, with antishock port valves

2B High Pressure working section ***Mechanical control**TYPE: **DPX100HP/Q-101(80\80)-8L-SAE**

CODE: 640115008S

DESCRIPTION: Lever control, without port valve arrangement

TYPE: **DPX100HP/P-101(80\80)-8L.U3T-SAE**

CODE: 640105009S

DESCRIPTION: As previous one with port valve arrangement

Proportional hydraulic controlTYPE: **DPX100HP/Q-E101(80\80)-8IMN-SAE**

CODE: 640115017S

DESCRIPTION: Without port valve arrang.

TYPE: **DPX100HP/P-E101(80\80)-8IMN.U3(320)**

CODE: 640105021S

DESCRIPTION: With antishock port valves

On/off solenoid controlTYPE: **DPX100HP/Q-S102(60\60)-8ES3-SAE-12VDC**

CODE: 640115018S

DESCRIPTION: Without port valve arrang.

TYPE: **DPX100HP/P-S102(60\60)-8ES3.U3(320)-SAE-12VDC**

CODE: 640105022S

DESCRIPTION: With antishock port valves

Two-side proportional electrohydraulic controlTYPE: **DPX100HP/QE-E101(80\80)-8EB3TF3-SAE-12VDC**

CODE: 640115019S

DESCRIPTION: With stroke limiter, without port valve arrangement

TYPE: **DPX100HP/PE-E101(80\80)-8EB3TF3.U3T-SAE-12VDC**

CODE: 640105028S

DESCRIPTION: As previous one with port valve arrangement

TYPE: **DPX100HP/PE-E101(80\80)-8EB3TF3.U3(320)-SAE-12VDC**

CODE: 640105023S

DESCRIPTION: As previous one, with antishock port valves

One-side proportional electrohydraulic controlTYPE: **DPX100HP/QZ-E101(80\80)-8EZ3LQF3-SAE-12VDC**

CODE: 640115020S

DESCRIPTION: With stroke limiter, without port valve arrangement

TYPE: **DPX100HP/PZ-E101(80\80)-8EZ3LQF3.U3T-SAE-12VDC**

CODE: 640105024S

DESCRIPTION: As previous one with port valve arrangement

TYPE: **DPX100HP/PZ-E101(80\80)-8EZ3LQF3.U3(320)-SAE-12VDC**

CODE: 640105025S

DESCRIPTION: As previous one with antishock port valves

5 Voltage

Specify the voltage of electric devices.

6 Assembling kit

CODE	DESCRIPTION	CODE	DESCRIPTION
Standard tie rods: for M and N type inlet sections			
5TIR110145	For 1 section valve	5TIR110359	For 7 section valve
5TIR110179	For 2 section valve	5TIR110397	For 8 section valve
5TIR110215	For 3 section valve	5TIR110431	For 9 section valve
5TIR110252	For 4 section valve	5TIR110467	For 10 section valve
5TIR110289	For 5 section valve	5TIR110503	For 11 section valve
5TIR110323	For 6 section valve	5TIR110541	For 12 section valve
Special tie rods: for PFS type inlet section			
5TIR110163	For 1 section valve	5TIR110382	For 7 section valve
5TIR110200	For 2 section valve	5TIR110417	For 8 section valve
5TIR110238	For 3 section valve	5TIR110454	For 9 section valve
5TIR110273	For 4 section valve	5TIR110487	For 10 section valve
5TIR110307	For 5 section valve	5TIR110526	For 11 section valve
5TIR110344	For 6 section valve	5TIR110561	For 12 section valve

NOTE (*): Codes are referred to **UN-UNF** thread.**3 Outlet section ***

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

For mechanical, hydraulic or solenoid configurationTYPE: **DPX100/RF-SAE** CODE: 640305003S

DESCRIPTION: With bleed valve and upper T2 port (plugged)

TYPE: **DPX100/RF(04)-SAE** CODE: 640305011S

DESCRIPTION: Bleed valve, upper T2, side P1-T1-LS1-M1 ports (plugged)

For electrohydraulic or mixed configurationTYPE: **DPX100/RDN-NOTAP(VL)-SAE** CODE: 640305002S

DESCRIPTION: Without pressure reducing valve, external pilot and drain (V-L ports), with bleed valve and T1 side port (plugged)

TYPE: **DPX100/RDR-SAE** CODE: 640305006S

DESCRIPTION: With pressure reducing valve and Bleed valve, internal pilot and drain (V-L plugged ports), T1 side port (plugged)

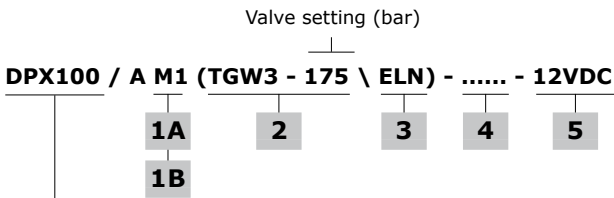
Type: **DPX100/RDR(03)-SAE** CODE: 640305007S

DESCRIPTION: With pressure reducing valve and bleed valve, internal pilot and drain (V-L plugged ports), side T1-P1-LS1 ports (plugged)

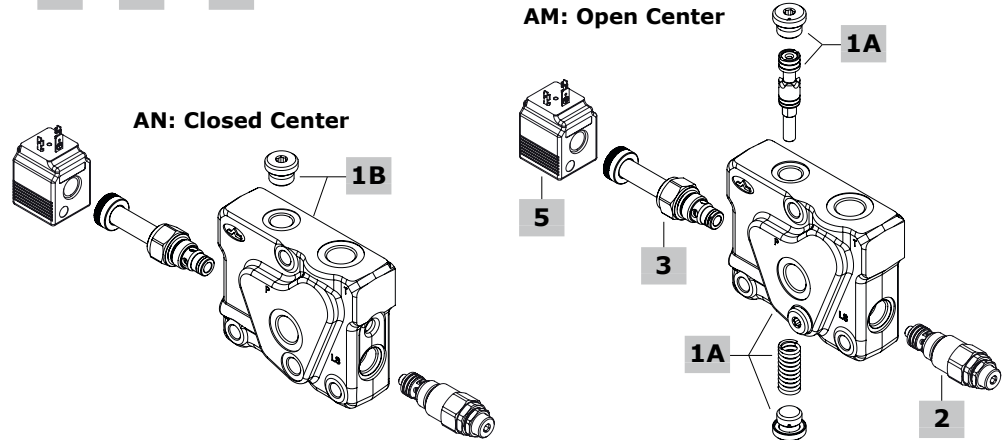
Note: for sections with different port arrangement please contact Sales Dpt.**4 Valve threading**

Only specify if it is different from BSP standard (see page 7).

Inlet section part ordering codes



DPX100:
Standard Pressure section
DPX100HP:
High Pressure section



1A Std pressure inlet section kit* page 60

Open Center circuit

TYPE: **DPX100/M1-SAE/EL** CODE: YFIA104509S
DESCRIPTION: With compensator, P-T-LS ports (LS plugged), arranged for unloader valve

TYPE: **DPX100/M1-SAE12/EL** CODE: YFIA104518S
DESCRIPTION: As previous one with SAE12 P and T ports

TYPE: **DPX100/M1(SU)-SAE/EL** CODE: YFIA104510S
DESCRIPTION: As first one with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX100/M1(SO)-SAE/EL** CODE: YFIA104511S
DESCRIPTION: As previous one with non return flow limiter from inlet section to working section and by-pass valve

Closed Center circuit

TYPE: **DPX100/N1-SAE/EL** CODE: YFIA104512S
DESCRIPTION: Without compensator, with P-T-LS ports, arranged for unloader valve

TYPE: **DPX100/N1-SAE12/EL** CODE: YFIA104520S
DESCRIPTION: As previous one with SAE12 P and T ports

Not available for High Pressure configuration

TYPE: **DPX100/N1(SU)-SAE/EL** CODE: YFIA104513S
DESCRIPTION: As first one (Closed Center) with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX100/N1(SO)-SAE/EL** CODE: YFIA104514S
DESCRIPTION: As previous one with non return flow limiter from inlet section to working section and by-pass valve

2 Main pressure relief valve page 64

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

TYPE	CODE	DESCRIPTION
(TGW2-80)	OMC09002000	Range 10-120 bar (145-1750 psi) std setting 80 bar (1160 psi)
(TGW3-175)	OMC09002001	Range 40-220 bar (580-3200 psi) std setting 175 bar (2550 psi)
(TGW4-250)	OMC09002002	Range 200-350 bar (2900-5100 psi) std setting 250 bar (3600 psi)
(TGW5-300)	OMC09002003	Range 290-385 bar (4200-5600 psi) std setting 300 bar (4350 psi)

SV XTAP524340D Relief valve blanking plug

1B Kit fiancata per Alta Press.* page 60

Open Center circuit

TYPE: **DPX100HP/M1-SAE/EL** CODE: YFIA104515S
DESCRIPTION: With compensator, P-T-LS ports (LS plugged) arranged for unloader valve

TYPE: **DPX100HP/M1-SAE12/EL** CODE: YFIA104519S
DESCRIPTION: As previous one with SAE12 P and T ports

TYPE: **DPX100HP/M1(SU)-SAE/EL** CODE: YFIA104516S
DESCRIPTION: As first onewith non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX100HP/M1(SO)-SAE/EL** CODE: YFIA104517S
DESCRIPTION: As previous one with non return flow limiter from inlet section to working section and by-pass valve

Closed Center circuit

Refer to "Std pressure" inlet sections

3 Solenoid operated unloading valve page 64

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	XTAP510320	Unloading valve blanking plug

4 Section threading

Only specify if it is different from BSP standard (see page 7)

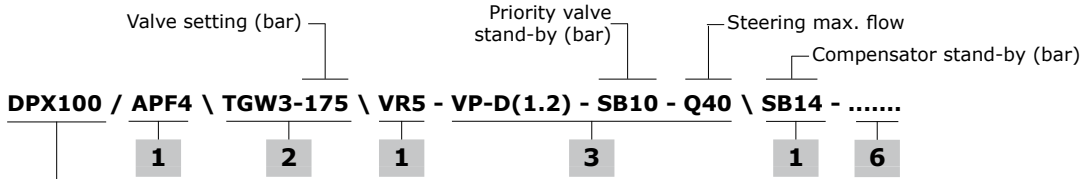
5 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200A	12VDC BER type coil, ISO4400 connector

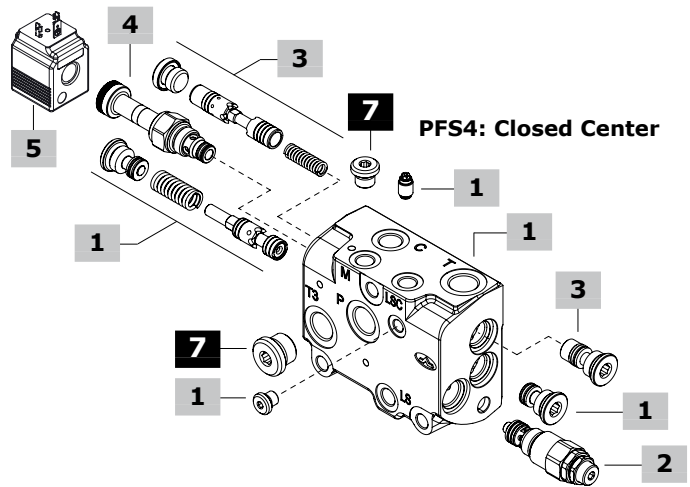
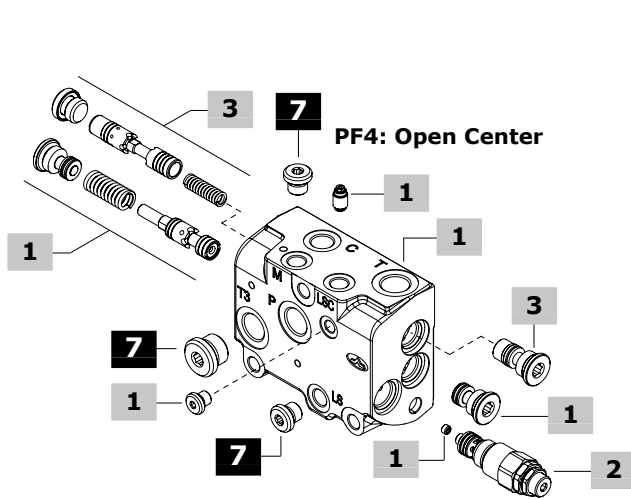
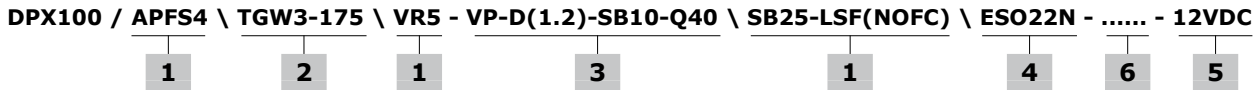
For complete available coils list see page 160.

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

Inlet section part ordering codes



DPX100: Standard Pressure section



1 Inlet section kit* page 62

Following sections are suitable only for Standard Pressure valve

Open Center circuit

TYPE: **DPX100/APF4-SAE** CODE: YFIA104572S
DESCRIPTION: With compensator, P-T-T3-LS-M-C-LSC ports

Closed Center circuit

TYPE: **DPX100/APFS4-SAE** CODE: YFIA104573S
DESCRIPTION: With flushing valve (stand-by 25 bar - 360 psi), shut-off valve arrangement and P-T-T3-LS-M-C-LSC ports

TYPE: **DPX100/APS4-SAE** CODE: YFIA104574S
DESCRIPTION: Without compensator (seat plugged), shut-off valve arrangement and P-T-T3-LS-M-C-LSC ports

2 Main pressure relief valve page 64

See previous page

3 Priority valve kit page 65

TYPE	CODE	DESCRIPTION
Regulated flow = 40 l/min (10.5 US gpm)		
D(1.2)-SB10-Q40-FPM	5CAS314058AV	Stand-by (margin pressure) 10 bar (145 psi)
D(1.2)-SB07-Q40-FPM	5CAS314058BV	Stand-by (margin pressure) 7 bar (100 psi)

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

4 Solenoid operated shut-off valve page 65

TYPE	CODE	DESCRIPTION
ESO22N	0EC08002031	Without emergency override
ESO22P	0EC08002033	With push-button emergency override
ESO22V	0EC08002034	With screw type emergency override
ESO22T	0EC08002035	With "twist & push" emergency override
EST	XTAP510320	Valve blanking plug

5 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200A	12VDC BER type coil, ISO4400 connector

For complete available coils list see page 160.

6 Section threading

Only specify if it is different from BSP standard (see page 7)

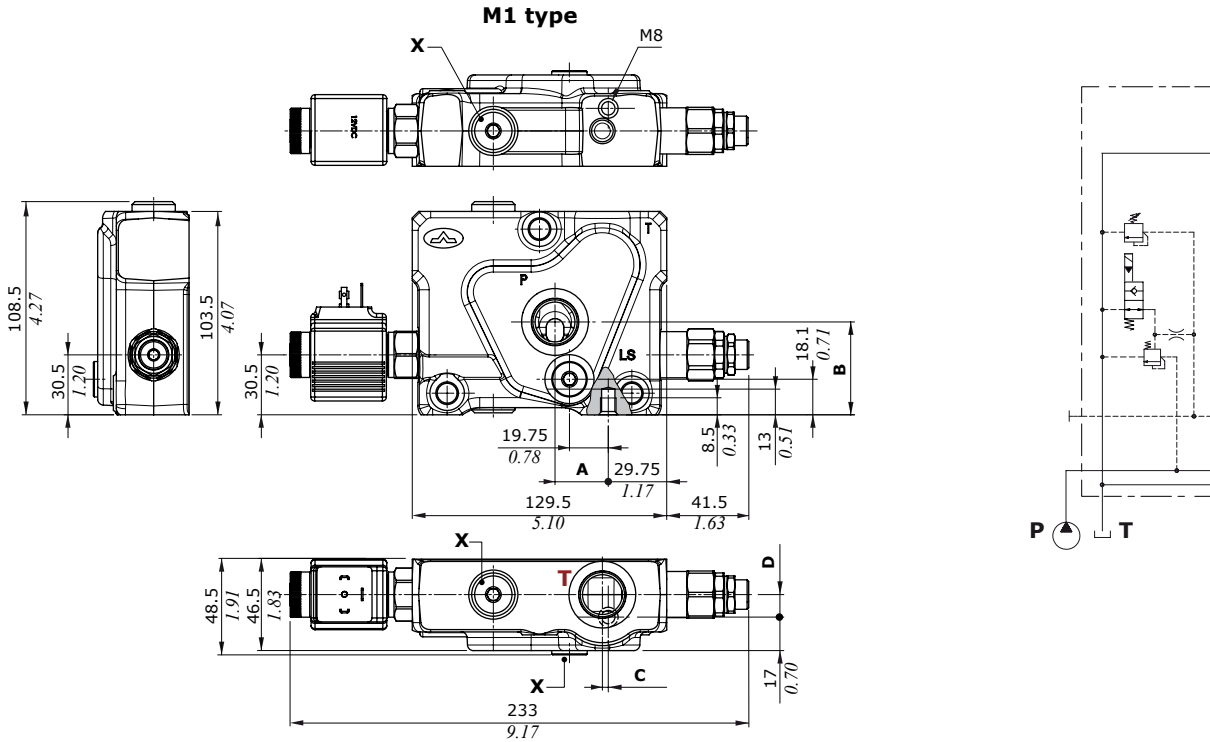
8 Plugs*

CODE	DESCRIPTION
3XTAP817130	SAE6 plug, nr.1 for PFS section, nr.2 for PF section
3XTAP826160	SAE10 plug, nr.1

Inlet section

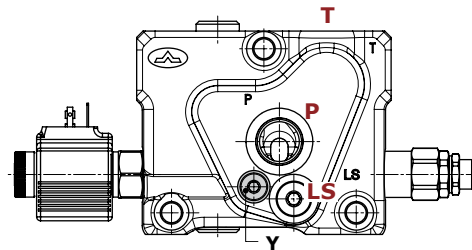
Dimensions and hydraulic circuit

Example of M Open Center section, standard pressure type



INLET SECTION TYPE		P inlet port				T outlet port			
		A		B		C		D	
		mm	in	mm	in	mm	in	mm	in
Standard pressure	Standard thread	27.1	1.07	47.25	1.86	3	0.118	11.5	0.45
	SAE12 thread	28	1.10	52.5	2.07	3	0.118	6.5	0.26

M1(SO) or M1(SU) type



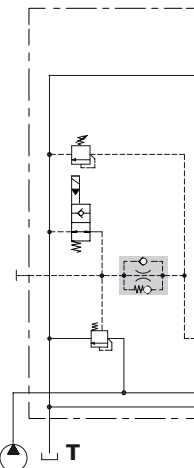
Wrenches and tightening torques

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

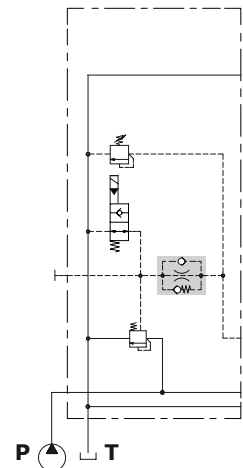
Y = allen wrench 5 - 9.8 Nm (7.2 lbft)

NOTE: for valves wrench and torque see related pages

M1(SU) type

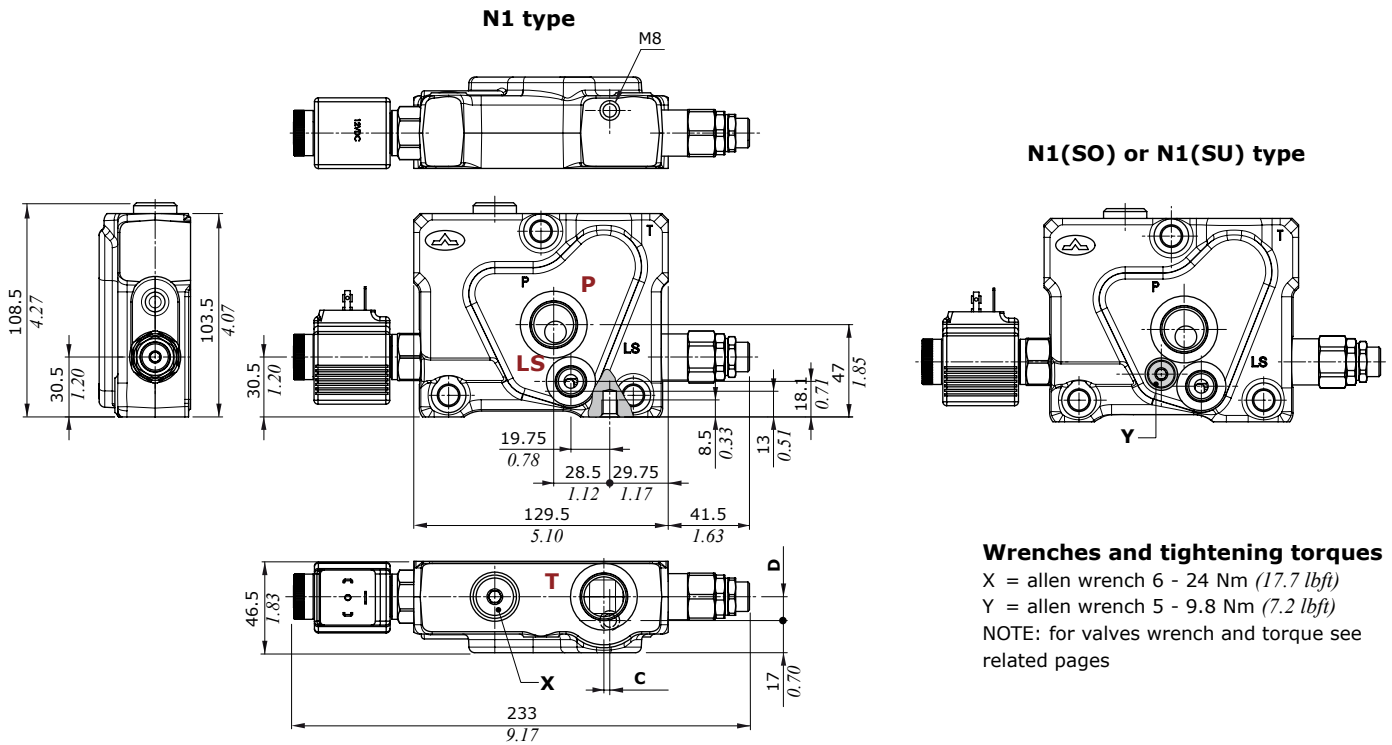


M1(SO) type



Dimensions and hydraulic circuit

Example of N Closed Center section



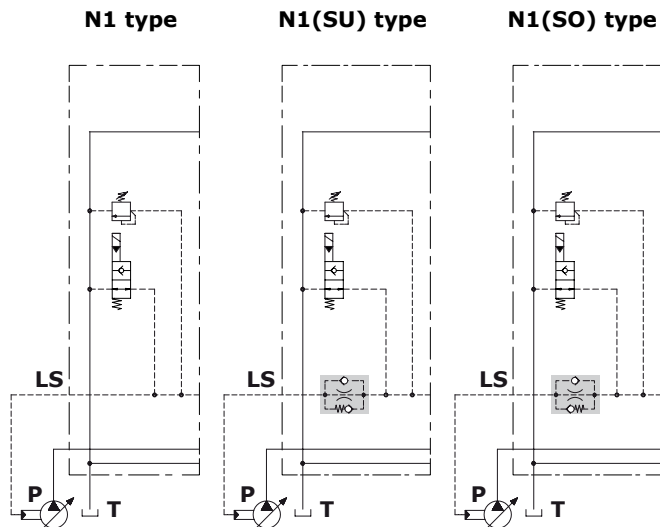
Wrenches and tightening torques

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

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

NOTE: for valves wrench and torque see related pages

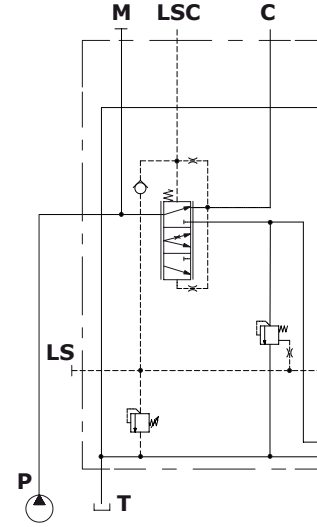
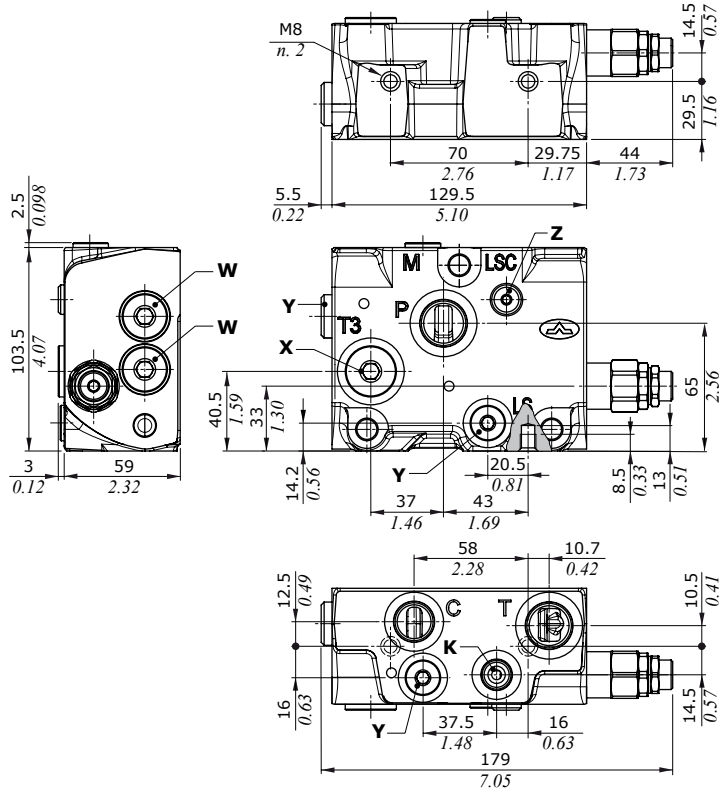
INLET SECTION TYPE	P inlet port				T outlet port			
	A	B	C	D				
	mm	in	mm	in	mm	in	mm	in
Standard thread	26	1.02	44.5	1.75	3	0.118	11.5	0.45
SAE12 thread	27.4	1.08	52.5	2.07	3	0.118	6.5	0.26



Inlet section

Dimensions and hydraulic circuit

Example of PF4 Open Center section, with priority valve



Wrenches and tightening torques

K = allen wrench 5 - 9.8 Nm (7.2 lbft)

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

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

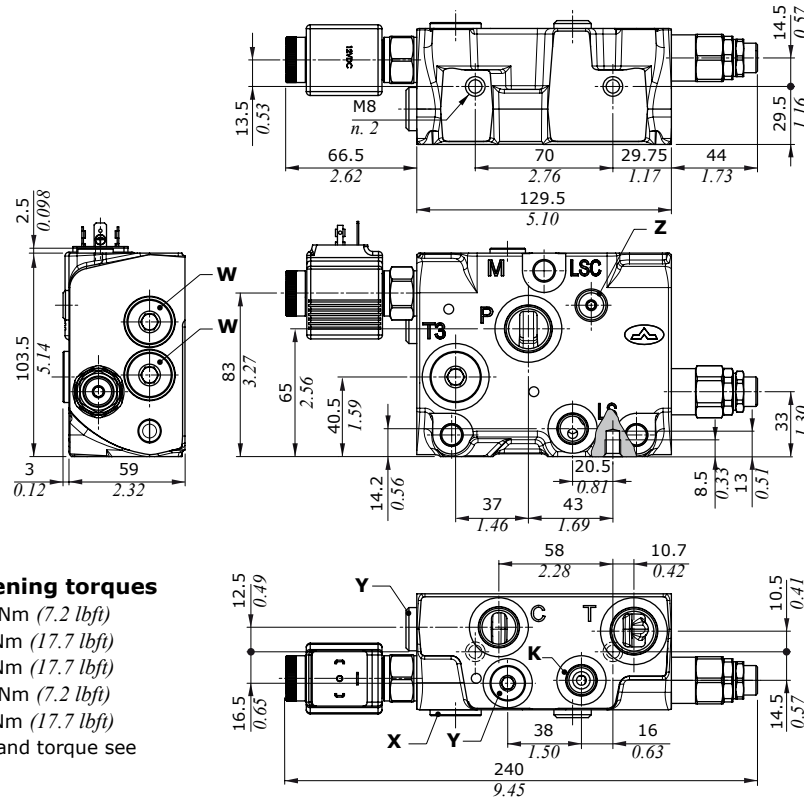
Z = allen wrench 4 - 9.8 Nm (7.2 lbft)

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

NOTE: for valves wrench and torque see related pages

Dimensions and hydraulic circuit

Example of PFS4 Closed Center section, with priority valve and shut-off valve arrangement



Wrenches and tightening torques

K = allen wrench 5 - 9.8 Nm (7.2 lbf_t)

X = allen wrench 8 - 24 Nm (17.7 lbf_t)

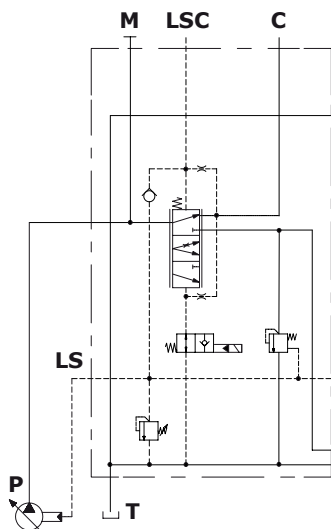
Y = allen wrench 6 - 24 Nm (17.7 lbf_t)

Z = allen wrench 4 - 9.8 Nm (7.2 lbf_t)

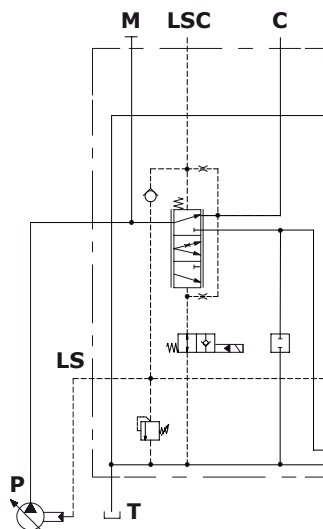
W = allen wrench 8 - 24 Nm (17.7 lbf_t)

NOTE: for valves wrench and torque see related pages

PFS4 type



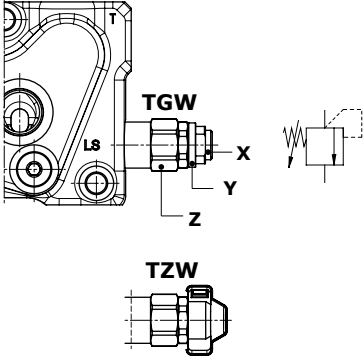
PS4 type



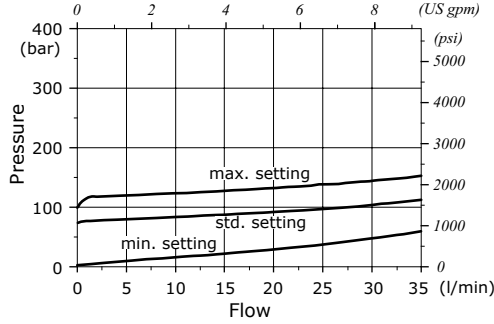
Inlet section

Main pressure relief valve

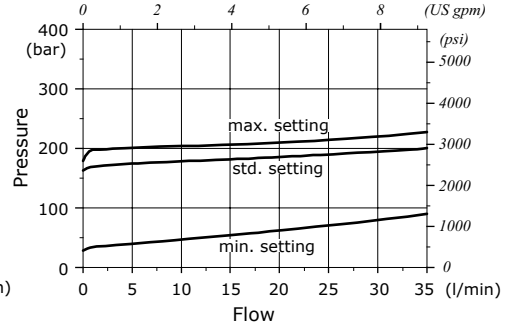
Setting types



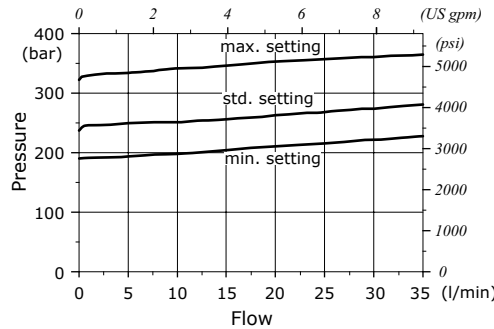
Setting range: TGW2 type



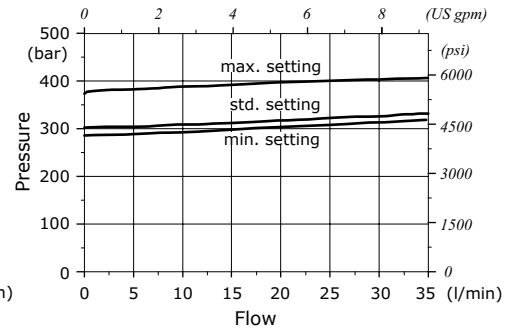
Setting range: TGW3 type



Setting range: TGW4 type



Setting range: TGW5 type

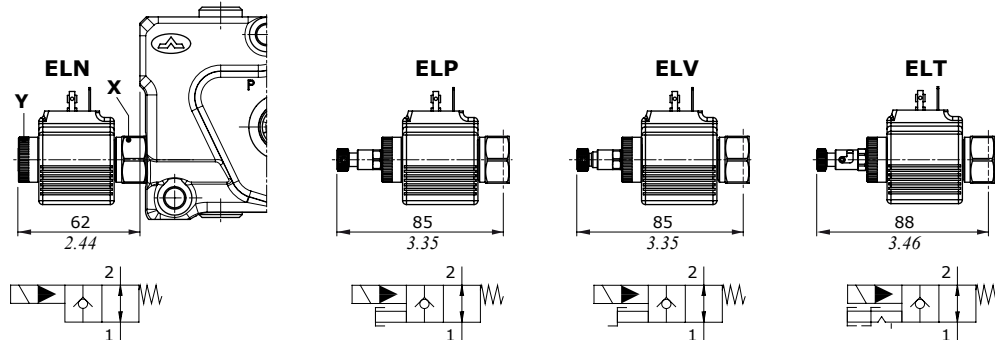


Legenda

- TGW:** free setting
- TZW:** valve set and locked (cap code 4COP126301, n.2 pcs) RAL3003 pigmented
- Wrenches and tightening torques**
- X = allen wrench 5
- Y = wrench 19 - 20 Nm (14.7 lbf)
- Z = wrench 24 - 42 Nm (31 lbf)

Solenoid operated unloading valve

Manual emergency types



Legenda

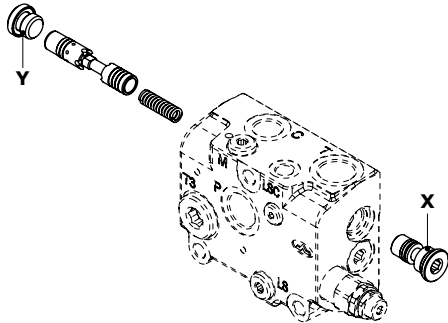
- ELN:** without emergency
- ELP:** push button emergency override
- ELV:** screw emergency override
- ELT:** "push&twist" emergency override
- Wrenches and tightening torques**
- X = wrench 24 - 30 Nm (22 lbf)
- Y = manual tightening

Features

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

For coil features and options see **BER** type coil at page 160.

Priority valve kit

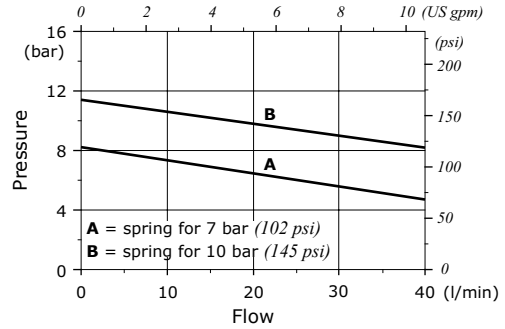


Wrenches and tightening torques

- X = allen wrench 8 - 24 Nm (17.7 lbf_t)
- Y = allen wrench 6 - 24 Nm (17.7 lbf_t)

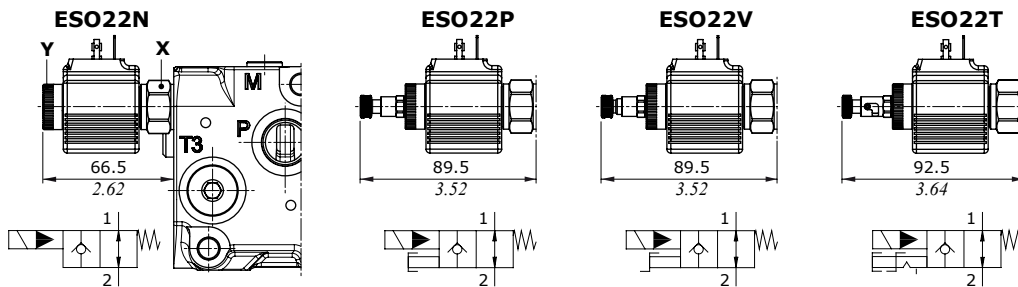
Stand-by (margin pressure) vs. regulated flow

Regulated flow = 40 l/min (10.6 US gpm)



Shut-off valve

Manual emergency types



Legenda

- ESO22N: without emergency
- ESO22P: push button emergency override
- ESO22V: screw emergency override
- ESO22T: "push&twist" emergency override

Wrenches and tightening torques

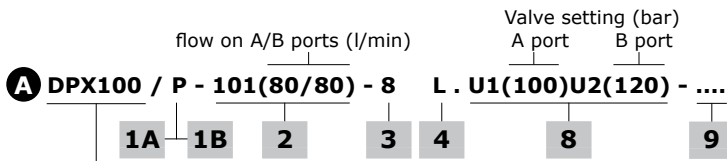
- X = wrench 24 - 30 Nm (22 lbf_t)
- Y = manual tightening

Features

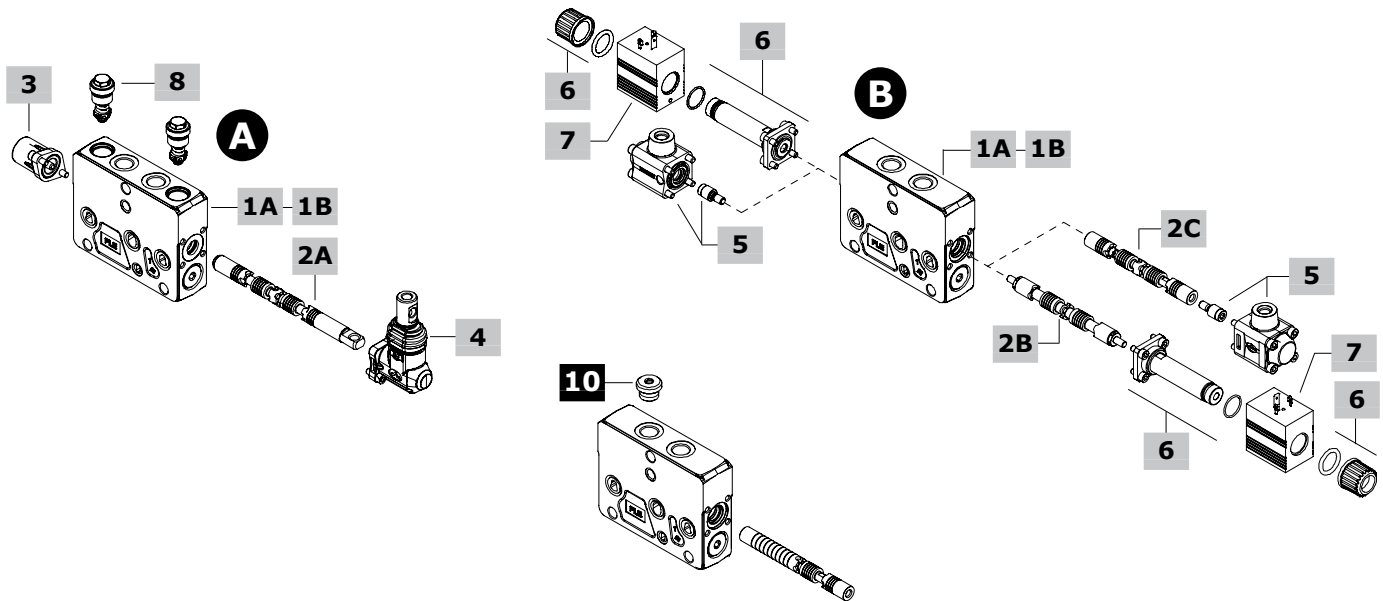
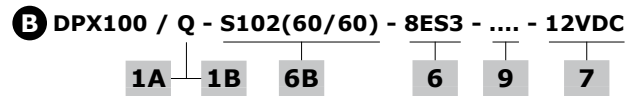
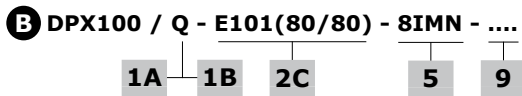
- Max. flow : 40 l/min (10.6 US gpm)
- Max. pressure. : 380 bar (5500 psi)
- Internal leakage : 0.25 cm³/min @ 210 bar (0.015 in³/min @ 3050 psi)

For coil features and options see **BER** type coil at page 160.

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



DPX100: Pressure Standard section
DPX100HP: High Pressure section



1A Std Press. working section kit* page 72

For mechanical control

TYPE: **DPX100/Q-SAE** CODE: 5EL1045010V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100/P-SAE** CODE: 5EL1045000V

DESCRIPTION: With port valve arrangement

For hydraulic and solenoid control

TYPE: **DPX100/Q-IM-SAE** CODE: 5EL1045010AV

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100/P-IM-SAE** CODE: 5EL1045000AV

DESCRIPTION: With port valve arrangement

1B High Press. working section kit* page 72

For mechanical control

TYPE: **DPX100HP/Q-SAE** CODE: 5EL1045011V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100HP/P-SAE** CODE: 5EL1045001V

DESCRIPTION: With port valve arrangement

For hydraulic and solenoid control

TYPE: **DPX100HP/Q-IM-SAE** CODE: 5EL1045010BV

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100HP/P-IM-SAE** CODE: 5EL1045000BV

DESCRIPTION: With port valve arrangement

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

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

2A Spool for mechanical control page 73

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

101(80)	3CU7110101	80 l/min (21 US gpm) flow
109(70)	3CU7110109	70 l/min (18.5 US gpm) flow
102(60)	3CU7110102	60 l/min (16 US gpm) flow
112(50)	3CU7110003	50 l/min (13.2 US gpm) flow
103(40)	3CU7110103	40 l/min (10.5 US gpm) flow
111(30)	3CU7110002	30 l/min (7.9 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 to tank in neutral position

201(80)	3CU7110201	80 l/min (21 US gpm) flow
211(70)	3CU7125211	70 l/min (18.5 US gpm) flow
206(60)	3CU7110204	60 l/min (16 US gpm) flow
209(50)	3CU7125209	50 l/min (13.2 US gpm) flow
208(40)	3CU7125208	40 l/min (10.5 US gpm) flow
212(30)	3CU7125212	30 l/min (7.9 US gpm) flow
205(20)	3CU7110205	20 l/min (5.3 US gpm) flow
214(5)	3CU7125214	5 l/min (1.3 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
2H212(70)	3CU7124220	70 l/min (18.5 US gpm) flow
2H06(60)	3CU7124213	60 l/min (16 US gpm) flow
2H05(40)	3CU7124212	40 l/min (10.5 US gpm) flow
2H03(30)	3CU7110206	30 l/min (7.9 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: G3/8 or G1/2 plug is required

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

Single acting on B, A plugged: G3/8 or G1/2 plug is required

401(80)	3CU7110401	80 l/min (21 US gpm) flow
404(60)	3CU7135404	60 l/min (16 US gpm) flow
403(40)	3CU7135403	40 l/min (10.5 US gpm) flow
402(20)	3CU7135402	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: type 13 or 13F positioner is required

508(70)	3CU7142508	70 l/min (18.5 US gpm) flow
507(60)	3CU7142507	60 l/min (16 US gpm) flow
505(40)	3CU7142505	40 l/min (10.5 US gpm) flow
506(20)	3CU7142506	20 l/min (5.3 US gpm) flow

2B Spool for solenoid control page 73

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

S102(60)	3CU7410102	60 l/min (16 US gpm) flow
S108(40)	3CU7410108	40 l/min (10.5 US gpm) flow
S107(30)	3CU7410107	30 l/min (7.9 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
S109(5)	3CU7410109	5 l/min (1.3 US gpm) flow

Double acting with A and B to tank in neutral position

S208(40)	3CU7410208	40 l/min (10.5 US gpm) flow
S205(20)	3CU7410205	20 l/min (5.3 US gpm) flow
S206(10)	3CU7410206	10 l/min (2.6 US gpm) flow

Double acting with A and B partially to tank in neutral position

S2H02(60)	3CU7410203	60 l/min (16 US gpm) flow
S2H06(10)	3CU7410206H	10 l/min (2.6 US gpm) flow

Single acting on A or B, other port plugged: G3/8 or G1/2 plug is required

S308-S408(40)	3CU7410308	40 l/min (10.5 US gpm) flow
S305-S405(20)	3CU7410305	20 l/min (5.3 US gpm) flow

2C Spool for hydraulic control page 73

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

E101(80)	3CU7710101	80 l/min (21 US gpm) flow
E108(60)	3CU7710108	60 l/min (16 US gpm) flow
E123(50)	3CU7710123	50 l/min (13.2 US gpm) flow
E105(40)	3CU7710105	40 l/min (10.5 US gpm) flow
E113(30)	3CU7710113	30 l/min (7.9 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
E159(5)	3CU7710159	5 l/min (1.3 US gpm) flow

Double acting with A and B to tank in neutral position

E210(70)	3CU7725006	70 l/min (18.5 US gpm) flow
E209(60)	3CU7725005	60 l/min (16 US gpm) flow
E214(50)	3CU7725010	50 l/min (13.2 US gpm) flow
E206(40)	3CU7725003	40 l/min (10.5 US gpm) flow
E202(30)	3CU7725002	30 l/min (7.9 US gpm) flow
E205(20)	3CU7725001	20 l/min (5.3 US gpm) flow
E211(10)	3CU7725007	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
E2H25(5)	3CU7724159	5 l/min (1.3 US gpm) flow

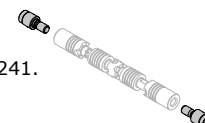
Single acting on A or B, other port plugged: G3/8 or G1/2 plug is required

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: type 13IMS control is required

I504(60)	YCU7742504	60 l/min (16 US gpm) flow
I503(20)	YCU7742503	20 l/min (5.3 US gpm) flow

NOTE: to order these spools as spare parts
it's necessary to order nr. 2 pins code 3VIT110241.
This rule is not required for floating spools



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

3 "A" side spool positioners page 75

TYPE	CODE	DESCRIPTION
7FT	5V07407000	With friction and neutral pos. notch
7FTN	5V07407010	As 7FT, friction regulation with spring
8	5V08107000	3 pos., spring return to neutral pos.
8F2	5V08107100	Spool stroke limiter on B port
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 positions 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-12DC	5V08707212	Solenoid detent in neutral position
8K-24DC	5V08707224	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
<i>For floating circuit (spool 5)</i>		
13N	5V13307005	4 positions, detent in 4 th position with spring return to neutral position
13F	5V13507000	4 positions, spring return to neutral position

4 "B" side spool control kit page 80

TYPE	CODE	DESCRIPTION
L	5LEV107000	Standard lever box
LSG	5LEV107000S	As previous one, water-proof type
LF1	5LEV107100	As type L, spool stroke limiter on A port
LSGF1	5LEV107100S	As previous one, water-proof type
SLC	5COP207000	Without lever with endcap
SLP	5COP107010	Without lever with dust-proof plate
TQ	5TEL102100	Flexible cable connection
LCA1-4	5CLO207010	Joystick for 2 section operation: type 1 and 4 configurations.
LCA2-3	5CLO207011	As previous one: type 2-3 configurations

5 Proportional hydraulic control* page 82

TYPE	CODE	DESCRIPTION
8IMN-SAE	5IDR204702V	Range 8-27 bar (116-392 psi)
8IMF3N-SAE	5IDR204710V	As previous one with spool stroke limiter
8IMXN-SAE	5IDR204701V	Range 7.5-24 bar (109-348 psi)
8IMXF3N-SAE	5IDR204713V	As previous one with spool stroke limiter
<i>For floating circuit (spool I5)</i>		
13IMS-SAE	5IDR207750V	Range 6.5-15.5 / 8-22.5 bar (94-225 / 116-326 psi)

6 On/off solenoid control page 84

TYPE	CODE	DESCRIPTION
8ES1-8ES2	5CAN08061V	Single acting on A or B port
8ES3	5CAN08062V	Double acting
8ESF3	5CAN08040V	Double acting with spool stroke limiter

7 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SOL412012	12VDC, D12 type, SO4400 connector

For complete available coils list see page 160.

8 Port valves page 94

TYPE	CODE	DESCRIPTION
UT	XTAP522441V	Valve blanking plug
	XTAP522442V	As previous, for HP valve
C	5KIT410000	Anticavitation valve

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

TYPE: **U 100** CODE: 5KIT330 100
 └── setting (bar) ───┘ setting (bar)

SETTING:

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

9 Section threading

Only specify if it is different from BSP standard (see page 7).

10 Plug for single acting spool *

CODE	DESCRIPTION
3XTAP822150	SAE8 plug

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

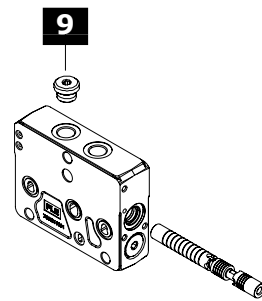
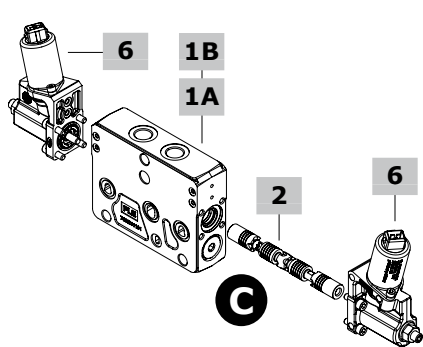
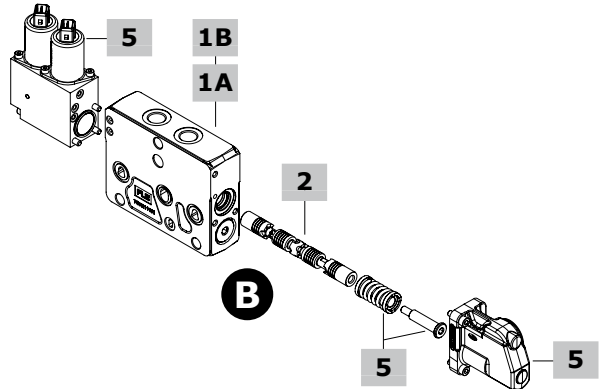
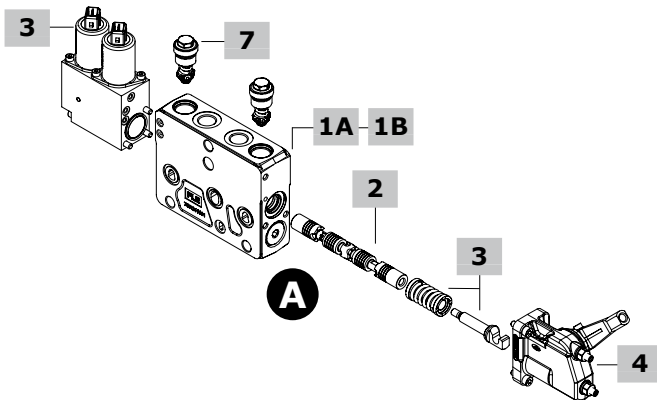
Working section part ordering codes (electrohydraulic)

		flow on A/B ports (l/min)				Valve setting (bar)			
						A port	B port		
A	DPX100 / PZ - E101(80\80) - 8EZ3 LQF3 . U1(100)U2(120) - - 12VDC								
		1A	1B	2	3	4	7	8	3

DPX100: Standard Pressure section
 DPX100HP: High Pressure section

B	DPX100 / QZ - E101(80\80) - 8EZ3SLCQ - -12VDC
	1A 1B 2 5 8 5

C	DPX100 / QE - E101(80\80) - 8EB3TF3 - -12VDC
	1A 1B 2 6 8 6



Working section part ordering codes (electrohydraulic)

1A Std press. working section kit* page 72

For two-side electrohydraulic control

TYPE: **DPX100/QE-SAE-FPM** CODE: 5EL1045012V
 DESCRIPTION: Without port valve arrangement
 TYPE: **DPX100/PE-SAE-FPM** CODE: 5EL1045002V
 DESCRIPTION: With port valve arrangement

For one-side electrohydraulic control

TYPE: **DPX100/QZ-SAE-FPM** CODE: 5EL1047021AV
 DESCRIPTION: Without port valve arrangement
 TYPE: **DPX100/PZ-SAE-FPM** CODE: 5EL1047006V
 DESCRIPTION: With port valves arrangement

1B High press. working section kit* page 72

For two-side electrohydraulic control

TYPE: **DPX100HP/QE-SAE-FPM** CODE: 5EL1045015V
 DESCRIPTION: Without port valve arrangement
 TYPE: **DPX100HP/PE-SAE-FPM** CODE: 5EL1045005V
 DESCRIPTION: With port valve arrangement

For one-side electrohydraulic control

TYPE: **DPX100HP/QZ-SAE-FPM** CODE: 5EL1047021BV
 DESCRIPTION: Without port valve arrangement
 TYPE: **DPX100HP/PZ-SAE-FPM** CODE: 5EL1045006V
 DESCRIPTION: With port valve arrangement

2 Spool page 73

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

E101(80) 3CU7710101 80 l/min (21 US gpm) flow
E108(60) 3CU7710108 60 l/min (16 US gpm) flow
E123(50) 3CU7710123 50 l/min (13.2 US gpm) flow
E105(40) 3CU7710105 40 l/min (10.5 US gpm) flow
E113(30) 3CU7710113 30 l/min (7.9 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
E159(5) 3CU7710159 5 l/min (1.3 US gpm) flow

Double acting with A and B to tank in neutral position

E210(70) 3CU7725006 70 l/min (18.5 US gpm) flow
E209(60) 3CU7725005 60 l/min (16 US gpm) flow
E214(50) 3CU7725010 50 l/min (13.2 US gpm) flow
E206(40) 3CU7725003 40 l/min (10.5 US gpm) flow
E202(30) 3CU7725002 30 l/min (7.9 US gpm) flow
E205(20) 3CU7725001 20 l/min (2.6 US gpm) flow
E211(10) 3CU7725007 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
E2H25(5) 3CU7724159 5 l/min (1.3 US gpm) flow

Single acting on A or B, other port plugged: G3/8 or G1/2 plug is required

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: type 13IMS control is required

I504(60) YCU7742504 60 l/min (16 US gpm) flow
I503(20) YCU7742503 20 l/min (5.3 US gpm) flow

3 One-side electrohydr.control; "A" side page 90

These controls must be coupled with "B" side options

TYPE CODE DESCRIPTION
8EZ3-12VDC 5IDR604300V With AMP connector
8EZ3-24VDC 5IDR604301V With AMP connector
8EZH3-12VDC 5IDR604329V With horizontal pressure reducing valves and AMP connector
8EZH3-24VDC 5IDR604331V As previous one
8EZ34-12VDC 5IDR604302V With Deutsch connector
8EZ34-24VDC 5IDR604303V With Deutsch connector
8EZH34-12VDC 5IDR604310V With horizontal pressure reducing valves and Deutsch connector
8EZH34-24VDC 5IDR604324V As previous one

With spool position sensor

8EZ3SPSD-12VDC 5IDR604304V AMP conn. and digital sensor
8EZ3SPSD-24VDC 5IDR604305V AMP conn. and digital sensor
8EZ34SPSD-12VDC 5IDR604306V Deutsch conn. and digital sensor
8EZ34SPSD-24VDC 5IDR604307V Deutsch conn. and digital sensor
8EZ34SPSL-0.5(A)-4.5(B)-12VDC 5IDR604311V AMP conn. and analog sensor

For floating circuit (spool E5)

13EZ3-12VDC 5IDR614300V With AMP connector
13EZ3-24VDC 5IDR614301V With AMP connector
13EZ34-12VDC 5IDR614302V With Deutsch connector
13EZ34-24VDC 5IDR614303V With Deutsch connector

4 One-side electrohydr.option; "B" side page 91

These options musto coupled with "A" side controls

TYPE CODE DESCRIPTION
LQ 5LEV100700V Lever box
LQF3 5LEV100701V Lever box with spool stroke limiter
LQSL 5COP204100V Lever box without lever

5 One-side complete electrohydr.control page 92

Controls already comprehensive of endcap on B side

TYPE CODE DESCRIPTION
8EZ3SLCQ-12VDC 5IDR604300SV With AMP connector
8EZ3SLCQ-24VDC 5IDR604301SV With AMP connector
8EZ34SLCQ-12VDC 5IDR604302SV With Deutsch connector
8EZ34SLCQ-24VDC 5IDR604303SV With Deutsch connector
8EZH34SLCQ-12VDC 5IDR604302SV With horizontal pressure reducing valves and Deutsch connector
8EZH34SLCQ-24VDC 5IDR604325SV As previous one

With spool position sensor

TYPE: **8EZ3SPSDSLCQ-12VDC**
 CODE: 5IDR604304SV
 DESCRIPTION: With AMP connector and digital sensor
 TYPE: **8EZ3SPSDSLCQ-24VDC**
 CODE: 5IDR604305SV
 DESCRIPTION: As previous one
 TYPE: **8EZ34SPSDSLCQ-12VDC**
 CODE: 5IDR604306SV
 DESCRIPTION: With Deutsch connector and digital sensor
 TYPE: **8EZ34SPSDSLCQ-24VDC**
 CODE: 5IDR604307SV
 DESCRIPTION: As previous one
 TYPE: **8EZ34SPSL-0.5(A)-4.5(B)SLCQ-12VDC**
 CODE: 5IDR604311SV
 DESCRIPTION: With AMP connector and analog sensor

Working section part ordering codes (electrohydraulic)

6 Two-side electrohydr. control page 88

TYPE	CODE	DESCRIPTION
<u>Without lever control</u>		
8EB3T-12VDC	5IDR904214V	With AMP connector
8EB3T-24VDC	5IDR904222V	With AMP connector
8EB34T-12VDC	5IDR904236V	With Deutsch connector
8EB34T-24VDC	5IDR904237V	With Deutsch connector
8EB3TF3-12VDC	5IDR904217V	With AMP, spool stroke limiter
8EB3TF3-24VDC	5IDR904224V	As previous one
8EB34TF3-12VDC	5IDR904235V	Deutsch conn.and stroke limiter
8EB34TF3-24VDC	5IDR904238V	As previous one
<u>Without lever control, with spool position sensor</u>		
8EB3TSPSD-12VDC	5IDR904233V	AMP conn. and digital sensor
8EB3TSPSD-12VDC	5IDR904226V	As previous one
<u>Without lever control: for floating circuit (E5 spool)</u>		
13EB3T-12VDC	5IDR914201V	With AMP connector
13EB3T-24VDC	5IDR914202V	With AMP connector
13EB34T-12VDC	5IDR914214V	With Deutsch connector
13EB34T-24VDC	5IDR914215V	With Deutsch connector
<u>With lever control</u>		
8EB3TLH-12VDC	5IDR904215V	With AMP connector
8EB3TLH-24VDC	5IDR904228V	With AMP connector
8EB34TLH-12VDC	5IDR904219V	With Deutsch connector
8EB34TLH-24VDC	5IDR904239V	With Deutsch connector
8EB3TLHF3-12VDC	5IDR904229V	With AMP, spool stroke limiter
8EB3TLHF3-24VDC	5IDR904218V	As previous one
8EB34TLHF3-12VDC	5IDR904240V	With Deutsch connector with spool stroke limiter
8EB34TLHF3-24VDC	5IDR904241V	As previous one
<u>With lever control and spool position sensor</u>		
8EB3TLHSPSD-12VDC	5IDR904234V	AMP connector and digital sensor
8EB3TLHSPSD-24VDC	5IDR904232V	As previous one
8EB3TLHF3SPSL-0.5(A)-4.5(B)-12VDC	5IDR904259V	With spool limiter, AMP connector and analog sensor
8EB3TLHF3SPSL-0.5(A)-4.5(B)-24VDC	5IDR904247V	As previous one
<u>With lever control: for floating circuit (E5 spool)</u>		
13EB3TLH-12VDC	5IDR914220V	With AMP connector
13EB3TLH-24VDC	5IDR914211V	With AMP connector
13EB34TLH-12VDC	5IDR914216V	With Deutsch connector
13EB34TLH-24VDC	5IDR914217V	With Deutsch connector
13EB3TLHF3-12VDC	5IDR914213V	With AMP and spool stroke limiter
13EB3TLHF3-24VDC	5IDR914210V	As previous one
13EB34TLHF3-12VDC	5IDR914218V	With Deutsch, spool stroke limiter
13EB34TLHF3-24VDC	5IDR914219V	As previous one

7 Port valves page 94

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

For complete valves list see previous pages.

8 Section threading

Only specify if it is different from BSP standard (see page 7).

9 Plug for single acting spool *

CODE	DESCRIPTION
3XTAP822150	SAE8 plug

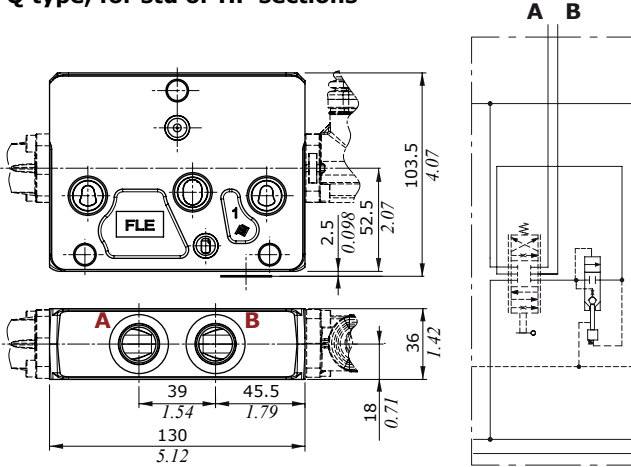
NOTE (*): Codes are referred to **UN-UNF** thread.

Working section

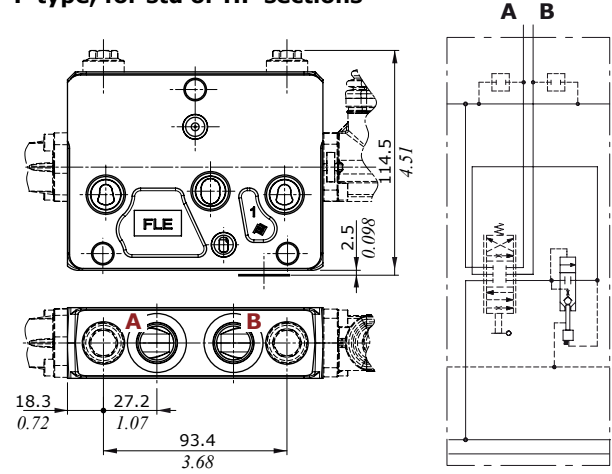
Dimensions and hydraulic circuit

For mechanical, hydraulic and solenoid controls

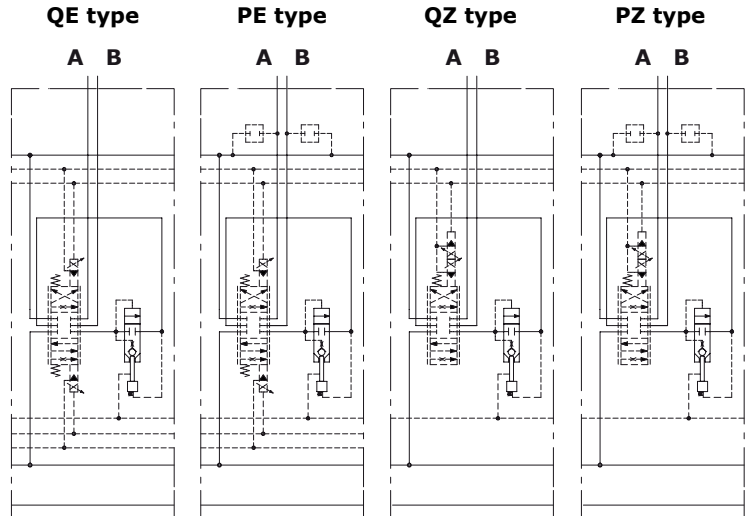
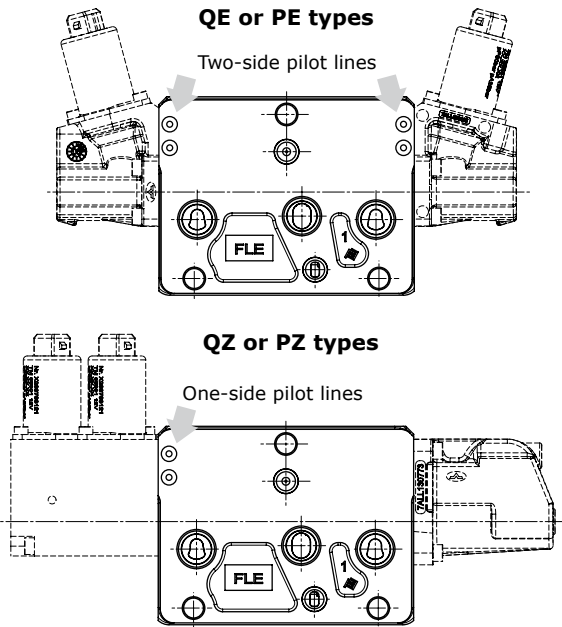
Q type, for std or HP sections



P type, for std or HP sections

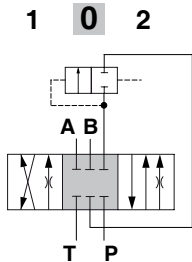


For electrohydraulic control



Spools

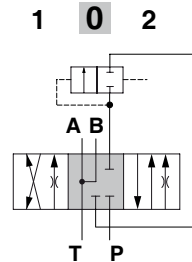
Type 1 (1../E1../S1..) spool
A, B closed in neutral position



Spool stroke (1../E1..)
position 1: + 6.5 mm (- 0.26 in)
position 2: - 6.5 mm (+ 0.26 in)

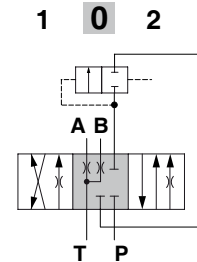
Spool stroke (S1..)
position 1: + 3.5 mm (- 0.14 in)
position 2: - 3.5 mm (+ 0.14 in)

Type 2 (E2..) spool
A, B to tank in neutral position



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

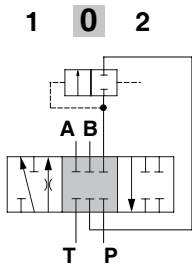
Type 2H (2H../E2H../S2H..) spool
A, B partially to tank in neutral pos.



Spool stroke (2H../E2H..)
position 1: + 6.5 mm (- 0.26 in)
position 2: - 6.5 mm (+ 0.26 in)

Spool stroke (S2H..)
position 1: + 3.5 mm (- 0.14 in)
position 2: - 3.5 mm (+ 0.14 in)

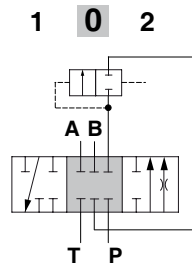
Type 3 (3../E3../S3..) spool
single acting on A



Spool stroke (3../E3..)
position 1: + 6.5 mm (- 0.26 in)
position 2: - 6.5 mm (+ 0.26 in)

Spool stroke (S3..)
position 1: + 3.5 mm (- 0.14 in)
position 2: - 3.5 mm (+ 0.14 in)

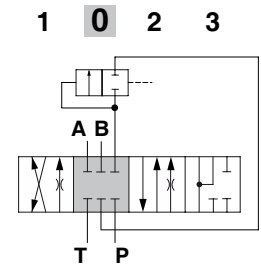
Type 4 (4../E4../S4..) spool
single acting on B



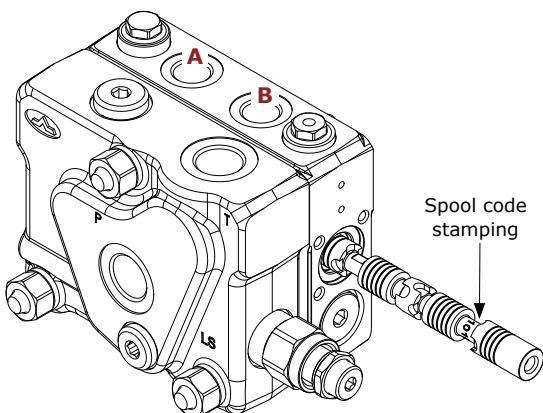
Spool stroke (4../E4..)
position 1: + 6.5 mm (- 0.26 in)
position 2: - 6.5 mm (+ 0.26 in)

Spool stroke (S4..)
position 1: + 3.5 mm (- 0.14 in)
position 2: - 3.5 mm (+ 0.14 in)

Type 5 (5../E5../I5..) spool
floating in 4th position (pos.3)

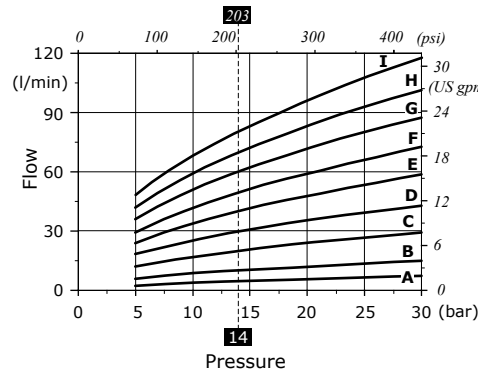


Spool stroke
position 1: + 6 mm (- 0.24 in)
position 2: - 6 mm (+ 0.24 in)
position 3: - 10.5 mm (- 0.41 in)



In case of spool replacement the code stamping must be oriented toward B port.

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



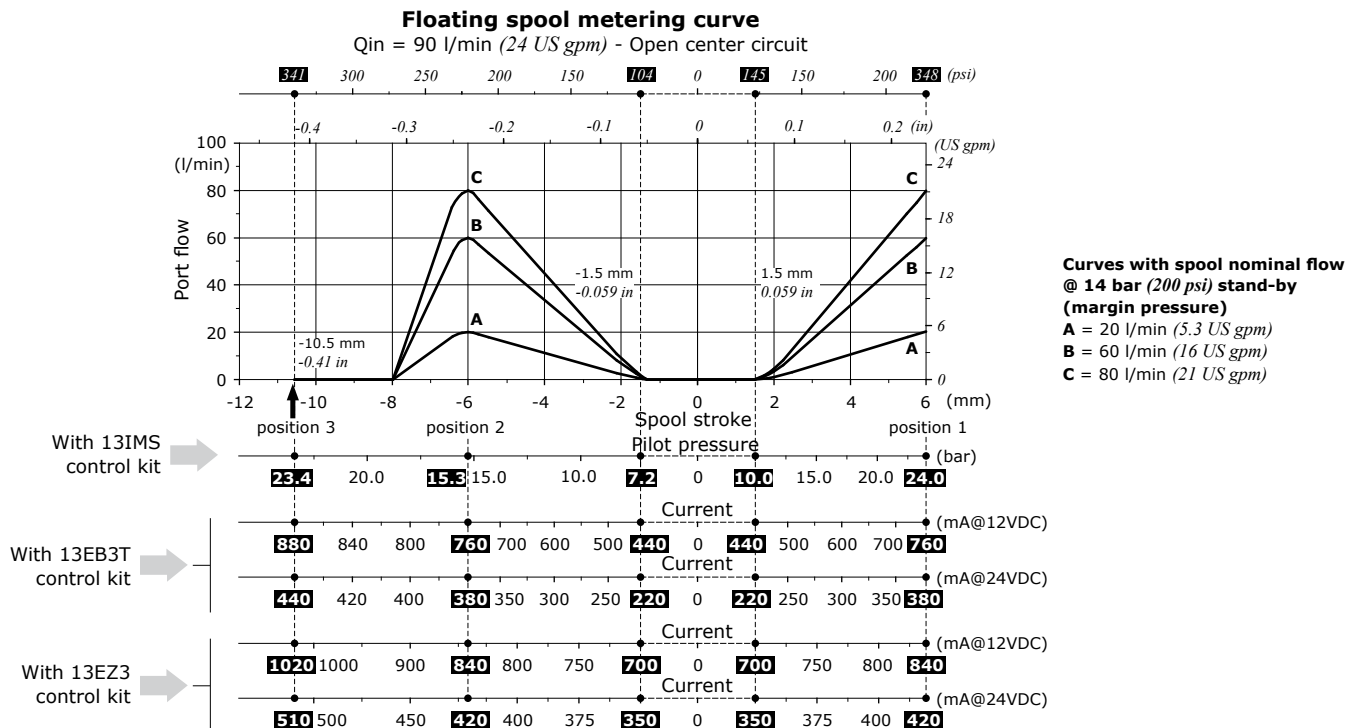
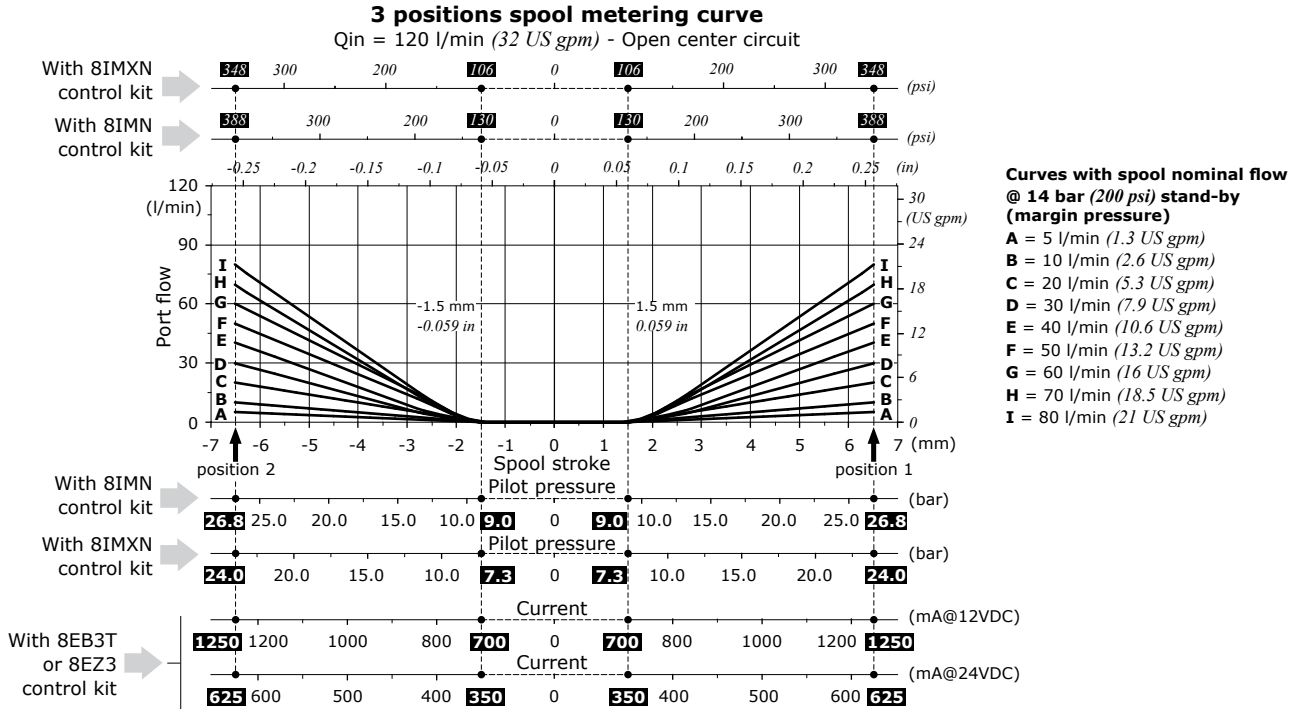
Curves with spool nominal flow @ 14 bar (200 psi) stand-by (margin pressure)

- 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 (13.2 US gpm)
- G = 60 l/min (16 US gpm)
- H = 70 l/min (18.5 US gpm)
- I = 80 l/min (21 US gpm)

Working section

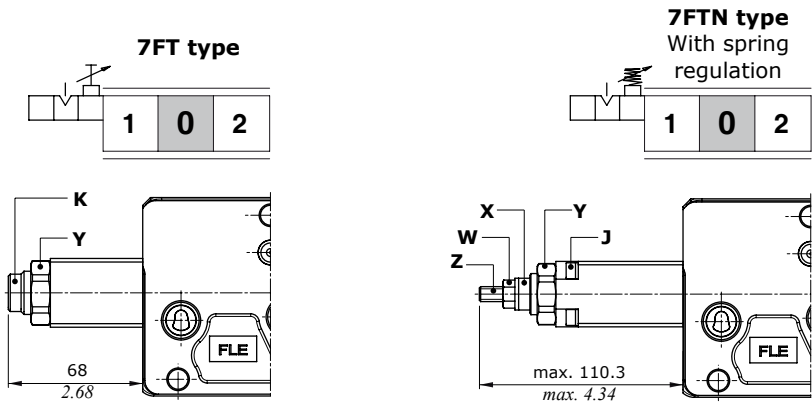
Spools

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.



"A" side spool positioners

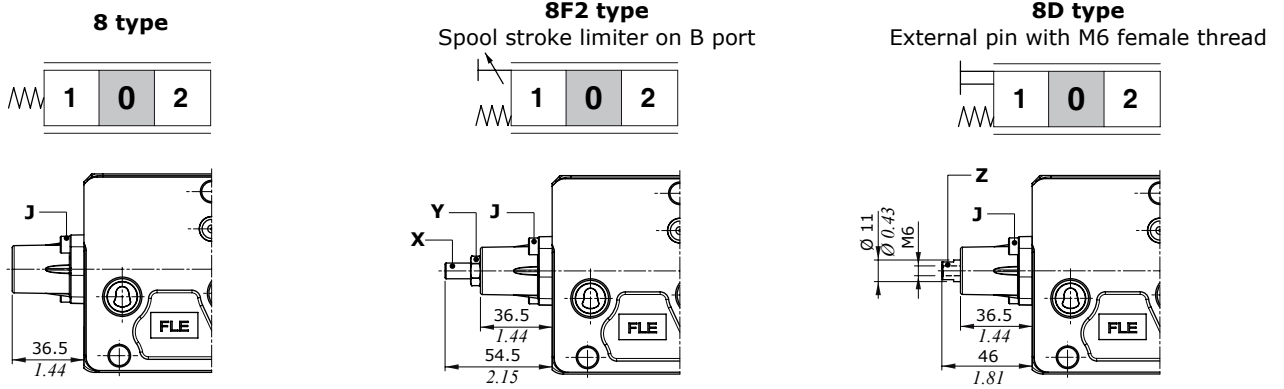
With friction



Wrenches and tightening torques

- J = allen wrench 4 - 6.6 Nm (4.9 lbft)
- K = allen wrench 6
- X = wrench 17
- Y = wrench 30, manual tightening
- Z = allen wrench 4
- W = wrench 13 - 24 Nm (17.7 lbft)

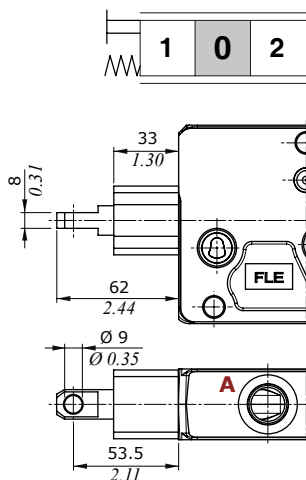
With spring return to neutral position



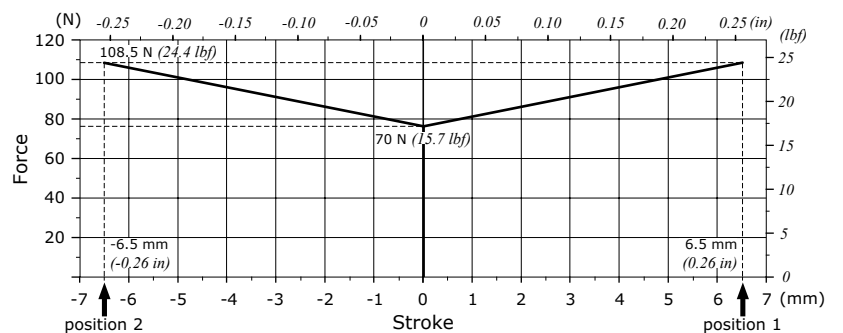
Wrenches and tightening torques

- J = allen wrench 4 - 6.6 Nm (4.9 lbft)
- X = allen wrench 4
- Y = wrench 13 - 24 Nm (17.7 lbft)
- Z = wrench 9

8TL type
Arrangement for double mechanical control



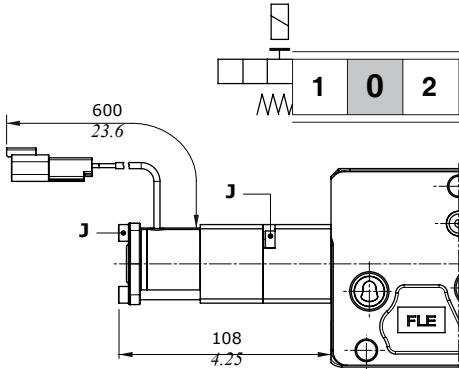
Force vs. Stroke diagram



Working section

"A" side spool positioners

With electromagnetic detent in position 2, 8RM2 type



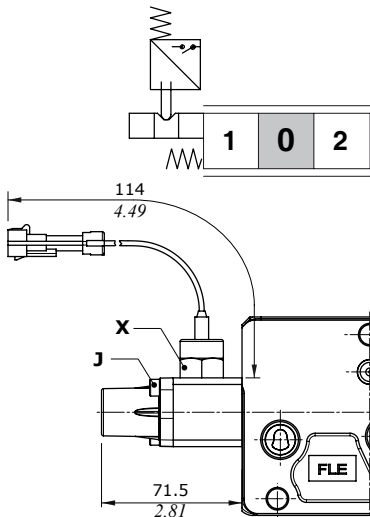
Features

- 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 insulation: Class H (180°C - 356°F)
- Insertion: 100%
- Connector: Deutsch DT04-2P
- Mating connector: Deutsch DT06-2S, code 5CON140046

Wrenches and tightening torques

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

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



Features

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

Wrenches and tightening torques

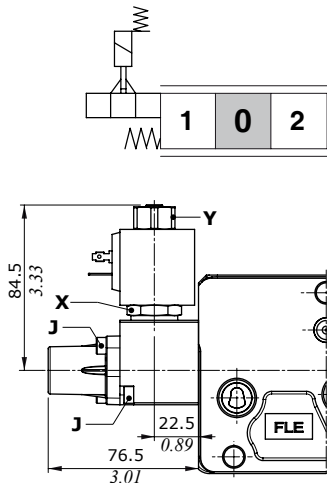
J = allen wrench 4 - 6.6 Nm (4.9 lbft)

X = wrench 22 - 24 Nm (17.7 lbft)

Complete controls			
Circuit	Microswitch operation		
	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, 8K type



Wrenches and tightening torques

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

X = wrench 24 - 9,8 Nm (7.2 lbft)

Y = wrench 21 - 6,6 Nm (4.9 lbft)

Complete controls			
Voltage	Coil connector		
	ISO 4400	Packard M-Mack	Deutsch DT04
12 VDC	5V08707212	5V08707613	5V08707412
24 VDC	5V08707224	5V08707624	5V08707424

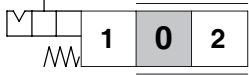
For coil features and options see BE type coil at page 160.

"A" side spool positioners

With detent and spring return to neutral position from either directions

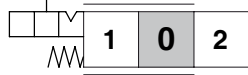
9BZ type

Detent in position 1
(see A curve)



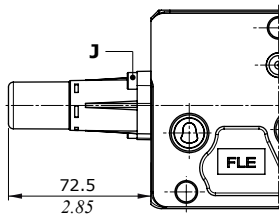
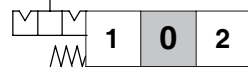
10BZ type

Detent in position 2
(see B curve)



11BZ type

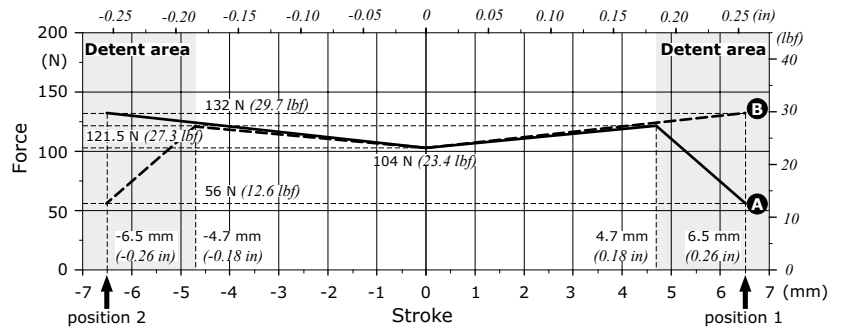
Detent in positions 1
(A curve) and 2 (B curve)



Wrenches and tightening torques

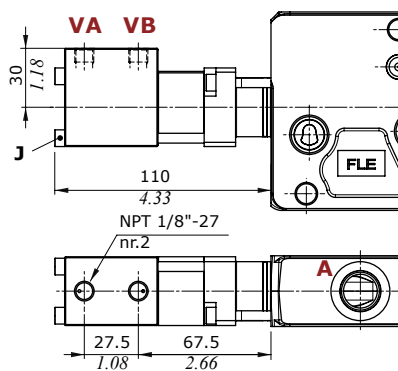
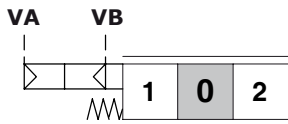
J = allen wrench 4 - 6.6 Nm (4.9 lbf_t)

Force vs. Stroke diagram



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

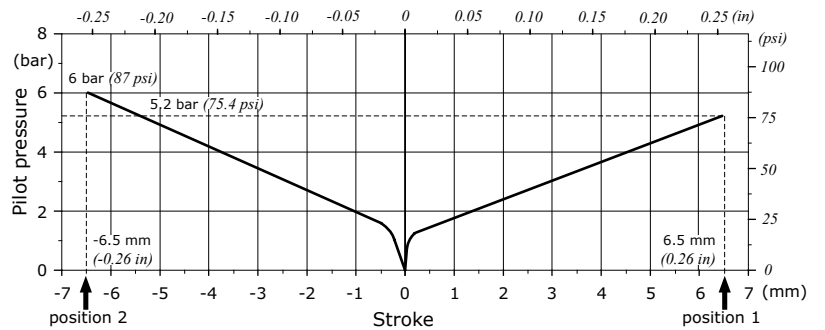
Proportional pneumatic control, 8PP type



Wrenches and tightening torques

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

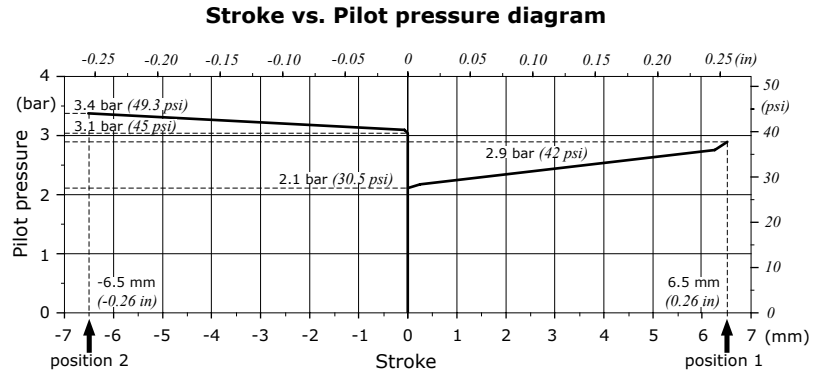
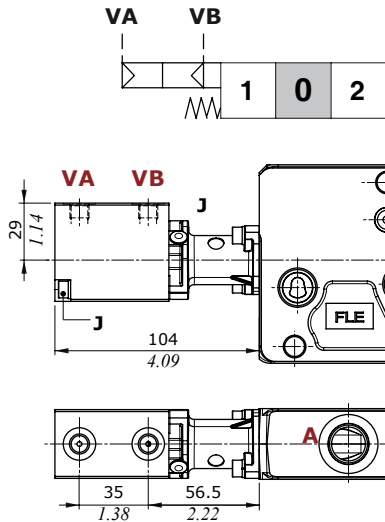
Stroke vs. Pilot pressure diagram



Working section

"A" side spool positioners

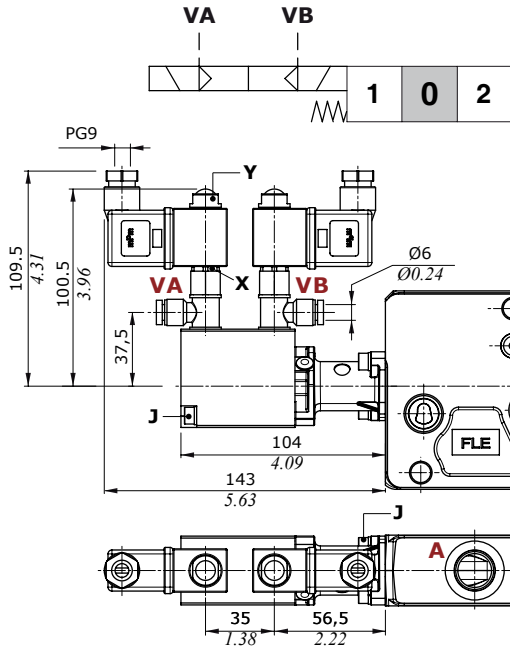
On/off pneumatic control, 8PNB type



Wrenches and tightening torques

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

On/off electropneumatic control, 8EPNB3 type



Features

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

For coil features and options see **BPV** type coil at page 160.

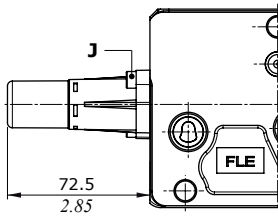
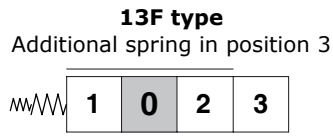
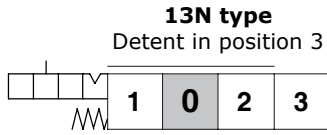
Wrenches and tightening torques

J = allen wrench 4 - 6.6 Nm (4.9 lbft)
X = wrench 15 - 6,6 Nm (4.9 lbft)
Y = wrench 13, manual tightening

"A" side spool positioners

For floating circuit

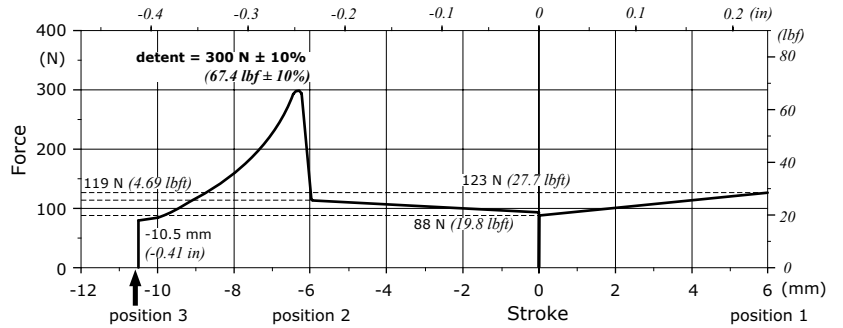
Not available for HF (High Flow) sections.



Wrenches and tightening torques

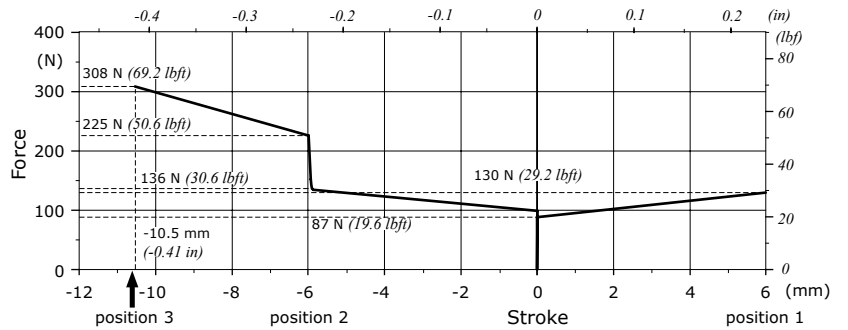
J = allen wrench 4 - 6.6 Nm (4.9 lbf_t)

13N type: Force vs. Stroke diagram



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

13F type: Force vs. Stroke diagram

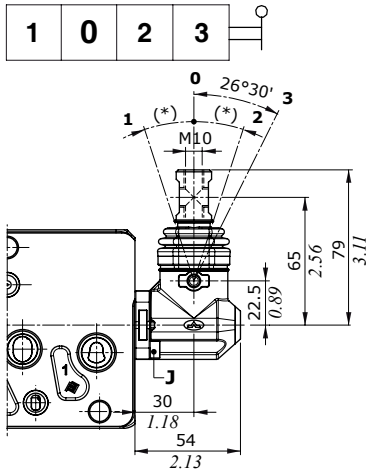


Working section

"B" side spool control kit

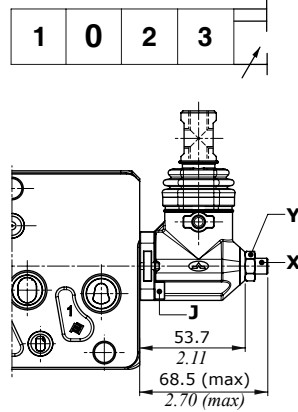
Standard lever boxes

L type



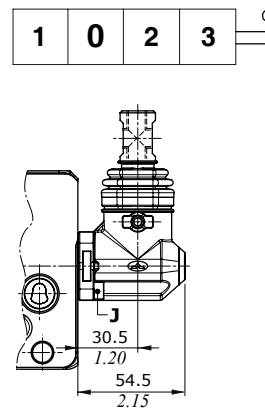
LF1 type

Spool stroke limiter on A port



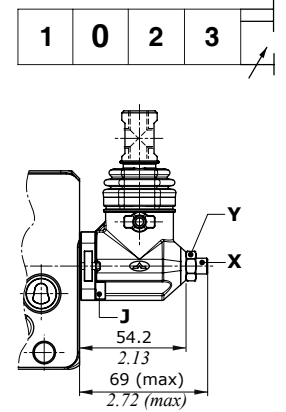
Waterproof lever boxes

LSG type

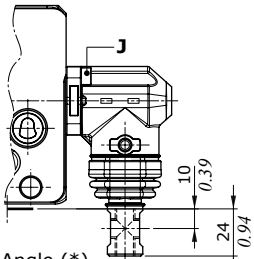


LSGF1 type

Spool stroke limiter on A port



L180 configuration



Angle (*)

16° with 8 type positioners.

15° with 13 type positioners.

Wrenches and tightening torques

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

X = allen wrench 4

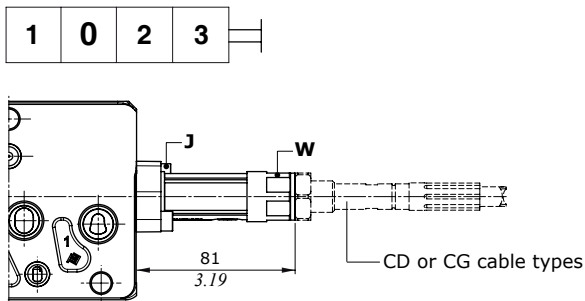
Y = wrench 13 - 24 Nm (17.7 lbf)

W = wrench 24

Without lever boxes

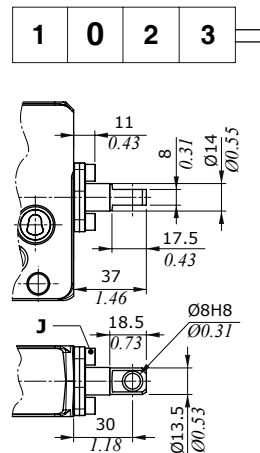
TQ type

Flexible cabler connection



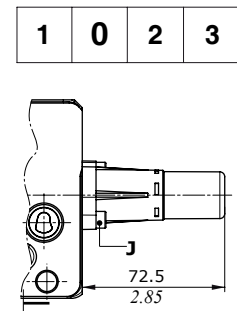
SLP type

With dust-proof plate



SLC type

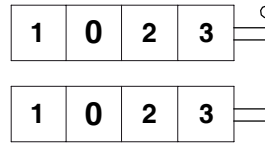
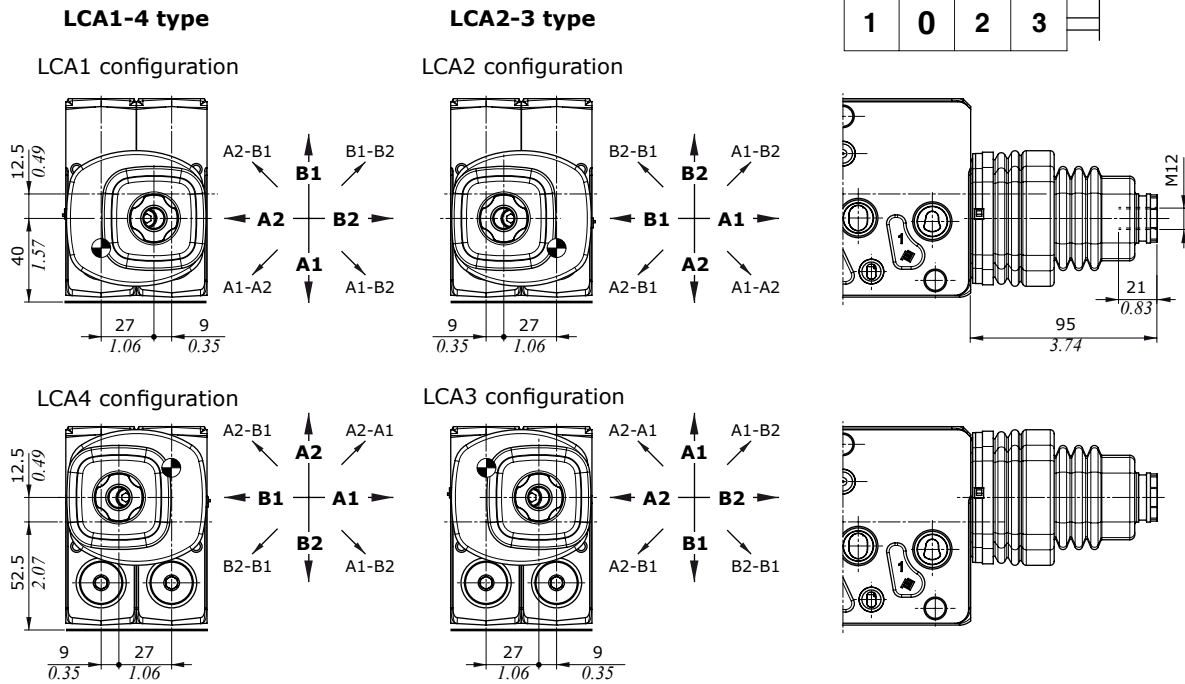
With endcap



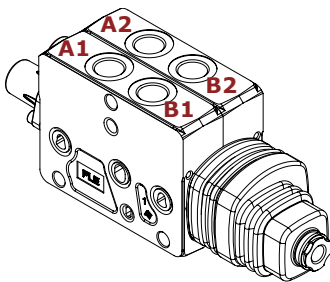
"B" side spool control kit

Joysticks for two section operation

Not available for HF (High Flow) sections.



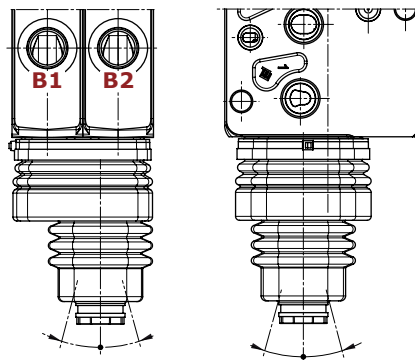
LCA2 configuration example



Working angles

Horizontal axis

Vertical axis

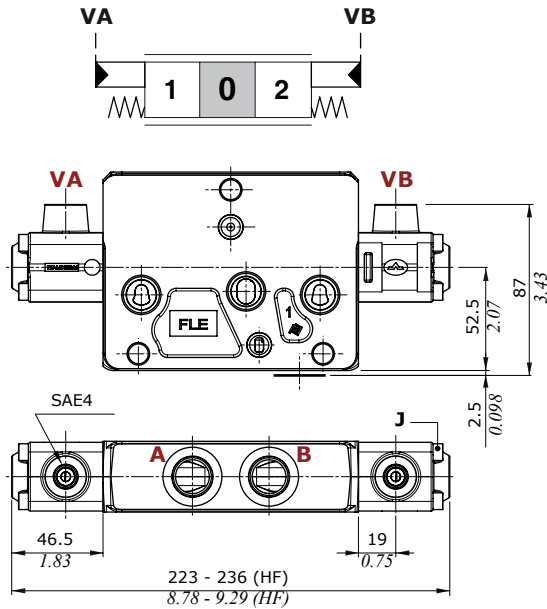


Max. working angles	Horizontal axis	Vertical axis
Single action operation	15°4'	15°4'
Single action operation with floating	25°2'	25°2'
Two section operation	15°52'	15°52'
Two section operation with floating	18°3'	18°3'

Working section

Proportional hydraulic control

8IMN - 8IMXN types

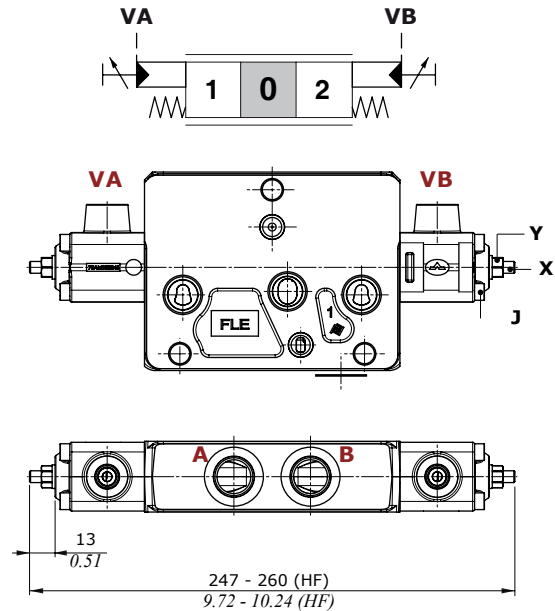


Features (all types)

Max. pressure. : 70 bar (1015 psi)

8IMF3N - 8IMXF3N types

With spool stroke limiter on A and B ports



Wrenches and tightening torques

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

X = allen wrench 3

Y = wrench 10 - 9.8 Nm (7.2 lbf)

Pressure vs. Stroke diagram

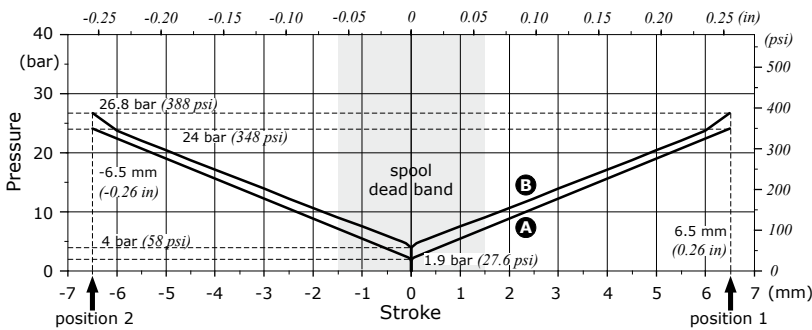
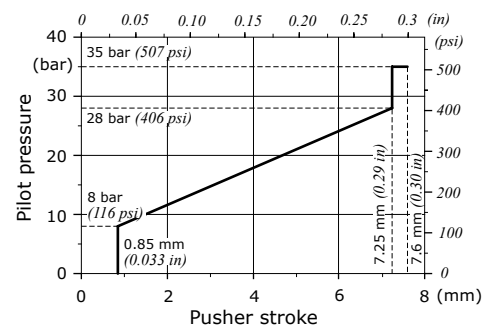
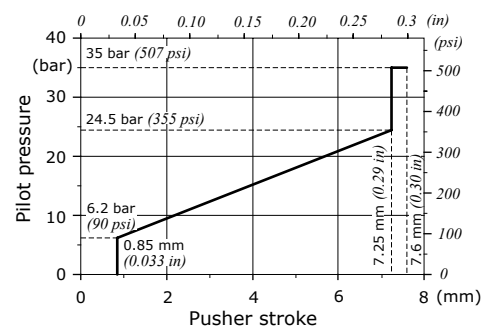


Diagram A = 8IMXN-8IMXNF3 controls
Diagram B = 8IMN-8IMNF3 controls

Suggested pressure control curve: 089 type



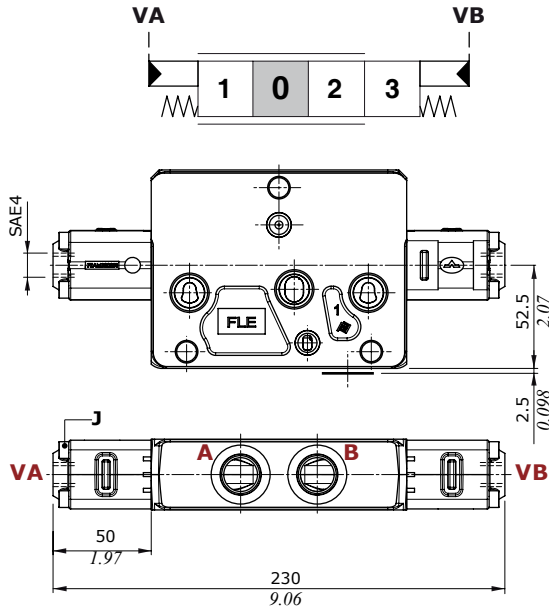
Suggested pressure control curve: 054 type



Proportional hydraulic control

For floating circuit, 13IMS type

Not available for HF (High Flow) sections.

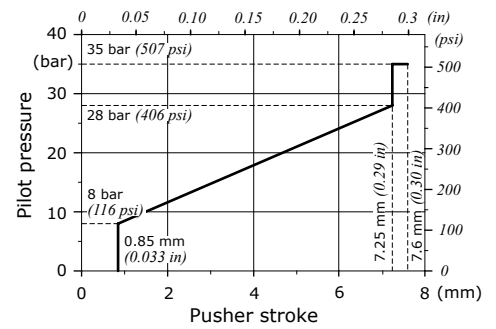


Wrenches and tightening torques
 J = allen wrench 4 - 6.6 Nm (4.9 lbf^t)

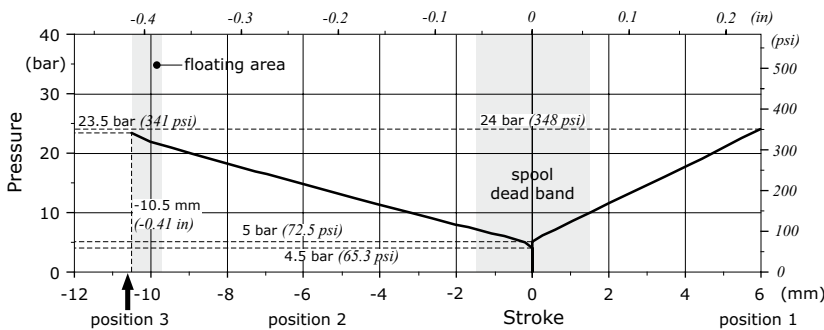
Features

Max. pressure. : 70 bar (1015 psi)

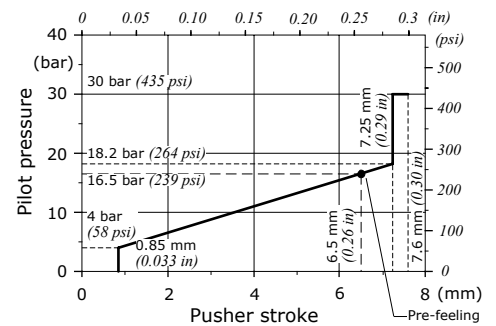
Suggested pressure control curve: 089 type



Stroke vs. Pressure diagram



Suggested pressure control curve on port VB: 086 type

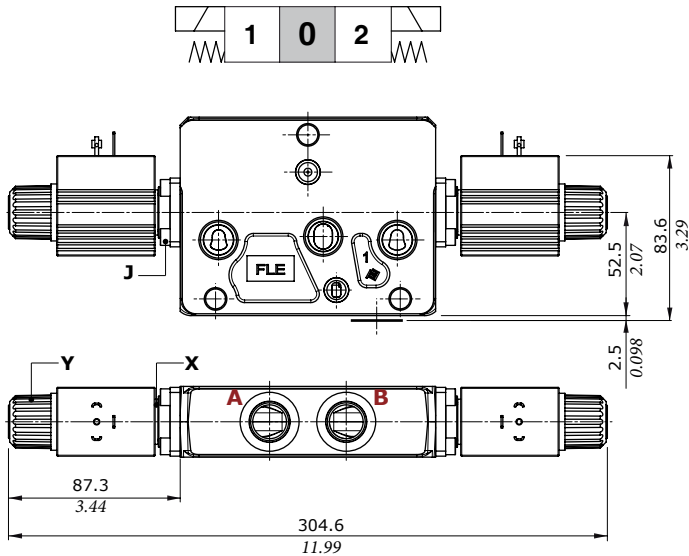


Working section

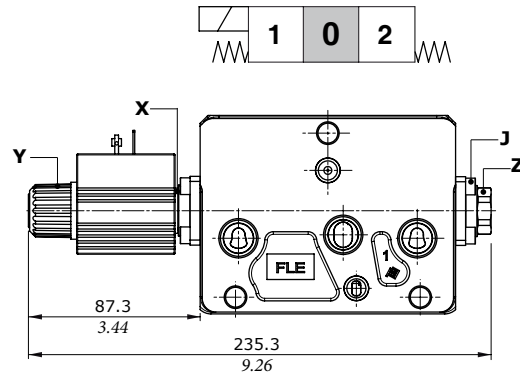
On/off solenoid control

Not available for HF (High Flow) sections.

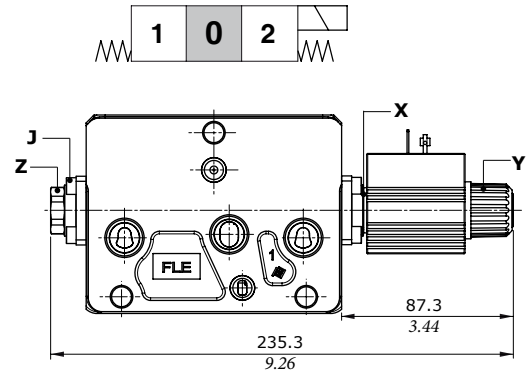
8ES3 type
Double acting



8ES1 type
Single acting in A



8ES2 type
Single acting in B



Features

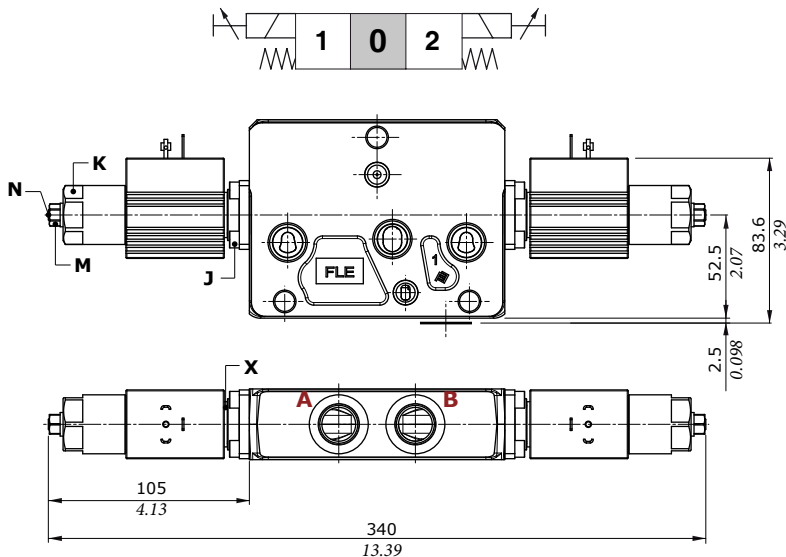
Max. flow on working ports : **60 l/min (16 US gpm)**

Internal leakage A(B)⇒T . . . : 15 cm³/min @ 100 bar and 20°C
(0.92 in³/min @ 1450 psi and 68°F)

For coil features and options see **D12** type coil at page 160.

8ES3F3 type

Double acting, with spool stroke limiter on A and B ports



Wrenches and tightening torques

- J = allen wrench 4 - 6.6 Nm (4.9 lbf_t)
- K = wrench 27 - 17 Nm (12.5 lbf_t)
- M = wrench 10 - 9.8 Nm (7.2 lbf_t)
- N = allen wrench 3
- Y = special wrench - 6.6 Nm (4.9 lbf_t)
- Z = wrench 22 - 24 Nm (17.7 lbf_t)

Electrohydraulic control performance data

Following specifications are measured with:

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

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

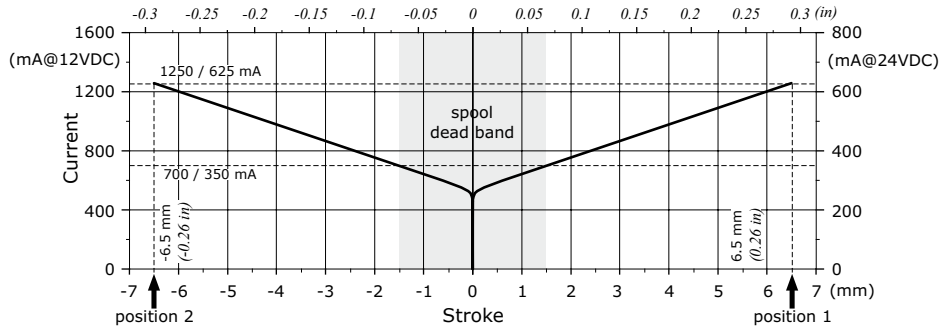
Specifications		Spool control type			
		8EB3	13EB3	8EZ3	13EZ3
Electric specifications					
Coil impedance	12 VDC	4.72 Ω	4.72 Ω	4.72 Ω	4.72 Ω
	24 VDC	20.8 Ω	20.8 Ω	20.8 Ω	20.8 Ω
Max. operating current	12 VDC	1.5 A	1.5 A	1.5 A	1.5 A
	24 VDC	0.75 A	0.75 A	0.75 A	0.75 A
No load current consumption		0	0	0	0
<u>With lever box configured controls</u>					
Hysteresis max. ⁽¹⁾	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	440 mA	700 mA	700 mA
	24 VDC	350 mA	220 mA	350 mA	350 mA
Flow control signal	12 VDC	1250 mA	760 mA	1250 mA	840 mA
	24 VDC	625 mA	380 mA	625 mA	420 mA
Max. float flow control signal	12 VDC		880 mA		1020 mA
	24 VDC		440 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 insulation		Class H (180°C - 356°F)		Class H (180°C - 356°F)	
Connector type		AMP JPT - Deutsch DT		AMP JPT - Deutsch DT	
Weather protection (connector)		IP65 (JPT type) - IP69K (DT type)		IP65 (JPT type) - IP69K (DT type)	
Hydraulic specifications					
Max. pressure		40 bar (580 psi)		50 bar (725 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 170.

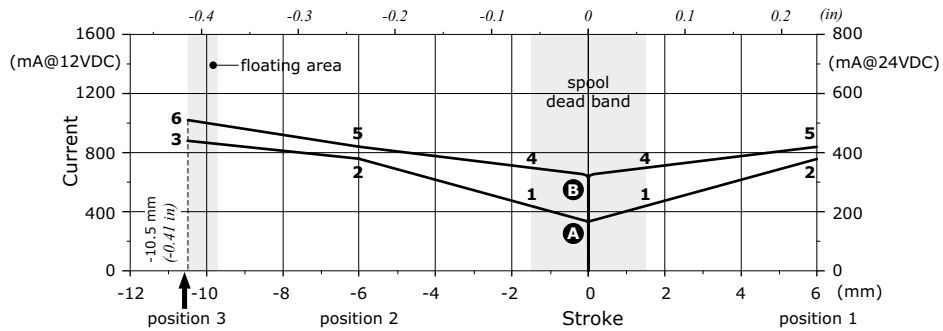
Working section

Electrohydraulic control performance data

8EB3T-8EZ3 type: Stroke vs. Current diagram



13EB3T-13EZ3 type: Stroke vs. Current diagram



A curve = 13EB3T control

- 1 = 440 mA @ 12 VDC - 220 mA @ 24 VDC
- 2 = 760 mA @ 12 VDC - 380 mA @ 24 VDC
- 3 = 880 mA @ 12 VDC - 440 mA @ 24 VDC

B curve = 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

Electrohydraulic controls: spool position sensor

The sensor can be ordered exclusively through the electrohydraulic EB and EZ type controls; see pages 70-71-103 for available control -list.

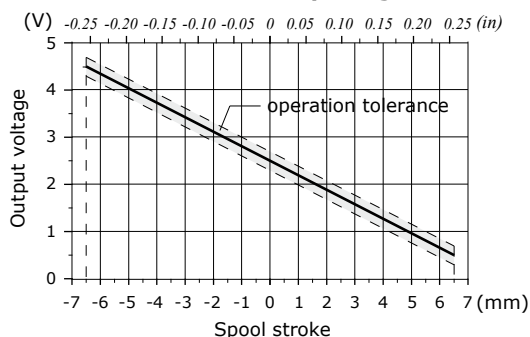
SPSL sensor

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

Working conditions

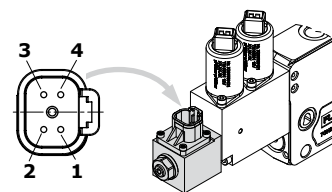
Voltage supply	5 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	DT04-4P Deutsch
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke	±10 mm (±0.39 in)
Max. mechanical stroke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

SPSL sensor output signal



Deutsch DT04-4P connector

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



Deutsch DT06-4S mating connector, code 5CON140072

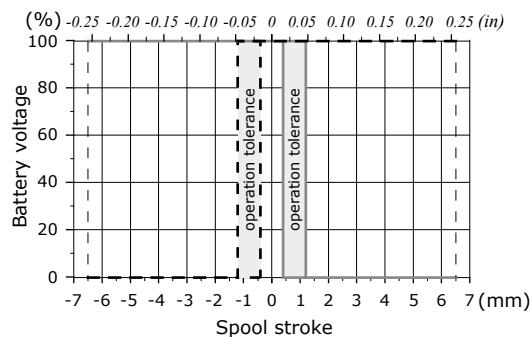
SPSD sensor

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

Working conditions

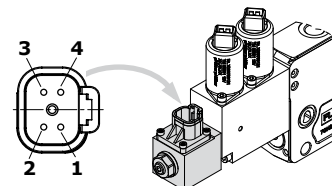
Voltage supply	from 9 to 32 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 ⁶
Connector type	DT04-4P Deutsch
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke	±10 mm (±0.39 in)
Max. mechanical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

SPSP sensor output signal



Deutsch DT04-4P connector

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



Deutsch DT06-4S mating connector, code 5CON140072

Working section

Two-side electrohydraulic control

Control Types

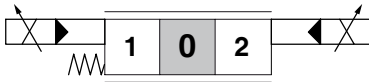
1 : With AMP JPT connector - AMP JPT mating connector, code: 5CON003

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

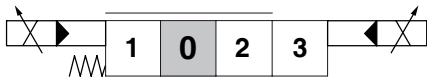
Without lever control

13EB3 type controls are not available for HF sections.

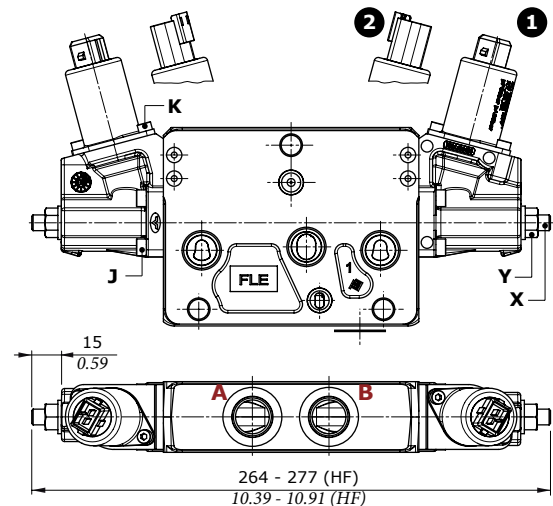
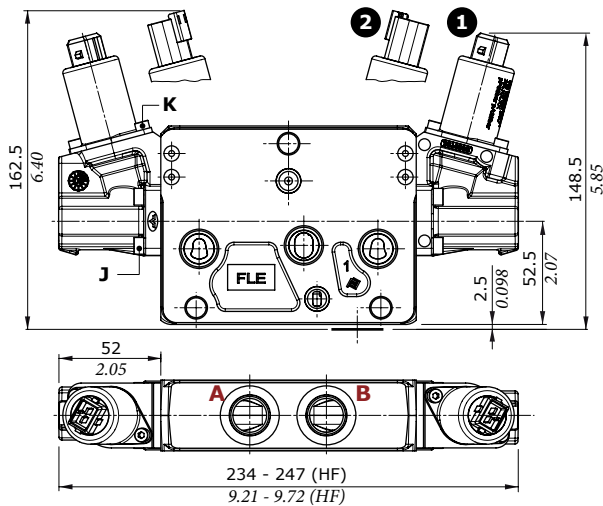
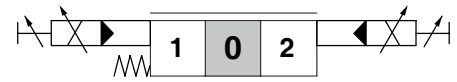
8EB3T - 8EB34T types



13EB3T - 13EB34T types

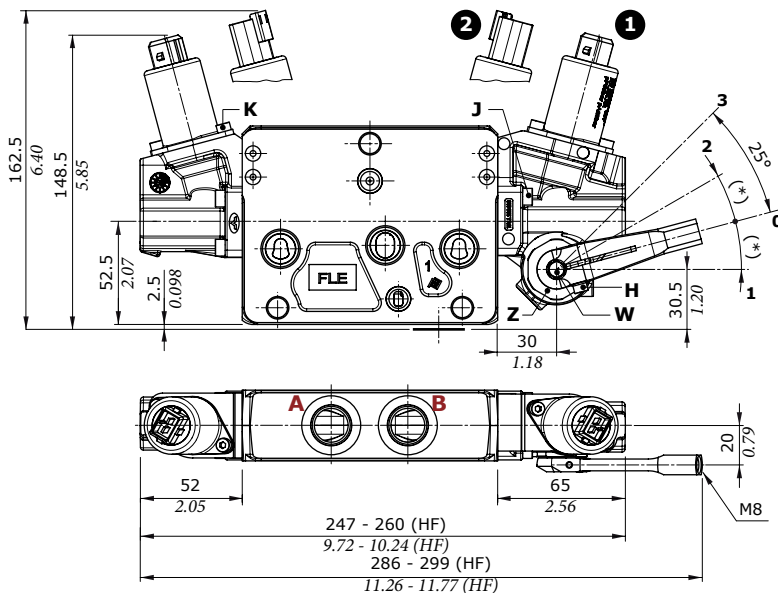


8EB3TF3 - 8EB34TF3 types



With lever control

13EB3 types controls are not available for HF sections.



Wrenches and tightening torques

H = allen wrench 3 - 6.6 Nm (4.9 lbf)

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

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

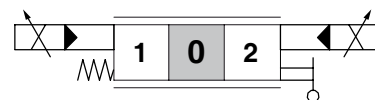
X = allen wrench 3

Y = wrench 10 - 9.8 Nm (7.2 lbf)

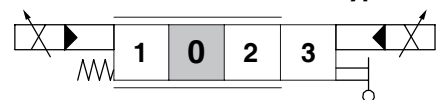
Z = wrench 29 - 24 Nm (17.7 lbf)

W = wrench 8

8EB3TLH - 8EB34TLH types



13EB3TLH - 13EB34TLH types



Angle (*)

15° with 8EB3.. type controls

14° with 13EB3.. type controls

Two-side electrohydraulic control

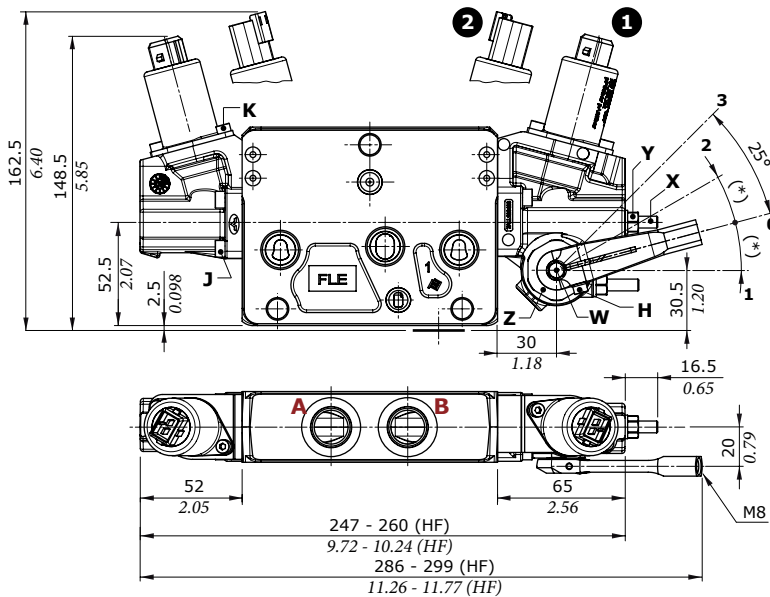
Control Types

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

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

With lever control

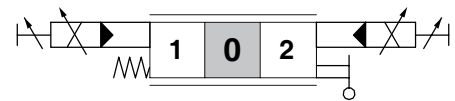
13EB3 type controls are not available for HF sections.



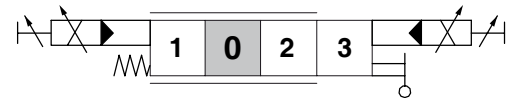
Angle (*)

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

8EB3TLHF3 - 8EB34TLHF3 types



13EB3TLHF3 - 13EB34TLHF3 types

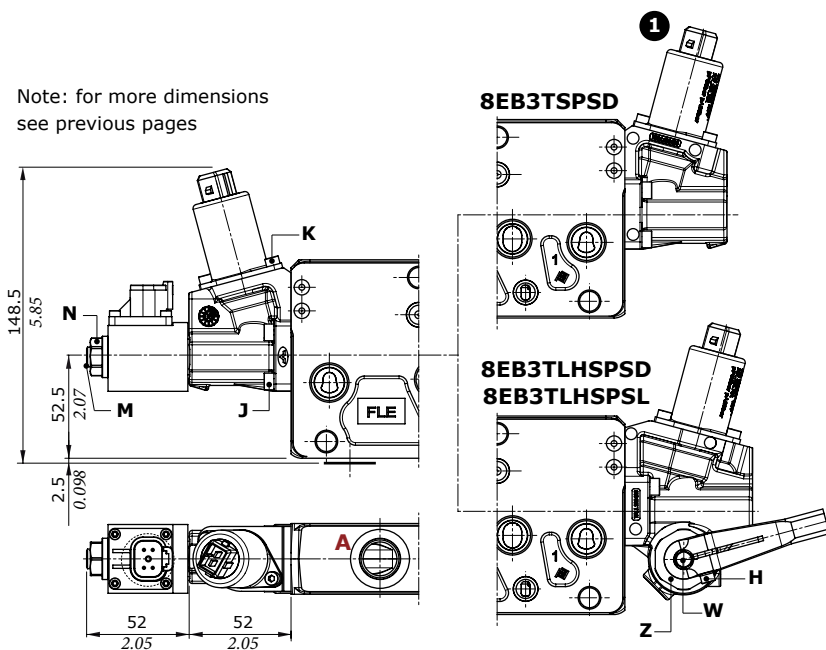


Wrenches and tightening torques

- H = allen wrench 3 - 6.6 Nm (4.9 lbf_t)
- J = allen wrench 4 - 6.6 Nm (4.9 lbf_t)
- K = allen wrench 3 - 5 Nm (3.7 lbf_t)
- M = allen wrench 4 - 9.8 Nm (7.2 lbf_t)
- N = wrench 17 - 9.8 Nm (7.2 lbf_t)
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbf_t)
- Z = wrench 29 - 24 Nm (17.7 lbf_t)
- W = wrench 8

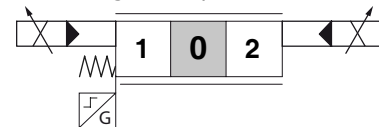
With spool position sensor

Note: for more dimensions see previous pages



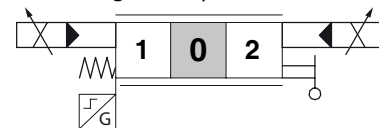
8EB3TSPSD type

Digital output sensor



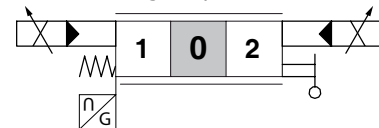
8EB3TLHSPSD type

Digital output sensor



8EB3TLHSPSL type

Analog output sensor



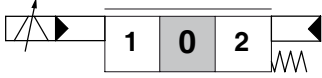
Working section

One-side electrohydraulic control: "A" side

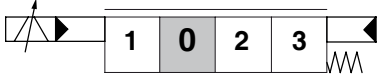
Control Types

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

8EZ3 - 8EZ34 types

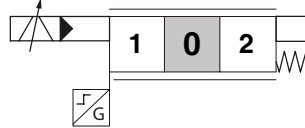


13EZ3 - 13EZ34 types



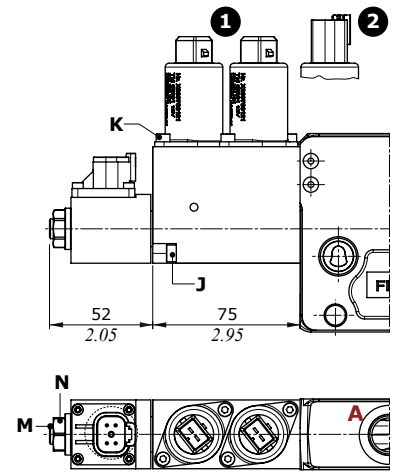
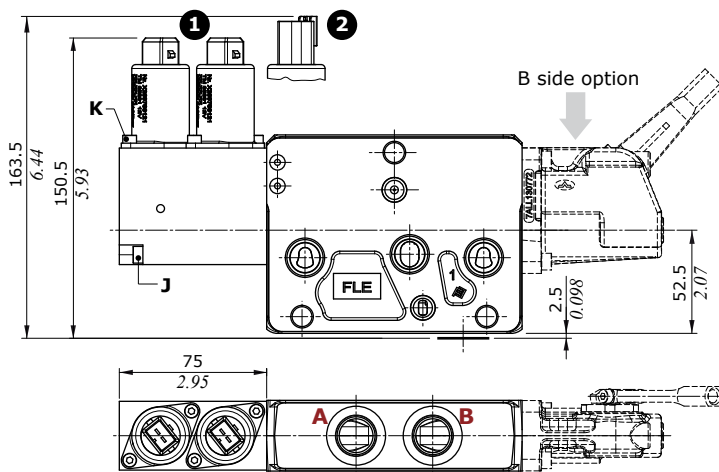
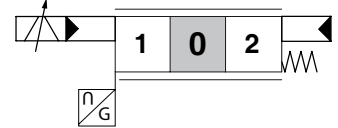
8EZ3SPSD - 8EZ34SPSD types

Digital output sensor

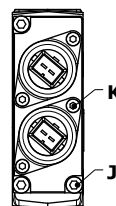
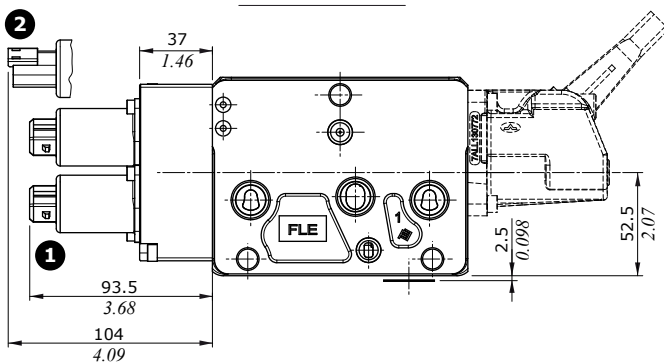
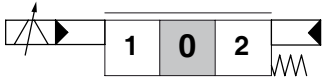


8EZ34SPSL type

Analog output sensor



8EZH3 - 8EZH34 types



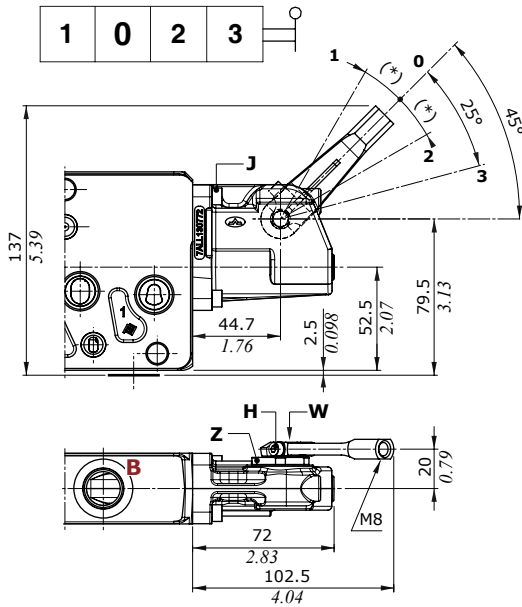
Wrenches and tightening torques

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

One-side electrohydraulic control: "B" side option

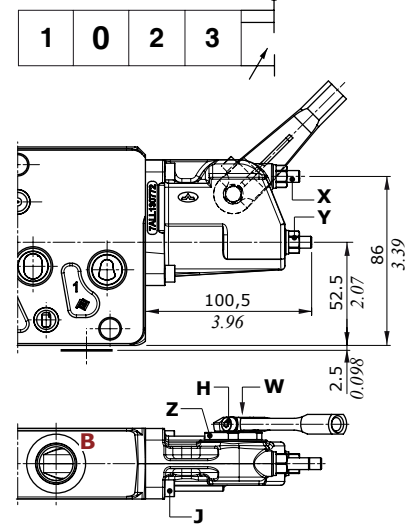
These options are available for one-side electrohydraulic controls only

LQ type



LQF3 type

Spool stroke limiter on A and B ports



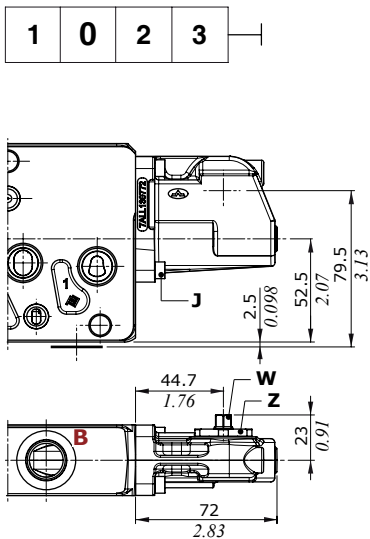
Angle (*)

15° with 8EZ3.. type controls

14° with 13EZ3.. type controls

LQSL type

Without lever



Wrenches and tightening torques

H = allen wrench 3 - 6.6 Nm (4.9 lbf)

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

X = allen wrench 3

Y = wrench 10 - 9.8 Nm (7.2 lbf)

Z = wrench 29 - 24 Nm (17.7 lbf)

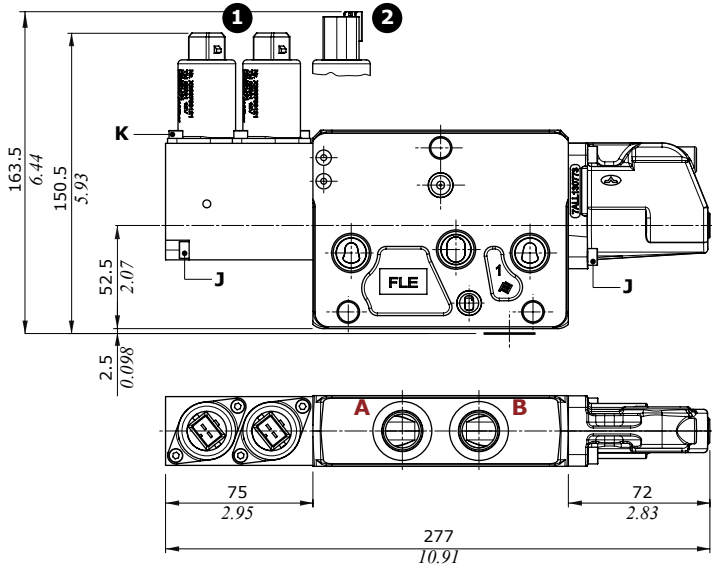
W = wrench 8

Complete one-side electrohydraulic control

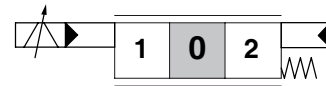
Controls already comprehensive of endcap on B side.

Control Types

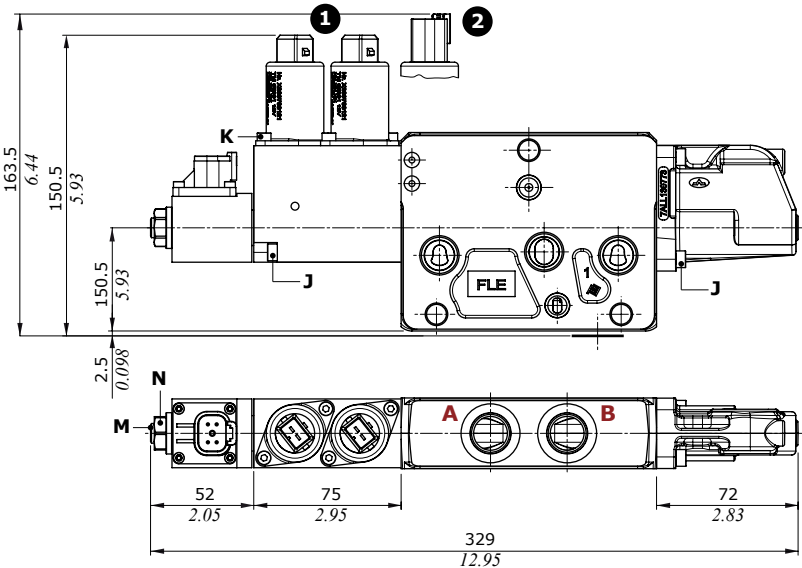
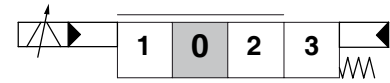
- ① : With AMP JPT connector - AMP JPT mating connector, code: 5CON003
- ② : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



8EZ3SLCQ - 8EZ34SLCQ types

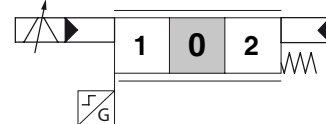


13EZ3SLCQ - 13EZ34SLCQ types



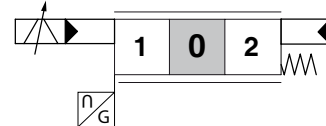
8EZ3SPSDSLCQ - 8EZ34SPSDSLCQ types

Digital output sensor



8EZ34SPSLSSLCQ type

Analog output sensor



Wrenches and tightening torques

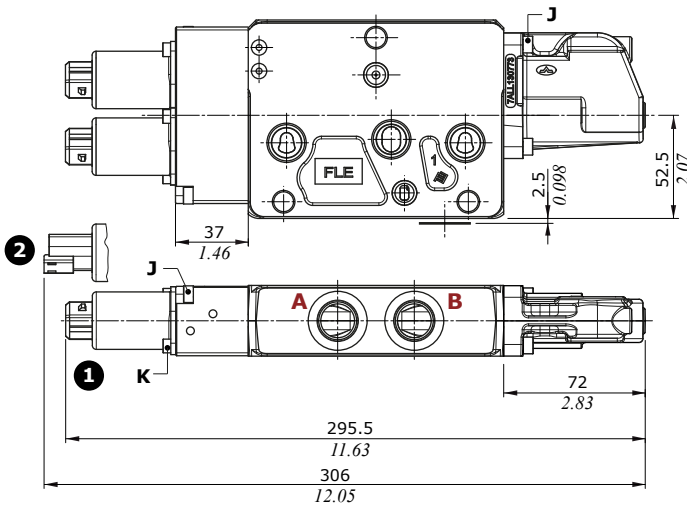
- J = allen wrench 4 - 6.6 Nm (4.9 lbf)
- K = allen wrench 3 - 5 Nm (3.7 lbf)
- M = allen wrench 4 - 9.8 Nm (7.2 lbf)
- N = wrench 17 - 9.8 Nm (7.2 lbf)

Complete one-side electrohydraulic control

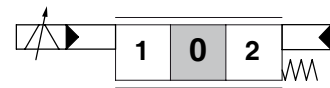
Controls already comprehensive of endcap on B side.

Control Types

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



8EZH3SLCQ - 8EZH34SLCQ types

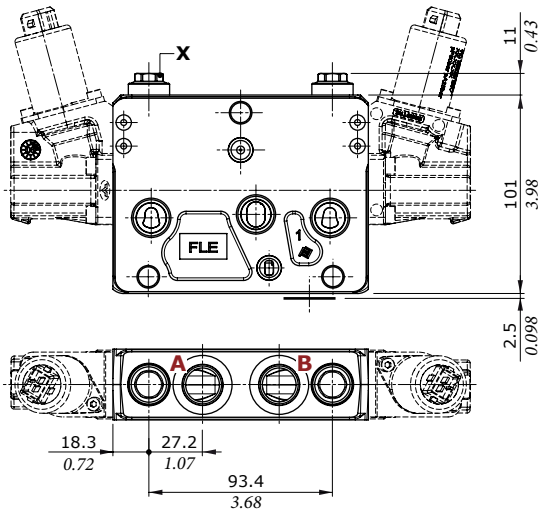


Wrenches and tightening torques

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

Working section

Port valves



U type



C type

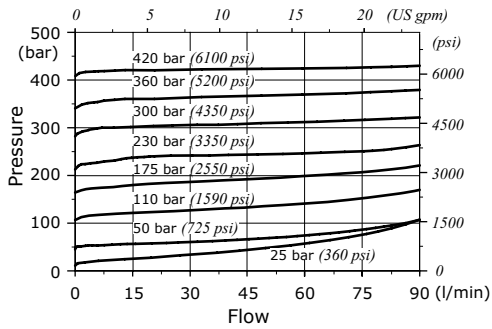


Wrenches and tightening torques

X = wrench 13 - 24 Nm (17.7 lbf)

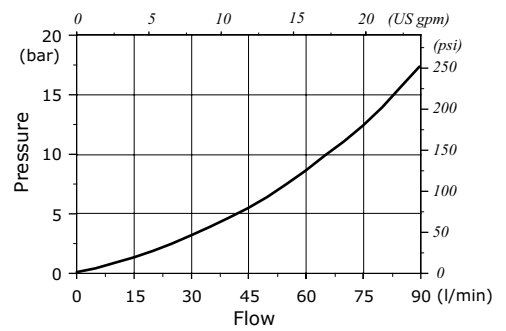
U type: antishock valves with prefill

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

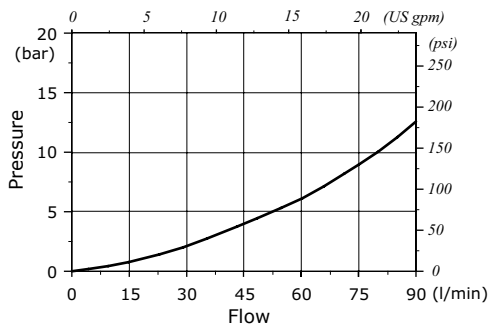


C type: anticavitation valves

Pressure drop



Pressure drop
(in anticavitation)



Outlet section part ordering codes

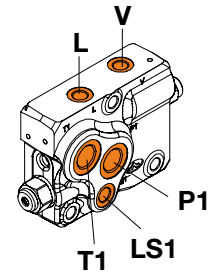
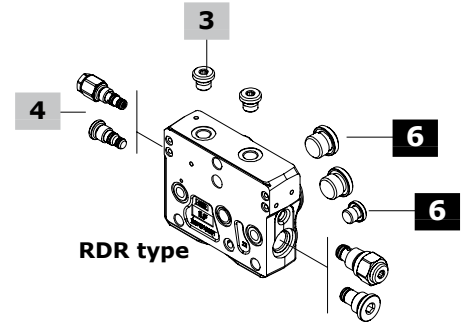
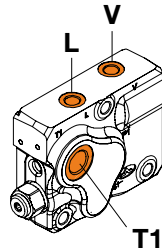
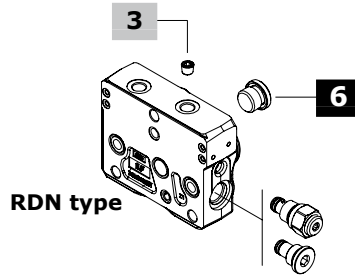
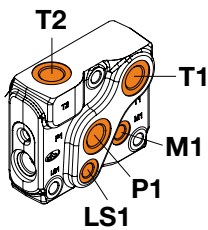
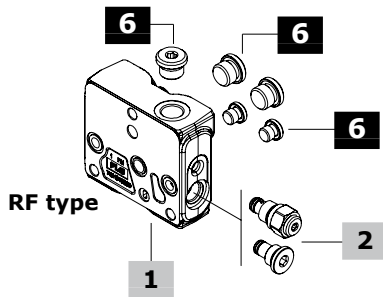
DPX100 / RF (04) -



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



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



1 Outlet section kit* page 96

Outlet section is the same type for standard and High Pressure valve
For mechanical, hydraulic and solenoid controls
 TYPE: **DPX100/RF-SAE** CODE: YFIA204700S
 DESCRIPTION: With T2 upper port port
 TYPE: **DPX100/RF(04)-SAE** CODE: YFIA204705S
 DESCRIPTION: With T2 upper port and P1, T1, LS1, M1 side ports
For electrohydraulic controls
 TYPE: **DPX100/RDN-SAE** CODE: YFIA204791S
 DESCRIPTION: Without pressure reducing valve arrangement, T1 side and V and L upper ports
 TIPO: **DPX100/RDR-SAE** CODE: YFIA204707S
 DESCRIZIONE: With pressure reducing valve arrangement, V and L upper ports, T1 side port
 TYPE: **DPX100/RDR(03)-SAE** CODE: YFIA204702S
 DESCRIPTION: With pressure reducing valve arrangement, V and L upper ports, P1, T1, LS1 side ports
Note: for outlet sections with different port arrangement please contact Sales Dpt

2 Bleed valve page 97

TYPE	CODE	DESCRIPTION
(-)	X138810000V	Bleed valve
(VBT)	XTAP525320V	Valve blanking plug

3 Pilot and drain *

TYPE	CODE	DESCRIPTION
NOTAP(VL)	4TAP310007	M10x1 DIN906 plug, for external drain
(-)	XTAP81713V	SAE6 plug, nr.2 for int.pilot and drain

4 Pressure reducing valve page 97

TYPE	CODE	DESCRIPTION
(-)	X219740035V	Pressure reducing valve, 30-45 bar (435-650 psi)
(RT)	XTAP418350V	Valve blanking plug

5 Section threading

Only specify if it is different from BSP standard (see page 7)

6 Parts *

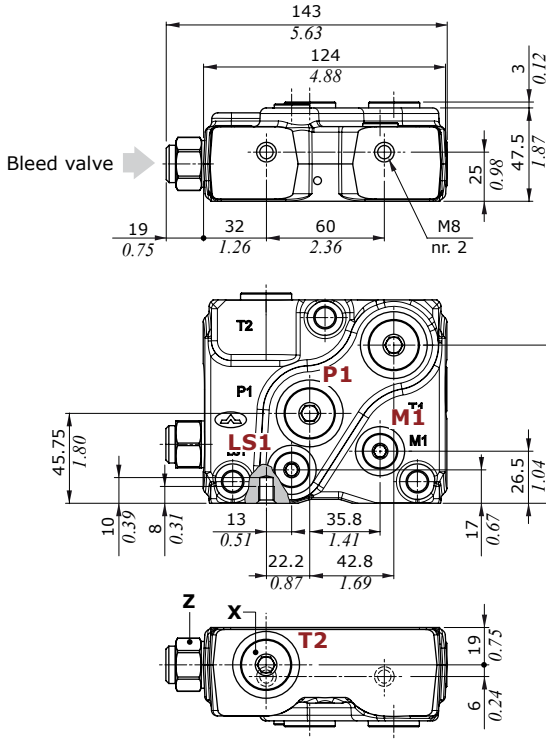
3XTAP826160	SAE10 plug, nr.1 for RF and RDN section, nr.2 for RDR(03) section, nr.3 for RF(04) section
3XTAP817130	SAE6 plug, nr.1 for RDR(03) section, nr.2 for RF(04) section

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

Outlet section

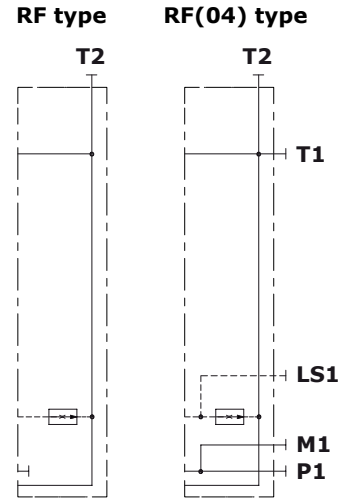
Dimensions and hydraulic circuit

Example of RF(04) outlet section

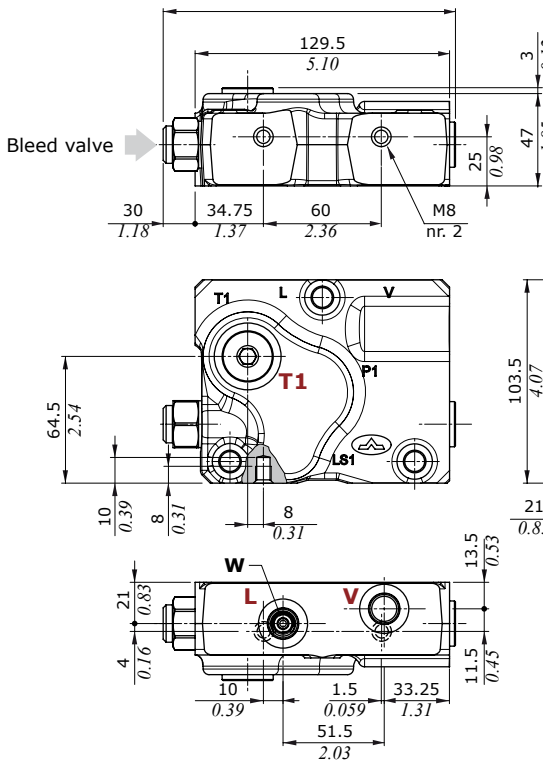


Wrenches and tightening torques

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

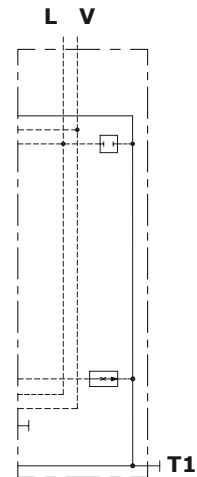


Example of RDN outlet section



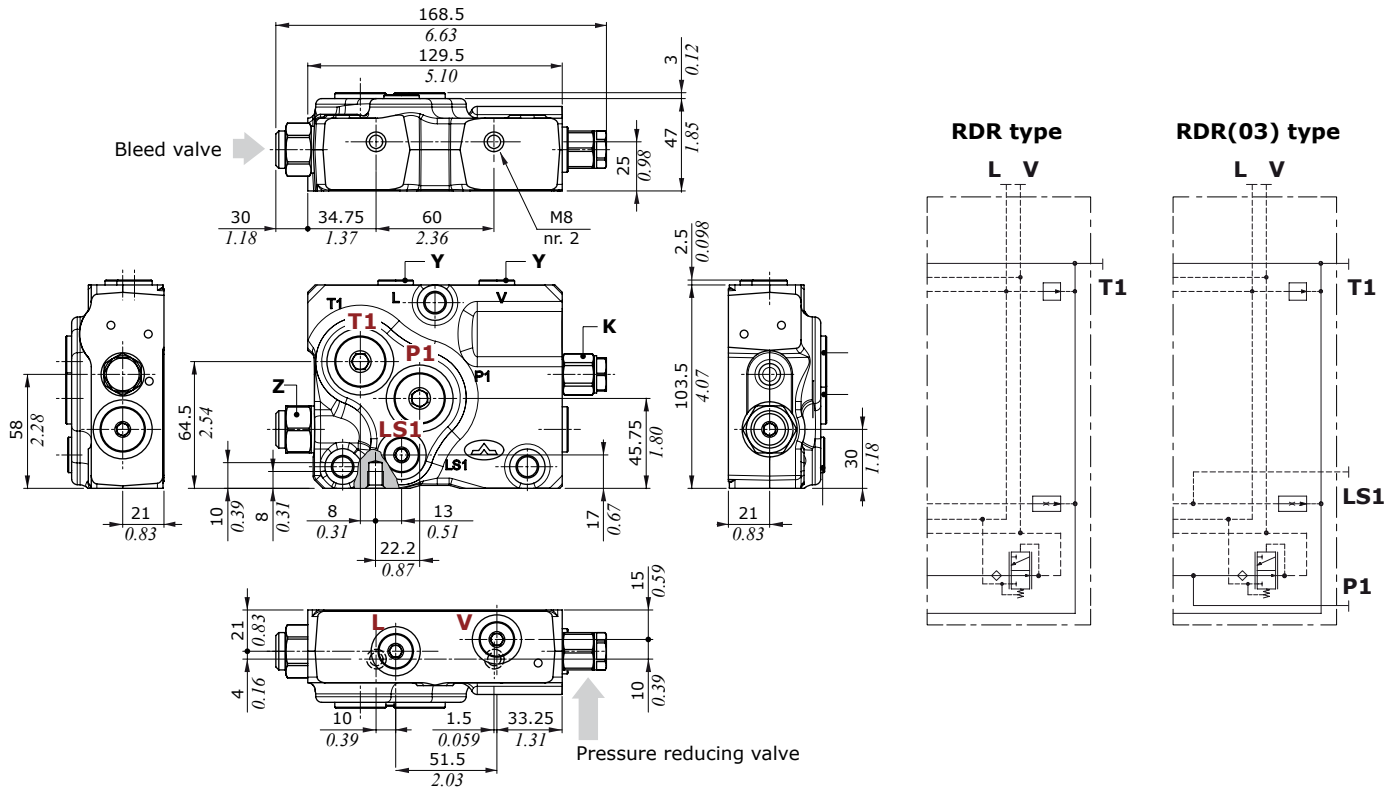
Wrenches and tightening torques

- X = allen wrench 8 - 24 Nm (17.7 lbf)
- Z = wrench 24 - 42 Nm (31 lbf)
- W = allen wrench 6 - 24 Nm (17.7 lbf)



Dimensions and hydraulic circuit

Example of RDR(03) outlet section



Wrenches and tightening torques

- K = wrench 19 - 24 Nm (17.7 lbf)
- X = allen wrench 8 - 24 Nm (17.7 lbf)
- Y = allen wrench 6 - 24 Nm (17.7 lbf)
- Z = wrench 24 - 42 Nm (31 lbf)

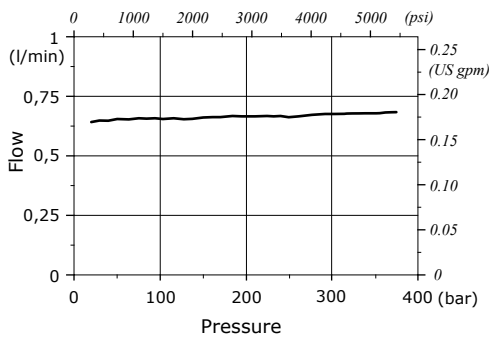
Bleed valve features

Max. inlet pressure : 380 bar (5550 psi)
 Max. back pressure : 25 bar (363 psi)

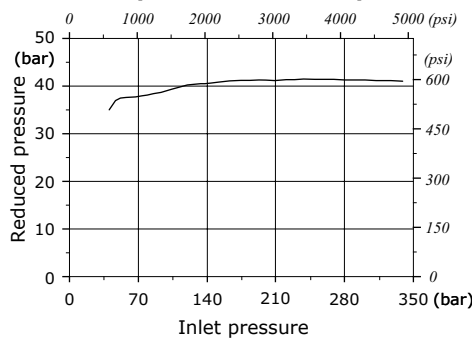
Pressure reducing valve features

Max. inlet pressure : 380 bar (5550 psi)
 Reduced pressure range. . . : 30-45 bar (435-650 psi)
 Max. back pressure : 25 bar (363 psi)

Bleed valve diagram
Flow vs. Pressure



Pressure reducing valve diagram
Reduced pressure vs. Inlet pressure



Complete section ordering codes

A Mechanical and hydraulics controls configuration:

Nr. of working sections

DPX100HF/2/AM1(TGW3-175\ELN)/Q-101(100\100)-8L/P-E101(100\100)-8IMN.U1(100)U2(100)/RF-.....-12VDC

1A 1C

2A

2A

3

4

5

DPX100HF: valve with High Flow sections only

For working conditions and **HF** sections configuration guide see pages 5, 6, 52, 53.

B Mechanical and hydraulics controls in mixed configuration:

DPX100/3/AM1(TGW3-175\ELN)/HF-P-E101(100\100)-8IMN.U1(100)U2(100)/HP-P-101(80\80)-8L.U3T/

1A 1C

2A

2C

DPX100: mixed configuration valve with at least Standard Pressure working section

For working conditions and guide to mixed configuration, **Standard**, High Pressure (**HP**), High Flow (**HF**) see pages 5, 6, 52, 53.

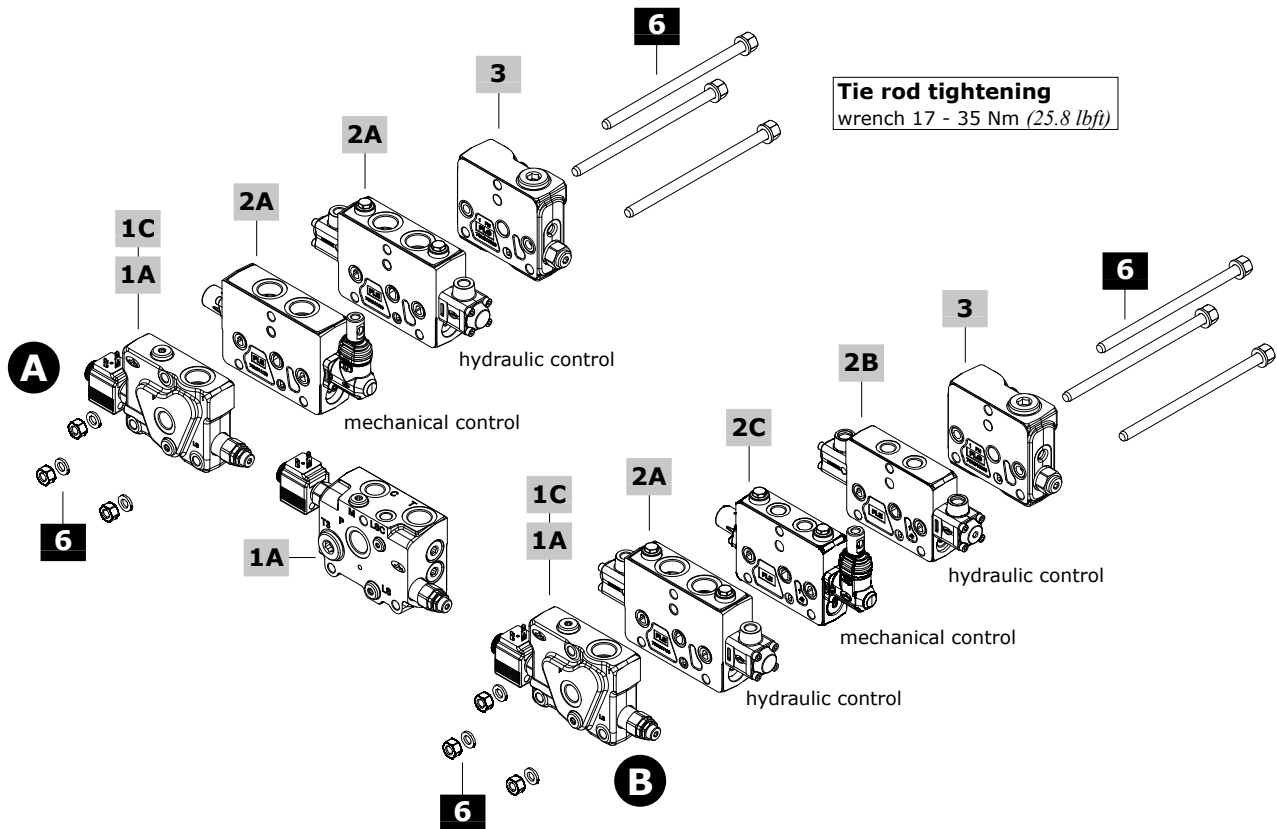
Q-E102(80\80)-8IMN/RF-.....-12VDC

2B

3

4

5



Complete section ordering codes

A Electrohydraulics controls configuration:

└─ Nr. of working sections

DPX100HF/2/AM1(TGW3-175\ELN)/PZ-E101(100\100)-8EZ3LQF3.U3T/QE-E101(100\100)-8EB3T/

1A

1C

2A

2A

DPX100HF: valve with High Flow sections only

For working conditions and **HF** sections configuration guide see pages 5, 6, 52, 53.

RDR03-.....-12VDC

3

4

5

B Electrohydraulics controls in mixed configuration

DPX100/3/AM1(TGW3-175\ELN)/HF-QZ-E101(100\100)-8EZ3LQF3/HP-PZ-E101(80\80)-EZ3LQF3/

1A

1C

2A

2C

DPX100: mixed configuration valve with at least Standard Pressure working section

For working conditions and guide to mixed configuration, **Standard**, High Pressure (**HP**), High Flow (**HF**) see pages 5, 6, 52, 53.

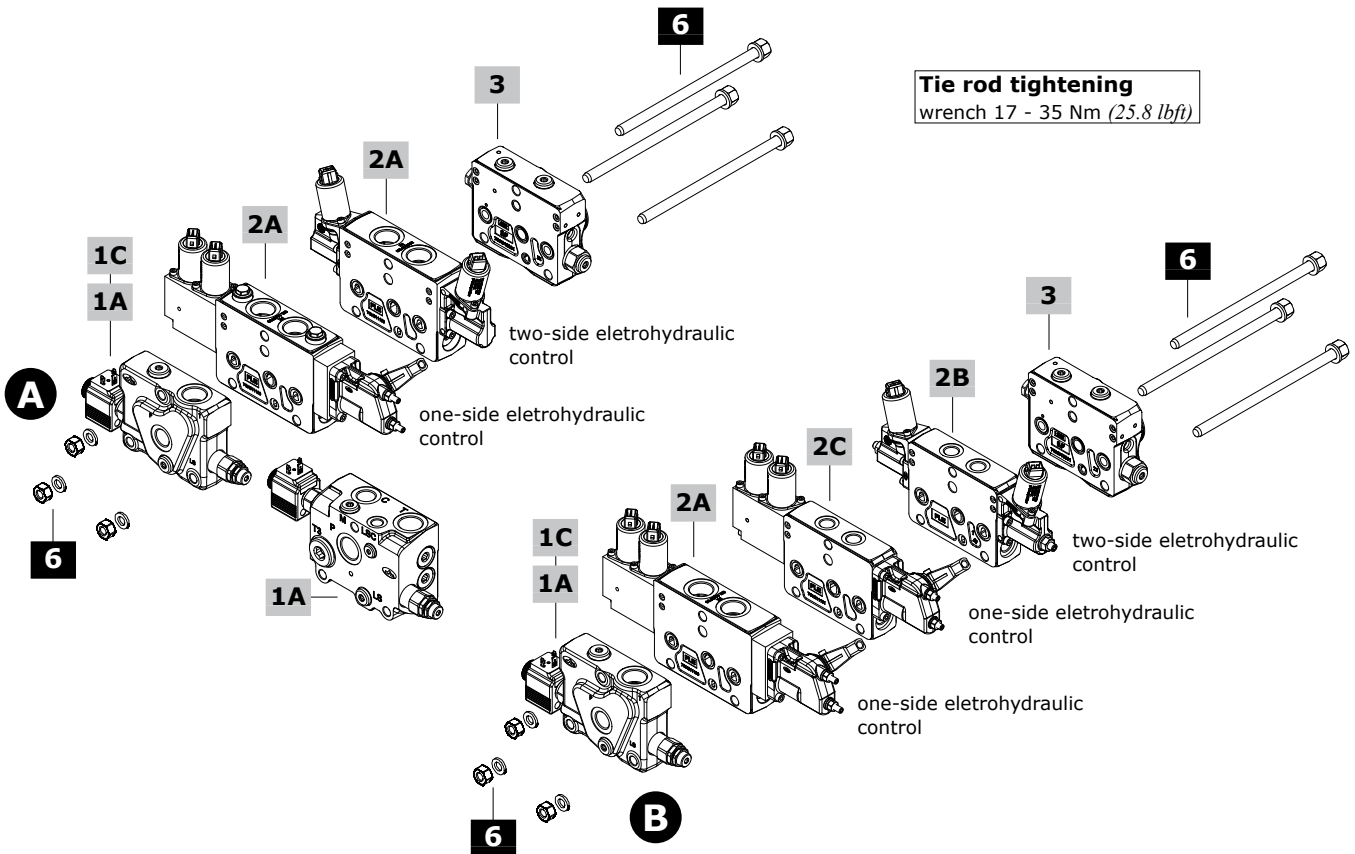
QE-E102(80\80)-8EB3TF3/RDR03-.....-12VDC

2B

3

4

5



Complete section ordering codes

1A Inlet section for High Flow configuration*

Open Center circuit

TYPE: **DPX100/AM1(TGW3-175\ELN)-SAE12-12VDC**

CODE: 640205030

DESCRIPTION: For Standard Pressure. With compensator, pressure relief valve and unloader valve, with P-T-LS ports (LS plugged). P-T with SAE12 thread

TYPE: **DPX100HP/AM1(TGW5-350\ELN)-SAE12-12VDC**

CODE: 640205031S

DESCRIPTION: As previous one, for High Pressure.

Closed Center circuit

TYPE: **DPX100/AN1(TGW3-175\ELN)-SAE12-12VDC**

CODE: 640205032S

DESCRIPTION: For Standard Pressure. Without compensator, with press. relief valve and unloader valve, with P-T-LS ports. P-T with SAE12 thread

1C High Pressure inlet section *

Open Center circuit

TYPE: **DPX100HP/AM1(TGW5-350\ELN)-SAE12-12VDC**

CODE: 640205031S

DESCRIPTION: As previous one with SAE12 P and T ports

Closed Center circuit

Refer to "Std pressure" inlet sections

2A High Flow working section *

Mechanical control

TYPE: **DPX100HF/Q-SAE12-FPM**

CODE: 5EL1045F10V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100HF/P-SAE12-FPM**

CODE: 5EL1045F00V

DESCRIPTION: With port valve arrangement

Proportional hydraulic control

TYPE: **DPX100HF/Q-SAE12-IM-FPM**

CODE: 5EL1045F10AV

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100HF/P-SAE12-IM-FPM**

CODE: 5EL1045F00AV

DESCRIPTION: With port valve arrangement

Two-side proportional electrohydraulic control

TYPE: **DPX100HF/QE-SAE12-FPM**

CODE: 5EL1045F11V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100HF/PE-SAE12-FPM**

CODE: 5EL1045F02V

DESCRIPTION: With port valve arrangement

One-side proportional electrohydraulic control

TYPE: **DPX100HF/QZ-SAE-FPM**

CODE: 5EL1047F21V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100HF/PZ-SAE-FPM**

CODE: 5EL1047F00V

DESCRIPTION: With port valve arrangement

2B Standard Pressure working section *

Pressure Standard working sections can be assembled in all catalogue configurations: see page 57.

2C High Pressure working section *

High Pressure working sections can be assembled in all catalogue configurations: see page 57.

3 Outlet section *

The sections are the same for Standard and High Pressure configuration

For mechanical, hydraulic or solenoid configuration

TYPE: **DPX100/RF-SAE** CODE: 640305003S

DESCRIPTION: With bleed valve and upper T2 port (plugged)

TYPE: **DPX100/RF(04)-SAE** CODE: 640305011S

DESCRIPTION: Bleed valve, upper T2, side P1-T1-LS1-M1 ports (plugged)

For electrohydraulic or mixed configuration

TYPE: **DPX100/RDN-NOTAP(VL)-SAE** CODE: 640305002S

DESCRIPTION: Without pressure reducing valve, external pilot and drain (V-L ports), with bleed valve and T1 side port (plugged)

TYPE: **DPX100/RDR-SAE** CODE: 640305006S

DESCRIPTION: With pressure reducing valve and Bleed valve, internal pilot and drain (V-L plugged ports), T1 side port (plugged)

Type: **DPX100/RDR(03)-SAE** CODE: 640305007S

DESCRIPTION: With pressure reducing valve and bleed valve, internal pilot and drain (V-L plugged ports), side T1-P1-LS1 ports (plugged)

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

4 Valve threading

Only specify if it is different from BSP standard (see page 7).

5 Voltage

Specify the voltage of electric devices.

6 Assembling kit for HF configurations

Assembling kits for valve with M and N inlet sections

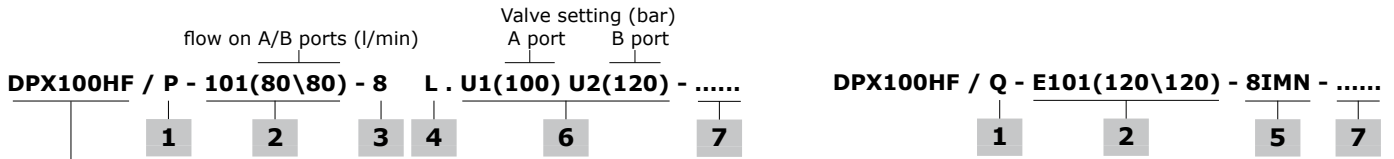
CODE	DESCRIPTION
5TIR110152	Valve with 1 HF section
5TIR110195	Valve with 2 HF sections
5TIR110238	Valve with 3 HF sections
5TIR110280	Valve with 4 HF sections

5TIR110180	Valve with 1 HF section + 2 Standard or HP sections
5TIR110225	Valve with 1 HF section + 2 Standard or HP sections
5TIR110331	Valve with 1 HF section + 5 Standard or HP sections
5TIR110337	Valve with 2 HF sections + 4 Standard or HP sections
5TIR110366	Valve with 1 HF section + 6 Standard or HP sections
5TIR110403	Valve with 1 HF section + 7 Standard or HP sections
5TIR110440	Valve with 1 HF section + 8 Standard or HP sections
5TIR110475	Valve with 1 HF section + 9 Standard or HP sections

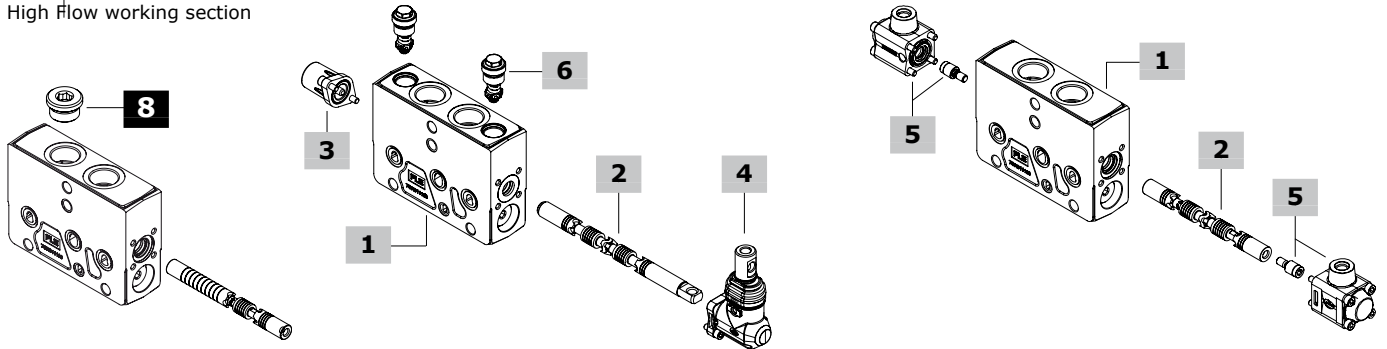
NOTE: For not listed assembling kits (eg valve with PFS inlet section) contact Sales Department

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

HF working section part ordering codes (mechanical and hydraulic)



High Flow working section



1 High Flow working section* page 104

For mechanical control

TYPE: **DPX100HF/Q-SAE-FPM** CODE: 5EL1045F10V
 DESCRIPTION: Without port valve arrangement
 TYPE: **DPX100HF/P-SAE-FPM** CODE: 5EL1045F00V
 DESCRIPTION: With port valve arrangement

For hydraulic control

TYPE: **DPX100HF/Q-SAE-IM-FPM** CODE: 5EL1045F10AV
 DESCRIPTION: Without port valve arrangement
 TYPE: **DPX100HF/P-SAE-IM-FPM** CODE: 5EL1045F00AV
 DESCRIPTION: With port valve arrangement

2 Spool for HF section page 105

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

TYPE	CODE	DESCRIPTION
For mechanical control		
<u>Double acting with A and B closed in neutral position</u>		
101(120)	3CU7110F01	120 l/min (32 US gpm) flow
103(100)	3CU7110F03	100 l/min (26 US gpm) flow
104(80)	3CU7110F04	80 l/min (21 US gpm) flow
102(60)	3CU7110F02	60 l/min (16 US gpm) flow
<u>Double acting with A and B to tank in neutral position</u>		
201(120)	3CU7125F01	120 l/min (32 US gpm) flow
<u>Double acting with A and B partially to tank in neutral position</u>		
2H11(100)	3CU7124F11	100 l/min (26 US gpm) flow
2H06(60)	3CU7124F06	60 l/min (16 US gpm) flow

TYPE	CODE	DESCRIPTION
For hydraulic control		
<u>Double acting with A and B closed in neutral position</u>		
E101(120)	3CU7710F01	120 l/min (32 US gpm) flow
E106(100)	3CU7710F06	100 l/min (26 US gpm) flow
E103(80)	3CU7710F03	80 l/min (21 US gpm) flow
E105(60)	3CU7710F05	60 l/min (16 US gpm) flow
E104(40)	3CU7710F04	40 l/min (10.5 US gpm) flow
<u>Double acting with A and B to tank in neutral position</u>		
E201(80)	3CU7725F01	Portata fino a 80 l/min
<u>Double acting with A and B partially to tank in neutral position</u>		
E2H01(120)	3CU7724F01	120 l/min (32 US gpm) flow
E2H04(110)	3CU7724F04	110 l/min (29 US gpm) flow
E2H03(100)	3CU7724F03	100 l/min (26 US gpm) flow
E2H02 (60)	3CU7724F02	60 l/min (16 US gpm) flow
<u>Double acting with A and B to tank in neutral position</u>		
E201(80)	3CU7725F01	80 l/min (21 US gpm) flow

Single acting on A or B, other port plugged: G3/4 plug is required
E301-E401(120) 3CU7731F01 120 l/min (32 US gpm) flow

8 Plug for single acting spool *

CODE	DESCRIPTION
3XTAP732200	G3/4 plug

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

3 "A" side spool positioners page 75

Controls for HF sections are the same as for Standard Pressure sections

TYPE	CODE	DESCRIPTION
7FT	5V07407000	With friction and neutral pos. notch
7FTN	5V07407010	As 7FT, friction regulation with spring
8	5V08107000	3 pos., spring return to neutral pos.
8F2	5V08107100	Spool stroke limiter on B port
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 positions 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-12DC	5V08707212	Solenoid detent in neutral position
8K-24DC	5V08707224	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

4 "B" side spool control kit page 80

Controls for HF sections are the same as for Standard Pressure sections

TYPE	CODE	DESCRIPTION
L	5LEV107000	Standard lever box
LSG	5LEV107000S	As previous, one water-proof type
LF1	5LEV107100	As L type, spool stroke limiter on A port
LSGF1	5LEV107100S	As previous one, water-proof type
SLC	5COP207000	Without lever with endcap
SLP	5COP107010	Without lever with dust-proof plate

5 Proportional hydraulic control* page 82

Controls for HF sections are the same as for Standard Pressure sections

TYPE	CODE	DESCRIPTION
8IMN-SAE	5IDR204702V	Range 8-27 bar (116-392 psi)
8IMF3N-SAE	5IDR204710V	As previous with spool stroke limiter
8IMXN-SAE	5IDR204701V	Range 7.5-24 bar (109-348 psi)
8IMXF3N-SAE	5IDR204713V	As previous with spool stroke limiter

6 Port valves page 94

For complete valves list see page 65

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

7 Section threading

Only specify if it is different from BSP standard (see page 7).

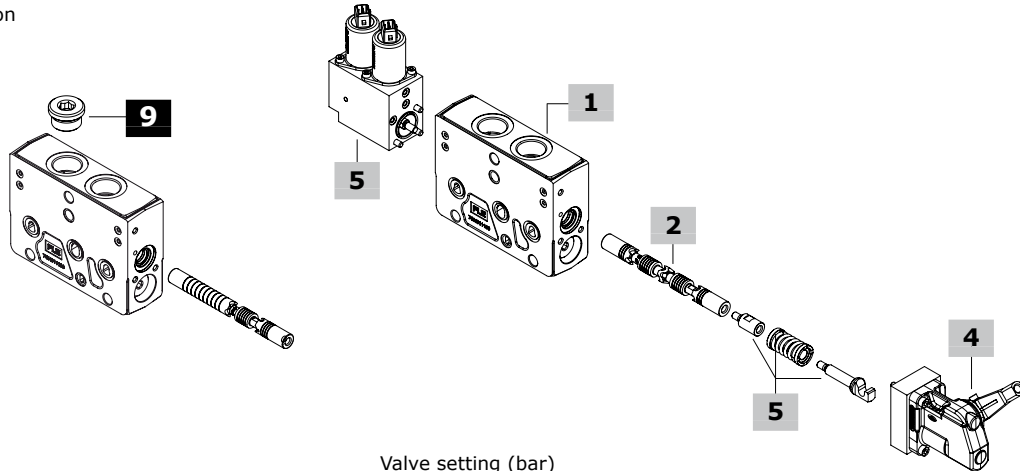
HF working section part ordering codes (electrohydraulic)

flow on A/B ports (l/min)

DPX100HF / QZ - E101(120\120) - 8EZ3 LQF3 - - 12VDC

1 2 3 4 8 3

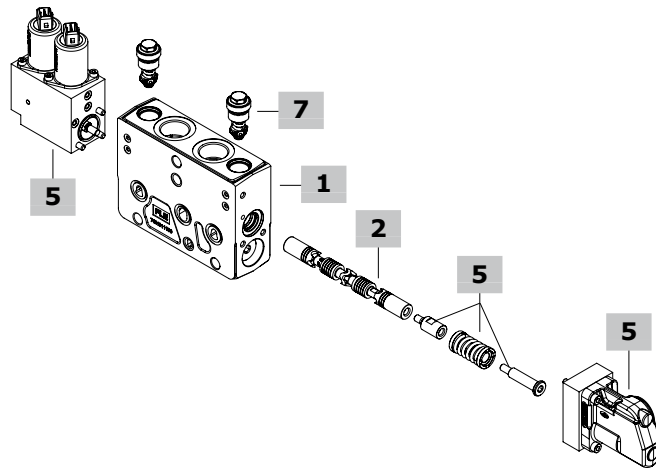
High Flow working section



Valve setting (bar)
A port B port

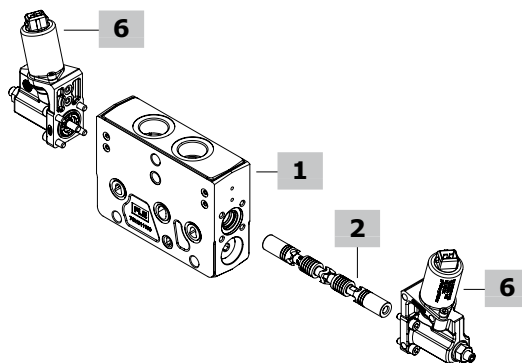
DPX100HF / PZ - E101(120\120) - 8EZ3SLCQ . U1(100) U2(120) - - 12VDC

1 2 5 7 8 5



DPX100HF / QE - E101(120\120) - 8EB3TF3 - - 12VDC

1 2 6 8 6



HF working section part ordering codes (electrohydraulic)

1 High Flow working section* page 104**For two-side electrohydraulic control**TYPE: **DPX100HF/QE-SAE-FPM** CODE: 5EL1045F11V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100HF/PE-SAE-FPM** CODE: 5EL1045F02V

DESCRIPTION: With port valve arrangement

For one-side electrohydraulic controlTYPE: **DPX100HF/QZ-SAE-FPM** CODE: 5EL1047F21V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100HF/PZ-SAE-FPM** CODE: 5EL1047F00V

DESCRIPTION: With port valve arrangement

2 Spool page 105

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**E101(120)** 3CU7710F01 120 l/min (32 US gpm) flow**E106(100)** 3CU7710F06 100 l/min (26 US gpm) flow**E103(80)** 3CU7710F03 80 l/min (21 US gpm) flow**E105(60)** 3CU7710F05 60 l/min (16 US gpm) flow**E104(40)** 3CU7710F04 40 l/min (10.5 US gpm) flowDouble acting with A and B to tank in neutral position**E201(80)** 3CU7725F01 80 l/min (21 US gpm) flowDouble acting with A and B partially to tank in neutral position**E2H01(120)** 3CU7724F01 120 l/min (32 US gpm) flow**E2H04(110)** 3CU7724F04 110 l/min (29 US gpm) flow**E2H03(100)** 3CU7724F03 100 l/min (26 US gpm) flow**E2H02 (60)** 3CU7724F02 60 l/min (16 US gpm) flowSingle acting on A or B, other port plugged: G3/4 plug is required**E301-E401(120)** 3CU7731F01 120 l/min (32 US gpm) flow**3 One-side electrohydr.control; "A" side page 107****These controls must be coupled with "B" side options**

TYPE CODE DESCRIPTION

8EZ3-12VDC 5IDR604314V With AMP connector**8EZ3-24VDC** 5IDR604313V As previous one**8EZ34-12VDC** 5IDR604315V With Deutsch connector**8EZ34-24VDC** 5IDR604316V As previous oneWith spool position sensor**8EZ3SPSD-12VDC** 5IDR604317V AMP conn. and digital sensor**8EZ3SPSD-24VDC** 5IDR604318V As previous one**8EZ34SPSD-12VDC** 5IDR604319V Deutsch conn. and digital sensor**8EZ34SPSD-24VDC** 5IDR604320V As previous one**8EZ34SPSL-0.5(A)-4.5(B)-12VDC**

5IDR604321V AMP conn. and analog sensor

4 One-side electrohydr.control; "B" side page 108**These options musto coupled with "A" side controls**

TYPE CODICE DESCRIPTION

LQ 5LEV100705V Lever box**LQF3** 5LEV100706V Lever box with spool stroke limiter**LQSL** 5COP204101V Lever box without lever**5 One-side complete electrohydr.control page 109****Controls already comprehensive of endcap on B side**

TYPE CODE DESCRIPTION

8EZ3SLCQ-12VDC 5IDR604314SV With AMP connector**8EZ3SLCQ-24VDC** 5IDR604313SV As previous one**8EZ34SLCQ-12VDC** 5IDR604315SV With Deutsch connector**8EZ34SLCQ-24VDC** 5IDR604316SV As previous oneWith spool position sensorTYPE: **8EZ3SPSDSLCQ-12VDC** CODE: 5IDR604317SV

DESCRIPTION: AMP connector and digital sensor

TYPE: **8EZ3SPSDSLCQ-24VDC** CODE: 5IDR604318SV

DESCRIPTION: As previous one

TYPE: **8EZ34SPSDSLCQ-12VDC** CODE: 5IDR604319SV

DESCRIPTION: Deutsch connector and digital sensor

TYPE: **8EZ34SPSDSLCQ-24VDC** CODE: 5IDR604320SV

DESCRIPTION: As previous one

TIPO: **8EZ34SPSL-0.5(A)-4.5(B)SLCQ-12VDC** CODE: 5IDR604321SV

DESCRIPTION: AMP connector and analog sensor

6 Two-side electrohydr. control page 88

Controls for HF sections are the same as for Standard Pressure sections

TYPE CODE DESCRIPTION

Without lever control**8EB3T-12VDC** 5IDR904214V With AMP connector**8EB3T-24VDC** 5IDR904222V With AMP connector**8EB34T-12VDC** 5IDR904236V With Deutsch connector**8EB34T-24VDC** 5IDR904237V With Deutsch connector**8EB3TF3-12VDC** 5IDR904217V With AMP, spool stroke limiter**8EB3TF3-24VDC** 5IDR904224V As previous one**8EB34TF3-12VDC** 5IDR904235V Deutsch conn.and stroke limiter**8EB34TF3-24VDC** 5IDR904238V As previous oneWithout lever control, with spool position sensor**8EB3TSPSD-12VDC** 5IDR904233V AMP conn. and digital sensor**8EB3TSPSD-12VDC** 5IDR904226V As previous oneWith lever control**8EB3TLH-12VDC** 5IDR904215V With AMP connector**8EB3TLH-24VDC** 5IDR904228V With AMP connector**8EB34TLH-12VDC** 5IDR904219V With Deutsch connector**8EB34TLH-24VDC** 5IDR904239V With Deutsch connector**8EB3TLHF3-12VDC** 5IDR904229V AMP conn. and stroke limiter**8EB3TLHF3-24VDC** 5IDR904218V As previous one**8EB34TLHF3-12VDC** 5IDR904240V Deutsch conn. and stroke limiter**8EB34TLHF3-24VDC** 5IDR904241V As previous oneWith lever control and spool position sensor**8EB3TLHSPSD-12VDC** 5IDR904234V AMP connector and digital sensor**8EB3TLHSPSD-24VDC** 5IDR904232V As previous one**8EB3TLHF3SPSL-0.5(A)-4.5(B)-12VDC**

5IDR904259V AMP connector and analog sensor

with spool stroke limiter

8EB3TLHF3SPSL-0.5(A)-4.5(B)-24VDC

5IDR904247V As previous one

7 Port valves page 94

For complete valves list see page 65

TYPE CODE DESCRIPTION

U025 5KIT330025 Setting: 25 bar (360 psi)**8 Section threading**

Only specify if it is different from BSP standard (see page 7)

9 Plug for single acting spool *

CODE DESCRIPTION

3XTAP832200 SAE12 plug

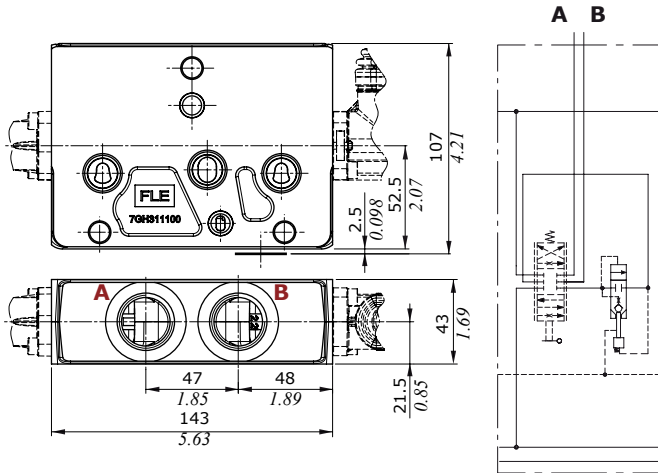
NOTE (*): Codes are referred to **UN-UNF** thread.

High Flow working section

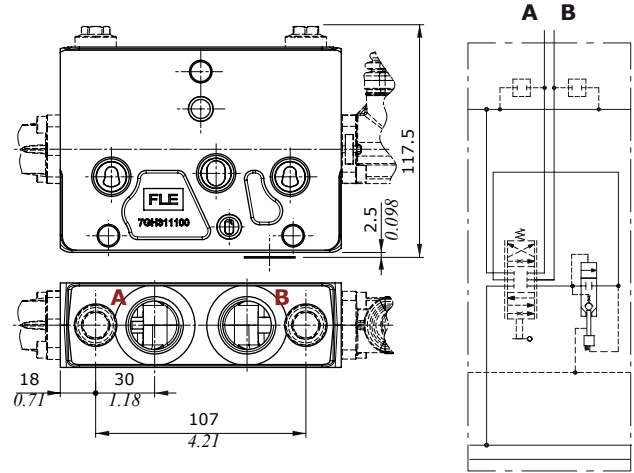
Dimensions and hydraulic circuit

For mechanical and hydraulic controls

Q type section (SAE12 ports)

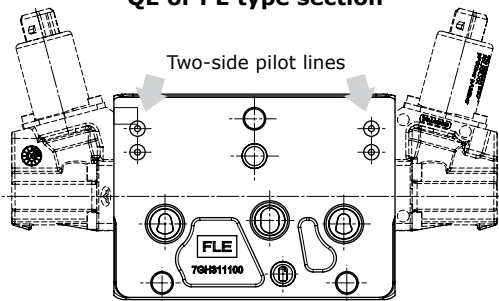


P type section (SAE12 ports)

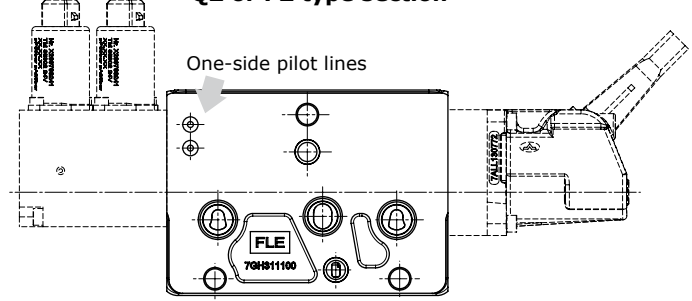


For electrohydraulic controls

QE or PE type section

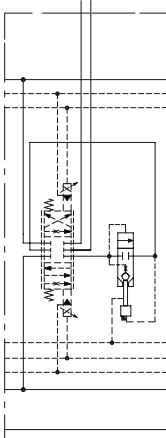


QZ or PZ type section



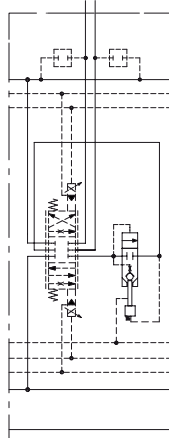
Tipo QE

A B



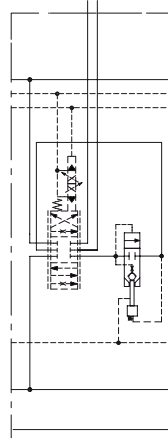
Tipo PE

A B



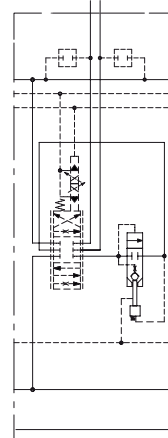
Tipo QZ

A B



Tipo PZ

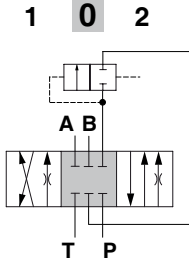
A B



Spool

Type 1 (1../E1..)

A, B closed in neutral position

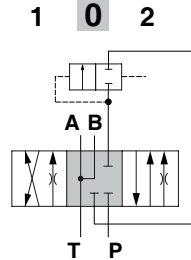


Spool stroke

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

Type 2 (2../E2..)

A, B to tank in neutral position

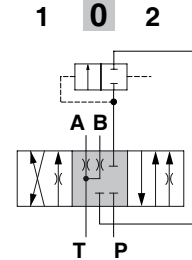


Spool stroke

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

Type 2H(2H../E2H..) spool

A, B partially to tank in neutral pos.

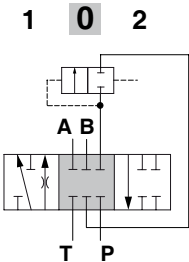


Spool stroke

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

Type 3 (3../E3..)

single acting on A

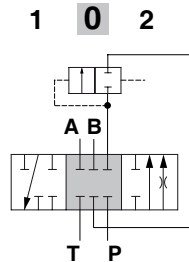


Spool stroke

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

Type 4 (4../E4..)

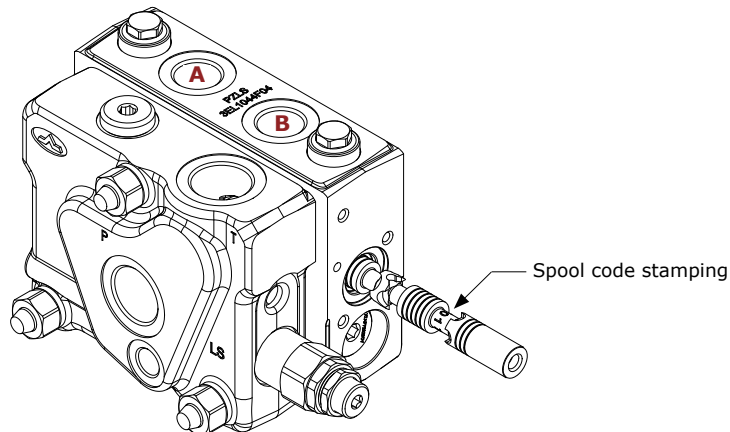
single acting on B



Spool stroke

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

In case of replacement of the spool, the code stamping must be oriented toward B port.

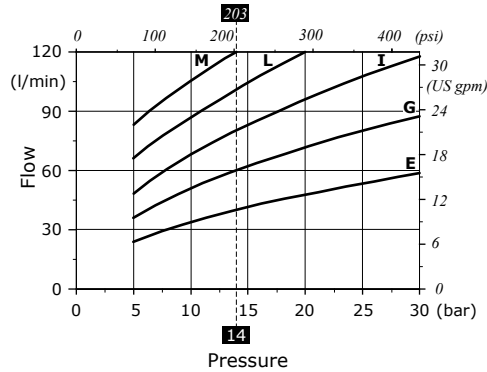


Working section

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.

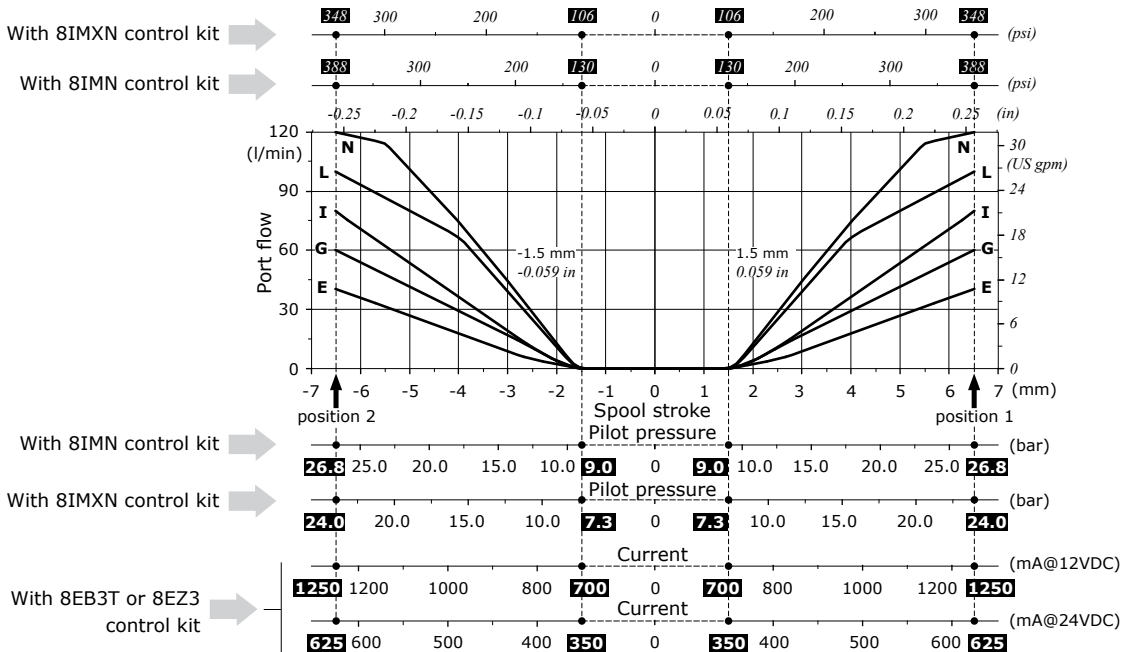
Spool flow vs. Stand-by pressure (margin pressure)



Curves with spool nominal flow @ 14 bar (200 psi) stand-by (margin pressure)
E = 40 l/min (10.6 US gpm)
G = 60 l/min (16 US gpm)
I = 80 l/min (21 US gpm)
L = 100 l/min (26 US gpm)
N = 120 l/min (32 US gpm)

3 positions spool metering curve

Q_{in} = 120 l/min (32 US gpm) - Open center circuit

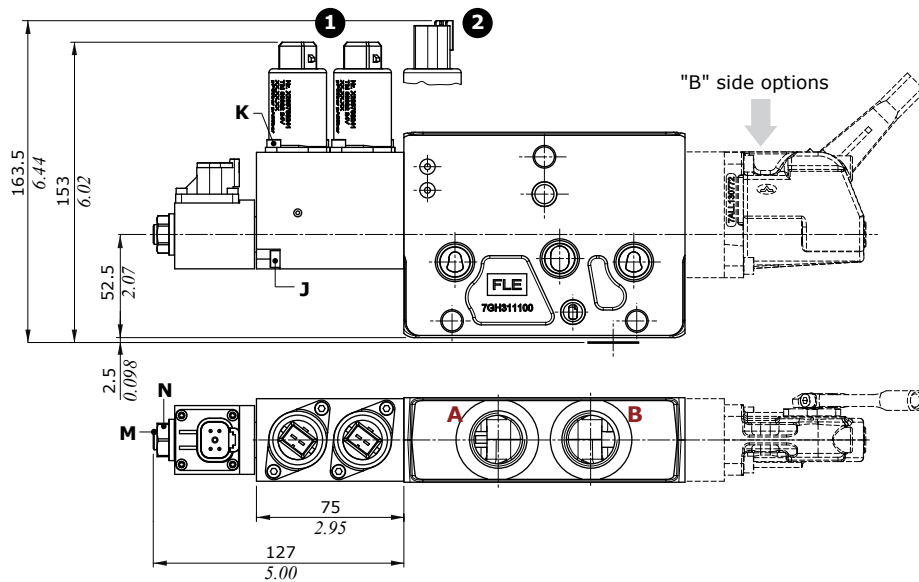
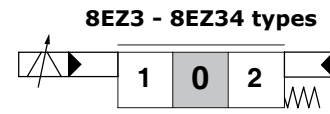
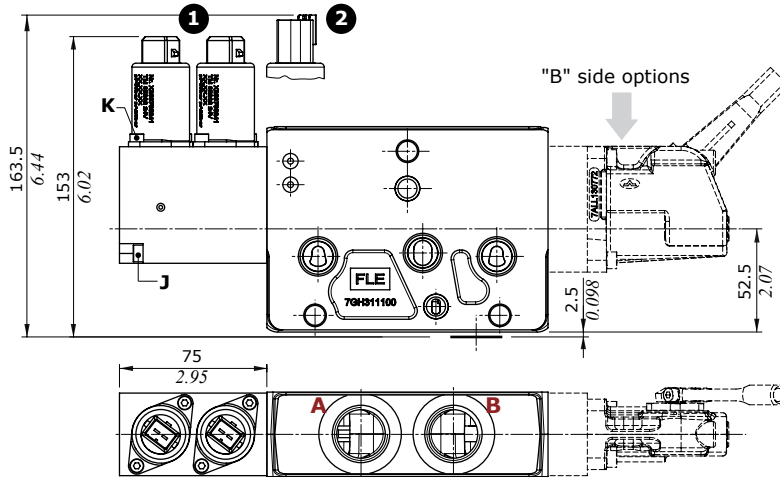


One-side electrohydraulic control: "A" side

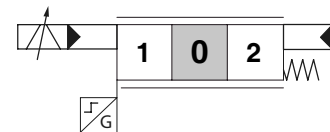
The technical features are the same as the one-side electrohydraulic control for the standard section: see page 85

Control Types

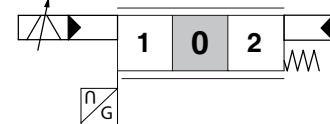
- ① : With AMP JPT connector - AMP JPT mating connector, code: 5CON003
- ② : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



8EZ3SPSD - 8EZ34SPSD types
Digital output



8EZ34SPSL type
Analog output



Wrenches and tightening torques

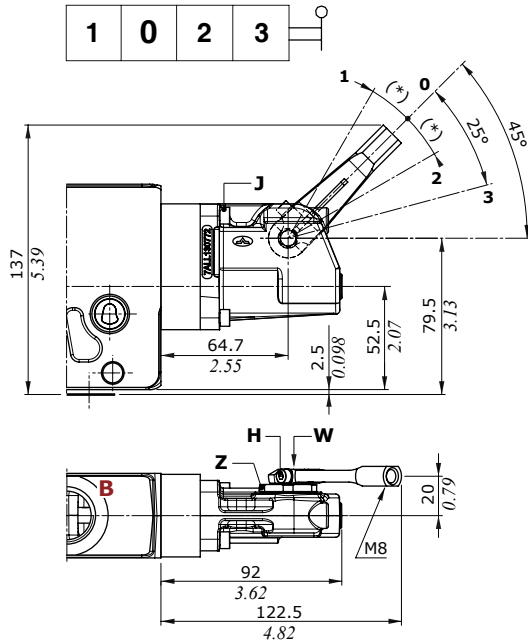
- J = allen wrench 4 - 6.6 Nm (4.9 lbf)
- K = allen wrench 3 - 5 Nm (3.7 lbf)
- M = allen wrench 4 - 9.8 Nm (7.2 lbf)
- N = wrench 17 - 9.8 Nm (7.2 lbf)

HF working section

One-side electrohydraulic control: "B" side option

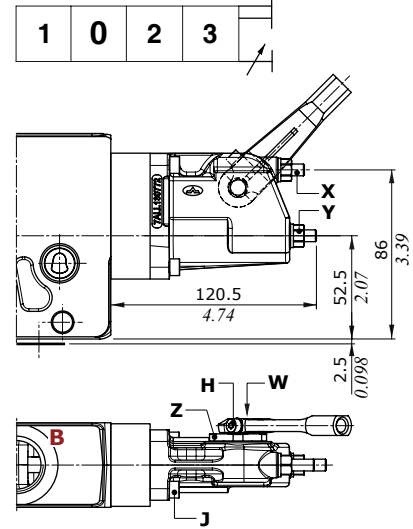
These options are available for one-side electrohydraulic controls only.

LQ type



LQF3 type

Spool stroke limiter on A and B ports



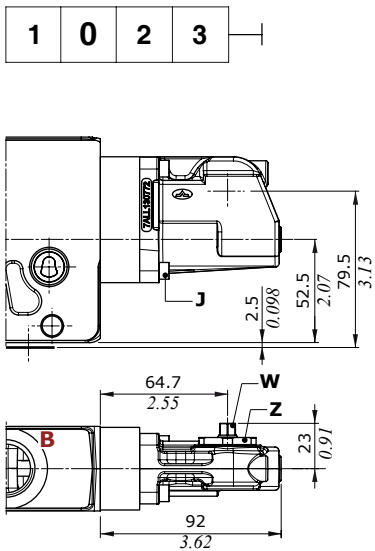
Angle (*)

15° with 8EZ3.. type controls

14° with 13EZ3.. type controls

LQSL type

Without lever



Wrenches and tightening torques

H = allen wrench 3 - 6.6 Nm (4.9 lbf)

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

X = allen wrench 3

Y = wrench 10 - 9.8 Nm (7.2 lbf)

Z = wrench 29 - 24 Nm (17.7 lbf)

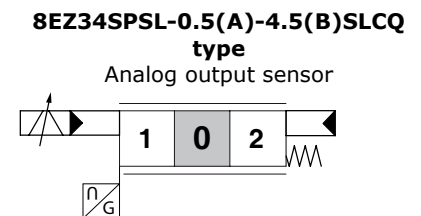
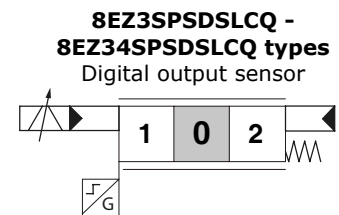
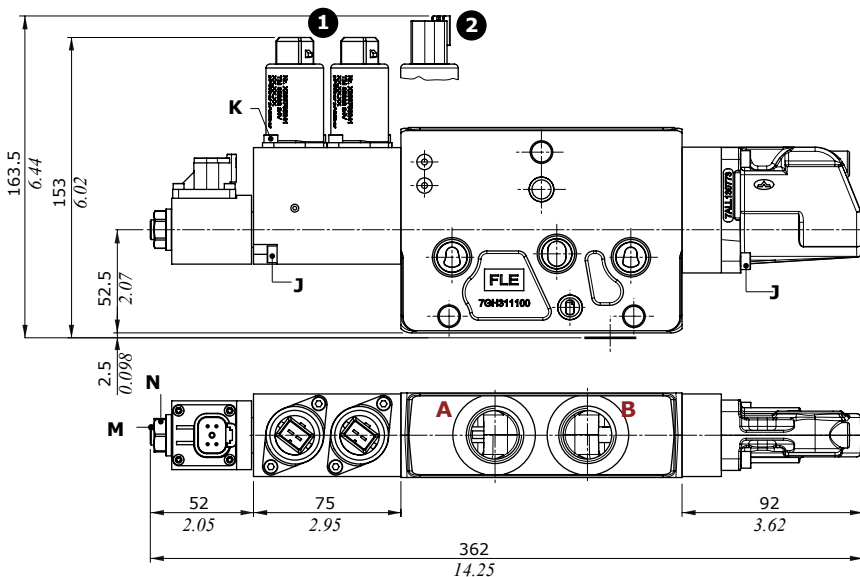
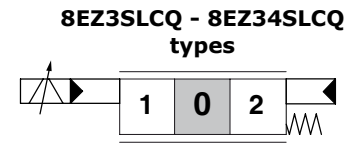
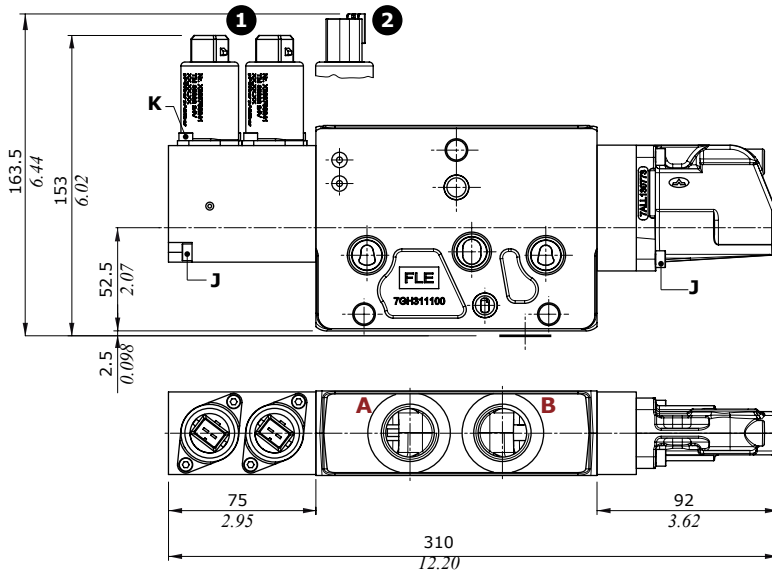
W = wrench 8

Complete one-side electrohydraulic control

Controls already comprehensive of endcap on B side.

Control Types

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



Wrenches and tightening torques

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

Low Leak configuration complete section ordering codes

A Hydraulics controls configuration:

└─ Nr. of working sections

DPX100/4/AM1(TGW3-175\ELN)/ HF-P-ED-E101(120\120)-8IMN.U3T/PLL-ED-E101LL(80\80)-8IMN.U3T/

1

2D

2A

DPX100: valve with Standard pressure configuration

For working conditions and guide to mixed configuration, **Low Leak** sections with **HF, Standard** or **HP** sections see pages 5, 6, 51 to 55.

PLL-ED-E101LL(80\80)-8IMN.U1(100)U2(100)/Q-ED-E101(80\80)-8IMN/RF-.....-12VDC

2A

2B

2C

3

4

5

B Electrohydraulics controls configuration:

DPX100/3/AM1(TGW3-175\ELN)/PZLL-ED-E101LL(80\80)-8EZ3LQ.U3T/PZ-ED-E101(80\80)-8EZ3LQ.U1(100)U2(100)/

1

2A

2B

2C

DPX100: valve with Standard pressure configuration

For working conditions and guide to mixed configuration, **Low Leak** sections with **HF, Standard** or **HP** sections see pages 5, 6, 51 to 55.

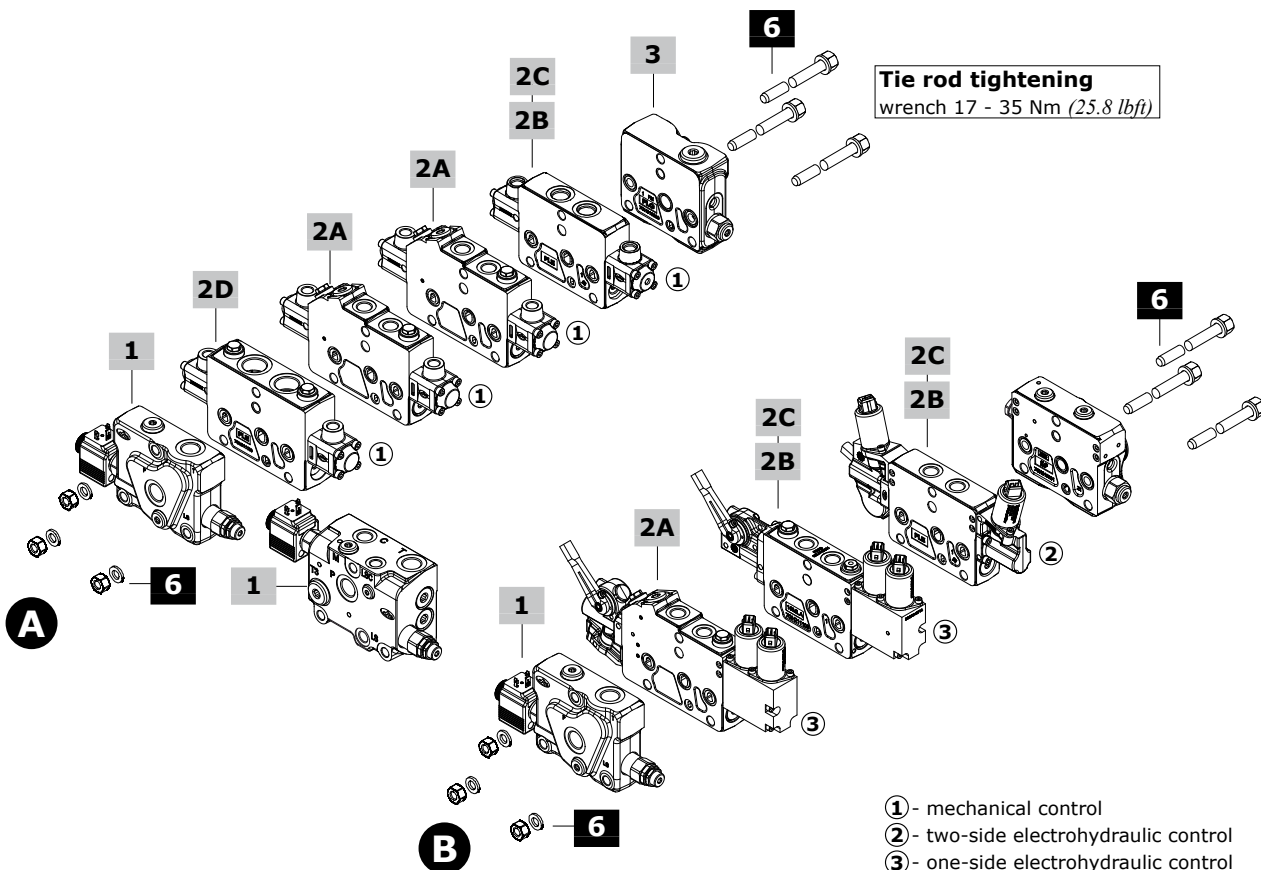
QE-ED-E101(80\80)-8EB3TLH/RDR(03)-.....-12VDC

2B

3

4

5



Low Leak configuration complete section ordering codes

1 Std pressure inlet section *

The sections listed are by way of example; the complete list of available inlet sections is on page 54.

Open Center circuit

TYPE: **DPX100/AM1(TGW3-175\ELN)-SAE-12VDC**

CODE: 640205016S

DESCRIPTION: With compensator, press. relief valve and unloader valve, with P-T-LS ports (LS plugged)

Closed Center circuit

TYPE: **DPX100/AN1(TGW3-175\ELN)-SAE-12VDC**

CODE: 640205021S

DESCRIPTION: Without compensator, with pressure relief valve and unloader valve, with P-T-LS ports

2A Low Leak Std pressure working section *

Codes are referred to Right Inlet working sections

Proportional hydraulic control

TYPE: **DPX100/QLL-ED-E101(80\80)-8IMN-SAE**

CODE: 640100015S

DESCRIPTION: Without port valves arrangement

TYPE: **DPX100/PLL-ED-E101(80\80)-8IMN.U3(100)-SAE**

CODE: 640100016S

DESCRIPTION: With antishock valves

One-side proportional electrohydraulic control

TYPE: **DPX100/QZLL-ED-E101(80\80)-8EZ3LQF3-SAE-12VDC**

CODE: 640100017S

DESCRIPTION: With spool stroke limiter, without port valves arrangement

TYPE: **DPX100/PZLL-ED-E101(80\80)-8EZ3LQF3.U3T-SAE-12VDC**

CODE: 640100018S

DESCRIPTION: As previous one with port valves arrangement

TYPE: **DPX100/PZLL-ED-E101(80\80)-8EZ3LQF3.U3(100)-SAE-12VDC**

CODE: 640100019S

DESCRIPTION: As previous one, with antishock valves

2B Std pressure working section *

Codes are referred to Right Inlet working sections

Proportional hydraulic control

TYPE: **DPX100/Q-ED-E101(80\80)-8IMN-SAE**

CODE: 640100020S

DESCRIPTION: Without port valves arrangement

TYPE: **DPX100/P-ED-E101(80\80)-8IMN.U3(100)-SAE**

CODE: 640100021S

DESCRIPTION: With antishock valves

Two-side proportional electrohydraulic control

TYPE: **DPX100/QE-ED-E101(80\80)-8EB3TF3-SAE-12VDC**

CODE: 640100022S

DESCRIPTION: With spool stroke limiter, without port valve arrangement

TYPE: **DPX100/PE-ED-E101(80\80)-8EB3TF3.U3T-SAE-12VDC**

CODE: 640100023S

DESCRIPTION: As previous one with port valves arrangement

TYPE: **DPX100/PE-ED-E101(80\80)-8EB3TLH.U3T-SAE-12VDC**

CODE: 640100024S

DESCRIPTION: With lever control and port valves arrangement

One-side proportional electrohydraulic control

TYPE: **DPX100/QZ-ED-E101(80\80)-8EZ3LQ-SAE-12VDC**

CODE: 640100112S

DESCRIPTION: With lever control, without port valves arrangement

TYPE: **DPX100/PZ-ED-E101(80\80)-8EZ3LQ.U3T-SAE-12VDC**

CODE: 640100113S

DESCRIPTION: With lever control and port valves arrangement

2C High pressure working section *

Codes are referred to Right Inlet working sections

Proportional hydraulic control

TYPE: **DPX100HP/Q-ED-E101(80\80)-8IMN-SAE**

CODE: 640105124S

DESCRIPTION: Without port valves arrangement

TYPE: **DPX100HP/P-ED-E101(80\80)-8IMN.U3(100)-SAE**

CODE: 640105125S

DESCRIPTION: With antishock valves

Two-side proportional electrohydraulic control

TYPE: **DPX100HP/QE-ED-E101(80\80)-8EB3TF3-SAE-12VDC**

CODE: 640105126S

DESCRIPTION: With spool stroke limiter, without port valve arrangement

TYPE: **DPX100HP/PE-ED-E101(80\80)-8EB3TF3.U3T-SAE-12VDC**

CODE: 640105127S

DESCRIPTION: As previous one with port valves arrangement

TYPE: **DPX100HP/PE-ED-E101(80\80)-8EB3TLH.U3T-SAE-12VDC**

CODE: 640105128S

DESCRIPTION: With lever control and port valves arrangement

One-side proportional electrohydraulic control

TYPE: **DPX100/QZ-ED-E101(80\80)-8EZ3LQ-SAE-12VDC**

CODE: 640100114S

DESCRIPTION: With lever control, without port valves arrangement

TYPE: **DPX100/PZ-ED-E101(80\80)-8EZ3LQ.U3T-SAE-12VDC**

CODE: 640100115S

DESCRIPTION: With lever control and port valves arrangement

2D High Flow working section *

Codes are referred to Right Inlet working sections

Proportional hydraulic control

TYPE: **DPX100HF/Q-ED-E101(120\120)-8IMN-SAE**

CODE: 640100025S

DESCRIPTION: Without port valves arrangement

TYPE: **DPX100HF/P-ED-E101(120\120)-8IMN.U3(100)-SAE**

CODE: 640100026S

DESCRIPTION: With antishock valves

Two-side proportional electrohydraulic control

TYPE: **DPX100HF/QE-ED-E101(120\120)-8EB3TF3-SAE-12VDC**

CODE: 640100027S

DESCRIPTION: With spool stroke limiter, without port valves arrangement

TYPE: **DPX100HF/PE-ED-E101(120\120)-8EB3TLH.U3T-SAE-12VDC**

CODE: 640100028S

DESCRIPTION: With lever control and port valves arrangement

3 Outlet section *

The sections listed are by way of example; the complete list of available outlet sections is on page 57.

Outlet section are the same for Standard and HP pressure configuration

For hydraulic configuration

TYPE: **DPX100/RF-SAE** CODE: 640305003S

DESCRIPTION: With bleed valve and upper T2 port (plugged)

For electrohydraulic configuration

TYPE: **DPX100/RDN-NOTAP(VL)-SAE** CODE: 640305002S

DESCRIPTION: Without pressure reducing valve, external V pilot and L drain ports, with Bleed valve and side T1 port (plugged)

4 Section threading

Only specify if it is different from BSP standard (see page 7).

5 Voltage

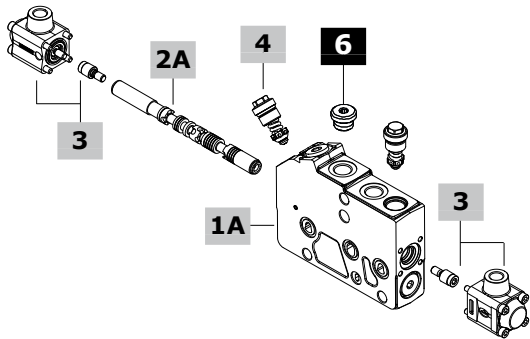
Specify the voltage of electric devices.

6 Assembling kit

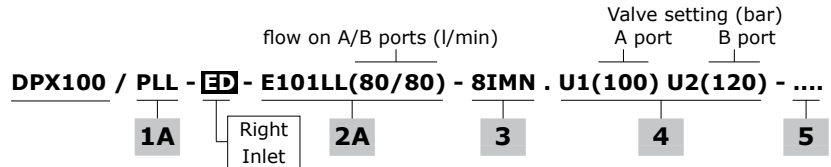
For tie rods list see page 57.

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

Low Leak working section part ordering codes (hydraulic)



Low Leak working section:
Standard pressure configuration only



Standard Pressure working section, Right Inlet configuration:
Section kit and other components (e.g. spool, control kit) are the same of Left Inlet Standard configuration; for codes see pages 66-68.
The acronym "ED" must be added in section description as indicated below.

DPX100/P- ED -E101(80/80)-8IMN.U1(100)U2(120)-



HF working section, Right Inlet configuration:
Section kit and other components (e.g. spool, control kit) are the same of Left Inlet High Flow configuration; for codes see page 101.
The acronym "ED" must be added in section description as indicated below.

DPX100HF/P- ED -E101(80/80)-8IMN.U1(100)U2(120)-....



1A Low Leak working section* page 114

For hydraulic control

TYPE: **DPX100/QLL-IM-SAE-FPM** CODE: 5EL1045010ALV
DESCRIPTION: Without port valves arrangement
TYPE : **DPX100/PLL-SAE-IM-FPM** CODE: 5EL1045000ALV
DESCRIPTION: With port valves arrangement

2A Spool page 116

TYPE	CODE	DESCRIPTION
<u>Double acting with A and B closed in neutral position</u>		
E101LL(80)	3CU7710101L	80 l/min (21 US gpm) flow
E108LL(60)	3CU7710108L	60 l/min (16 US gpm) flow
E123LL(50)	3CU7710123L	50 l/min (13.2 US gpm) flow
E105LL(40)	3CU7710105L	40 l/min (10.5 US gpm) flow
E113LL(30)	3CU7710113L	30 l/min (7.9 US gpm) flow
E106LL(20)	3CU7710106L	20 l/min (5.3 US gpm) flow
E110LL(10)	3CU7710110L	10 l/min (2.6 US gpm) flow
E159LL(5)	3CU7710159L	5 l/min (1.3 US gpm) flow
<u>Single acting on A or B, other port plugged: G3/8 or G1/2 plug is required</u>		
E301-E401LL(80)	3CU7710301L	80 l/min (21 US gpm) flow
E305-E405LL(60)	3CU7731305L	60 l/min (16 US gpm) flow
E304-E404LL(40)	3CU7731304L	40 l/min (10.5 US gpm) flow
E303-E403LL(20)	3CU7731303L	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: type 13IMS control is required</u>		
I504LL(60)	YCU7742504L	60 l/min (16 US gpm) flow
I503LL(20)	YCU7742503L	20 l/min (5.3 US gpm) flow

3 Proportional hydraulic control* page 82

TYPE	CODE	DESCRIPTION
8IMN-SAE	5IDR204702V	Range 8-27 bar (116-392 psi)
8IMF3N-SAE	5IDR204710V	As previous with spool stroke limiter
8IMXN-SAE	5IDR204701V	Range 7.5-24 bar (109-348 psi)
8IMXF3N-SAE	5IDR204713V	As previous with spool stroke limiter
<u>For floating circuit (spool I5)</u>		
13IMS-SAE	5IDR207750V	Range 6.5-15.5 / 8-22.5 bar (94-225 / 116-326 psi)

4 Port valves page 94

For complete valves list see page 65

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

5 Section threading

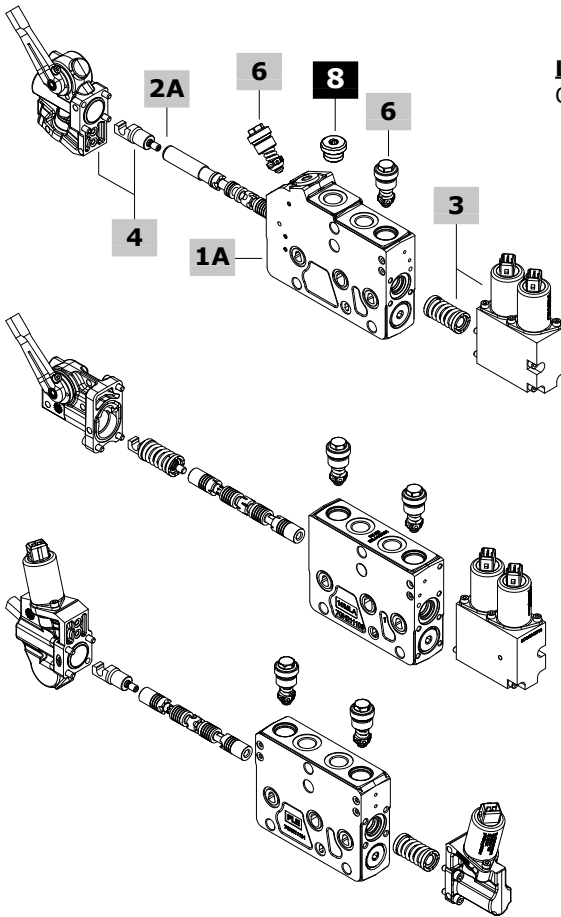
Only specify if it is different from BSP standard (see page 7).

6 Plug for single acting spool *

CODE	DESCRIPTION
3XTAP822150	SAE8 plug

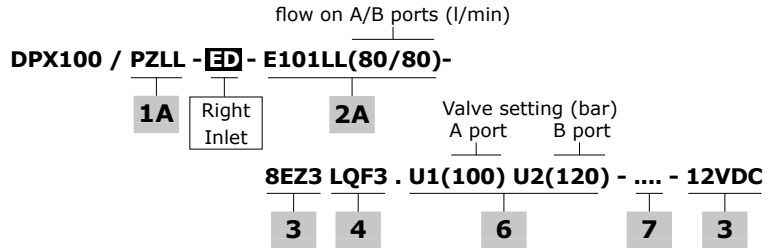
NOTE (*): Codes are referred to **UN-UNF** thread.

Low leak working section part ordering codes (electrohydraulic)



Low Leak working section:

Only for Standard Pressure and with one-side electrohydraulic control



Standard Pressure working section, Right Inlet configuration:

It's fitted with one-side or two-side electrohydraulic control. Section kit and other components (e.g. spool, control kit) are the same of Left Inlet Standard configuration; for codes see pages 70-71. The acronym "ED" must be added in section description as indicated below.

DPX100/PE- ED -E101(80/80)-8EB3TLH.U1(100)U2(120)-....-12VDC



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



1A Low Leak working section* page 114

For one-side electrohydraulic control

TYPE: **DPX100/QZLL-SAE-FPM** CODE: 5EL1045019LV
 DESCRIPTION: Without port valves arrangement
 TYPE: **DPX100/PZLL-SAE-FPM** CODE: 5EL1047031V
 DESCRIPTION: With port valves arrangement

2A Spool page 116

TYPE	CODE	DESCRIPTION
<u>Double acting with A and B closed in neutral position</u>		
E101LL(80)	3CU7710101L	80 l/min (21 US gpm) flow
E108LL(60)	3CU7710108L	60 l/min (16 US gpm) flow
E123LL(50)	3CU7710123L	50 l/min (13.2 US gpm) flow
E105LL(40)	3CU7710105L	40 l/min (10.5 US gpm) flow
E113LL(30)	3CU7710113L	30 l/min (7.9 US gpm) flow
E106LL(20)	3CU7710106L	20 l/min (5.3 US gpm) flow
E110LL(10)	3CU7710110L	10 l/min (2.6 US gpm) flow
E159LL(5)	3CU7710159L	5 l/min (1.3 US gpm) flow
<u>Single acting on A or B, other port plugged: G3/8 or G1/2 plug is required</u>		
E301-E401LL(80)	3CU7710301L	80 l/min (21 US gpm) flow
E305-E405LL(60)	3CU7731305L	60 l/min (16 US gpm) flow
E304-E404LL(40)	3CU7731304L	40 l/min (10.5 US gpm) flow
E303-E403LL(20)	3CU7731303L	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: type 13IMS control is required</u>		
E504LL(60)	3CU7742504L	60 l/min (16 US gpm) flow
E503LL(20)	3CU7742503L	20 l/min (5.3 US gpm) flow

8 Plug for single acting spool *

CODE	DESCRIPTION
3XTAP822150	SAE8 plug

3 One-side electrohydr.control; "A" side page 118

These controls must be coupled with "B" side options

TYPE	CODE	DESCRIPTION
8E23-12VDC	5IDR604300LV	With AMP connector
8E23-24VDC	5IDR604301LV	As previous one
8E234-12VDC	5IDR604302LV	With Deutsch connector
8E234-24VDC	5IDR604303LV	As previous one
<u>For floating circuit (spool E5)</u>		
13E23-12VDC	5IDR614300LV	With AMP connector
13E23-24VDC	5IDR614301LV	As previous one
13E234-12VDC	5IDR614302LV	With Deutsch connector
13E234-24VDC	5IDR614303LV	As previous one

4 One-side electrohydr.option; "B" side page 118

These options musto coupled with "A" side controls

TYPE	CODE	DESCRIPTION
LQ	5LEV100700LV	Lever box
LQF3	5LEV100701LV	Lever box with spool stroke limiter
LQSL	5COP204100LV	Cap

6 Port valves page 94

For complete valves list see page 65

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

7 Section threading

Only specify if it is different from BSP standard (see page 7).

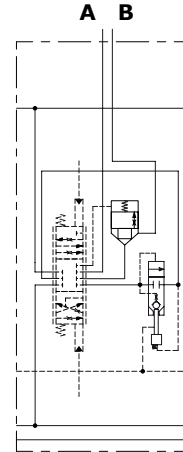
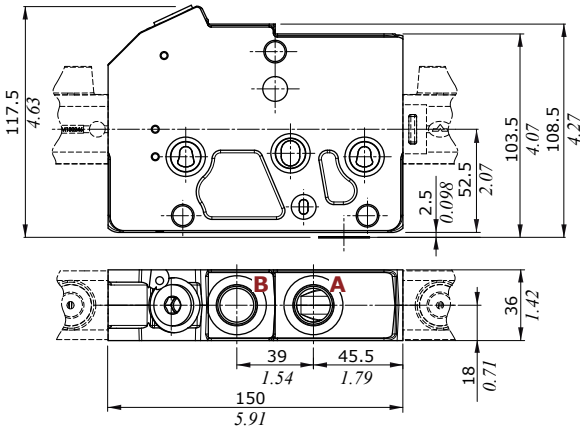
NOTE (*): Codes are referred to **UN-UNF** thread.

Working section

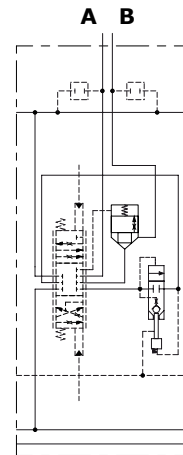
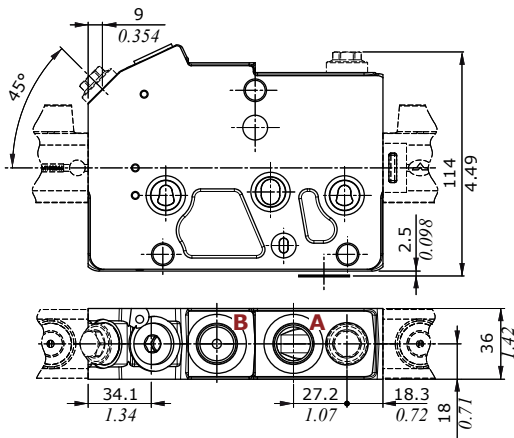
Dimensions and hydraulic circuit: Low Leak section

Low Leak section for hydraulic control, Right Inlet

QLL-ED type section

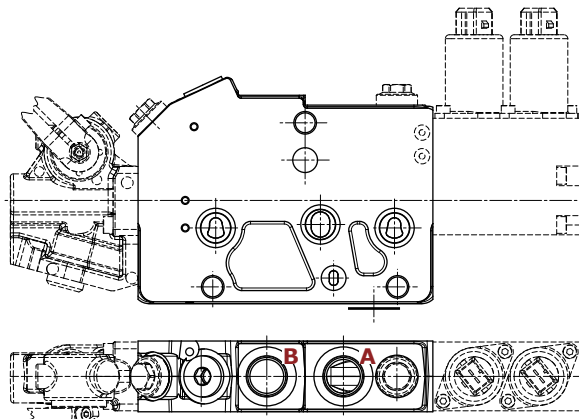


PLL-ED type section

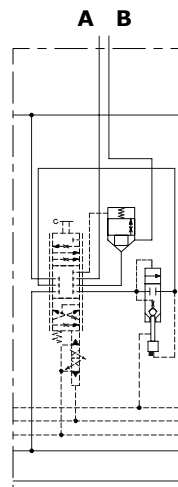


Low Leak section for electrohydraulic control, Right Inlet

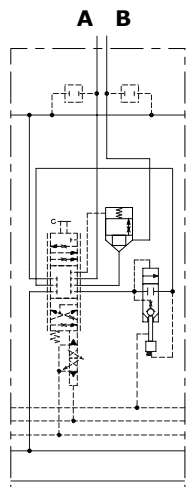
QZLL-ED or PZLL-ED type sections



QZLL-ED type



PZLL-ED type

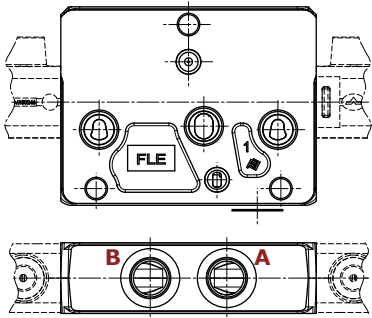


Dimensions and hydraulic circuit: section for Low Leak valve configuration

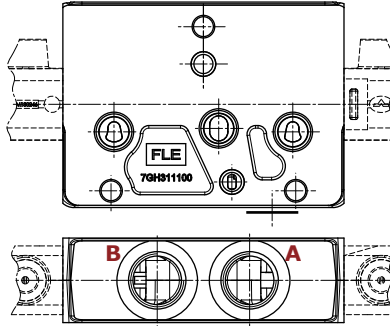
For hydraulic control, Right Inlet

For Standard section dimensions see page 72, for HF section dimensions see page 104.

Standard section, Q-ED type
(SAE10 ports)

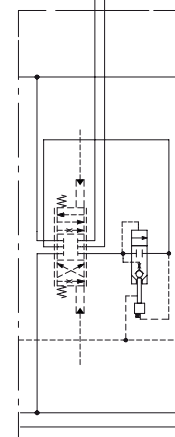


HF section, Q-ED type
(SAE12 ports)



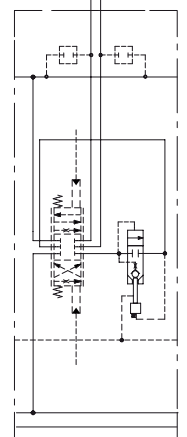
Tipo Q-ED

A B

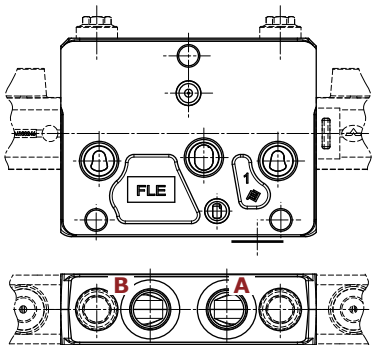


Tipo P-ED

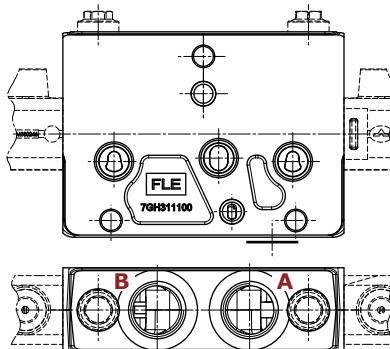
A B



Standard section, P-ED type
(SAE10 ports)

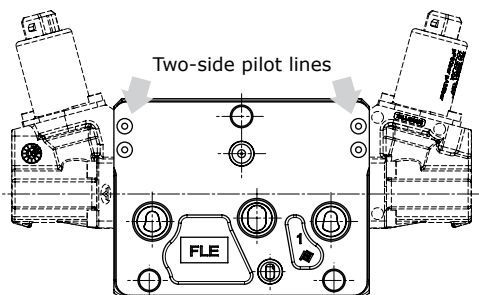


HF section, P-ED type
(SAE10 ports)



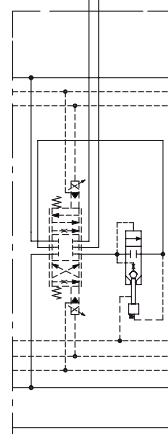
For electrohydraulic control, Right Inlet

QE-ED or PE-ED section



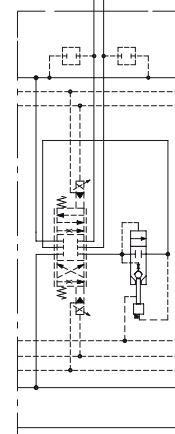
QE-ED type

A B



PE-ED type

A B



Working section

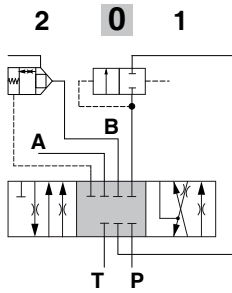
Spool

Performance and sensitivity diagrams are the same as spool for standard section; see pages 73, 74.

For Low Leak section

Type E1.. spool

A, B closed in neutral position

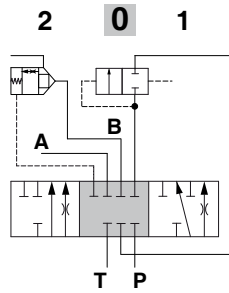


Spool stroke

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

Type E3.. spool

single acting on A

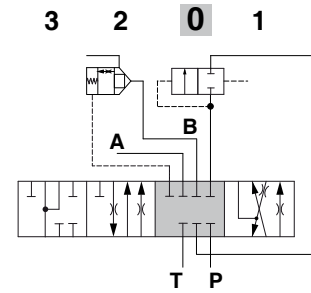


Spool stroke

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

Type E5.. spool

floating in 4th position (pos.3)



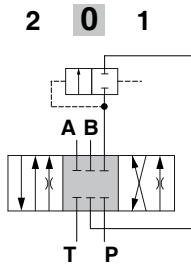
Spool stroke

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

For Right Inlet Standard section in Low Leak valve configuration

Type E1.. spool

A, B closed in neutral position

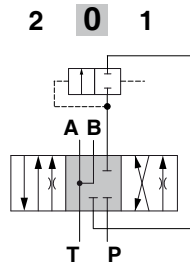


Spool stroke

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

Type E2.. spool

A, B to tank in neutral position

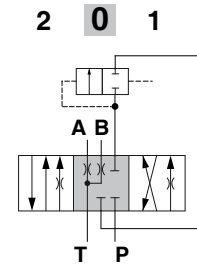


Spool stroke

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

Type E2H.. spool

A, B partially to tank in neutral pos.

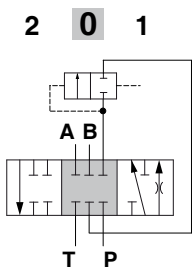


Spool stroke

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

Type 3E.. spool

single acting on A

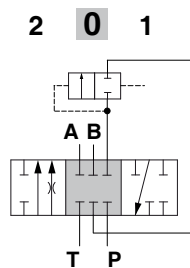


Spool stroke

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

Type 4E.. spool

single acting on B

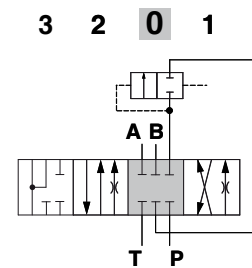


Spool stroke

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

Type E5.. /I5.. spool

flottante in 4^a posizione (pos.3)

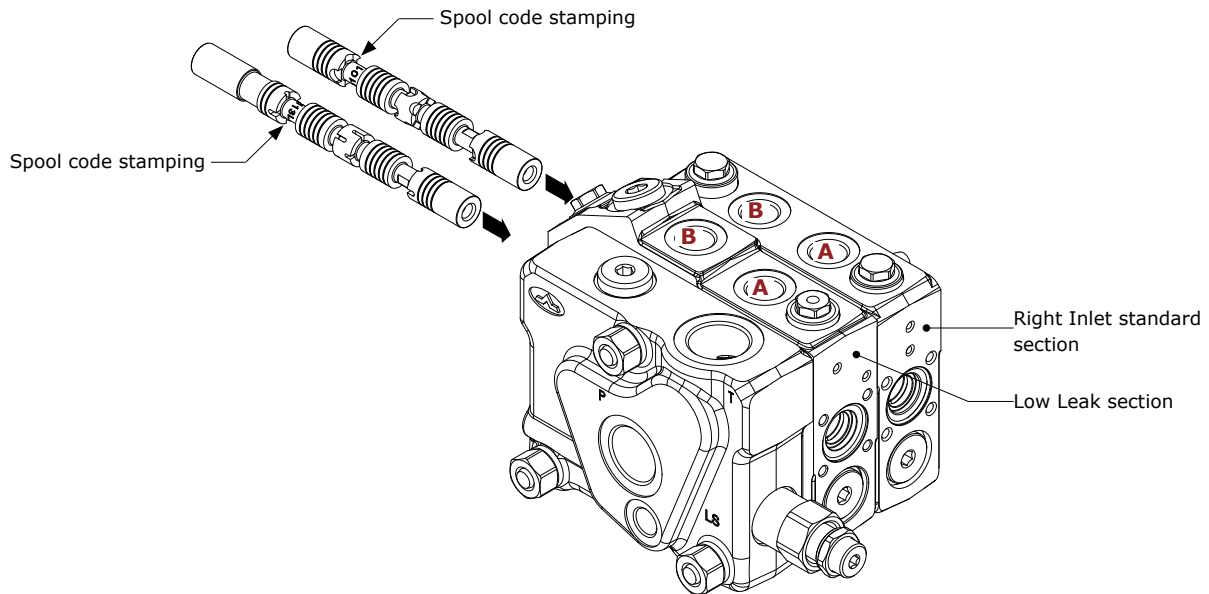


Spool stroke

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

Spool

In case of replacement of the spool, the code stamping must be oriented toward B port.



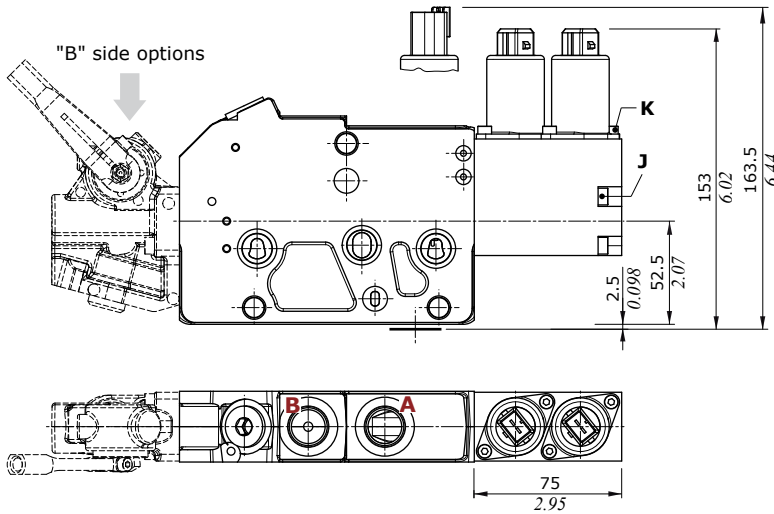
Working section

One-side electrohydraulic control for Low Leak section: "A" side

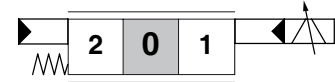
The technical features are the same as the one-side electrohydraulic control for the standard section: see page 85.

Control Types

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



8EZ3 - 8EZ34 types



13EZ3 - 13EZ34 types



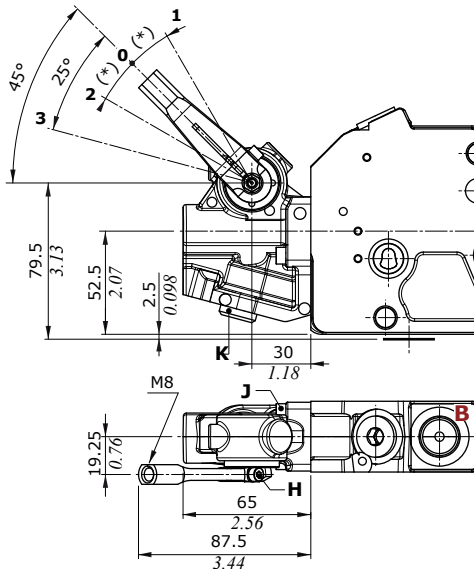
Wrenches and tightening torques

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

One-side electrohydraulic control: "B" side option

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

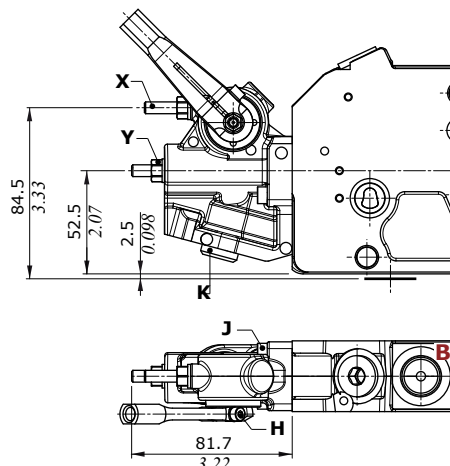
LQ type



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

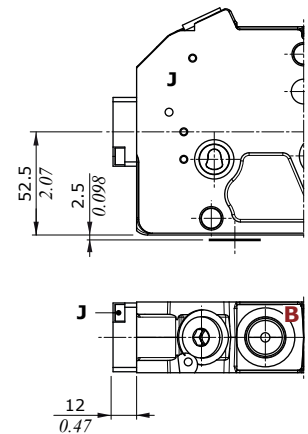
LQF3 type

Spool stroke limiter on A and B ports



LQSL type

Cap



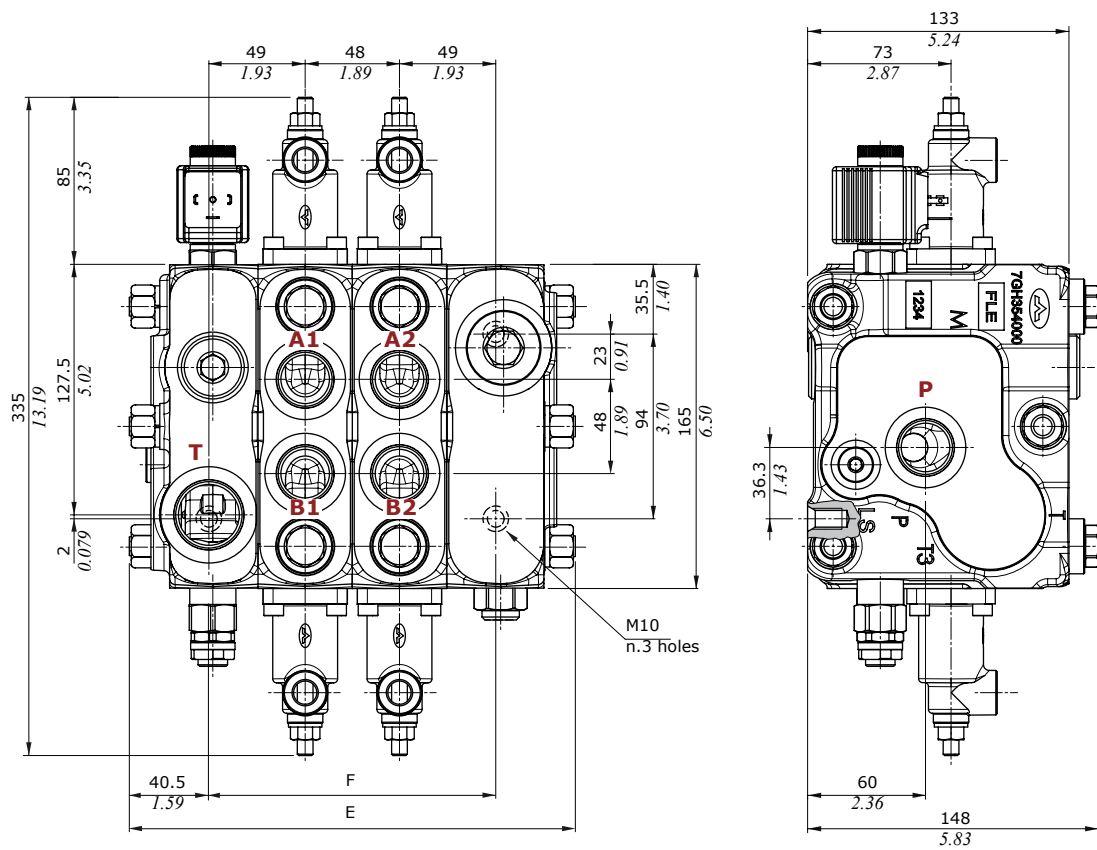
Wrenches and tightening torques

- H = chiave 3 - 6,6 Nm
- J = allen wrench 4 - 6.6 Nm (4.9 lbf_t)
- K = allen wrench 3 - 5 Nm (3.7 lbf_t)
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbf_t)

Content

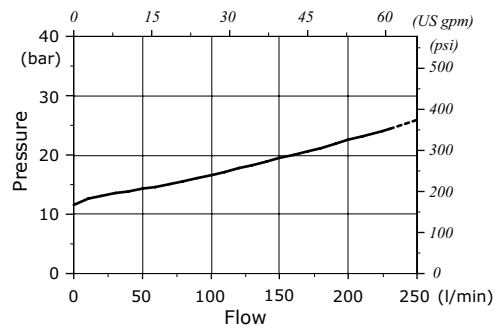
Dimensional data and performance	page 120
Hydraulic circuit	
Configuration example with mechanical and hydraulic controls	page 121
Configuration example with electrohydraulic controls.	121
Guide to configuration	
Pressure peak reduction.	page 122
High Pressure (HP) valve configuration	122
Directional valve with Low Leak working sections.	123
Inlet section	
Parts ordering codes	page 125
Dimensional data and hydraulic circuit.	127
Main pressure relief valve.	131
Solenoid operated unloading valve	131
Priority valve kit	132
Shut-off valve.	132
Working section	
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Dimensional data and hydraulic circuit.	137
Spool.	138
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"B" side spool control kit	141
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Electrohydraulic controls	
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Spool position sensor	147
Two-side electrohydraulic controls.	148
One-side electrohydraulic control: "A" side.	151
One-side electrohydraulic control: "B" side options	152
Port valves	153
Outlet section	
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Dimensional data and performance

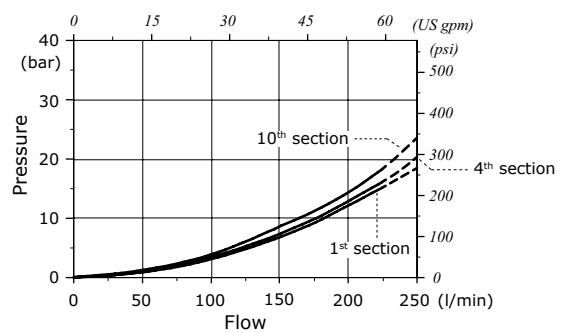


TYPE	E		F	
	mm	in	mm	in
DPX160/1	179	7.05	98	3.86
DPX160/2	227	8.94	146	5.75
DPX160/3	275	10.83	194	7.64
DPX160/4	323	12.72	242	9.53
DPX160/5	371	14.61	290	11.42
DPX160/6	419	16.50	338	13.31
DPX160/7	467	18.39	386	15.20
DPX160/8	515	20.28	434	17.09
DPX160/9	563	22.17	482	18.98
DPX160/10	611	24.06	530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

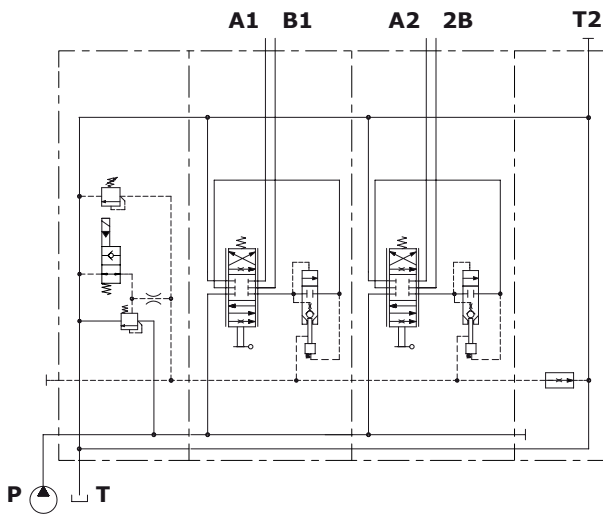
P⇒T Pressure drop inlet compensator (margin pressure)



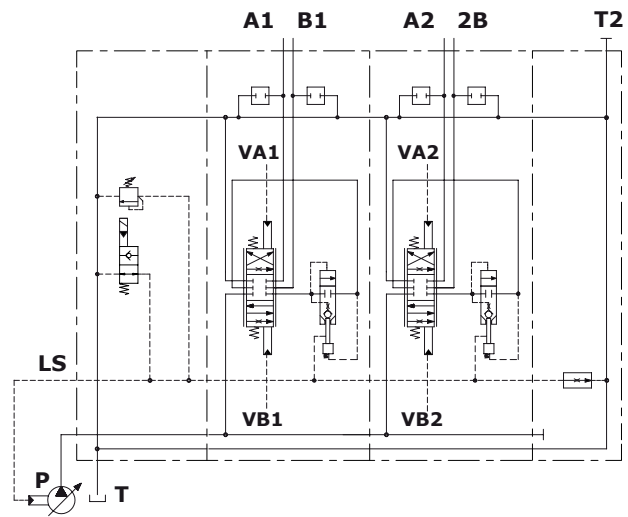
A(B)⇒T pressure drop (standard spool @ max.stroke)



Configuration example with mechanical and hydraulic controls

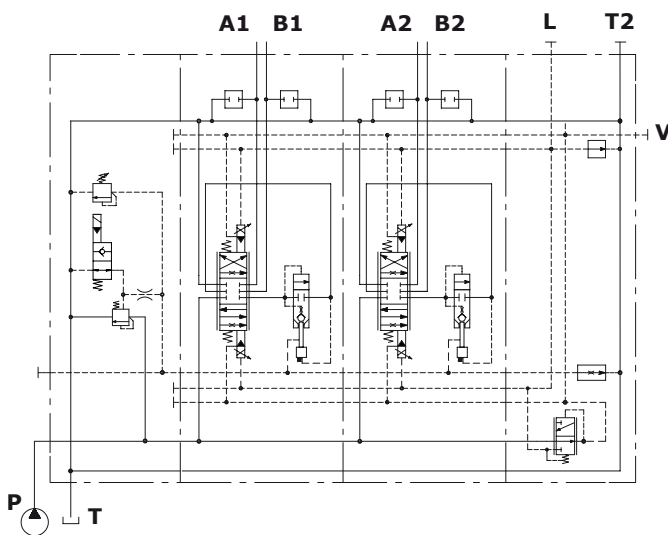


Open center circuit and lever control, with unloader valve, without port valve arrangement

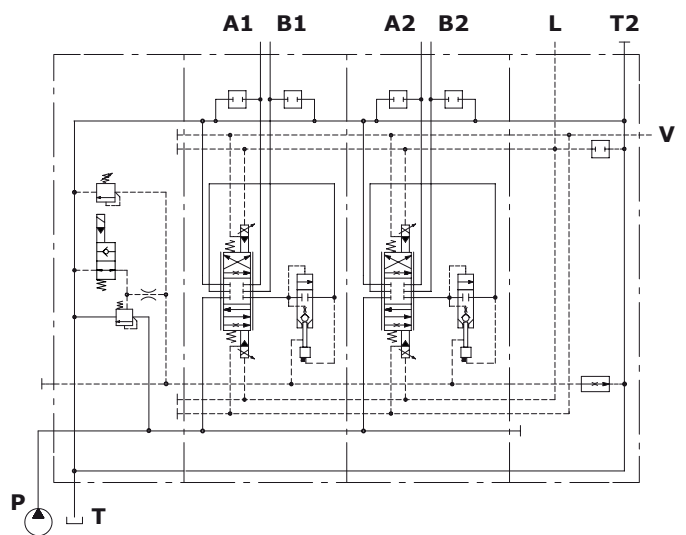


Closed center circuit and proportional hydraulic control, with unloader valve and port valve arrangement

Configuration example with electrohydraulic controls



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



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

Guide to configuration

Pressure peak 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 comfortable 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 peak reduction.

Standard configuration

Bidirectional restrictor on L.S. signal; it dampens the pressure peaks from L.S. line to inlet section 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 section 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.

High Pressure (HP) valve configuration

DPX160 Flow Sharing valves are available both for Standard and High pressure (HP) configuration..

The main difference between the two configurations is the max. reachable pressure.

In details:

DPX160

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

DPX160HP

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

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

Closed center type inlet section: one single solution for Standard and HP pressures.

Open center type inlet section: separate solutions for Standard and HP pressures..

Priority inlet section: configuration available only for Standard pressure.

Working sections: separate solutions for Standard and HP pressures.

Outlet section: one single solution for Standard and HP pressures.

Example of entirely Standard Pressure valve configuration

DPX160/2/AM1A(TGW3-175\ELN)/P-E108(150\150)-8IMNOH.U3T/Q-E108(150\150)-8IMNOH/RC1A-12VDC

Std open center inlet section or
Std Pressure closed center inlet section

Std Pressure working
sections

Standard Pressure
outlet section

Example of entirely High Pressure (HP) valve configuration

DPX160^{HP}/2/AM1A(TGW5-300\ELN)/P-E108(150\150)-8IMNOH.U3T/Q-E108(150\150)-8IMNOH/RC1A-12VDC

HP open center inlet section or
Std Pressure closed center inlet section

HP working sections

Standard Pressure
outlet section

Example of mixed - Standard/HP - valve configuration

DPX160/2/AM1A(TGW3-175\ELN)/P-E108(150\150)-8IMNOH.U3T/^{HP}Q-E108(150\150)-8IMNOH/RC1A-12VDC

Fiancate d'ingresso a centro aperto e a centro
chiuso per Pressione Standard

Std Pressure working
section

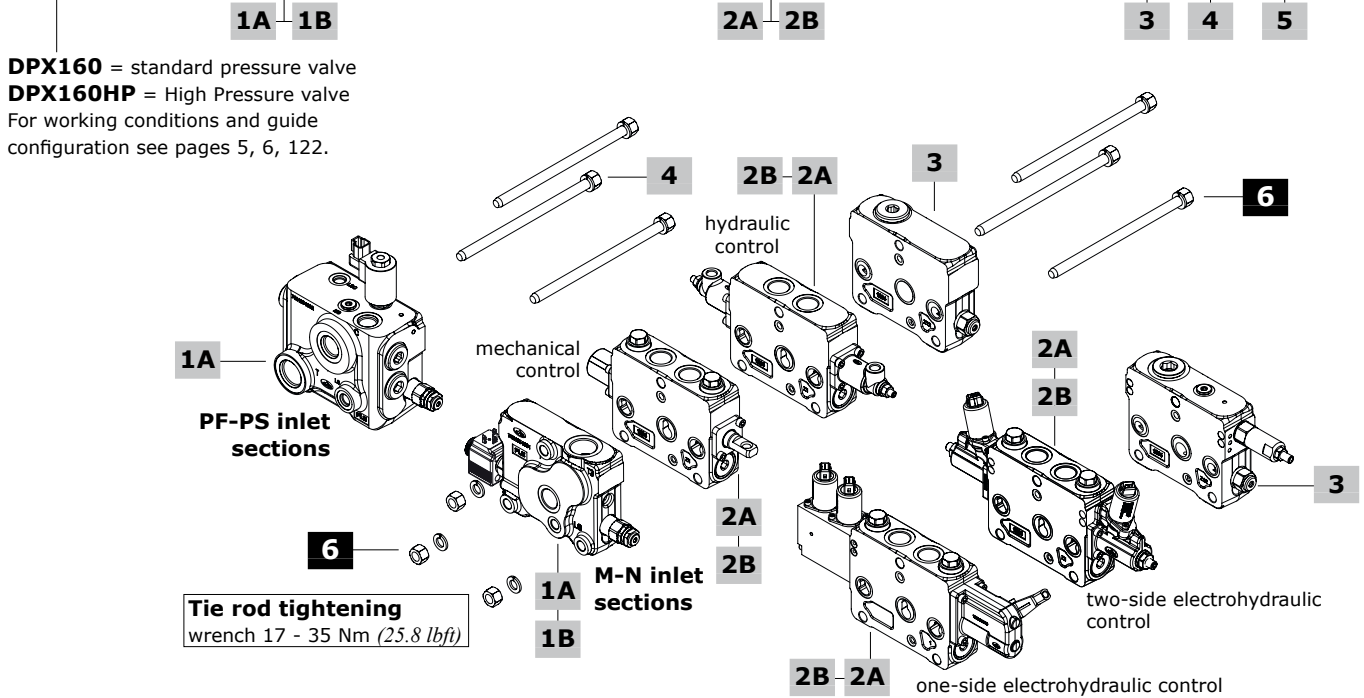
HP working section

Standard Pressure
outlet section

Complete section 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.1 Std pressure inlet section *

Open Center circuit

TYPE: **DPX160/M3B(TGW3-175/ELN)-SAE-12VDC**

CODE: 650205017S

DESCRIPTION: With compensator, pressure relief valve and unloader valve, with P-T-LS-M ports (LS-M plugged)

TYPE: **DPX160/M3B(SO/TGW3-175/ELN)-SAE-12VDC**

CODE: 650205019S

DESCRIPTION: As previous one 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: 650205018S

DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX160/M4B(TGW3-175/ELN4)-SAE-12VDC**

CODE: 650205317S

DESCRIPTION: As type M3, with T3 side outlet port (plugged)

TYPE: **DPX160/PF1A\TGW3-175\VP-D(1)-SB10-Q40\CF(1)-SB14-SAE** CODE: 650205301S

DESCRIPTION: **Designed for steering**, with compensator, priority valve, shut-off valve and pressure relief valve, with P-T-LS-M3-C-LSC ports (M3-LS plugged). Special tie rods are required

Closed Center circuit

TYPE: **DPX160/N1A(TGW4-250/ELT)-SAE-12VDC**

CODE: 650205002S

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: 650205015S

DESCRIPTION: As previous one with non-return flow limiter from inlet section to working section and by-pass valve

1A.2 Std pressure inlet section *

TYPE: **DPX160/N1A(SU/TGW3-175/ELN)-SAE-12VDC**

CODE: 650205014S

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: 650205016S

DESCRIPTION: As N1 type, with T3 side outlet port (plugged)

TYPE: **DPX160/PS1A\TGW3-175\VP-D(1)-SB10-Q40\ESO32N/SAE-12VDC** CODE: 650205302S

DESCRIPTION: **Designed for steering**, without compensator, with priority valve and pressure relief valve, with P-T-LS-M3-C-LSC port (M3-LS plugged). Special tie rods are required

1B High pressure inlet section *

Open Center circuit

TYPE: **DPX160HP/M3B(TGW5-350/ELN)-SAE-12VDC**

CODE: 650205021S

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: 650205023S

DESCRIPTION: As previous one 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: 650205022S

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 section ordering codes

2A Std pressure working section *

Mechanical control

TYPE: **DPX160/Q-108(150/150)-8SLP-SAE**
 CODE: 650155001S
 DESCRIPTION: With dust-proof plate, without port valve arrangement
 TYPE: **DPX160/P-108(150/150)-8SLP.UL3T-SAE**
 CODE: 650105046S
 DESCRIPTION: As previous one with port pressure relief valve arrangement
 TYPE: **DPX160/P-108(150/150)-8SLP.US3T-SAE**
 CODE: 650105047S
 DESCRIPTION: With port antishock valves arrangement

Proportional hydraulic control

TYPE: **DPX160/Q-E108(150/150)-8IMF3N-SAE**
 CODE: 650115001S
 DESCRIPTION: With spool stroke limiter, without port valve arrang.
 TYPE: **DPX160/P-E108(150/150)-8IMF3N.UL3T-SAE**
 CODE: 650105020S
 DESCRIPTION: As previous one with port pressure relief valve arrangement
 TYPE: **DPX160/P-E108(150/150)-8IMF3N.US3T-SAE**
 CODE: 650105021S
 DESCRIPTION: With port antishock valve arrangement

Two-side proportional electrohydraulic control

TYPE: **DPX160/QE-E108(150/150)-8EB3F3-SAE-12VDC**
 CODE: 650105048S
 DESCRIPTION: With spool stroke limiter, without port valve arrang.
 TYPE: **DPX160/PE-E108(150/150)-8EB3F3.UL3T-SAE-12VDC**
 CODE: 650105049S
 DESCRIPTION: As previous one with port pressure relief valve arrang.
 TYPE: **DPX160/PE-E108(150/150)-8EB3F3.US3T-SAE-12VDC**
 CODE: 650105050S
 DESCRIPTION: With port antishock valve arrangement

One-side proportional electrohydraulic control

TYPE: **DPX160/QZ-E108(150/150)-8EZ3LQF3-SAE-12VDC-FPM**
 CODE: 650105036V
 DESCRIPTION: With spool stroke limiter, without port valve arrang.
 TYPE: **DPX160/PZ-E108(150/150)-8EZ3LQF3.UL3T-SAE-12VDC-FPM**
 CODE: 650105037V
 DESCRIPTION: As previous one with port pressure relief valve arrang.
 TYPE: **DPX160/PZ-E108(150/150)-8EZ3LQF3.US3T-SAE-12VDC-FPM**
 CODE: 650105038V
 DESCRIPTION: With port antishock valve arrangement

2B.1 High pressure working section *

Mechanical control

TYPE: **DPX160HP/Q-108(150/150)-8SLP-SAE**
 CODE: 650115007S
 DESCRIPTION: With dust-proof plate, without port valves arrang.
 TYPE: **DPX160HP/P-108(150/150)-8SLP.US3T-SAE**
 CODE: 650105032S
 DESCRIPTION: As previous one with port antishock valve arrangement

Proportional hydraulic control

TYPE: **DPX160HP/Q-E108(150/150)-8IMF3N-SAE**
 CODE: 650115008S
 DESCRIPTION: With spool stroke limiter, without port valve arrang.
 TYPE: **DPX160HP/P-E108(150/150)-8IMF3N.US3T-SAE**
 CODE: 650105033S
 DESCRIPTION: As previous one with port antishock valve arrangement

Two-side proportional electrohydraulic control

TYPE: **DPX160HP/QE-E108(150/150)-8EB3F3-SAE-12VDC**
 CODE: 650115009S
 DESCRIPTION: With spool stroke limiter, without port valve arrangement
 TYPE: **DPX160HP/PE-E108(150/150)-8EB3F3.US3T-SAE-12VDC**
 CODE: 650105034S
 DESCRIPTION: As previous one with port antishock valve arrangement

2B.2 High pressure working section *

One-side proportional electrohydraulic control

TYPE: **DPX160HP/QZ-E108(150/150)-8EZ3LQF3-SAE-12VDC-FPM**
 CODE: 650105039V
 DESCRIPTION: With spool stroke limiter, without port valve arrang.
 TYPE: **DPX160HP/PZ-E108(150/150)-8EZ3LQF3.UL3T-SAE-12VDC-FPM**
 CODE: 650105040V
 DESCRIPTION: As previous one with port pressure relief valve arrang.
 TYPE: **DPX160HP/PZ-E108(150/150)-8EZ3LQF3.US3T-SAE-12VDC-FPM**
 CODE: 650105041V
 DESCRIPTION: With port antishock valve 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: 650305002S
 DESCRIPTION: With bleed valve and T2 upper port (plugged)
 TYPE: **DPX160/RC3A-SAE** CODE: 650305004S
 DESCRIPTION: With bleed valve and T2, P1-T1-LS1 side ports (plugged)
 TYPE: **DPX160/RC3A-CL-SAE-12VDC** CODE: 650305020S
 DESCRIPTION: As previous one, with clamp release function

For electrohydraulic or mixed configuration

TYPE: **DPX160/RCN1A-SAE** CODE: 650305014S
 DESCRIPTION: Without pressure reducing valve, external pilot and drain (V-L ports), with bleed valve and T2 upper port (plugged)
 TYPE: **DPX160/RCN3A-SAE** CODE: 650305016S
 DESCRIPTION: As previous one, with P1-T1-LS1 side ports (plugged)
 TYPE: **DPX160/RCN3A-CL-SAE-12VDC** CODE: 650305021S
 DESCRIPTION: As previous one, with clamp release function
 TYPE: **DPX160/RCR1A-TAP(VL)-SAE** CODE: 650305005S
 DESCRIPTION: With pressure reducing valve and bleed valve, internal pilot and drain (V-L ports plugged), with T2 upper port (plugged)
 TYPE: **DPX160/RCR3A-TAP(VL)-SAE** CODE: 650305017S
 DESCRIPTION: As previous one, with P1-T1-LS1 side ports (plugged)
 TYPE: **DPX160/RCR3A-CL-TAP(VL)-SAE-12VDC**
 CODE: 650305022V
 DESCRIPTION: As previous one, with clamp release function

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

4 Valve threading

Only specify if it is different from BSP standard (see page 7).

5 Voltage

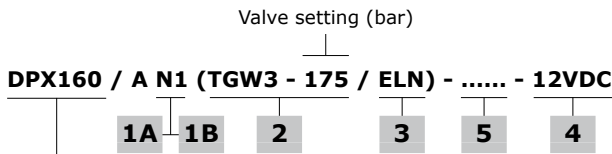
Specify the voltage of electric devices.

6 Assembling kit

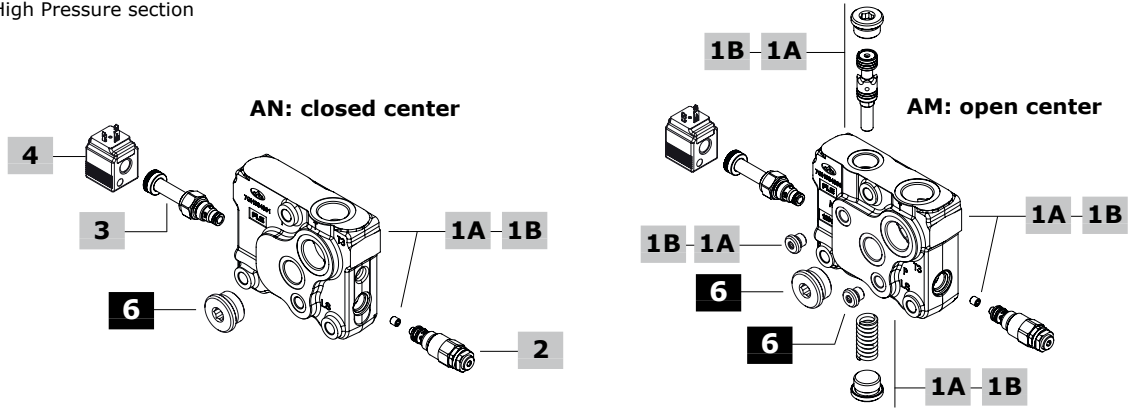
CODE	DESCRIPTION	CODE	DESCRIPTION
Standard tie rods: for M and N inlet sections			
5TIR112179	for 1 work.sections	5TIR112419	for 6 work.sections
5TIR112227	for 2 work.sections	5TIR112467	for 7 work.sections
5TIR112275	for 3 work.sections	5TIR112515	for 8 work.sections
5TIR112323	for 4 work.sections	5TIR112563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

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

Inlet section part ordering codes



DPX160 = standard pressure section
 DPX160HP = High Pressure section



1A Std pressure inlet section kit* page 127

Open Center circuit

TYPE: **DPX160/M3-SAE/EL** CODE: YFIA105716S
 DESCRIPTION: With compensator, P-T-LS-M ports (M plugged), arranged for unloader valve

TYPE: **DPX160/M3(SU)-SAE/EL** CODE: YFIA105710S
 DESCRIPTION: As previous one with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX160/M3(SO)-SAE/EL** CODE: YFIA105711S
 DESCRIPTION: With non return flow limiter from inlet section to working section and by-pass valve

TYPE: **DPX160/M4-SAE/EL** CODE: YFIA105708S
 DESCRIPTION: As type M3, with T3 side outlet port

Closed Center circuit

TYPE: **DPX160/N1-SAE/EL** CODE: YFIA105720S
 DESCRIPTION: Without compensator, with P-T-LS ports, arranged for unloader valve

TYPE: **DPX160/N1(SU)-SAE/EL** CODE: YFIA105727S
 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: YFIA105728S
 DESCRIPTION: As previous one with non return flow limiter from inlet section to working section and by-pass valve

TYPE: **DPX160/N2-SAE/EL** CODE: YFIA105715S
 DESCRIPTION: As type N1, with T3 side outlet port

1B High pressure inlet section kit* page 127

Open Center circuit

TYPE: **DPX160HP/M3-SAE/EL** CODE: YFIA105709S
 DESCRIPTION: With compensator, P-T-LS-M ports (M plugged), arranged for unloader valve

TYPE: **DPX160HP/M3(SU)-SAE/EL** CODE: YFIA105712S
 DESCRIPTION: As previous one with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX160HP/M3(SO)-SAE/EL** CODE: YFIA105713S
 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 131

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

TYPE	CODE	DESCRIPTION
(TGW2-80)	OMC09002000	Range 10-120 bar (145-1750 psi) std setting 80 bar (1160 psi)
(TGW3-175)	OMC09002001	Range 40-220 bar (580-3200 psi) std setting 175 bar (2550 psi)
(TGW4-250)	OMC09002002	Range 200-350 bar (2900-5100 psi) std setting 250 bar (3600 psi)
(TGW5-300)	OMC09002003	Range 290-385 bar (4200-5600 psi) std setting 300 bar (4350 psi)

SV XTAP524340D Relief valve blanking plug

3 Solenoid operated unloading valve page 131

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	XTAP510320	Unloading valve blanking plug

4 Coil

TYPE	CODE	DESCRIPTION
12VDC	4SLE001200A	BER type coil, ISO4400 conn., 12VDC

For complete available coil list see page 160.

5 Section threading

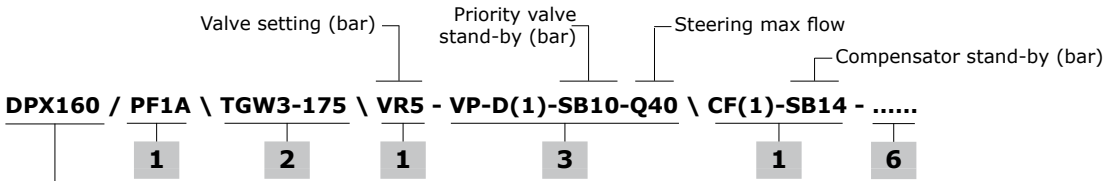
Only specify if it is different from BSP standard (see page 7).

6 Plugs*

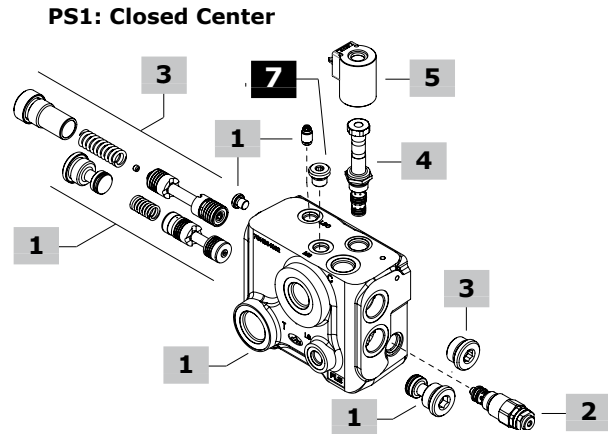
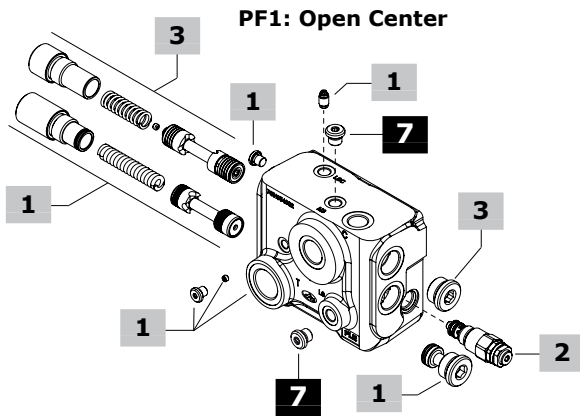
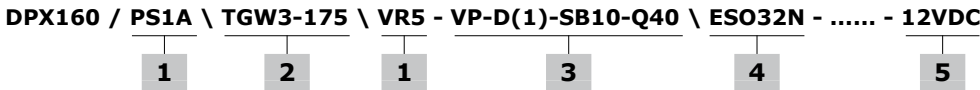
CODE	DESCRIPTION
3XTAP838200	SAE16 plug, nr.1 for M4 and N2 section
3XTAP817130	SAE6 plug, nr.1 for Open Center sections

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

Inlet section part ordering codes



DPX160 = standard pressure valve



1 Inlet section kit* page 129

Following sections are suitable only for standard pressure valve

Open Center circuit

TYPE: **DPX160/PF1-SAE** CODE: YFIA105750S
DESCRIPTION: With compensator, P-T-LS-M3-C-LSC ports

Closed Center circuit

TYPE: **DPX160/PS1-SAE** CODE: YFIA105751S
DESCRIPTION: With shut-off spool, P-T-LS-M3-C-LSC ports

TYPE: **DPX160/PST1-SAE** CODE: YFIA105752S
DESCRIPTION: With shut-off blanking kit, P-T-LS-M3-C-LSC ports

2 Main pressure relief valve page 131

See previous page

3 Priority valve kit page 132

TYPE	CODE	DESCRIPTION
------	------	-------------

Regulated flow = 40 l/min (10.5 US gpm)

D(1)-SB10-Q40	5CAS322100AV	Stand-by (margin pressure) 10 bar (145 psi)
----------------------	--------------	--

D(1)-SB07-Q40	5CAS322100BV	Stand-by (margin pressure) 7 bar (100 psi)
----------------------	--------------	---

D(1)-SB04-Q40	5CAS322100CV	Stand-by (margin pressure) 4 bar (58 psi)
----------------------	--------------	--

Regulated flow = 20 l/min (5.3 US gpm)

D(1)-SB10-Q20	5CAS323099AV	Stand-by (margin pressure) 10 bar (145 psi)
----------------------	--------------	--

D(1)-SB07-Q20	5CAS323099BV	Stand-by (margin pressure) 7 bar (100 psi)
----------------------	--------------	---

D(1)-SB04-Q20	5CAS323099CV	Stand-by (margin pressure) 4 bar (58 psi)
----------------------	--------------	--

4 Solenoid operated shut-off valve page 132

TYPE	CODE	DESCRIPTION
ES032A	0EJ08002035	Without emergency override
ES032V	0EJ08002042	With screw type emergency override
EST	XTAP324540	Valve blanking plug, only for PST inlet section

5 Coil

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

For complete available coil list see page 160.

6 Section threading

Only specify if it is different from BSP standard (see page 7).

7 Plugs*

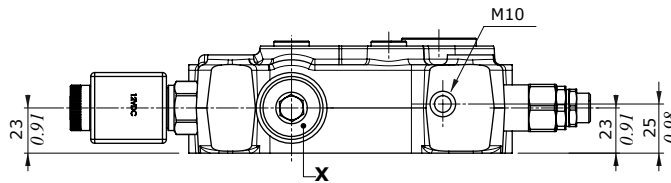
CODE	DESCRIPTION
3XTAP817130	SAE6 plug, nr.1 for PS section, nr.2 for PF section

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

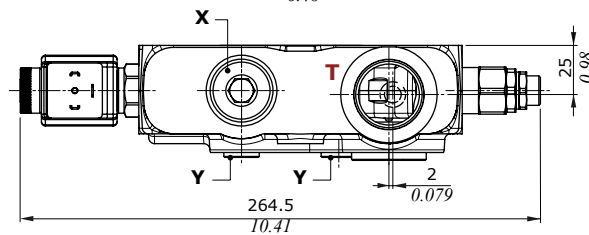
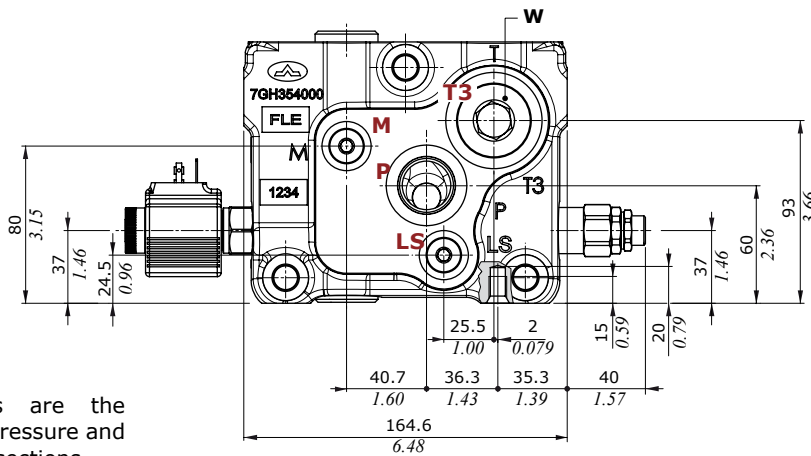
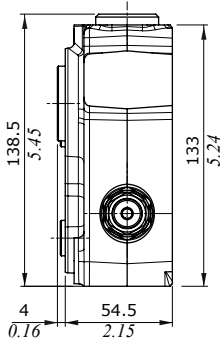
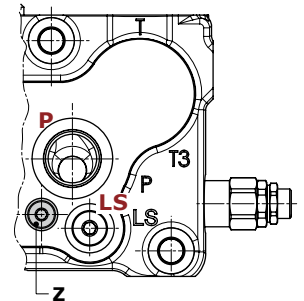
Dimensions and hydraulic circuit

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

Wrenches and tightening torques

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

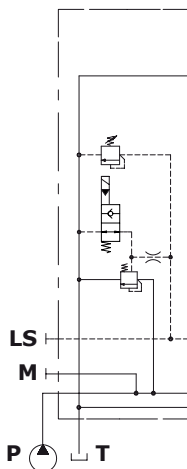
Y = allen wrench 6 - 24 Nm (17.7 lbft)

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

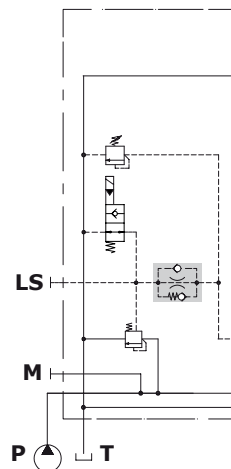
W = allen wrench 17 - 42 Nm (31 lbft)

NOTE: for valves wrench and torque see related pages

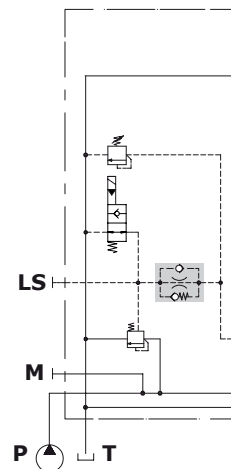
M3 type



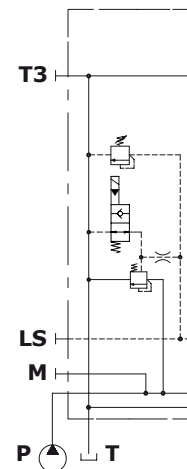
M3(SU) type



M3(SO) type



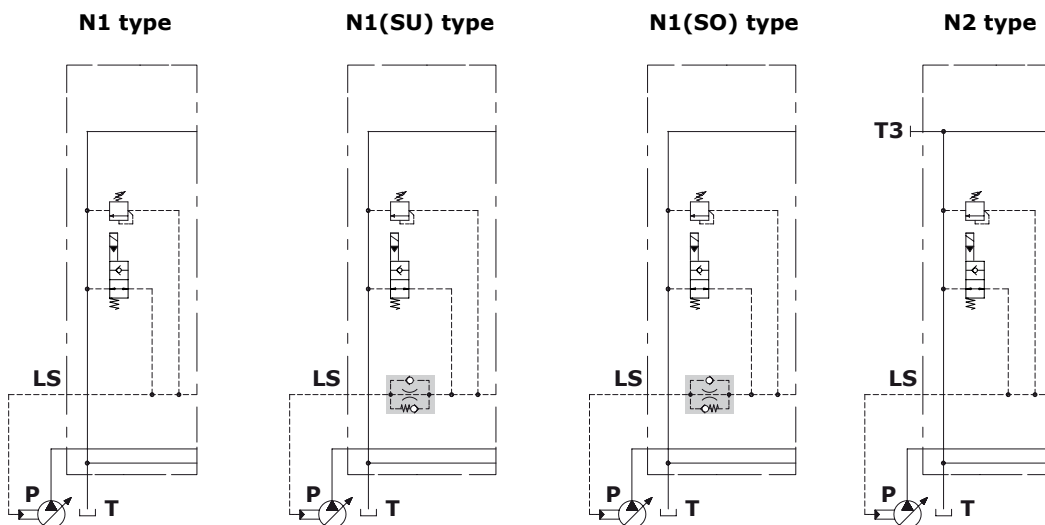
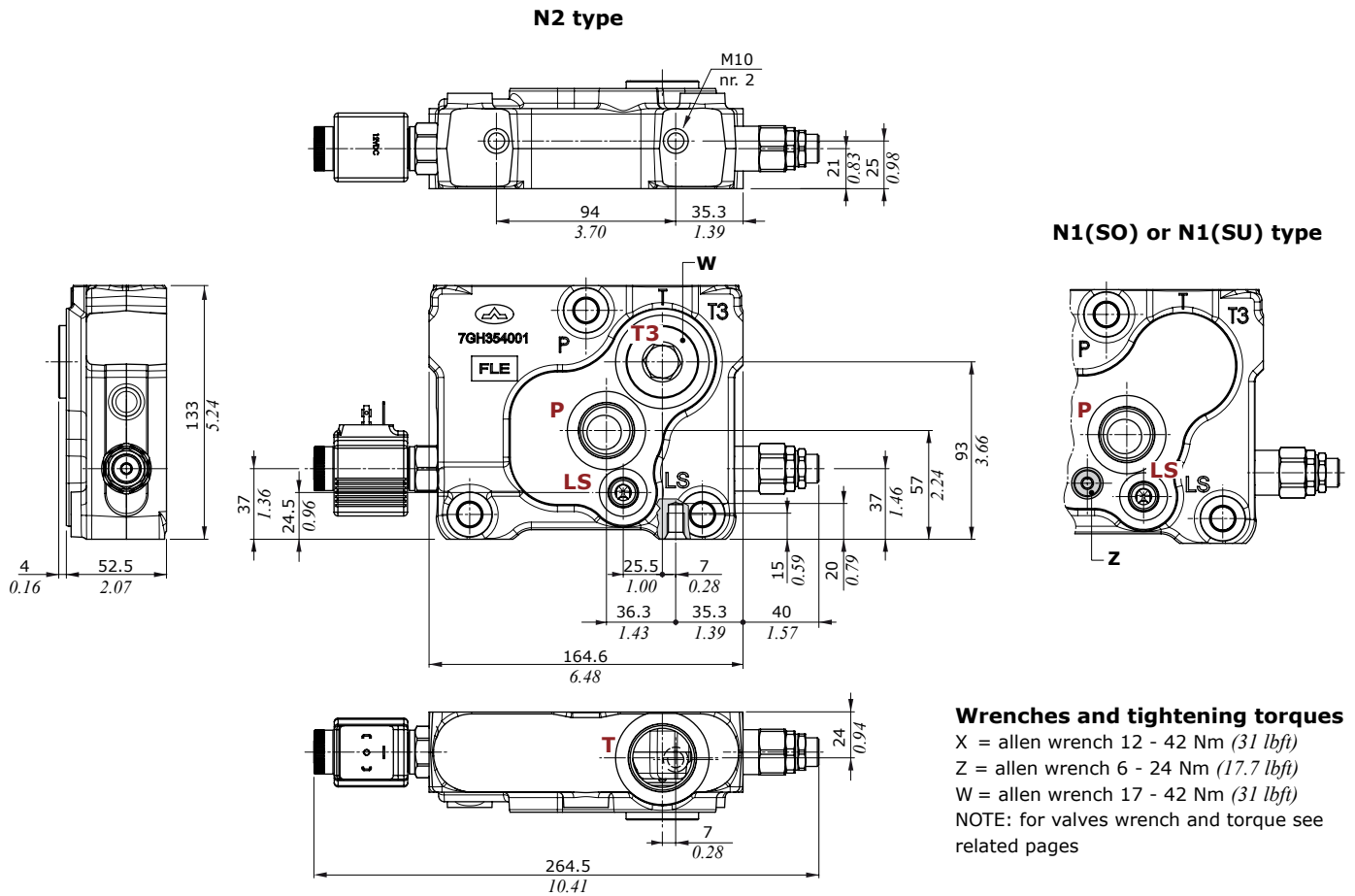
M4 type



Inlet section

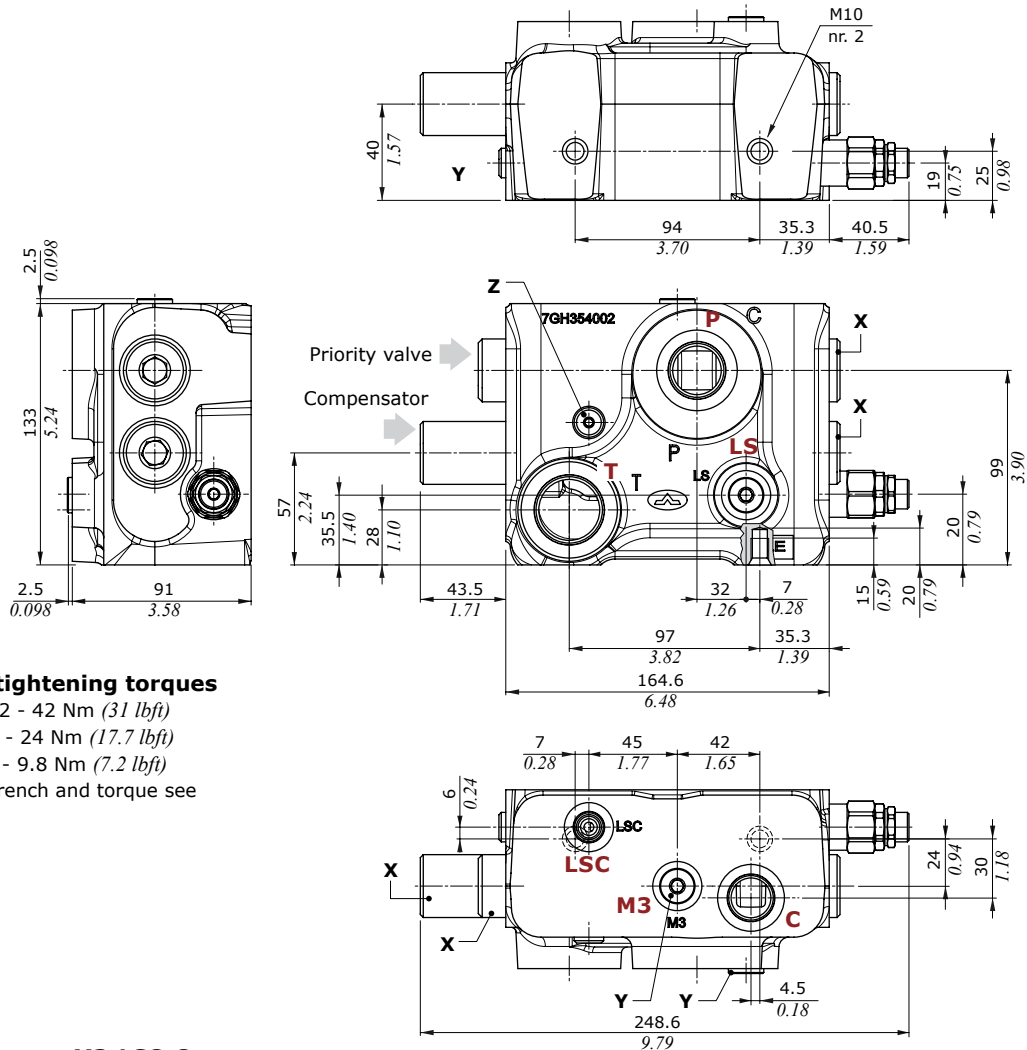
Dimensions and hydraulic circuit

Example of N Closed Center section



Dimensions and hydraulic circuit

PF1 Open Center section with priority valve



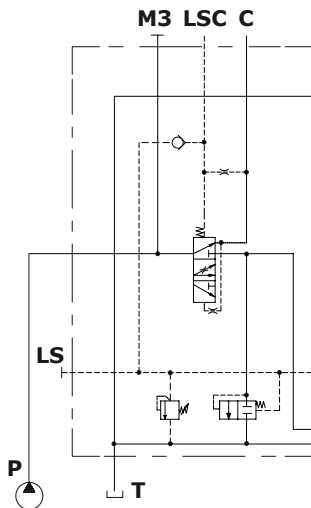
Wrenches and tightening torques

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

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

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

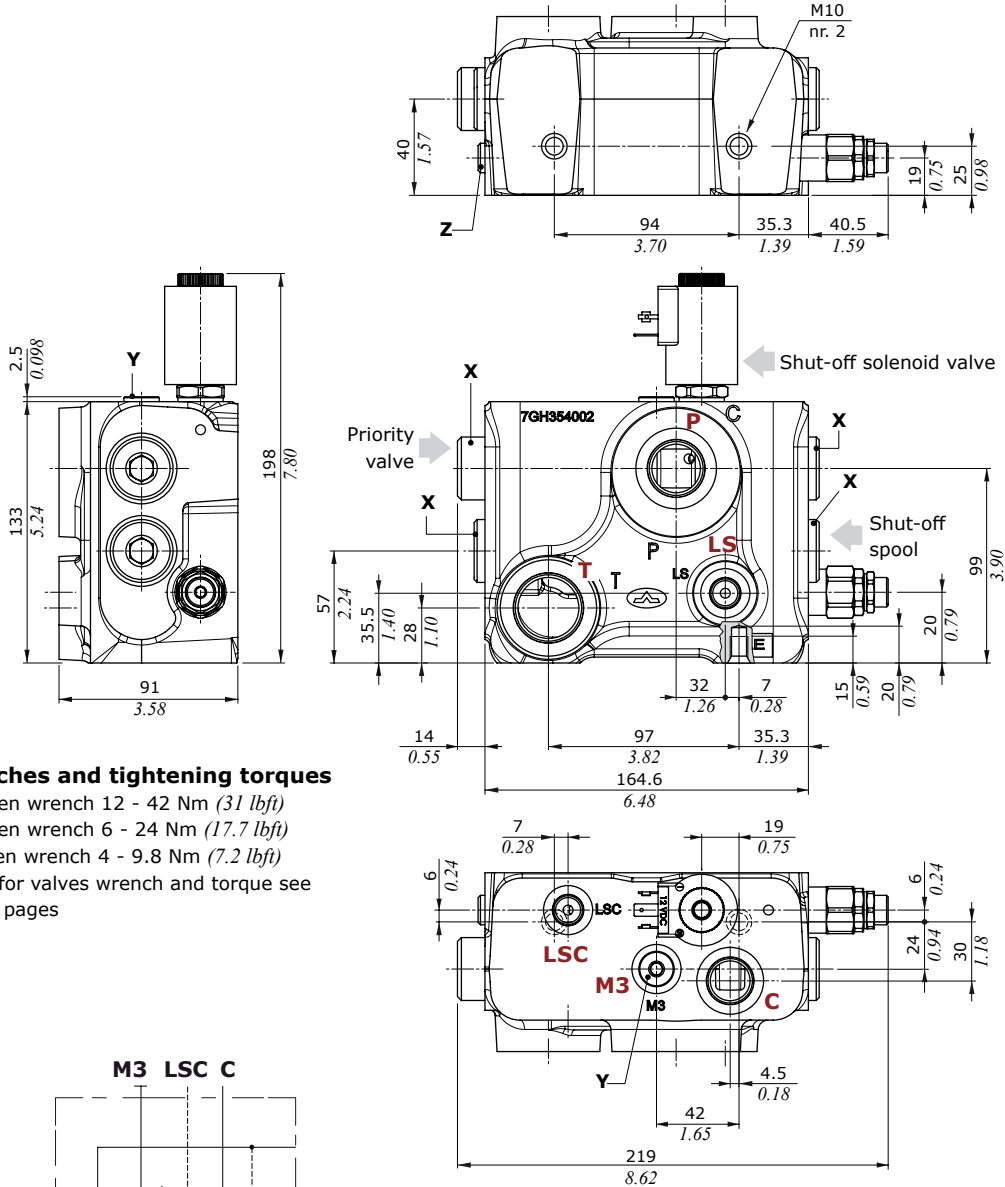
NOTE: for valves wrench and torque see related pages



Inlet section

Dimensions and hydraulic circuit

PS1 Closed Center section with priority valve and shut-off



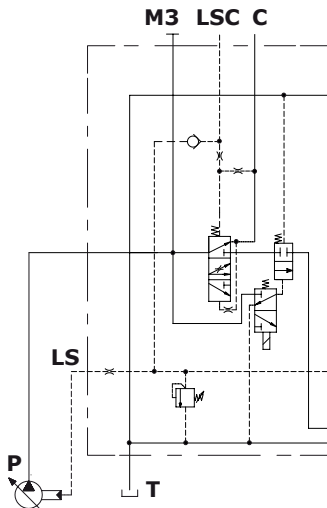
Wrenches and tightening torques

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

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

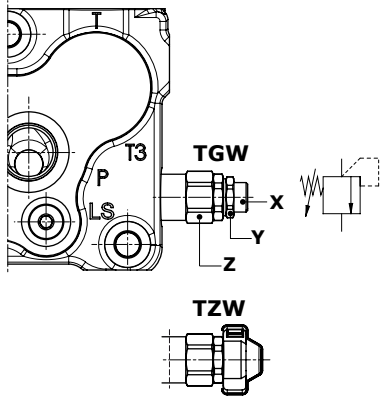
Z = allen wrench 4 - 9.8 Nm (7.2 lbft)

NOTE: for valves wrench and torque see related pages

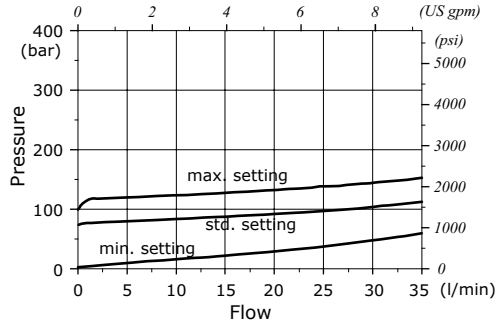


Main pressure relief valve

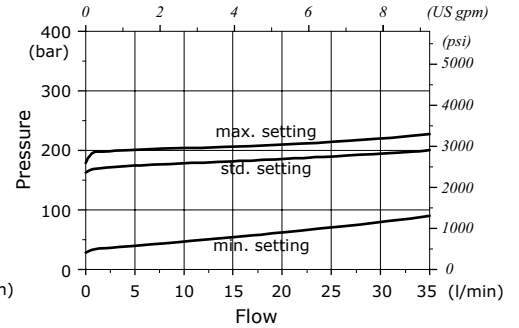
Setting types



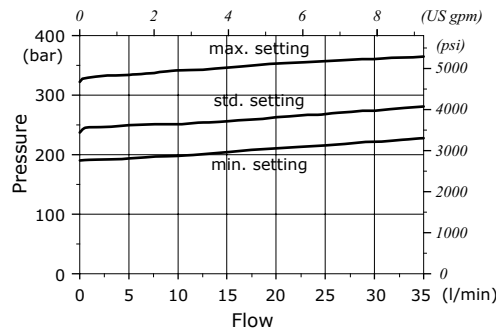
Setting range: TGW2 type



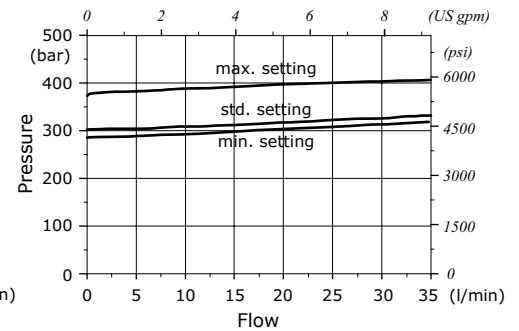
Setting range: TGW3 type



Setting range: TGW4 type



Setting range: TGW5 type

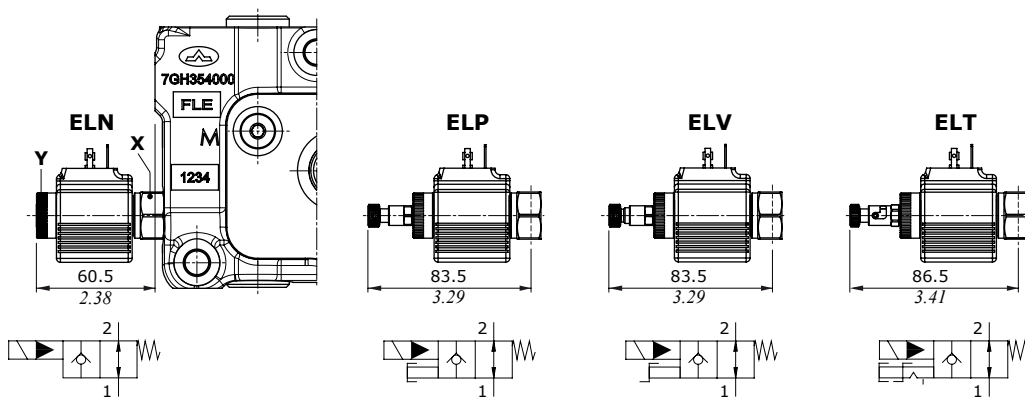


Legenda

- TGW: free setting
- TZW: set and locked valve (cap code 4COP126301, n.2 pcs) RAL3003 pigmented
- Wrenches and tightening torques**
- X = allen wrench 5
- Y = wrench 19 - 20 Nm (14.7 lbf)
- Z = wrench 24 - 42 Nm (31 lbf)

Solenoid operated unloading valve

Manual emergency types



Legenda

- ELN: without emergency
- ELP: push button emergency override
- ELV: screw emergency override
- ELT: "push&twist" emergency override

Wrenches and tightening torques

- X = wrench 24 - 30 Nm (22 lbf)
- Y = manual tightening

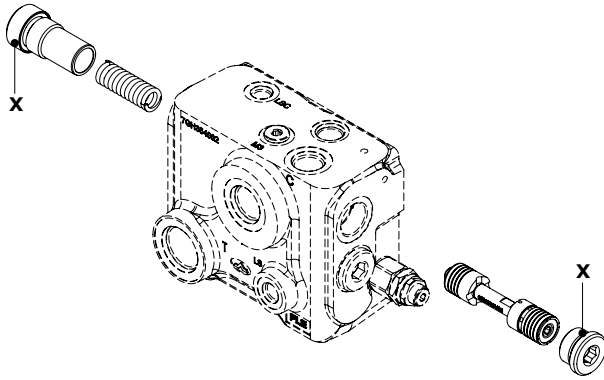
Features

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

For coil features and options see BER type coil at page 160.

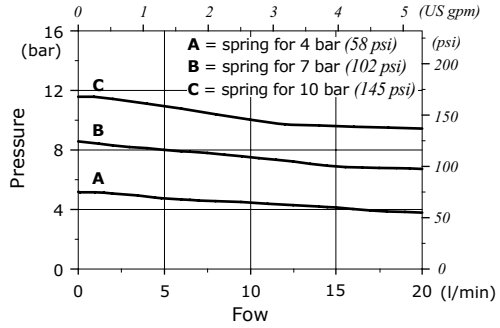
Inlet section

Priority valve kit

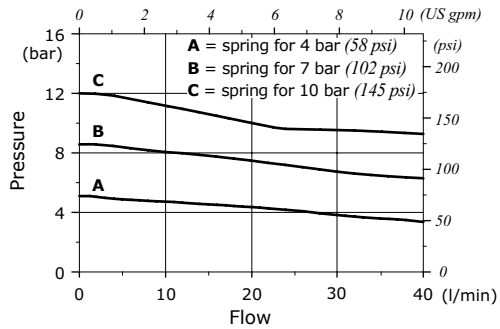


Wrenches and tightening torques
 X = allen wrench 12 - 42 Nm (31 lbf)

Stand-by (margin pressure) vs. regulated flow
 Regulated flow = 20 l/min (5.3 US gpm)

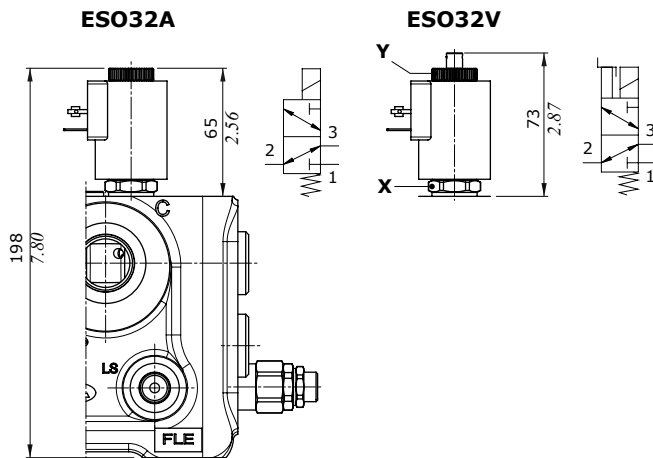


Stand-by (margin pressure) vs. regulated flow
 Regulated flow = 40 l/min (10.6 US gpm)



Shut-off solenoid valve

Manual emergency types



Legenda

ES032A: without emergency

ES032V: screw emergency override

Wrenches and tightening torques

X = wrench 24 - 30 Nm (22 lbf)

Y = manual tightening

Features

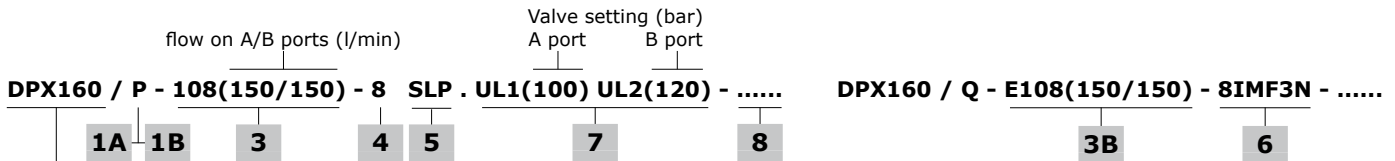
Max. flow 3 l/min (0.796 US gpm)

Max. pressure 350 bar (5100 psi)

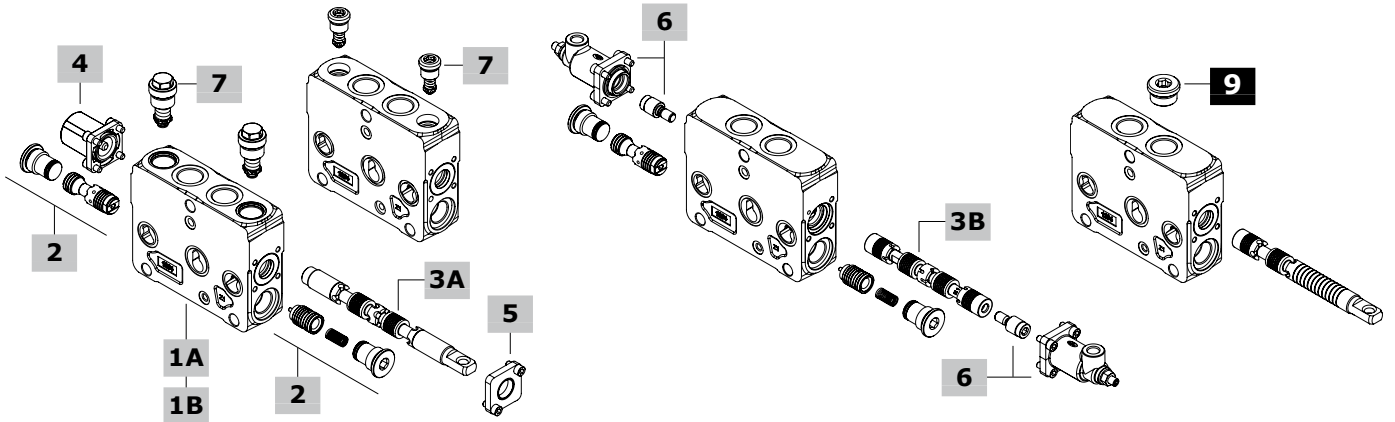
Internal leakage 10 cm³/min @ 210 bar
 (0.61 in³/min @ 3050 psi)

For coil features and options see **BT** type coil at page 160.

Working section parts ordering codes (mechanical, hydraulic)



DPX160 = standard pressure section
 DPX160HP = High Pressure section



1A Std press. working section kit* page 137

For mechanical control

- TYPE: **DPX160/Q-SAE-FPM** CODE: 5EL1057011V
 DESCRIPTION: Without port valve arrangement
- TYPE: **DPX160/P(UL)-SAE-FPM** CODE: 5EL1057000V
 DESCRIPTION: With port pressure relief valve arrangement
- TYPE: **DPX160/P(US)-SAE-FPM** CODE: 5EL1057001V
 DESCRIPTION: With port antishock valve arrangement

For hydraulic control

- TYPE: **DPX160/Q-IM-SAE-FPM** CODE: 5EL1057011AV
 DESCRIPTION: Without port valve arrangement
- TYPE: **DPX160/P(UL)-IM-SAE-FPM** CODE: 5EL1057000AV
 DESCRIPTION: With port pressure relief valve arrangement
- TYPE: **DPX160/P(US)-IM-SAE-FPM** CODE: 5EL1057001AV
 DESCRIPTION: With port antishock valve arrangement

1B High press. working section kit* page 137

For mechanical control

- TYPE: **DPX160HP/Q-SAE-FPM** CODE: 5EL1057014V
 DESCRIPTION: Without port valve arrangement
- TYPE: **DPX160/P(UL)-SAE-FPM*** CODE: 5EL1057020V
 DESCRIPTION: With port pressure relief valve arrangement
- TYPE: **DPX160HP/P(US)-SAE-FPM** CODE: 5EL1057007V
 DESCRIPTION: With port antishock valve arrangement

For hydraulic and solenoid control

- TYPE: **DPX160HP/Q-IM-SAE-FPM** CODE: 5EL1057014AV
 DESCRIPTION: Without port valve arrangement
 - TYPE: **DPX160/P(UL)-IM-SAE-FPM*** CODE: 5EL1057020AV
 DESCRIPTION: With port pressure relief valve arrangement
 - TYPE: **DPX160HP/P(US)-IM-SAE-FPM** CODE: 5EL1057007AV
 DESCRIPTION: With port antishock valves arrangement
- NOTE (*): Max pressure = 380 bar (4350 psi)

2 Compensator kit

CODE	DESCRIPTION
5CAS321061V	Compensator

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

3A Spool for mechanical control page 138

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

TIPO	CODICE	DESCRIZIONE
<u>Double acting with A and B closed in neutral position</u>		
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

Doppio effetto con A e B a scarico in posizione centrale

208(150)	3CU8110208	Portata fino a 150 l/min
<u>Double acting with A and B partially to tank in neutral position</u>		
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: G3/4 plug is required

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: G3/4 plug is required

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: 13 type positioner is required

508(150)	3CU8110508	150 l/min (39.5 US gpm) flow
504(70)	3CU8110504	70 l/min (18.5 US gpm) flow

Working section part ordering codes (mechanical, hydraulic)

3B Spool for hydraulic control page 138

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 to tank in neutral position

E208(150)	3CU871E208	150 l/min (39.5 US gpm) flow
E213(100)	3CU871E213	100 l/min (26.4 US gpm) flow
E212(80)	3CU871E212	80 l/min (21 US gpm) flow
E203(50)	3CU871E203	50 l/min (13.2 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

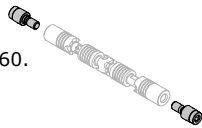
Single acting on A or B, other port plugged: G3/4 plug is required

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
E313-E413(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: 13IM type control is required

I508(150)	YCU871E508	150 l/min (39.5 US gpm) flow
I507(130)	YCU871E507	130 l/min (34.3 US gpm) flow
I504(70)	YCU871E504	70 l/min (18.5 US gpm) flow

NOTE: to order these spools as spare parts it's necessary to order nr. 2 pins code 3VIT116360. This rule is not required for floating spools



4 "A" side spool positioners page 140

TYPE	CODE	DESCRIPTION
7FTNA	5V07210101	With friction and neutral pos. notch
8MD	5V08109000	3 positions with spring return to neutral position

For floating circuit (spool 5)

13	5V13109000	4 positions, detent in 4 th position with spring return to neutral position
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5 "B" side spool control kit page 141

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
TQ	5TEL110110	Flexible cable connection
LCB	5CLO216100	Joystick for 2 section operation

6 Proportional hydraulic control* page 143

TYPE	CODE	DESCRIPTION
8IMOHN-SAE	5IDR209704V-H	Range 8-28 bar (116-406 psi)
8IMOHF3N-SAE	5IDR209705V-H	As previous with spool stroke limiter For floating circuit (spool 15)
13IM-SAE	5IDR209703V	Range 3.1-25.6 / 0-30 bar (45-371 / 0-435 psi)
13IMP-SAE	5IDR209714V	Range 2-17 / 2-30 bar (29-247 / 29-435 psi)

7 Port valves page 153

TYPE	CODE	DESCRIPTION
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"US" size valves

To be used with a setting pressure higher than the main overpressure valve; if used with a lower setting pressure, the spool flow rate is limited to 60 l/min (15.8 US gpm).

UST XTAP221340V Valve blanking plug

CS 5KIT426270 Anticavitation valve (for US cavity)

Fixed setting antishock and anticavitation valves with pressure

relief function: setting is referred to 10 l/min (2.6 US gpm)

TYPE: US (100)	CODE: 5KIT326	100
	└ setting (bar)	└ 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)		

"UL" size valves

ULT XTAP528520V Valve blanking plug

CL 5KIT409000 Anticavitation valve (for UL cavity)

Fixed setting pressure relief valves: setting is referred to 5 l/min

(1.3 US gpm)

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

SETTING:

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

8 Section threading

Only specify if it is different from BSP standard (see page 7).

9 Plug for single acting spool*

CODE	DESCRIPTION
3XTAP832200	SAE 12 plug

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

Working section parts ordering codes (electrohydraulic)

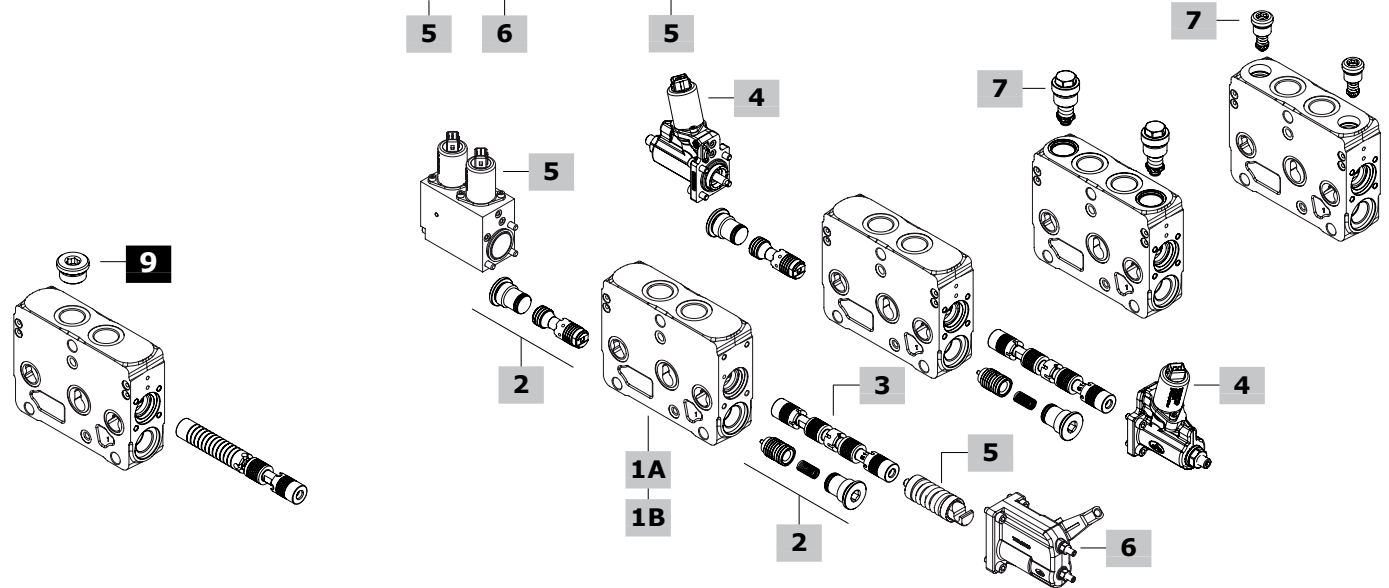
DPX160 / PE - E108(150/150) - 8EB3F3 . UL1(100) UL2(120) - - 12VDC

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

1A 1B 3 4 7 8 4

DPX160 = standard pressure section
DPX160HP = High Pressure section

DPX160 / QZ - E108(150/150) - 8EZ3 LQF3 - - 12VDC



1A Std press. working section kit* page 137

For two-side electrohydraulic control

TYPE: **DPX160/QE-SAE-FPM** CODE: 5EL1057010V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160/PE(UL)-SAE-FPM** CODE: 5EL1057002V
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160/PE(US)-SAE-FPM** CODE: 5EL1057003V
DESCRIPTION: With port antishock valve arrangement

For one-side electrohydraulic control

TYPE: **DPX160/QZ-SAE-FPM** CODE: 5EL1057017V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160/PZ(UL)-SAE-FPM** CODE: 5EL1057016V
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160/PZ(US)-SAE-FPM** CODE: 5EL1057018V
DESCRIPTION: With port antishock valve arrangement

1B High press. working section kit* page 137

For two-side electrohydraulic control

TYPE: **DPX160HP/QE-SAE-FPM** CODE: 5EL1057015V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160HP/PE(UL)-SAE-FPM#** CODE: 5EL1057021V
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160HP/PE(US)-SAE-FPM** CODE: 5EL1057008V
DESCRIPTION: With port antishock valve arrangement

For one-side electrohydraulic control

TYPE: **DPX160HP/QZ-SAE-FPM** CODE: 5EL1057031V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160HP/PZ(UL)-SAE-FPM#** CODE: 5EL1057032V
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160HP/PZ(US)-SAE-FPM** CODE: 5EL1057033V
DESCRIPTION: With port antishock valve arrangement
NOTE (*): Max pressure = 380 bar (4350 psi)

2 Compensator kit

TYPE	CODE	DESCRIPTION
-	5CAS321061V	Compensator, FPM o-ring seal

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

Working section part ordering codes (electrohydraulic)

3 Spool page 138

Portata riferita ad un valore di stand-by (margin pressure) di 14 bar

TIPO	CODICE	DESCRIZIONE
<u>Doppio effetto con A e B chiusi in posizione centrale</u>		
E108(150)	3CU871E108	Portata fino a 150 l/min
E107(130)	3CU871E107	Portata fino a 130 l/min
E106(110)	3CU871E106	Portata fino a 110 l/min
E105(90)	3CU871E105	Portata fino a 90 l/min
E104(70)	3CU871E104	Portata fino a 70 l/min
E103(50)	3CU871E103	Portata fino a 50 l/min
E102(30)	3CU871E102	Portata fino a 30 l/min
E113(20)	3CU871E113	Portata fino a 20 l/min
E101(10)	3CU871E101	Portata fino a 10 l/min
<u>Doppio effetto con A e B a scarico in posizione centrale</u>		
E208(150)	3CU871E208	Portata fino a 150 l/min
E213(100)	3CU871E213	Portata fino a 100 l/min
E212(80)	3CU871E212	Portata fino a 80 l/min
E203(50)	3CU871E203	Portata fino a 50 l/min
<u>Doppio effetto con A e B parzialmente a scarico in posizione centrale</u>		
E2H08(150)	3CU871E209	Portata fino a 150 l/min
E2H07(130)	3CU871E223	Portata fino a 130 l/min
E2H06(110)	3CU871E222	Portata fino a 110 l/min
E2H05(90)	3CU871E215	Portata fino a 90 l/min
E2H04(70)	3CU871E221	Portata fino a 70 l/min
E2H03(50)	3CU871E220	Portata fino a 50 l/min
E2H02(30)	3CU871E219	Portata fino a 30 l/min
E2H13(20)	3CU871E218	Portata fino a 20 l/min
E2H01(10)	3CU871E217	Portata fino a 10 l/min
<u>Semplice affetto in A o B, altro utilizzo tappato: richiede tappo G3/4</u>		
E308-E408(150)	3CU871E308	Portata fino a 150 l/min
E306-E406(110)	3CU871E306	Portata fino a 110 l/min
E303-E403(50)	3CU871E303	Portata fino a 50 l/min
E313-E413(20)	3CU871E313	Portata fino a 20 l/min
<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.../13EZ3...</u>		
E508(150)	3CU871E508	150 l/min (39.5 US gpm) flow
E507(130)	3CU871E507	130 l/min (34.3 US gpm) flow
E504(70)	3CU871E504	70 l/min (18.5 US gpm) flow

7 Port valves page 153

TYPE	CODICE	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 previous pages.

8 Section threading

Only specify if it is different from BSP standard (see page 7).

9 Plug for single acting spool*

CODE	DESCRIPTION
3XTAP832200	SAE 12 plug

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

4 Two-side electrohydr. control page 148

TYPE	CODE	DESCRIPTION
<u>Without lever control</u>		
8EB3-12VDC	5IDR909312V	With AMP connector
8EB3-24VDC	5IDR909324V	With AMP connector
8EB34-12VDC	5IDR909329V	With Deutsch connector
8EB34-24VDC	5IDR909330V	With Deutsch connector
8EB3F3-12VDC	5IDR909313V	With AMP connector with spool stroke limiter
8EB3F3-24VDC	5IDR909317V	As previous one
8EB34F3-12VDC	5IDR909314V	With Deutsch connector with spool stroke limiter
8EB34F3-24VDC	5IDR909331V	As previous one
<u>Without lever control: for floating circuit (E5 spool)</u>		
13EB3-12VDC	5IDR919312V	With AMP connector
13EB3-24VDC	5IDR919324V	With AMP connector
13EB34-12VDC	5IDR919317V	With Deutsch connector
13EB34-24VDC	5IDR919318V	With Deutsch connector
<u>With lever control</u>		
8EB3LH-12VDC	5IDR909315V	With AMP connector
8EB3LH-24VDC	5IDR909326V	With AMP connector
8EB34LH-12VDC	5IDR909332V	With Deutsch connector
8EB34LH-24VDC	5IDR909333V	With Deutsch connector
8EB3LHF3-12VDC	5IDR909316V	With AMP connector with spool stroke limiter
8EB3LHF3-24VDC	5IDR909327V	As previous one
8EB34LHF3-12VDC	5IDR909334V	With Deutsch connector with spool stroke limiter
8EB34LHF3-24VDC	5IDR909335V	As previous one
<u>With lever control and spool position sensor</u>		
8EB3LHSPSD-12VDC	5IDR909341V	AMP conn., and digital sensor
8EB3LHSPSD-24VDC	5IDR909338V	As previous one
8EB3LHF3SPSD-12VDC	5IDR909339V	AMP conn., digital sensor and spool stroke limiter
8EB3LHF3SPSD-24VDC	5IDR909336V	As previous one
<u>With lever control: for floating circuit (E5 spool)</u>		
13EB3LH-12VDC	5IDR919313V	With AMP connector
13EB3LH-24VDC	5IDR919325V	With AMP connector
13EB34LH-12VDC	5IDR919319V	With Deutsch connector
13EB34LH-24VDC	5IDR919320V	With Deutsch connector
13EB3LHF3-12VDC	5IDR919314V	With AMP connector with spool stroke limiter
13EB3LHF3-24VDC	5IDR919326V	As previous one
13EB34LHF3-12VDC	5IDR919321V	With Deutsch connector with spool stroke limiter
13EB34LHF3-24VDC	5IDR919322V	As previous one

5 One-side electrohydr. control; "A" side page 151

These controls must be coupled with "B" side options

TYPE	CODE	DESCRIPTION
8EZ3-12VDC	5IDR609315V	With AMP connector
8EZ3-24VDC	5IDR609316V	As previous one
8EZ34-12VDC	5IDR609317V	With Deutsch connector
8EZ34-24VDC	5IDR609318V	As previous one
<u>With spool position sensor</u>		
8EZ34SPSL-0.5(A)-4.5(B)-12VDC	5IDR609313V	Deutsch conn. and analog sensor
<u>With lever control: for floating circuit (spool E5)</u>		
13EZ3-12VDC	5IDR619300V	With AMP connector
13EZ3-24VDC	5IDR619302V	As previous one
13EZ34-12VDC	5IDR619301V	With Deutsch connector
13EZ34-24VDC	5IDR619303V	As previous one

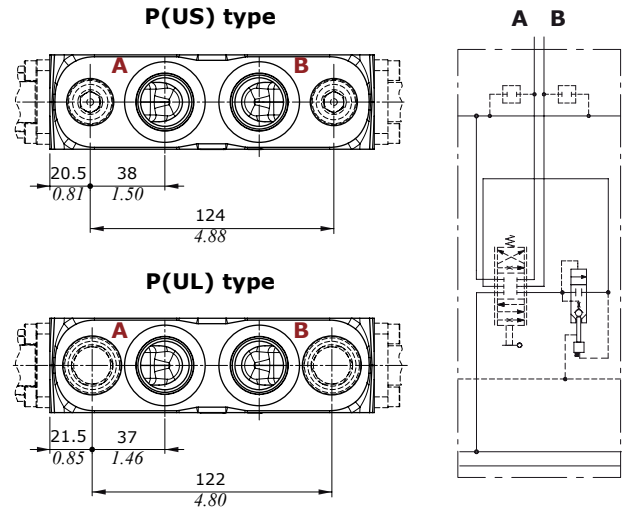
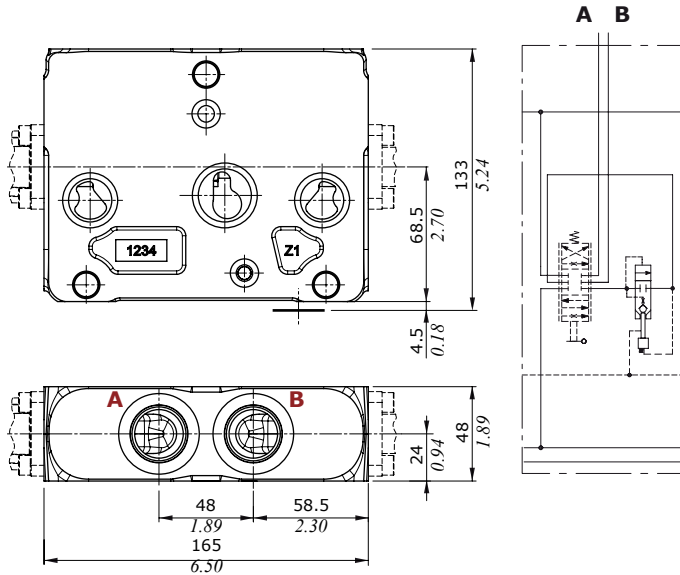
6 One-side electrohydr. option; "B" side" page 152

These options musto coupled with "A" side controls

TYPE	CODE	DESCRIPTION
LQ	5LEV160700V	Lever box
LQF3	5LEV160701V	Lever box with spool stroke limiter
SLCQ	5COP260000V	Endcap

Dimensions and hydraulic circuit

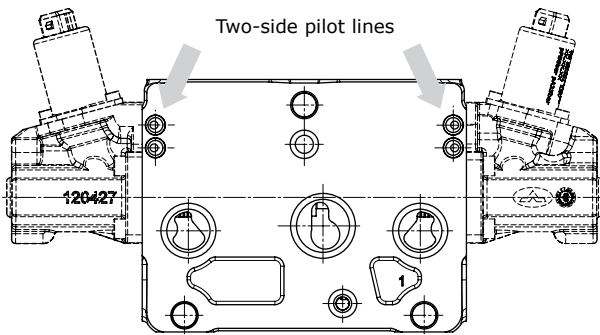
For mechanical and hydraulic controls



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

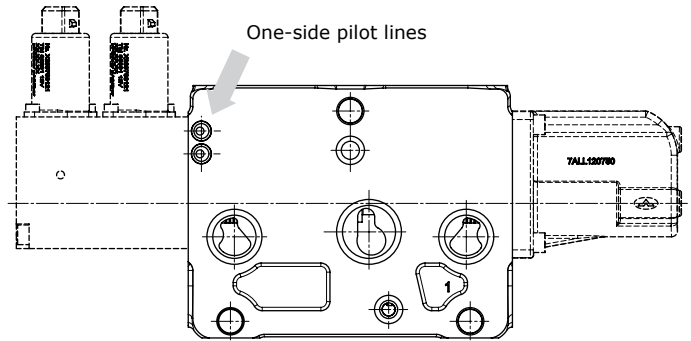
For two-side electrohydraulic control

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

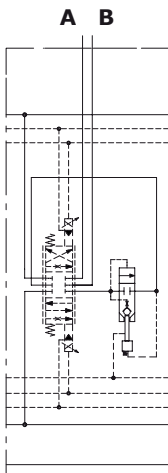


For one-side electrohydraulic control

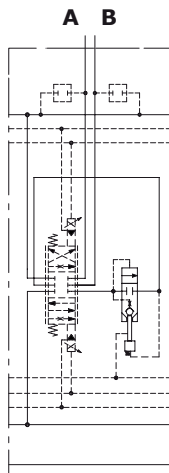
QZ, PZ(US) or PZ(UL) types



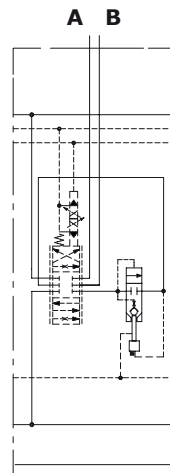
QE type



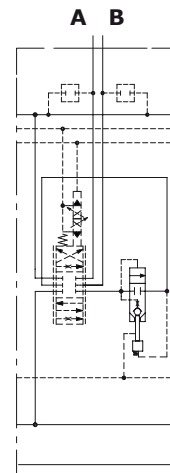
PE type



QZ type



PZ type

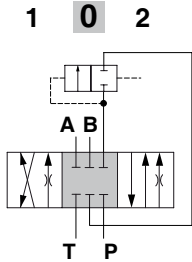


Working section

Spools

Type 1 (1../E1..) spool

A, B closed in neutral position

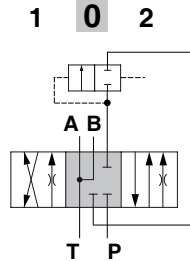


Spool stroke

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

Type 2(2../E2..) spool

A, B to tank in neutral pos.

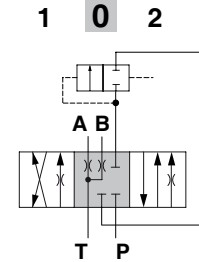


Spool stroke

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

Type 2H(2H../E2H..) spool

A, B partially to tank in neutral pos.

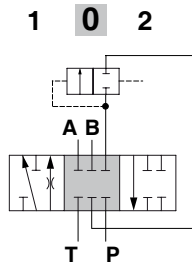


Spool stroke

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

Type 3 (3../E3..) spool

single acting on A

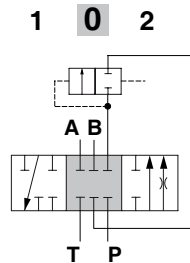


Spool stroke

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

Type 4 (4../E4..) spool

single acting on B

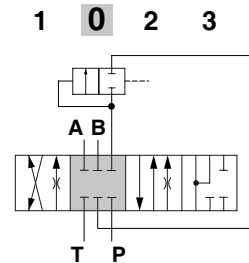


Spool stroke

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

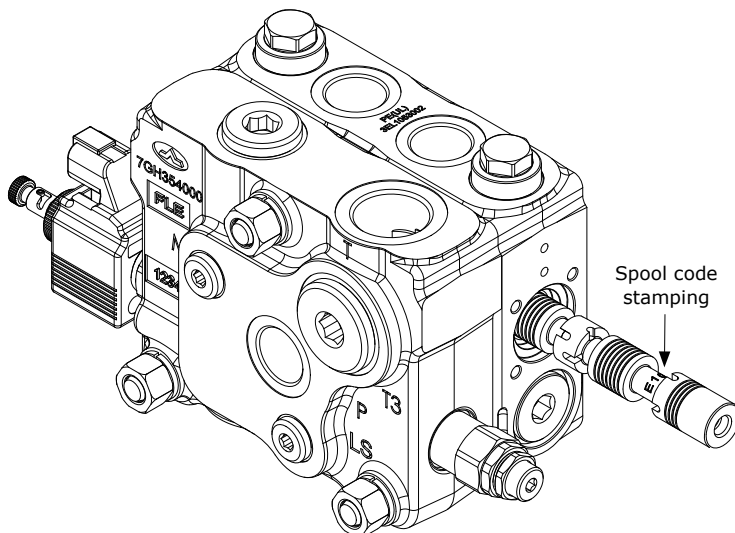
Type 5 (5../E5../I5..) spool

floating in 4th position (pos.3)



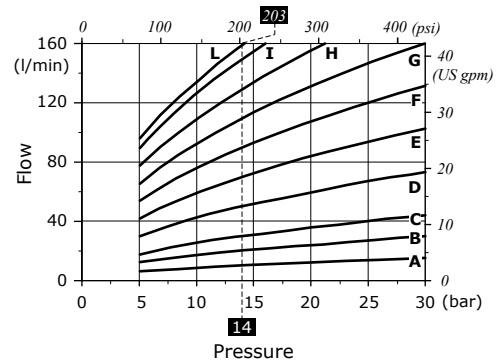
Spool stroke

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



In case of spool replacement the code stamping must be oriented toward B port.

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



Curves with spool nominal flow

@ 14 bar (200 psi) stand-by (margin pressure)

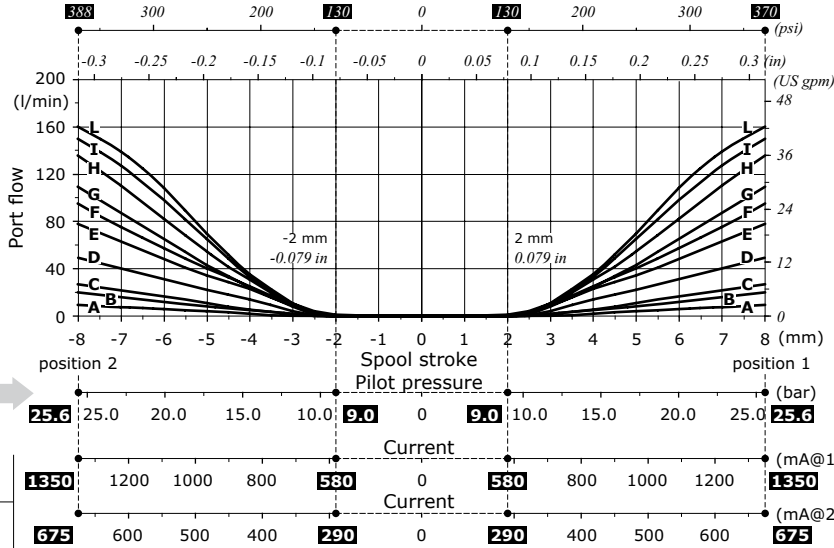
- A = 10 l/min (2.6 US gpm)
- B = 20 l/min (5.3 US gpm)
- C = 30 l/min (7.9 US gpm)
- D = 50 l/min (13.2 US gpm)
- E = 70 l/min (18.5 US gpm)
- F = 90 l/min (23.8 US gpm)
- G = 110 l/min (29.0 US gpm)
- H = 130 l/min (34.3 US gpm)
- I = 150 l/min (39.5 US gpm)
- L = 160 l/min (42.3 US gpm)

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 position spool metering curve

Q_{in} = 160 l/min (42.3 US gpm) - Open center circuit

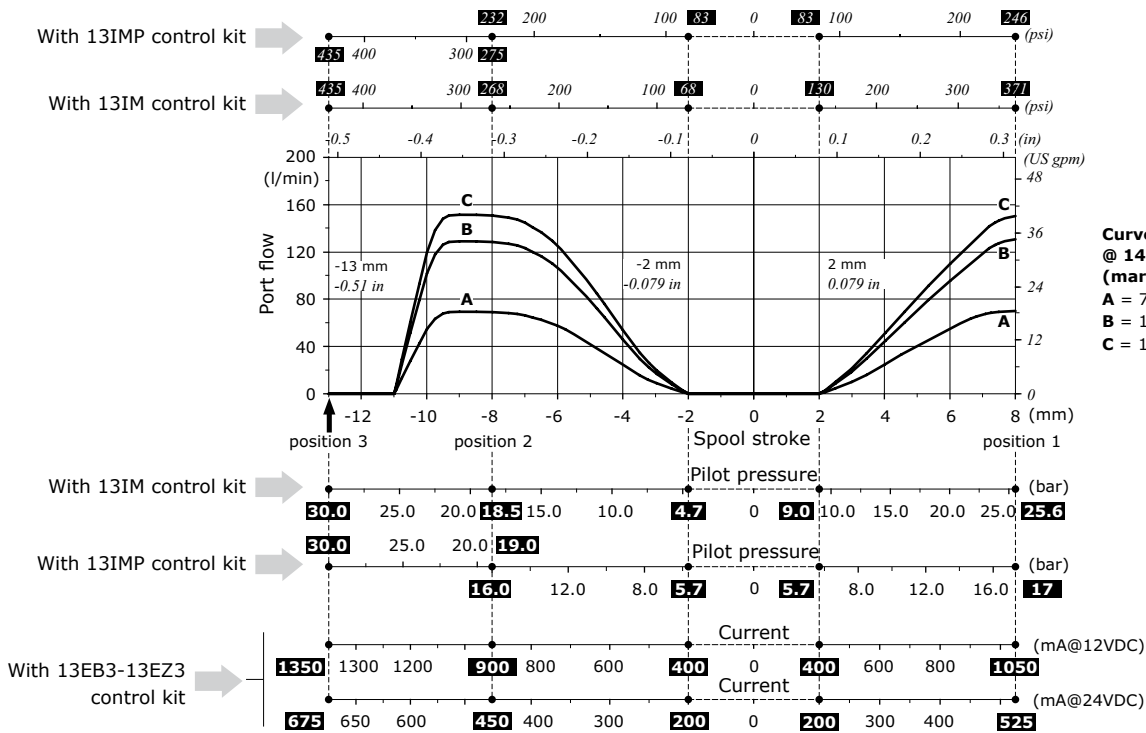


Curves with spool nom. flow @ 14 bar (200 psi) stand-by (margin pressure)

- 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

Q_{in} = 160 l/min (42.3 US gpm) - Open center circuit



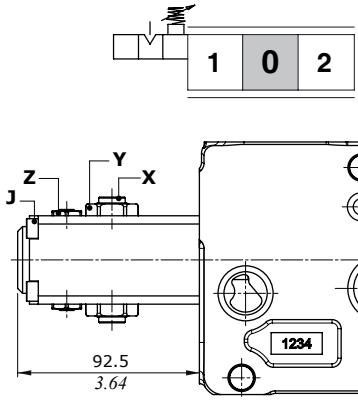
Curves with spool nom. flow @ 14 bar (200 psi) stand-by (margin pressure)

- A = 70 l/min (18.5 US gpm)
- B = 130 l/min (34.3 US gpm)
- C = 150 l/min (39.5 US gpm)

Working section

"A" side spool positioners

With friction, 7FTNA type

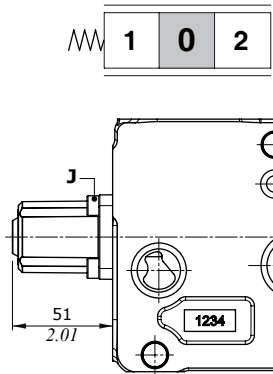


Wrenches and tightening torques

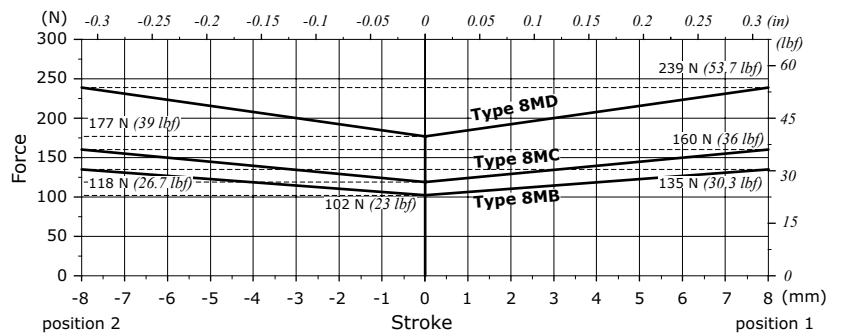
- J = allen wrench 5 - 9.8 Nm (7.2 lbf_t)
- X = allen wrench 4
- Y = wrench 24 - manual tightening
- Z = wrench 15 - 42 Nm (31 lbf_t)

With spring return to neutral position, 8MD type

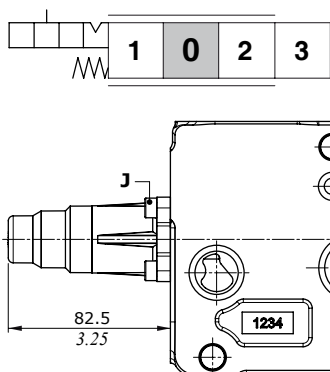
It's configured with spring type D, as standard (see diagram); it's also available with lighter C type springs (8MC code: 5V08109002) or B type (8MB code 5V08109003).



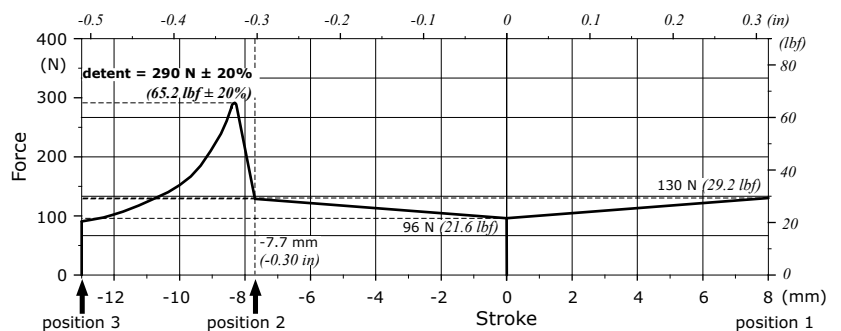
Force vs. Stroke diagram



For floating circuit, 13 type



Force vs. Stroke diagram

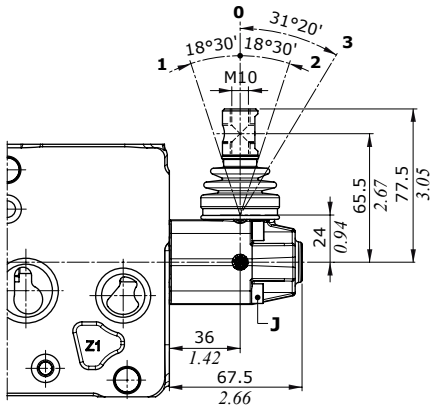


Release force from pos.3: 260 N ± 20% (58.5 lbf ± 20%)

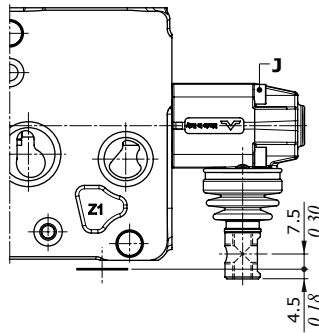
"B" side spool control kit

Lever boxes

L type

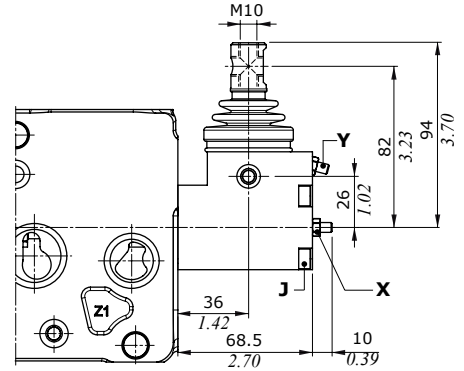
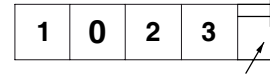


L180 type



LFG type

Spool stroke limiter on both ports



Wrenches and tightening torques

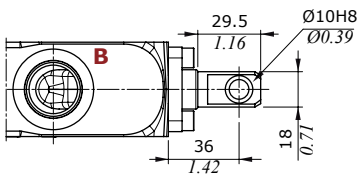
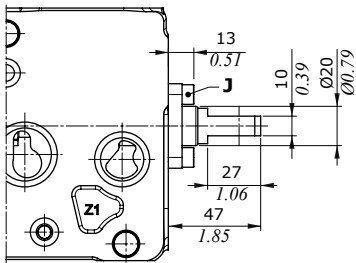
J = allen wrench 5 - 9.8 Nm (7.2 lbf_t)

X = allen wrench 2.5

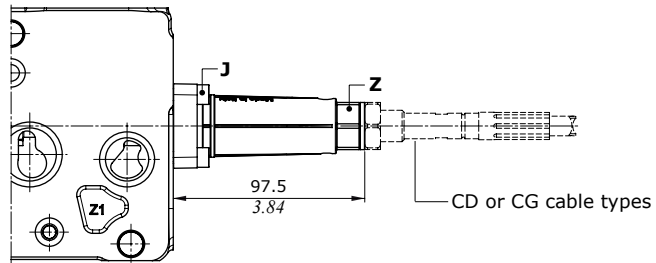
Y = wrench 8 - 6.6 Nm (4.9 lbf_t)

Z = wrench 24

Dust-proof plate, SLP type



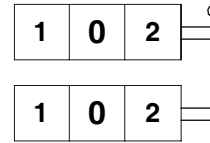
Flexible cable connection, TQ type



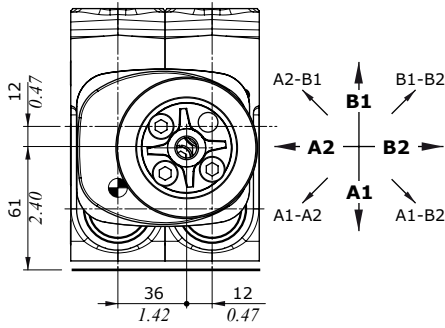
Working section

"B" side spool control kit

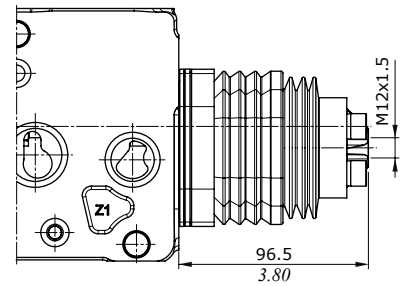
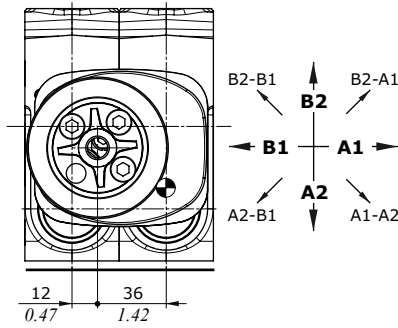
Joysticks for two section operation



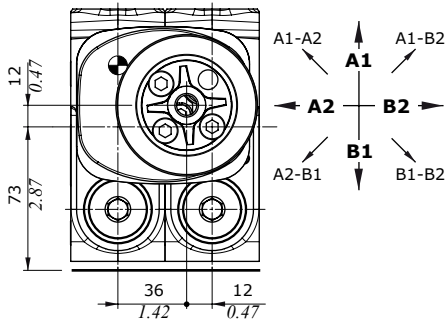
LCB1 configuration



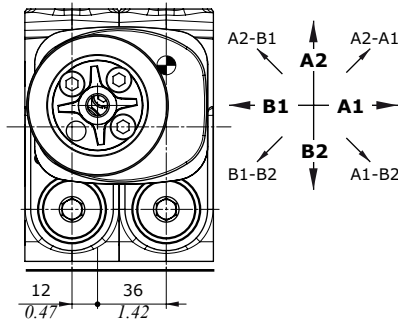
LCB2 configuration



LCB3 configuration

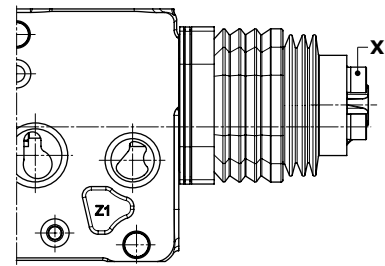


LCB4 configuration

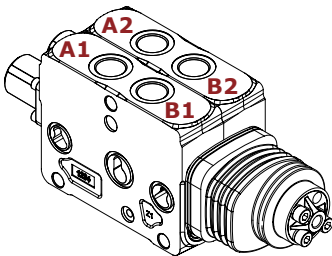


Wrenches and tightening torques

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

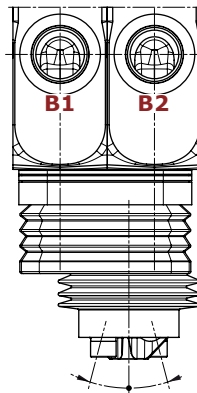


LCB1 configuration example

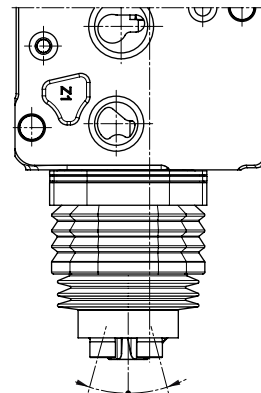


Working angles

Horizontal axis



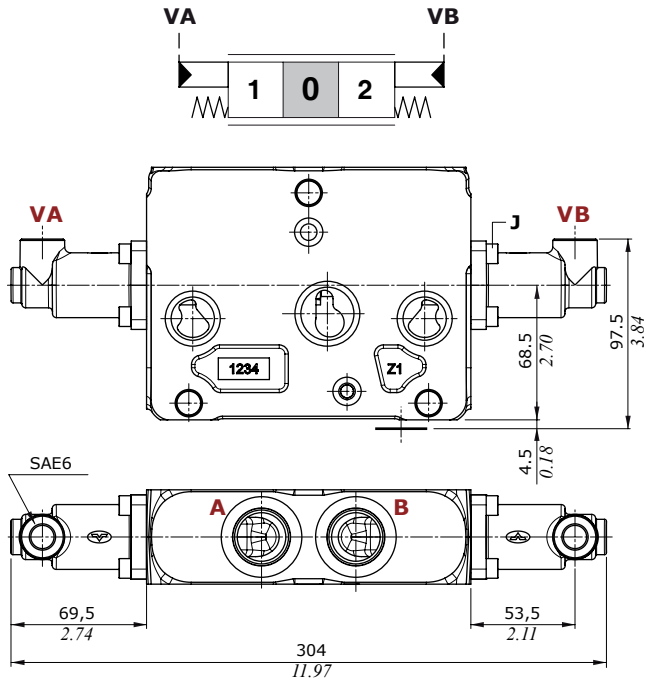
vertical axis



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

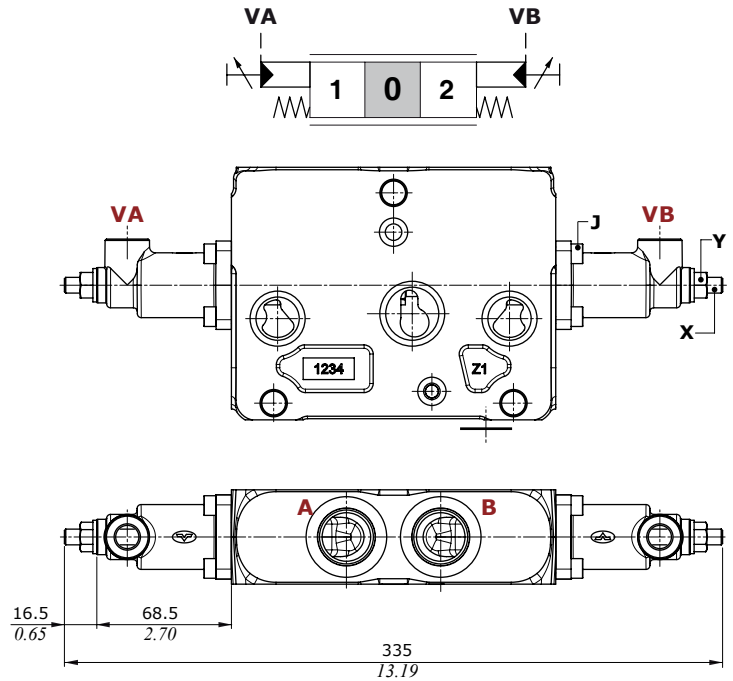
Proportional hydraulic control

8IMNOH type



8IMOHF3N type

With spool stroke limiter on ports A and B



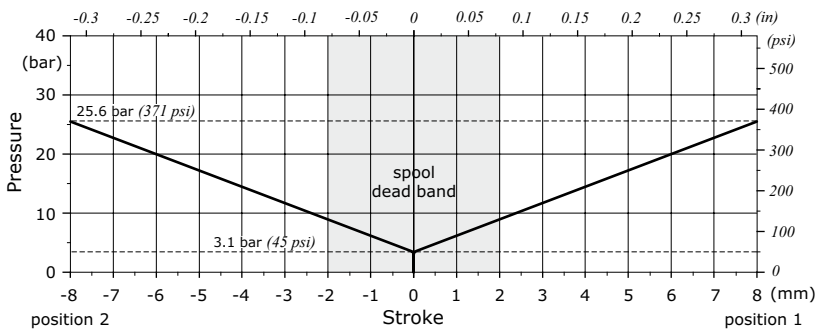
Features (all types)

Max. pressure : 50 bar (725 psi)

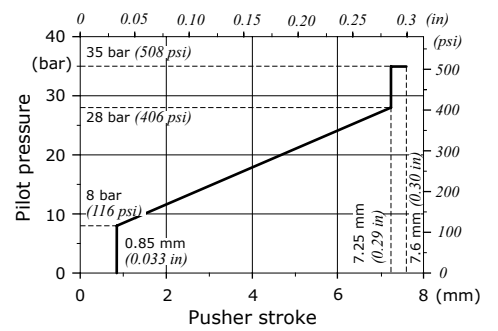
Wrenches and tightening torques

- J = allen wrench 5 - 9.8 Nm (7.2 lbft)
- X = allen wrench 4
- Y = wrench 13 - 24 Nm (17.7 lbft)

Stroke vs. Pressure diagram



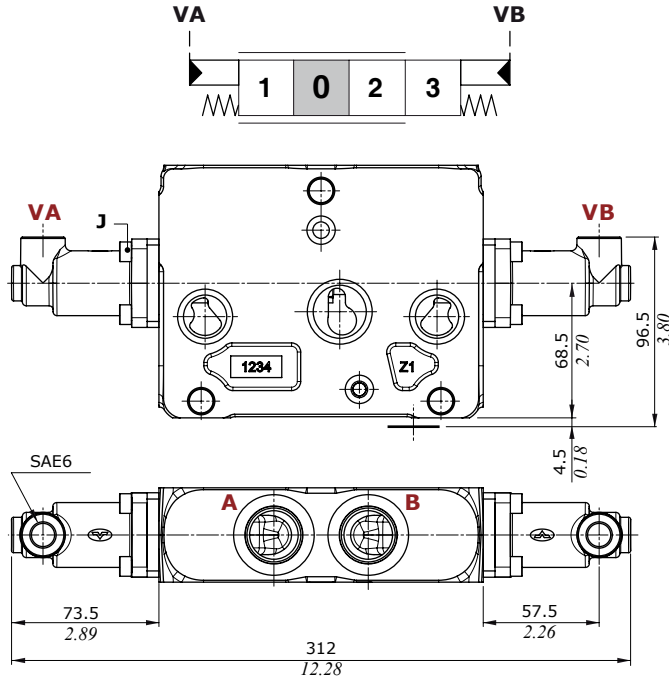
Suggested pressure control curve: 089 type



Working section

Proportional hydraulic control

For floating circuit, 13IMOH - 13IMP types



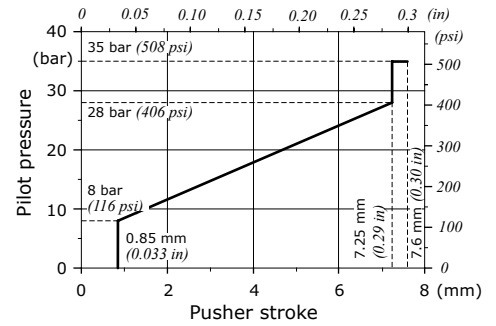
Features

Max. pressure : 50 bar (725 psi)

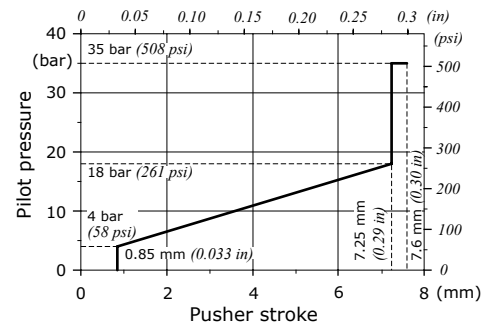
Wrenches and tightening torques

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

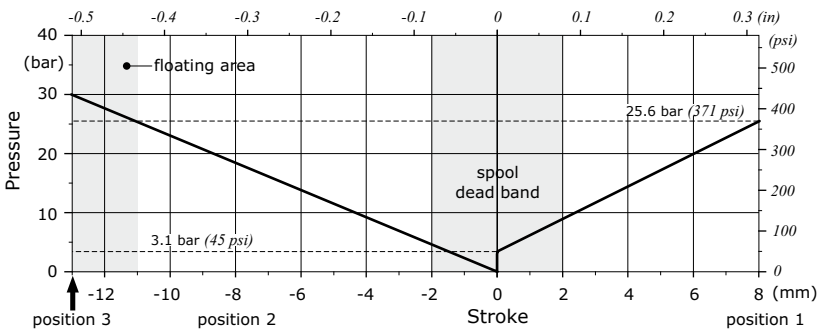
13IMOH type: suggested pressure control curve on port VA: 089 type



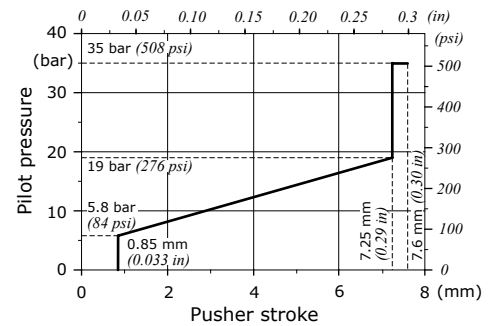
13IMP type: suggested pressure control curve on port VA: 073 type



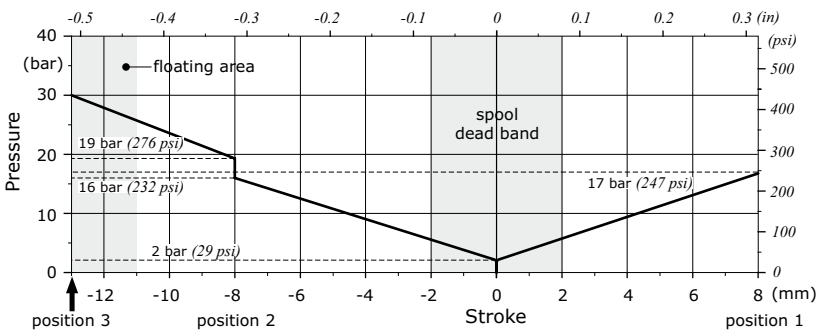
13IMOH type: Stroke vs. Pressure diagram



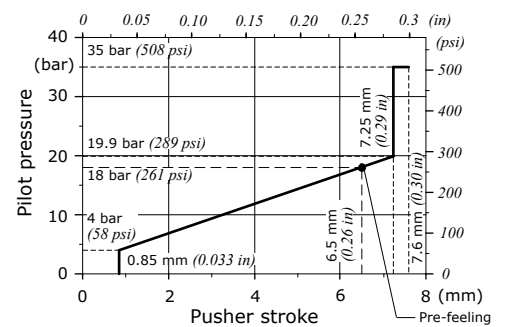
13IMOH type: suggested pressure control curve on port VB: 033 type



13IMP type: Stroke vs. Pressure diagram



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



Electrohydraulic control performance data

Following specifications are measured with:

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

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

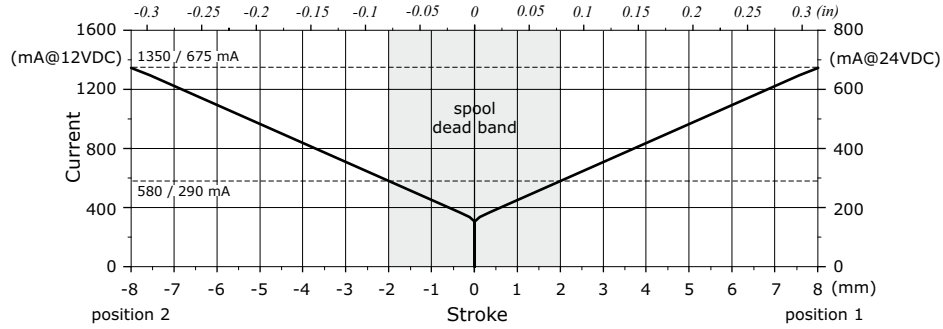
Specifications		Spool control type			
		8EB3	13EB3	8EZ3	13EZ3
Electric specifications					
Coil impedance	12 VDC	4,72 Ω	4,72 Ω	4,72 Ω	4,72 Ω
	24 VDC	20,8 Ω	20,8 Ω	20,8 Ω	20,8 Ω
Max. operating current	12 VDC	1,5 A	1,5 A	1,5 A	1,5 A
	24 VDC	0,75 A	0,75 A	0,75 A	0,75 A
No load current consumption		0	0	0	0
				<u>With lever box configured controls</u>	
Hysteresis max. ⁽¹⁾	external drain	3% 4% with lever	6% 8% with lever	4%	8%
	internal drain	4% 5% with lever	7% 10% with lever	5%	10%
Time response	from 0 ⇒ 100% of stroke	< 80 ms	< 100 ms	< 80 ms	< 100 ms
	from 100% ⇒ 0 of stroke	< 60 ms	< 80 ms	< 60 ms	< 80 ms
Min. flow control signal	12 VDC	580 mA	400 mA	580 mA	400 mA
	24 VDC	290 mA	200 mA	290 mA	200 mA
Max. flow control signal	12 VDC	1350 mA	P⇒A: 1050 mA P⇒B: 900 mA	1350 mA	P⇒A: 1050 mA P⇒B: 900 mA
	24 VDC	675 mA	P⇒A: 525 mA P⇒B: 450 mA	675 mA	P⇒A: 525 mA P⇒B: 450 mA
Float flow control signal	12 VDC		1350 mA		1350 mA
	24 VDC		675 mA		675 mA
Dither frequency	low frequency	150 Hz		150 Hz	
	high frequency	180 Hz - 350 mA		180 Hz - 350 mA	
Insertion		100%		100%	
Coil insulation		Class H (180°C - 356°F)		Class H (180°C - 356°F)	
Connector type		AMP JPT - Deutsch DT		AMP JPT - Deutsch DT	
Weather protection (connector)		IP65 (JPT type) - IP69K (DT type)		IP65 (JPT type) - IP69K (DT type)	
Hydraulic specifications					
Max. pressure		40 bar (580 psi)		50 bar (725 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 170.

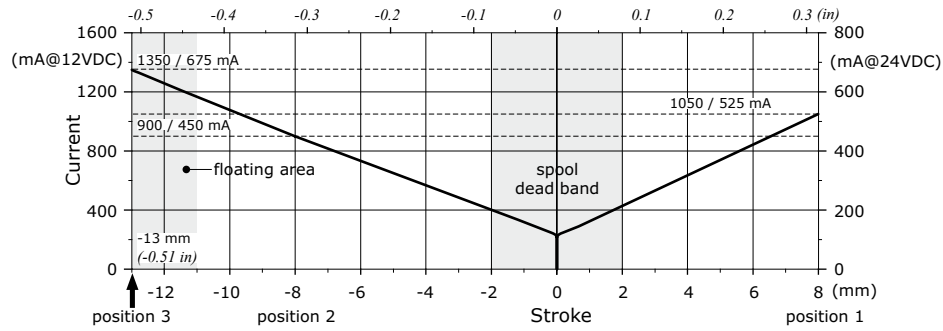
Working section

Electrohydraulic control performance data

8EB3-8EZ3 types: Stroke vs. Current diagram



13EB3-13EZ3 types: Stroke vs. Current diagram



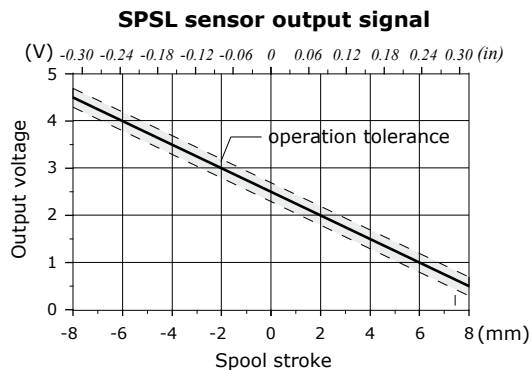
Electrohydraulic controls: spool position sensor

The sensor can be ordered exclusively through the EB and EZ type electrohydraulic controls; see page 136 for available control list.

SPSL sensor

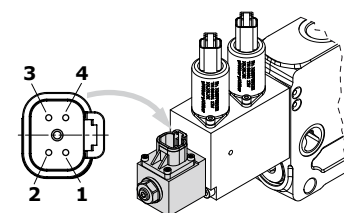
The SPSL position sensor converts the spool movements into a voltage linear signal.

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



Deutsch DT04-4P connector

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

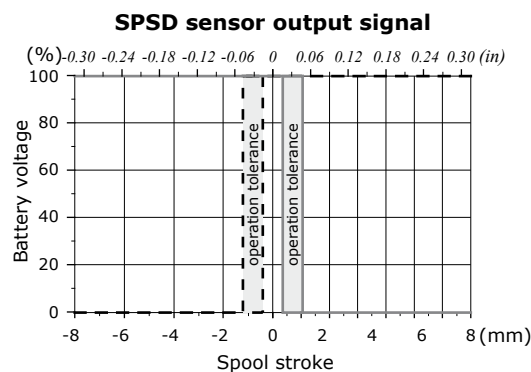


Deutsch DT06-4S mating connector, code 5CON140072

SPSD sensor

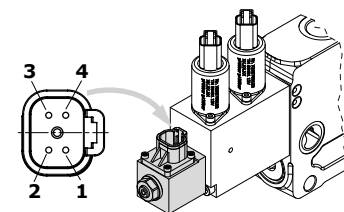
The SPSSD position sensor converts the spool movements into an electric digital signal.

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



Deutsch DT04-4P connector

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



Deutsch DT06-4S mating connector, code 5CON140072

Working section

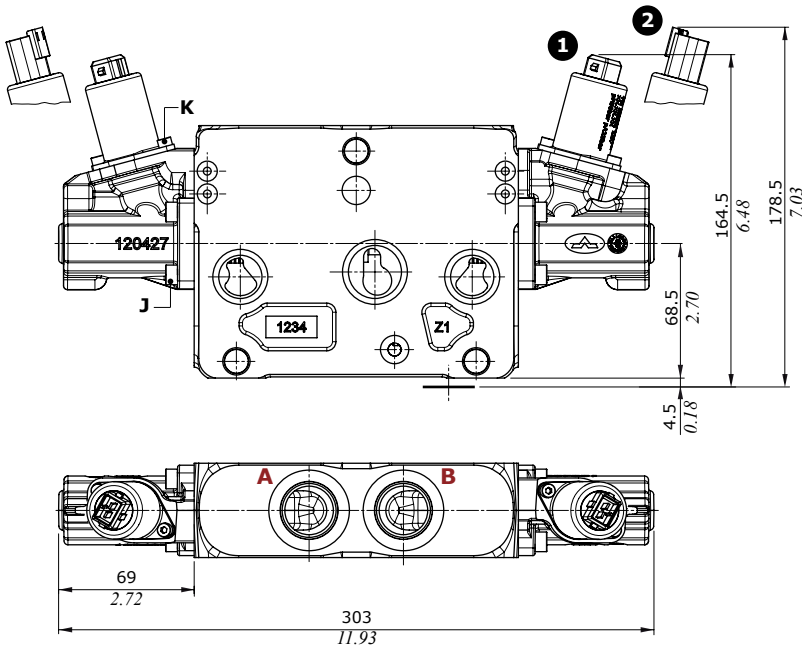
Two-side electrohydraulic control

Without lever control

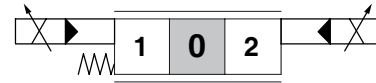
Control Types

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

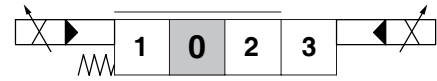
2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



8EB3 - 8EB34 types



13EB3 - 13EB34 types



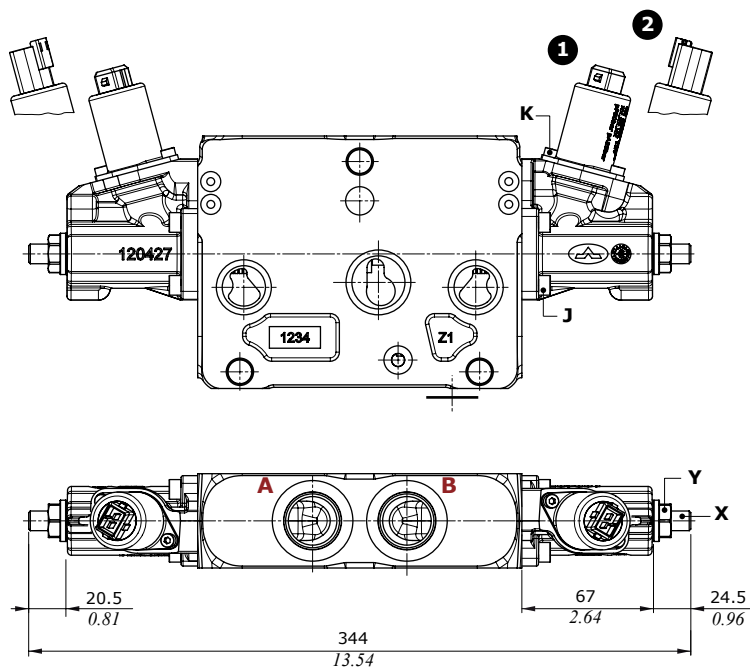
Wrenches and tightening torques

J = allen wrench 5 - 9.8 Nm (7.2 lbf_t)

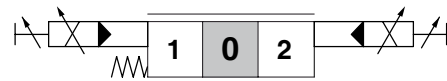
K = allen wrench 3 - 5 Nm (3.7 lbf_t)

X = allen wrench 5

Y = wrench 17 - 24 Nm (17.7 lbf_t)



8EB3F3 - 8EB34F3 types

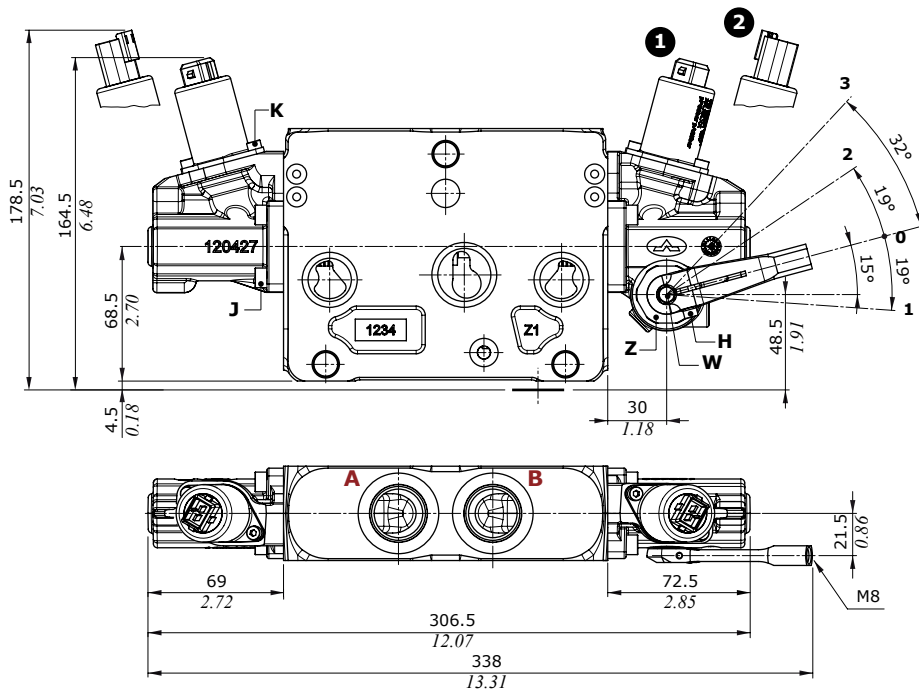


Two-side electrohydraulic control

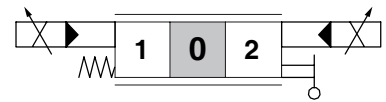
With lever control

Control Types

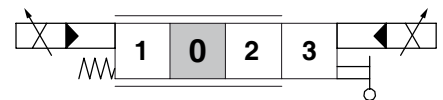
- 1 : With AMP JPT connector - AMP JPT, mating connector code: 5CON003
- 2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



8EB3LH - 8EB34LH types

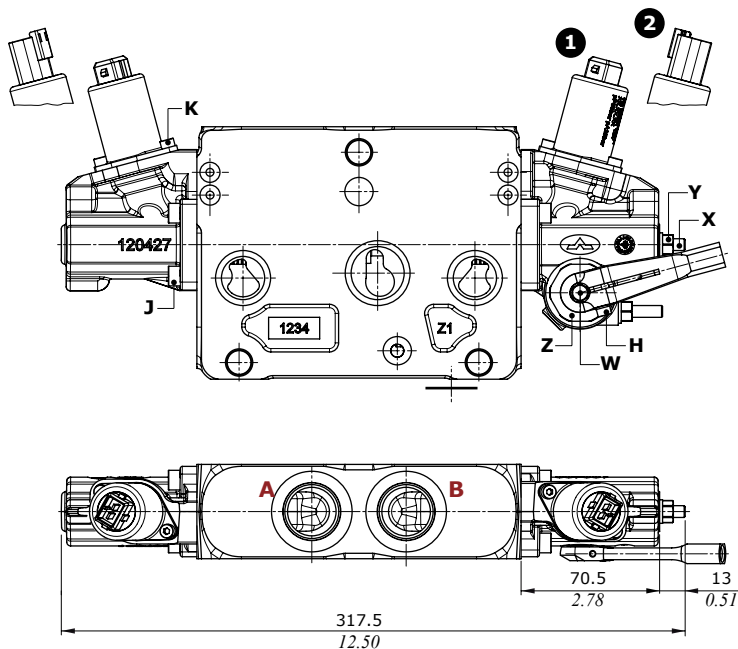


13EB3LH - 13EB34LH types

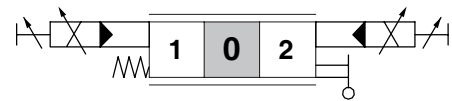


Wrenches and tightening torques

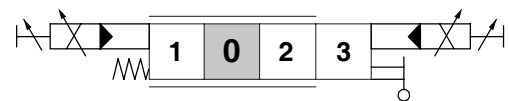
- H = allen wrench 3 - 6.6 Nm (4.9 lbft)
- J = allen wrench 5 - 9.8 Nm (7.2 lbft)
- K = allen wrench 3 - 5 Nm (3.7 lbft)
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbft)
- Z = wrench 29 - 24 Nm (17.7 lbft)
- W = wrench 8



8EB3LHF3 - 8EB34LHF3 types



13EB3LHF3 - 13EB34LHF3 types



Working section

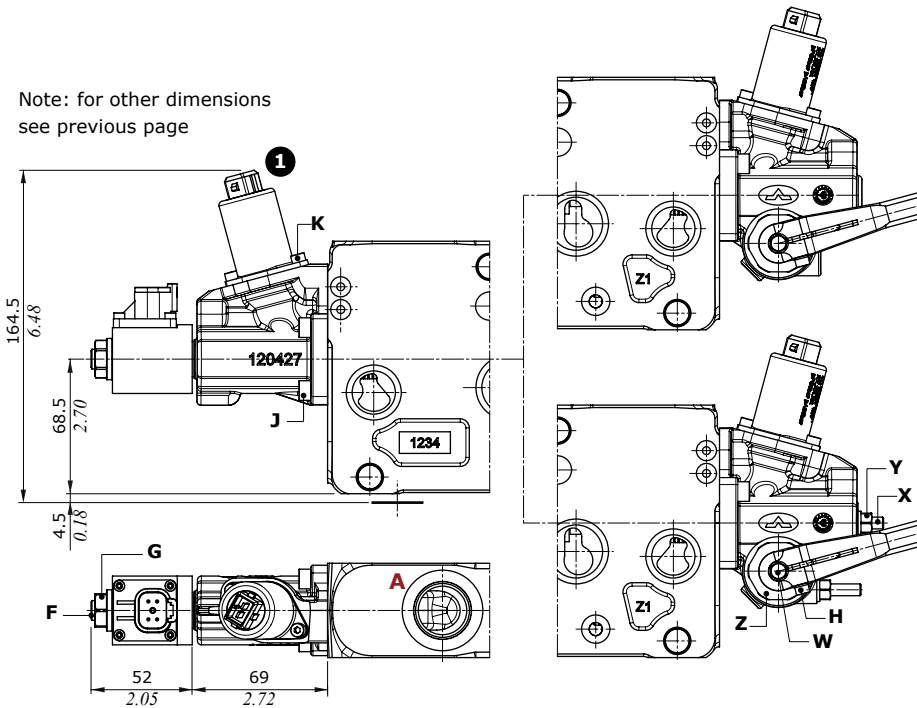
Two-side electrohydraulic control

With lever control and spool position sensor

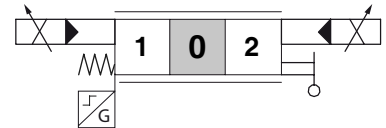
Control Types

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

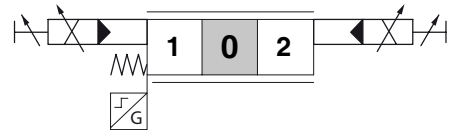
Note: for other dimensions see previous page



8EB3TLHSPSD type
Digital output sensor



8EB3TLHF3SPSD type
Digital output sensor



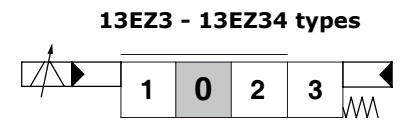
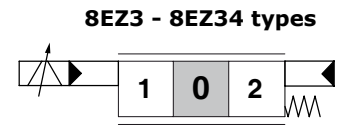
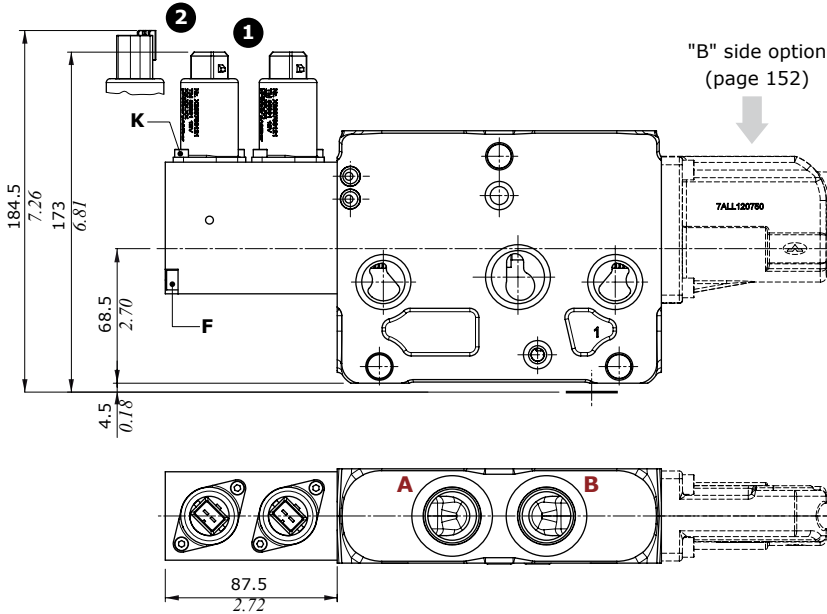
Wrenches and tightening torques

- F = allen wrench 4 - 9.8 Nm (7.2 lbft)
- G = wrench 17 - 9.8 Nm (7.2 lbft)
- H = allen wrench 3 - 6.6 Nm (4.9 lbft)
- J = allen wrench 5 - 9.8 Nm (7.2 lbft)
- K = allen wrench 3 - 5 Nm (3.7 lbft)
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbft)
- Z = wrench 29 - 24 Nm (17.7 lbft)
- W = wrench 8

One-side electrohydraulic control: "A" side

Control Types

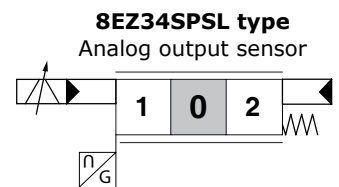
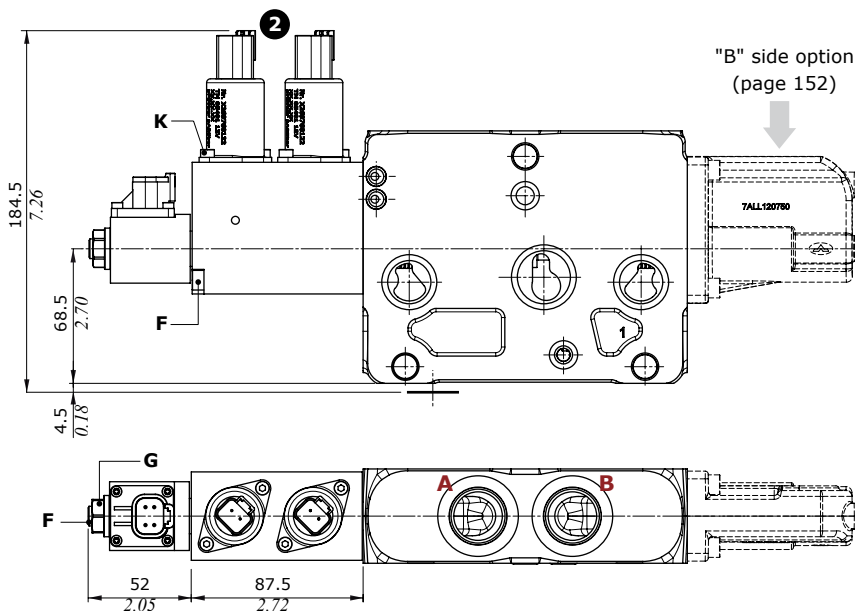
- 1 : With AMP JPT connector - AMP JPT, mating connector code: 5CON003
- 2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



Wrenches and tightening torques

- F = allen wrench 4 - 9.8 Nm (7.2 lbft)
- G = wrench 17 - 9.8 Nm (7.2 lbft)
- J = allen wrench 5 - 9.8 Nm (7.2 lbft)
- K = allen wrench 3 - 5 Nm (3.7 lbft)

With spool position sensor



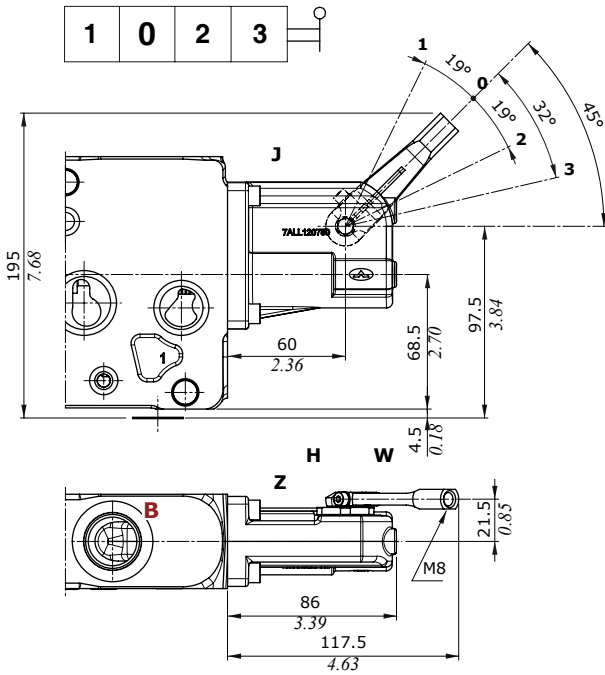
Working section

One-side electrohydraulic control: "B" side option

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

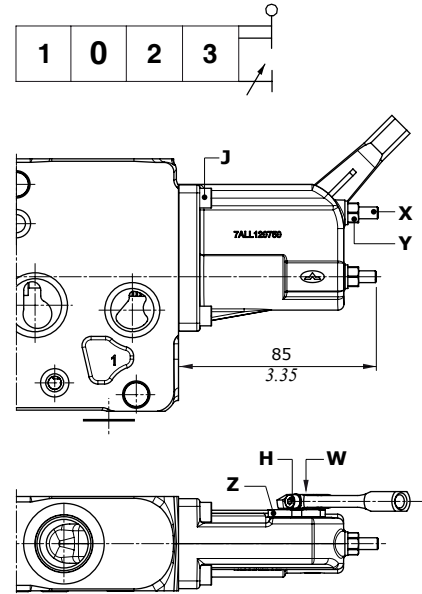
Lever boxes

LQ type



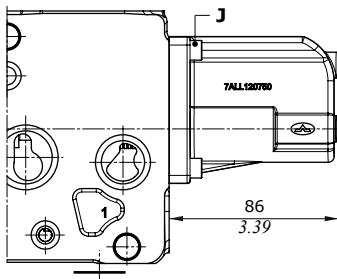
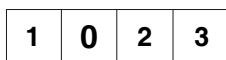
LQF3 type

Spool stroke limiter on A and B ports



Endcap

SLCQ type

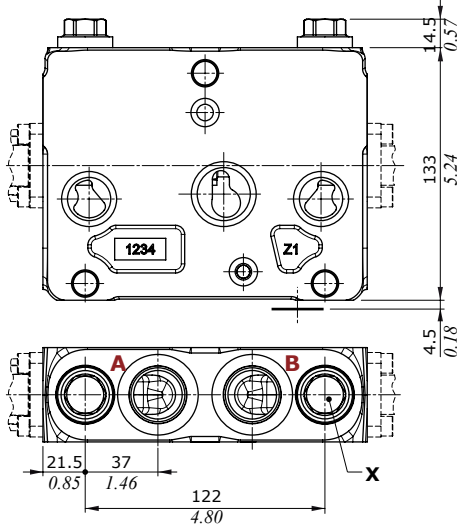


Wrenches and tightening torques

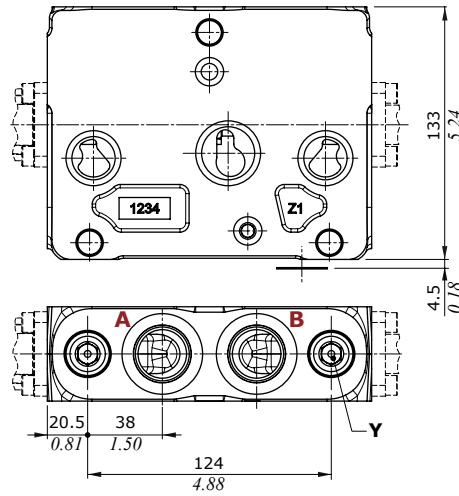
- H = allen wrench 3 - 6.6 Nm (4.9 lbf^t)
- J = allen wrench 5 - 9.8 Nm (7.2 lbf^t)
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbf^t)
- Z = wrench 29 - 24 Nm (17.7 lbf^t)
- W = wrench 8

Port valves

Pressure relief valves, UL type
Anticavitation valve, CL type



Antishock valves, US type
Anticavitation valve, CS type



UL-US types



CL-CS types



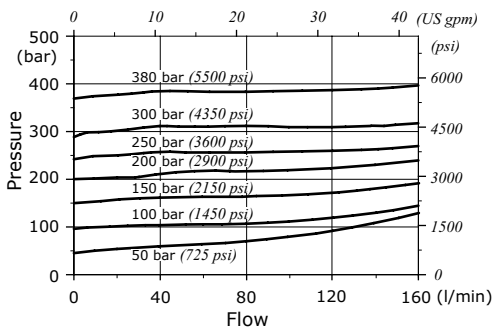
Wrenches and tightening torques

X = wrench 19 - 42 Nm (31 lbft) - (plug and valves)

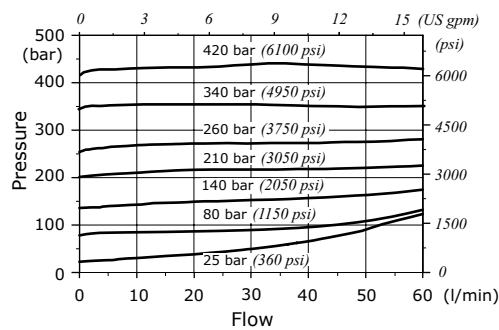
Y = allen wrench 6 - 24 Nm (17.7 lbft) - (tappo)

wrench 10 - 24 Nm (17.7 lbft) (valves)

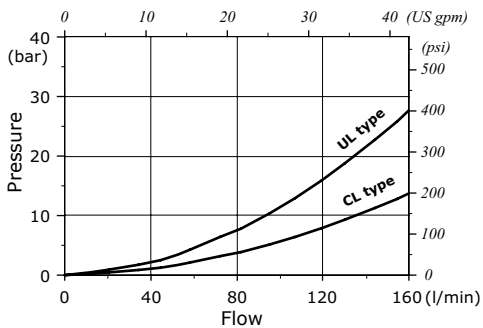
UL type, setting example
(5 l/min - 1.3 Us gpm)



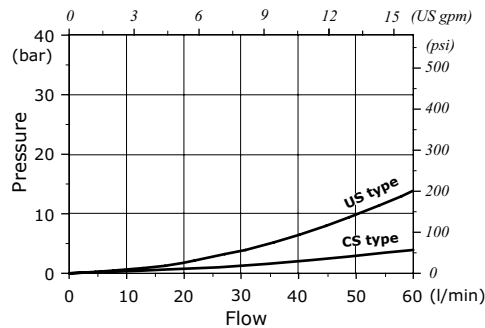
US type, setting example
(10 l/min - 2.6 Us gpm)



UL-CL types, pressure drop
(in anticavitation)



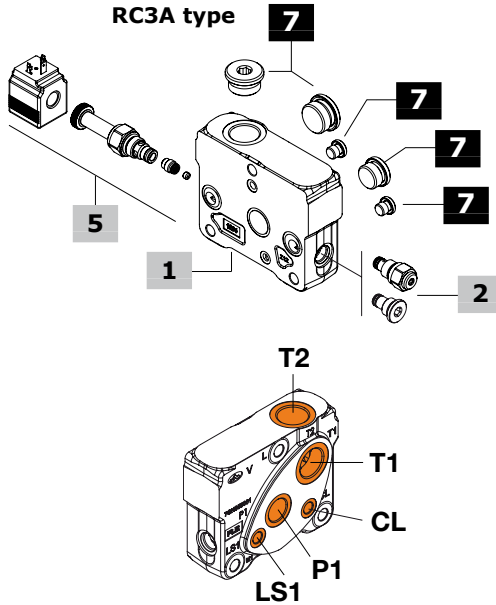
US-CS types, pressure drop
(in anticavitation)



Outlet section part ordering codes

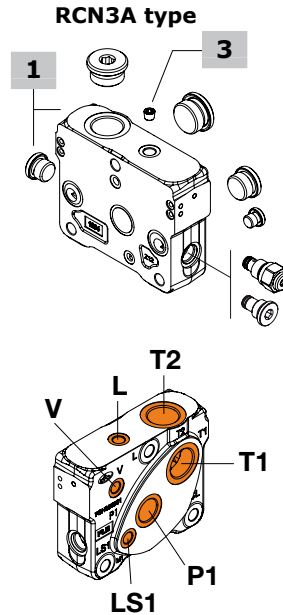
DPX160/RC3A-CL\VR3 - ... -12VDC

1 5 6 5



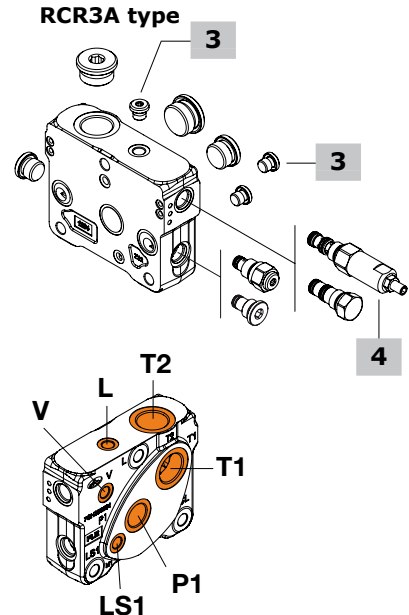
DPX160/RCN3A(VBT)- ...

1 2



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

1 4 3 2



1 Outlet section kit* page 155

Outlet section is the same type for standard and High Pressure valve
For mechanical and hydraulic controls

TYPE: **DPX160/RC1-SAE** CODE: YFIA205700S

DESCRIPTION: With upper T2 port port

TYPE: **DPX160/RC3-SAE** CODE: YFIA205702S

DESCRIPTION: With upper T2 port and P1, T1, LS1 side ports

TYPE: **DPX160/RC3-CL-SAE** CODE: YFIA205714S

DESCRIPTION: As previous one with clamp release arrang. and port CL

For electrohydraulic controls

TYPE: **DPX160/RCN1-SAE** CODE: YFIA205706S

DESCRIPTION: Without pressure reducing valve arrangement, L

upper and V side ports, T2 upper port

TYPE: **DPX160/RCN3-SAE** CODE: YFIA205713S

DESCRIPTION: As previous one with P1, T1, LS1 side ports

TYPE: **DPX160/RCN3-CL-SAE** CODE: YFIA205715S

DESCRIPTION: As previous one with clamps release arrang. and CL port

TYPE: **DPX160/RCR1-SAE** CODE: YFIA205703S

DESCRIPTION: With pressure reducing valve arrangement, upper L

and side V ports, upper T2 port

TYPE: **DPX160/RCR3-SAE** CODE: YFIA205707S

DESCRIPTION: As previous one with P1, T1, LS1 side ports

TYPE: **DPX160/RCR3-CL-SAE** CODE: YFIA205716S

DESCRIPTION: As previous one with clamps release arrang. and CL port

Note: for outlet sections with different port arrangement please

contact Sales Dpt

2 Bleed valve page 155

TYPE	CODE	DESCRIPTION
(-)	X138810000V	Bleed valve
(VBT)	XTAP525320V	Valve blanking plug

3 Pilot and drain* page 156

TYPE	CODE	DESCRIPTION
(-)	4TAP306006	M6-DIN906 plug, for external drain
(VLT)	XTAP719160	SAE6 plug, nr.2 for int. pilot and drain,

4 Pressure reducing valve page 156

TYPE	CODE	DESCRIPTION
(-)	4AC9539900	Press. reducing valve, 32 bar (464 psi)
(RT)	3XTP3535100V	Valve blanking plug (SAE 08/3)

5 Clamp release kit page 156

TYPE	CODE	DESCRIPTION
CL	5KIT409010V	Clamp release kit, 12VDC

6 Section threading

Only specify if it is different from BSP standard (see page 7).

7 Parts*

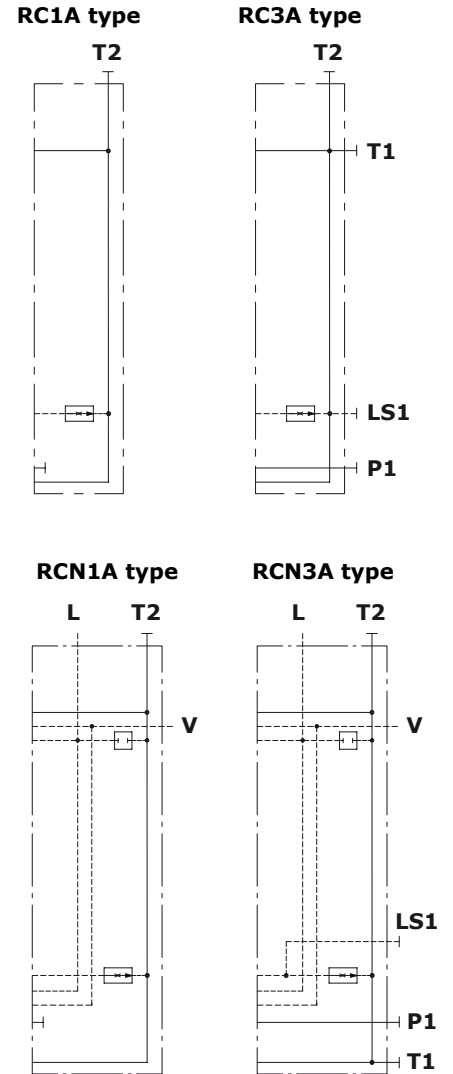
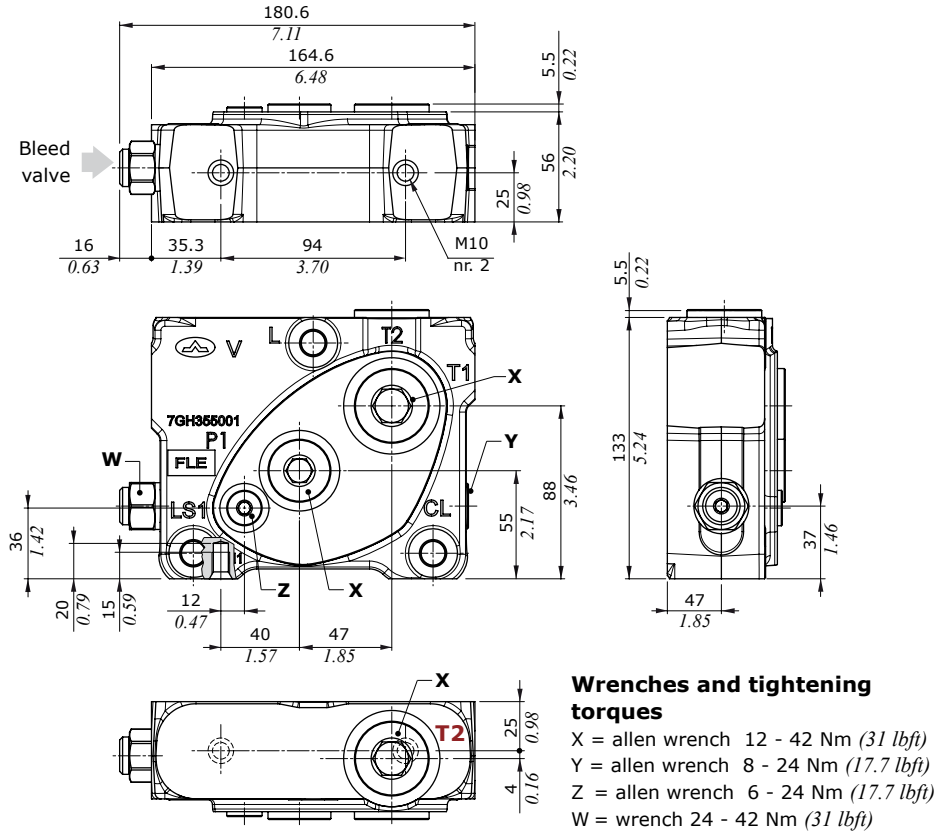
CODE	DESCRIPTION
3XTAP838200	SAE16 plug: for RC1/RCN1/RCR1 = nr. 1 for RC3/RCN3/RCR3 = 2
3XTAP832200	SAE12 plug, for RC1/RCN1/RCR1 = nr. 0 for RC3/RCN3/RCR3 = 1
3XTAP817130	SAE6 plug, for RC1/RCN1/RCR1 = nr. 0 for RC3/RCN3/RCR3 = 1 for RC3-CL/RCN3-CL/RCR3-CL = 2

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

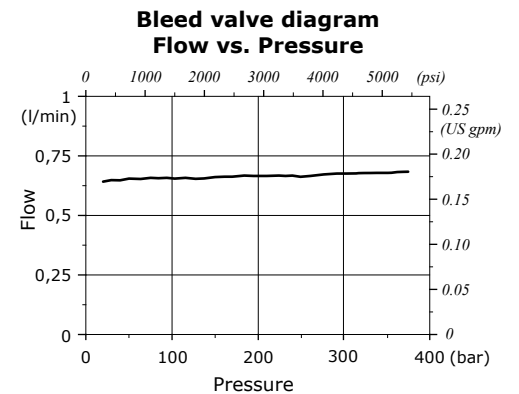
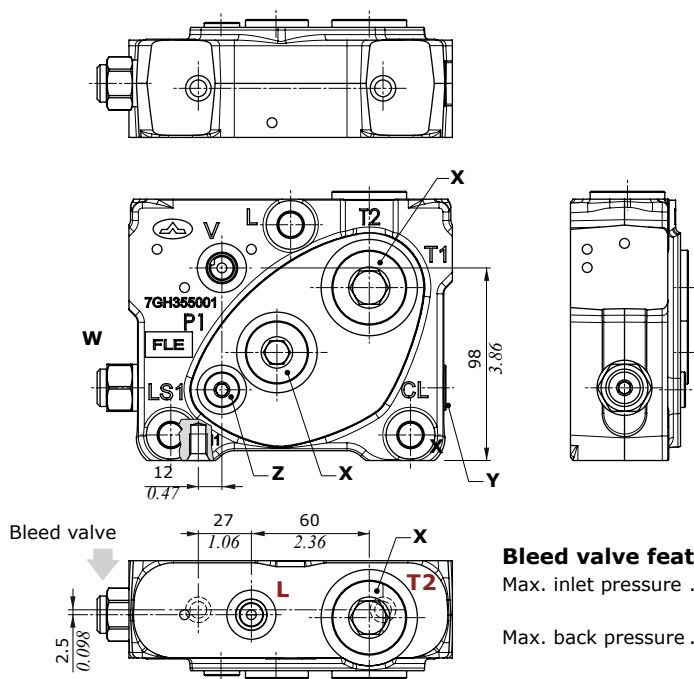
NOTE (-): "TYPE" omitted in outlet section description

Dimensions and hydraulic circuit

Example of RC3A outlet section



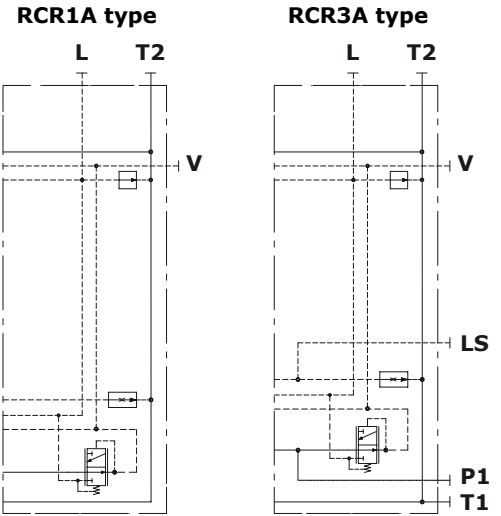
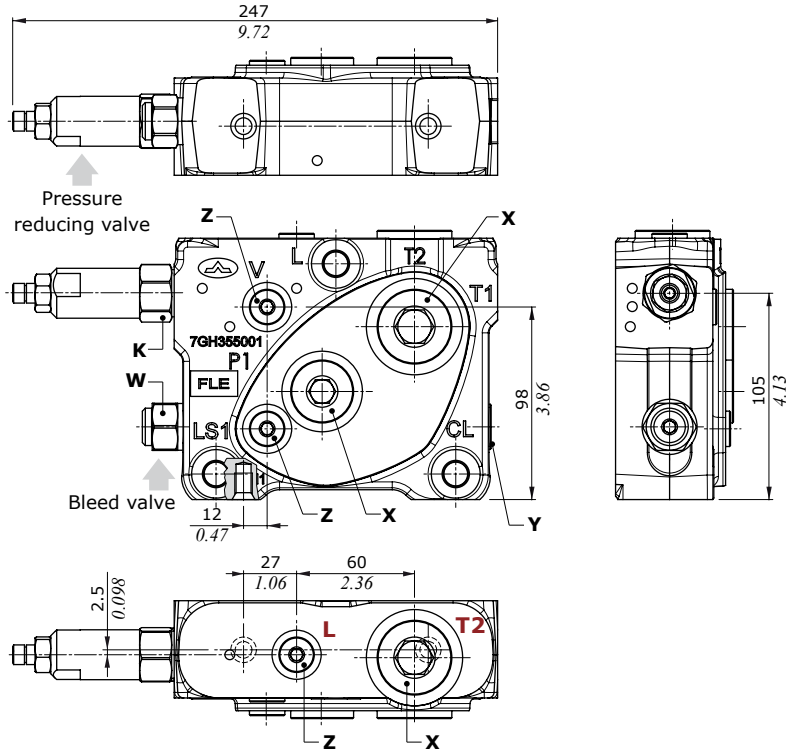
Example of RCN3A outlet section



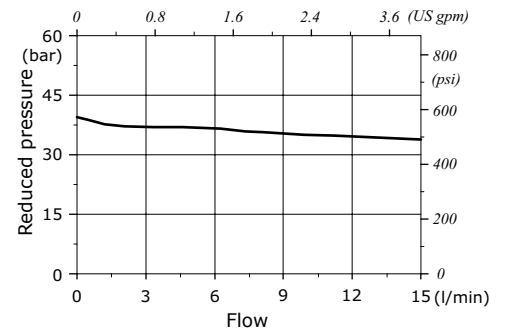
Outlet section

Dimensions and hydraulic circuit

Example of RCR3A outlet section



Pressure reducing valve diagram
Reduced pressure vs. Flow



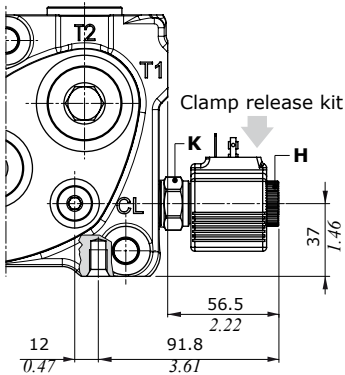
Pressure reducing valve features

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)

Wrenches and tightening torques

H = manual tightening
K = wrench 24 - 30 Nm (22 lbft)
X = allen wrench 12 - 42 Nm (31 lbft)
Y = allen wrench 8 - 24 Nm (17.7 lbft)
Z = allen wrench 6 - 24 Nm (17.7 lbft)
W = wrench 24 - 42 Nm (31 lbft)

Outlet sections with clamp release kit

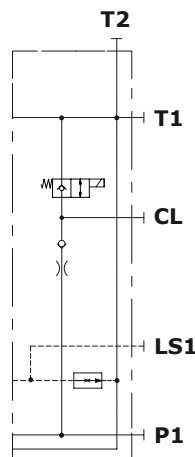


Features

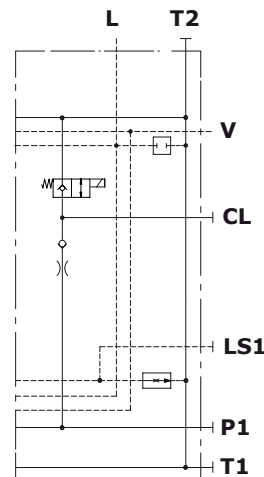
Max. flow : 45 l/min (12 US gpm)
Max. pressure : 315 bar (4600 psi)
Internal leakage : max. 3 cm³/min @ 100 bar
(max. 0.018 in³/min @ 1450 psi)

For coil features and options see BER type coil at page 160.

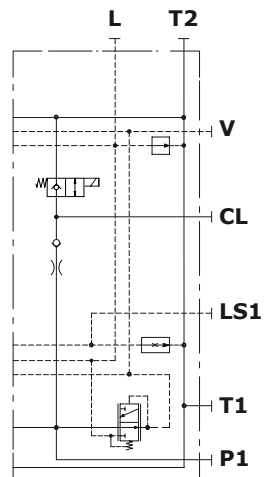
RC3A-CL type



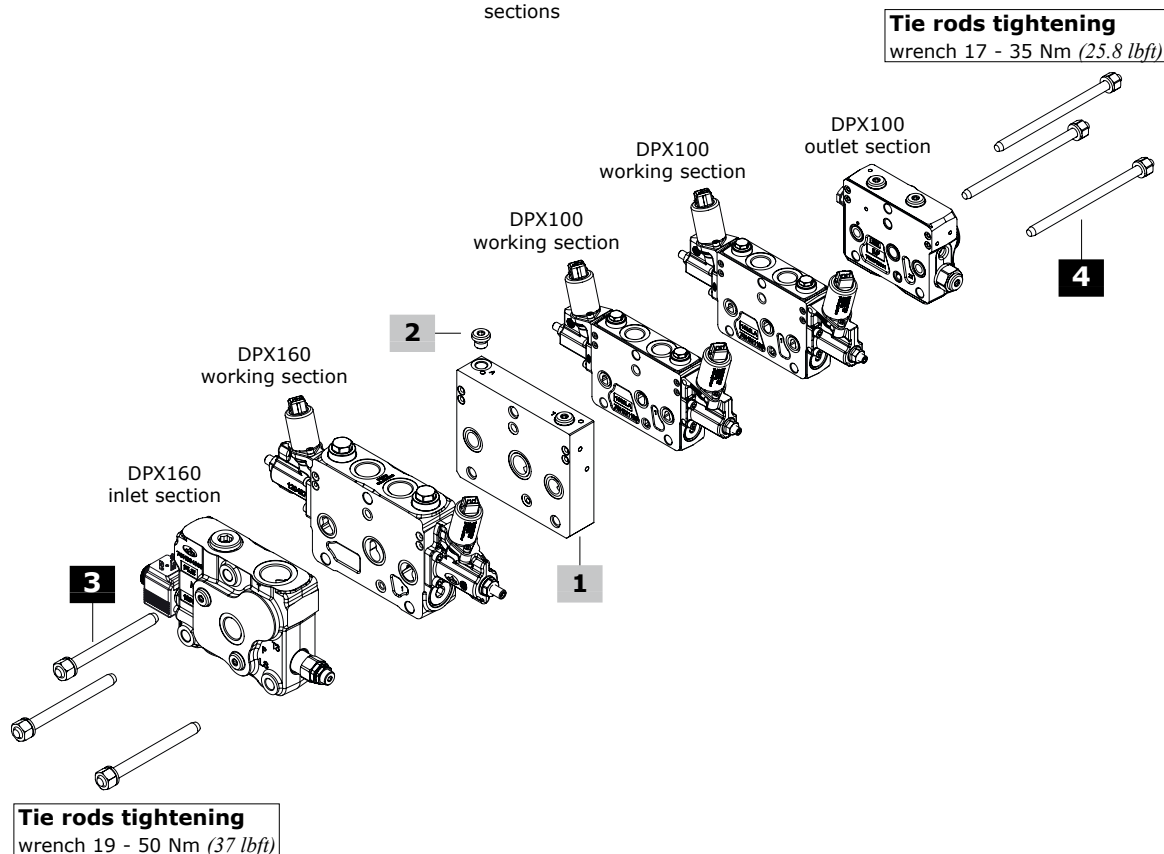
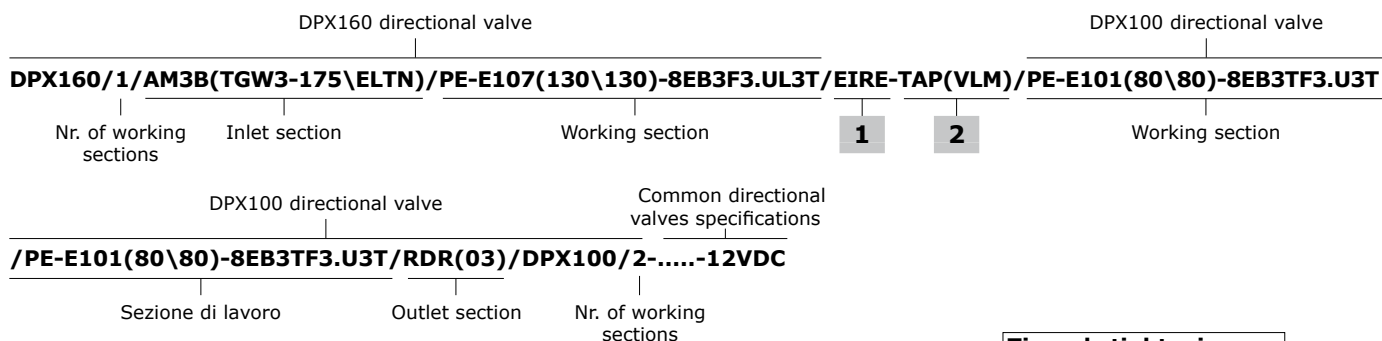
RCN3A-CL type



RCR3A-CL type



Intermediated section



1 Intermediate section page 158

TYPE	CODE	DESCRIPTION
EIR	3EL4053004*	For valves with hydraulic or mechanical controls, with M1 pressure gauge port
	5GUA160V	FPM o-ring seal kit
EIRE	650425002V*	For valves with two-side electrohydraulic control; with pilot V, drain L, M1 pressure gauge ports
EIRZS	650425004V*	As previous one, for valves with one-side electrohydraulic control

2 Pilot and drain

CODE	DESCRIPTION
XGIU622301V*	Male G1/4 to female SAE6 joint
XTAP81713V#	SAE6 plug for internal pilot and drain
4TAP310007	Optional M10x1 DIN906 plug for external drain

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

3 DPX160 side assembling kit

CODE	DESCRIPTION
5TIR112141	For 1 working section valve
5TIR112189	For 2 working section valve
5TIR112237	For 3 working section valve
5TIR112285	For 4 working section valve
5TIR112333	For 5 working section valve
5TIR112382	For 6 working section valve

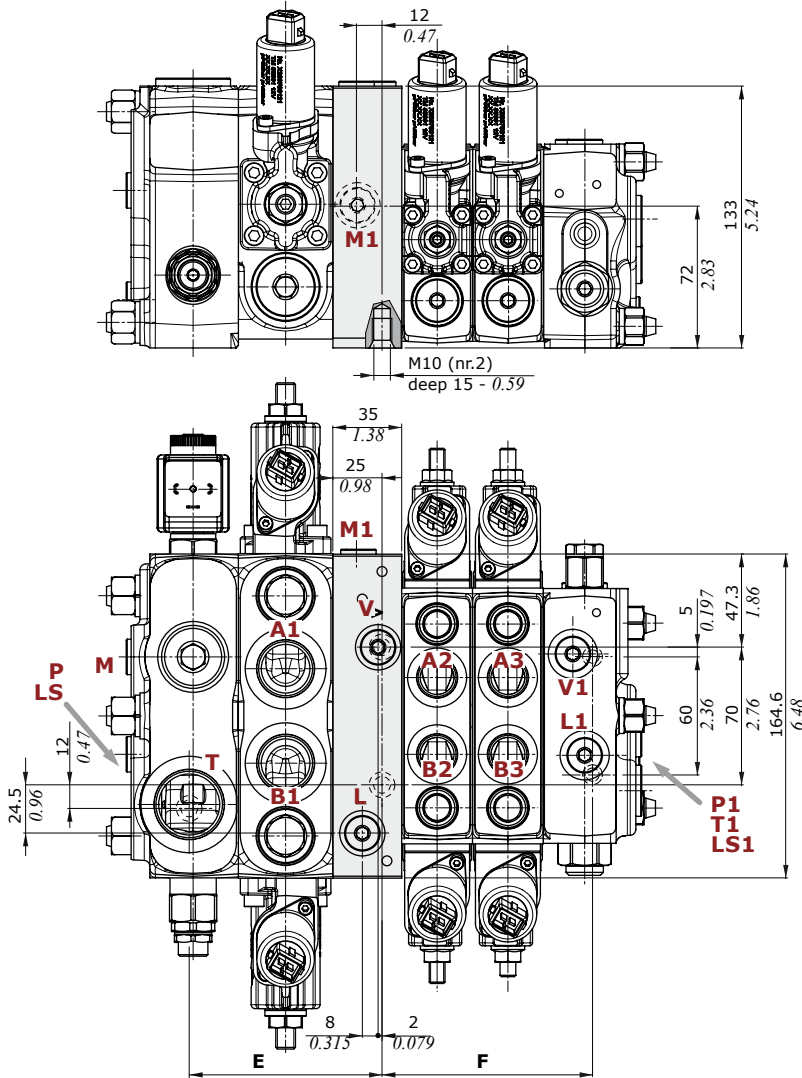
4 DPX100 side assembling kit

CODE	DESCRIPTION
5TIR110142	For 2 working section valve
5TIR110178	For 3 working section valve
5TIR110216	For 4 working section valve
5TIR110253	For 5 working section valve
5TIR110286L	For 6 working section valve
5TIR110322	For 7 working section valve

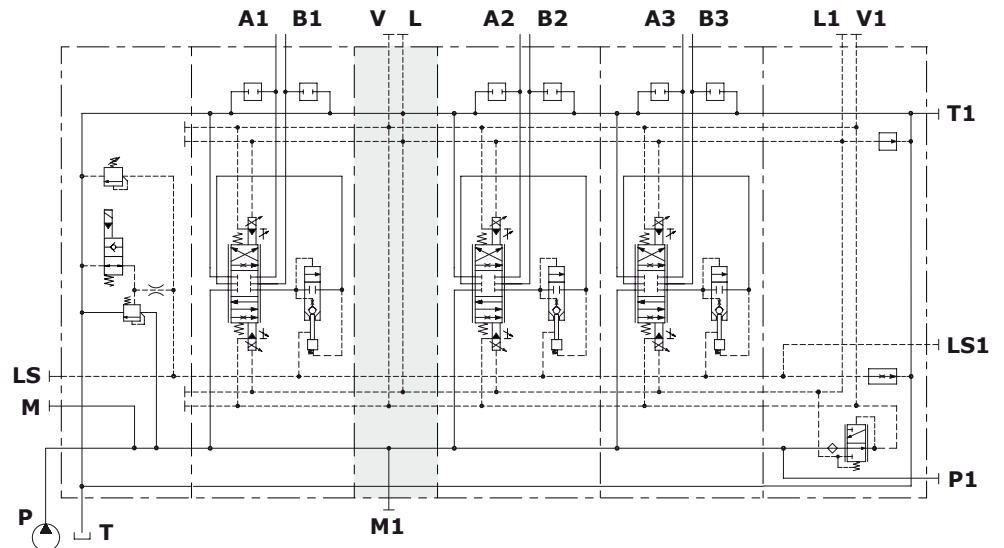
Intermediate sections

EIRE intermediate section

For DPX valves with two-side electrohydraulic controls.



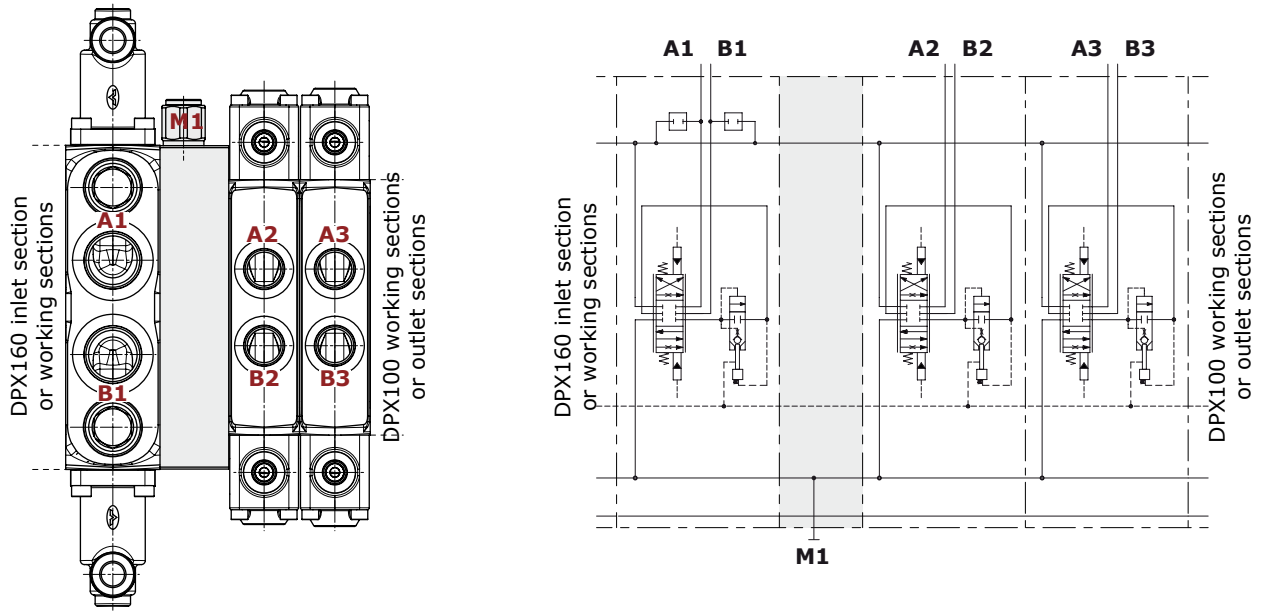
Nr. of working sections	dim. E with M or N inlet sections		dim. F with standard or HP sections	
	mm	in	mm	in
1	98	3.86	-	-
2	146	5.75	107	4.21
3	194	7.64	143	5.63
4	242	9.53	179	7.05
5	290	11.42	215	8.46
6	338	13.31	251	9.88
7	-	-	287	11.30



Intermedediate section

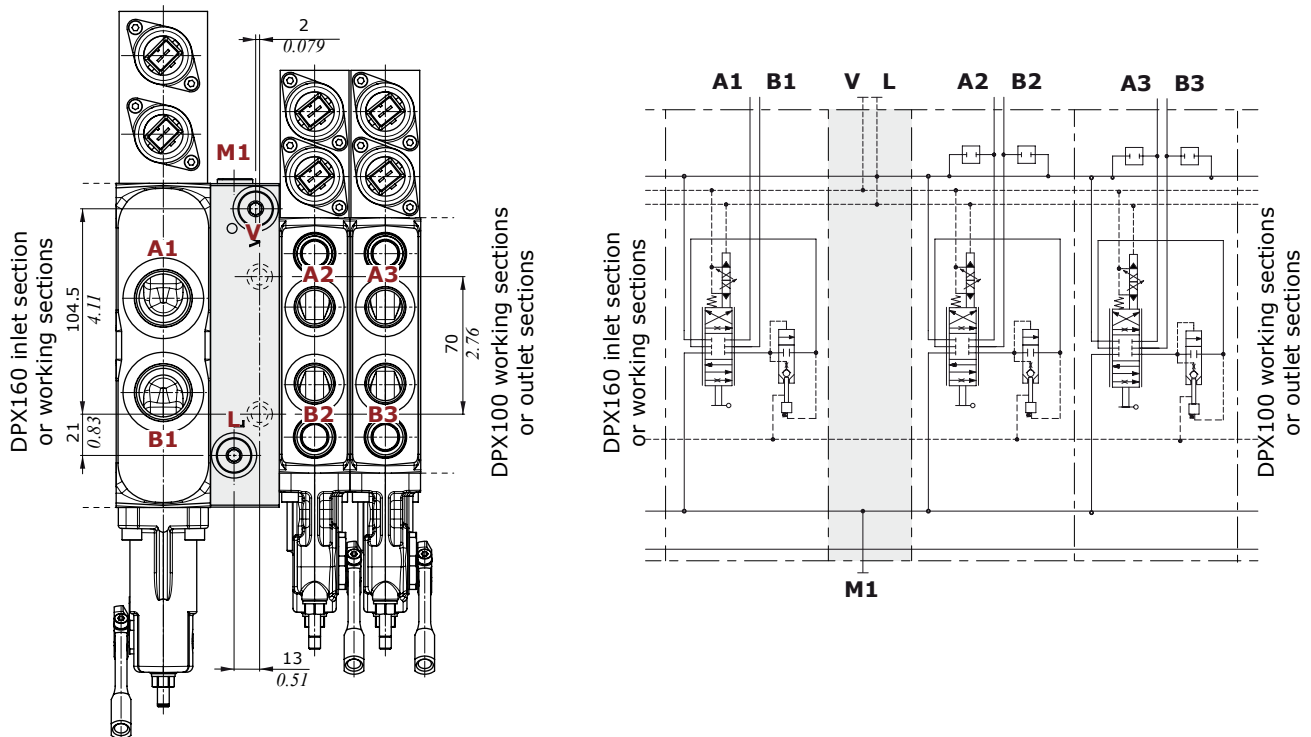
EIR intermediate section

For DPX valves with hydraulic or mechanical controls; for dimensions and port position see EIRE type on previous page.



EIRZS intermediate section

For DPX valves with one-side electrohydraulic controls; for further dimensions see EIRE type on previous page.



Coils and connectors

Coil type	Voltage	Connectors					
		ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without conn.)
BER	10 VDC	4SLE001000A	-	-	-	-	-
	12 VDC	4SLE001200A 4SLE001217A ⁽³⁾	4SLE001201A ⁽⁵⁾ 4SLE001209A ⁽³⁻⁵⁾ 4SLE001202A ⁽⁶⁾ 4SLE001216A ⁽³⁻⁶⁾ 4SLE001206A ⁽²⁾	4SLE001203A ⁽⁵⁾ 4SLE001211A ⁽³⁻⁵⁾	4SLE001210A ⁽²⁾	4SLE001214A ⁽²⁾	4SLE001207A
	14 VDC	-	4SLE001400A ⁽⁶⁾ 4SLE001401A ⁽³⁻⁶⁾ 4SLE001402A ⁽³⁻⁵⁾	4SLE001403A ⁽³⁻⁵⁾	-	-	-
	24 VDC	4SLE002400A 4SLE002408A ⁽³⁾ 4SLE302400A ⁽¹⁾	4SLE002401A ⁽⁵⁾ 4SLE002407A ⁽³⁻⁵⁾ 4SLE002402A ⁽⁶⁾	4SLE002403A ⁽⁵⁾	-	-	4SLE002404A
	28 VDC	-	4SLE002802A ⁽⁶⁾	4SLE002800A ⁽⁵⁾	-	-	-
	48 VDC	4SLE004800A 4SLE304800A ⁽¹⁾	-	-	-	-	-
	110VDC	4SLE011000A 4SLE311000A ⁽¹⁾	-	-	-	-	-
	220 VDC	4SLE022000A 4SLE322000A ⁽¹⁾	-	-	-	-	-
BE	12 VDC	4SL1000120	4SL1000123 ⁽⁶⁾ 4SL1000140 ⁽³⁻⁶⁾ 4SL1000124 ⁽²⁾	-	-	-	4SL1000122
	24 VDC	4SL1000240 4SL1030240 ⁽¹⁾	4SL1002401 ⁽⁶⁾	-	-	-	-
	48 VDC	4SL1010480	-	-	-	-	-
	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 see following table)		4CN1009995	5CON140031	5CON003	5CON001	5CON017	-

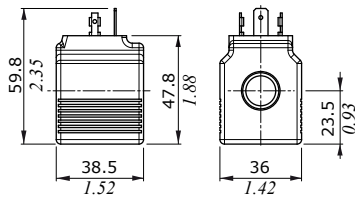
Notes: ⁽¹⁾ supply with AC and use only with rectifier connector - ⁽²⁾ with flying leads - ⁽³⁾ with bidirectional diode - ⁽⁵⁾ with unidirectional diode ⁽⁵⁾ integrated perpendicular type - ⁽⁶⁾ integrated parallel type

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

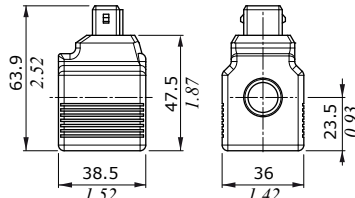
Coils and connectors

BER type

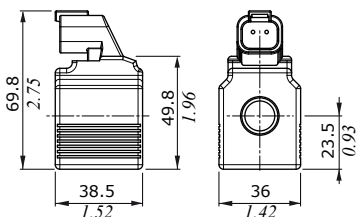
ISO4400 connector



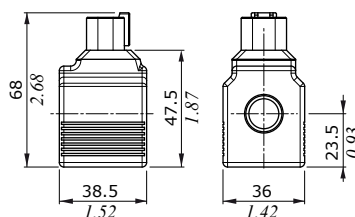
AMP JPT connector



DEUTSCH DT04 connector (parallel type)



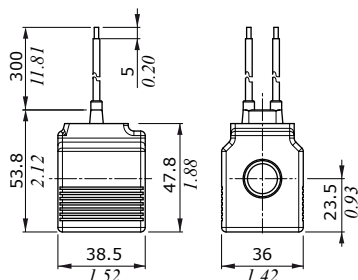
DEUTSCH DT04 connector (perpendicular type)



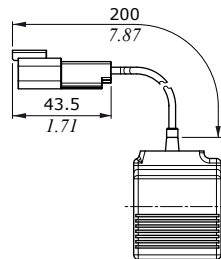
Features

- Nominal voltage tolerance : ±10%
- Power rating : 19.2 W - 12/24 VDC - 48 RAC
: 19.1 W - 28 VDC
: 19 W - 10/14/48/110/220 VDC
: 24/110/220 RAC
- Max. operating current . . . : 1.90 A - 10 VDC
: 1.60 A - 12 VDC
: 1.36 A - 14 VDC
: 0.80 A - 24 VDC
: 0.68 A - 28 VDC
: 0.40 A - 48 VDC
: 0.17 A - 110 VDC
: 0.09 A - 220 VDC
: 0.89 A - 24 RAC
: 0.45 A - 48 RAC
: 0.19 A - 110 RAC
: 0.09 A - 220 RAC
- Coil insulation : Class H (180°C - 356°F)
- Weather protection : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
: IP67 - Weatherpack
: IP67 - Metri-pack
- Insertion : 100%

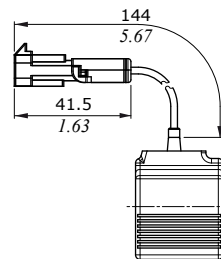
Flying leads



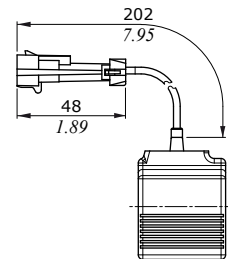
Flying leads with DEUTSCH DT04 connector



Flying leads with PACKARD WEATHER-PACK connector

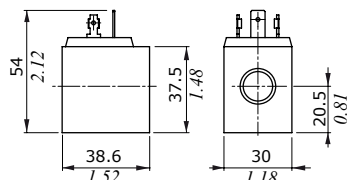


Flying leads with PACKARD METRI-PACK connector

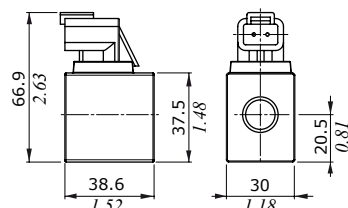


BE type

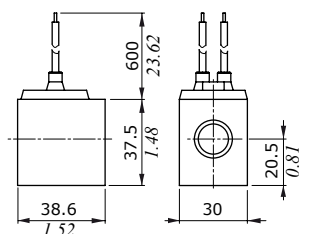
ISO4400 connector



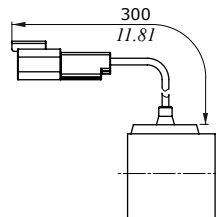
DEUTSCH DT04 connector



Flying leads



Flying leads with DEUTSCH DT04 connector



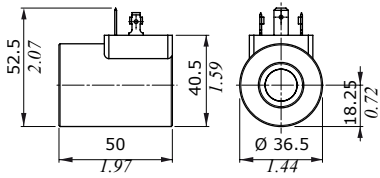
Features

- 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 insulation : Class F (155°C - 311°F)
- Weather protection : IP65 - ISO4400
: IP69K - Deutsch DT
- Insertion : 100%

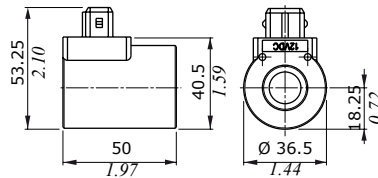
Coils and connectors

BT type

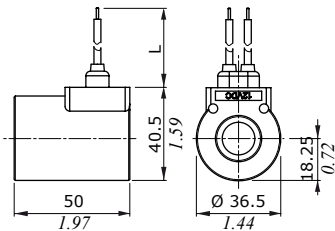
ISO4400 connector



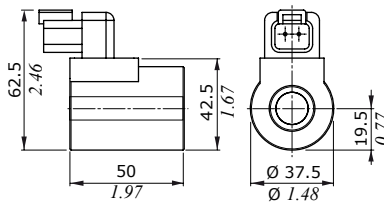
AMP JPT connector



Flying leads



DEUTSCH DT04 connector

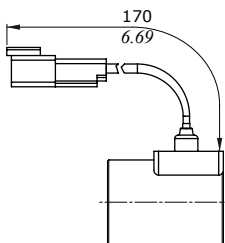


Coil type	L dimension	
	(mm)	(in)
12VDC	247	9.72
24VDC	307	12.09

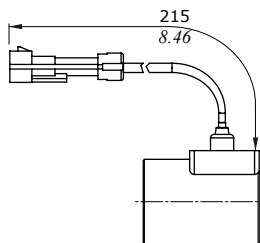
Features

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

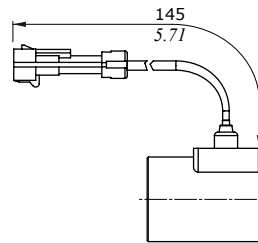
Flying leads with DEUTSCH DT04 connector



Flying leads with PACKARD WEATHER-PACK connector

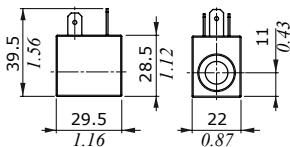


Flying leads with PACKARD METRI-PACK connector

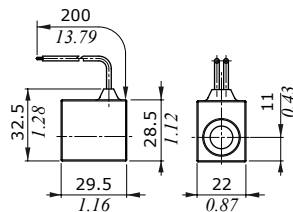


BPV type

ISO4400 connector



Flying leads



Features

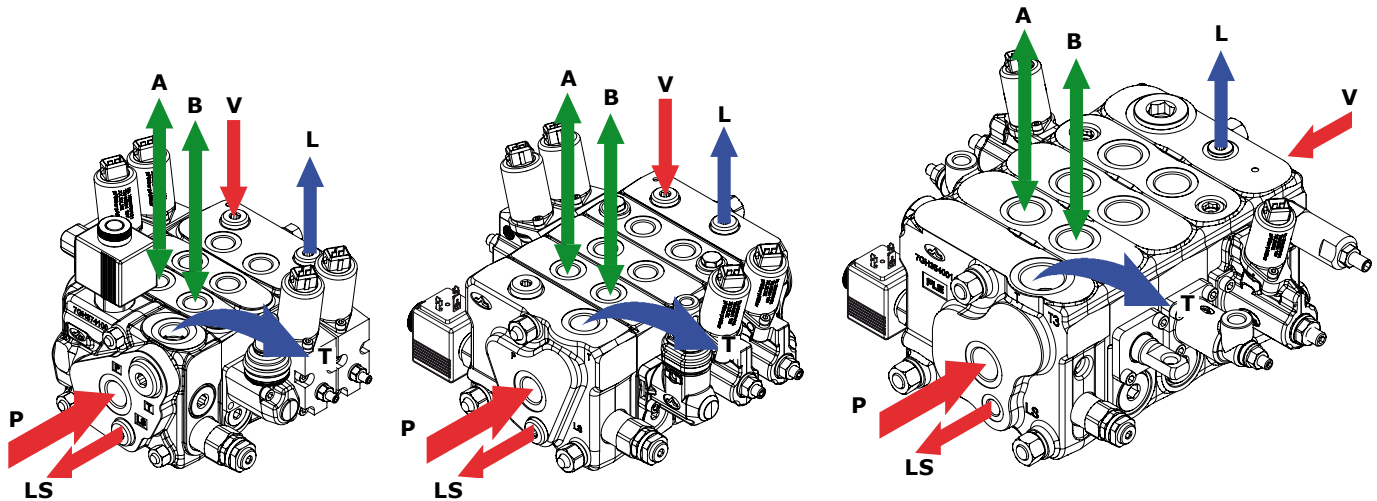
- Nominal voltage tolerance : ±10%
- Power rating : 8 W - 12/24 VDC
- Max. operating current . . . : 0.67 A - 12 VDC
 : 0.33 A - 24VDC
- Coil Insulation : Class H (180°C - 356°F)
- Weather protection : IP65 - ISO4400
- Insertion : 100%

Main rules

The DPX series valves are assembled and tested as per the technical specifications of this catalogue.

Before the final installation on your equipment, please follow the below recommendations:

- the valve can be assembled in any position; in order to prevent body deformation and spool sticking mount the product on a flat surface;
- In order to prevent the possibility of water entering the spool control kit, do not use high pressure washdown directly on the valve;
- prior to painting, ensure plugs on normally open ports are tightly in place.



FITTING TIGHTENING TORQUE - Nm / lbft

THREAD TYPE	P 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 3/4	G 1/2	G 3/4	G 1/4	G 1/4
	With O-Ring seal	50 / 36.9	90 / 66.4	35 / 35.8	50 / 36.9	90 / 66.4	50 / 36.9	90 / 66.4	25 / 18.4	25 / 18.4
	With copper washer	60 / 44.3	90 / 66.4	40 / 29.5	60 / 44.3	90 / 66.4	60 / 44.3	90 / 66.4	30 / 22.1	30 / 22.1
	With steel and rubber washer	60 / 44.3	70 / 51.6	30 / 22.1	60 / 44.3	70 / 51.6	60 / 44.3	70 / 51.6	16 / 11.8	16 / 11.8
	UN-UNF	7/8-14 (SAE 10)		3/4-16 (SAE 8)	1 1/16-12 (SAE 12)		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	95 / 70.1		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			100 / 73.8		25 / 18.4	25 / 18.4
	With copper washer	90 / 66.4		90			90 / 66.4		30 / 22.1	30 / 22.1
	With steel and rubber washer	70 / 51.6		70			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 torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finish.

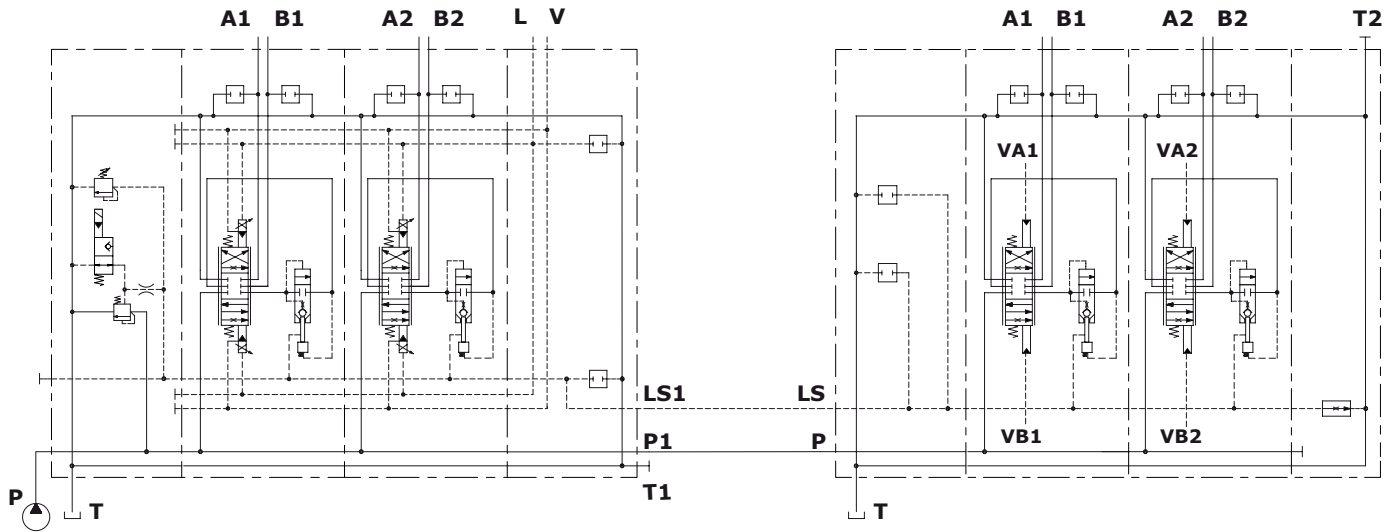
Connection between two directional valves

All the examples shown allow contemporary workports operations.

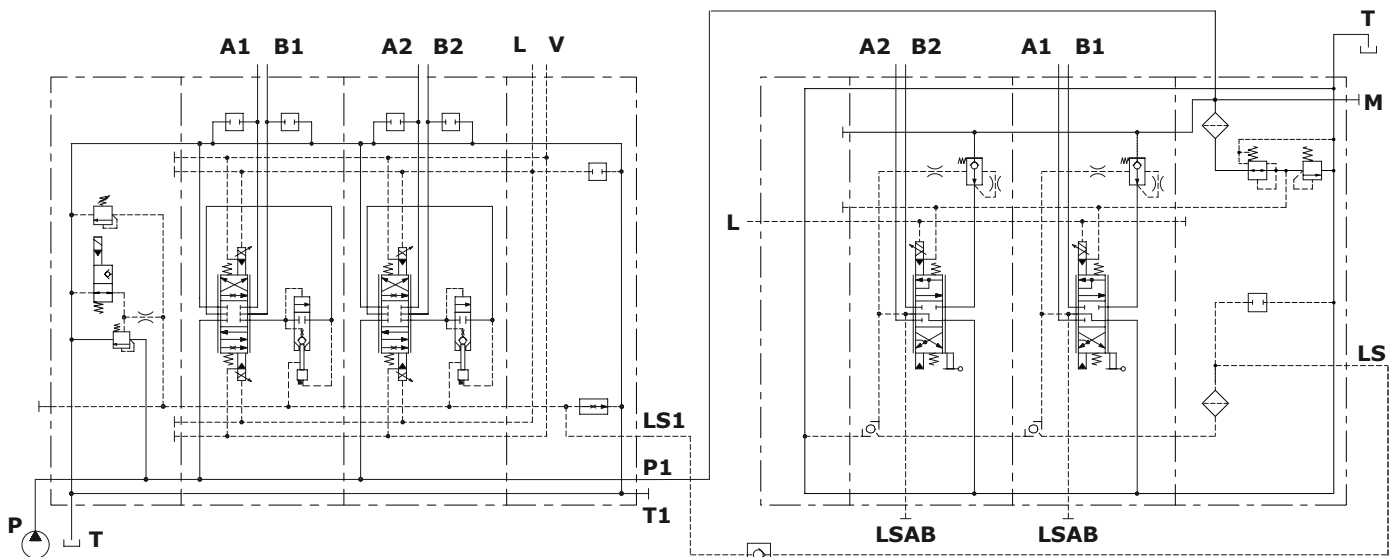
With two or more DPX Series valves connected as shown, only one bleed valve is needed, on the last DPX valve and it is necessary to blank plugs on the others valves.

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

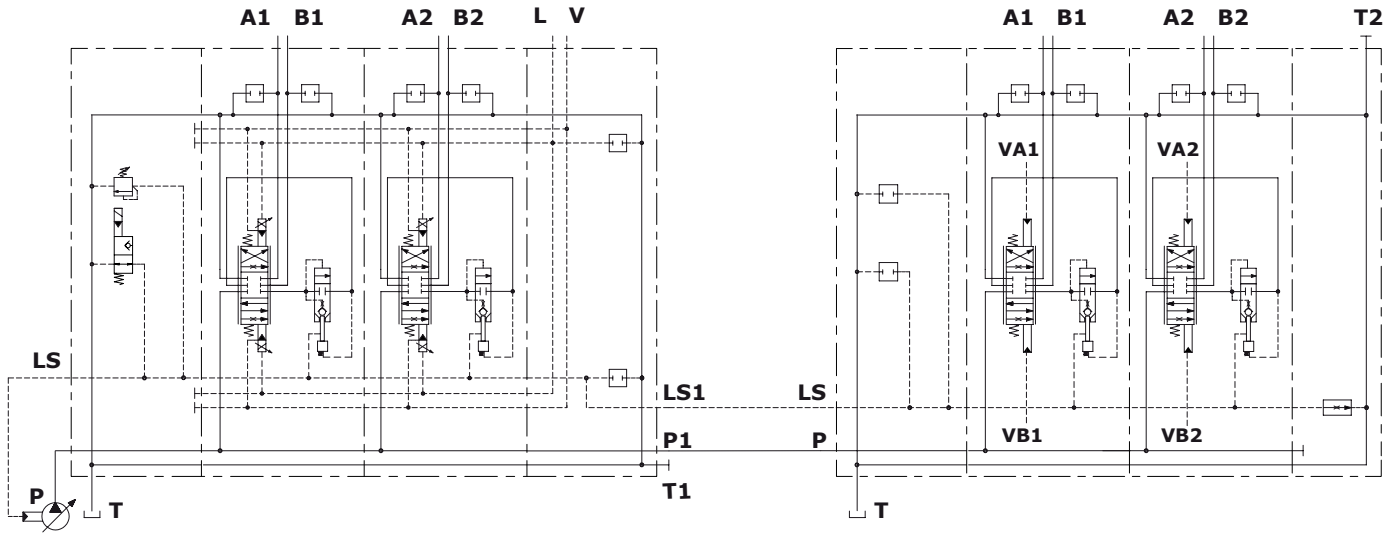


Check valve on L.S. line

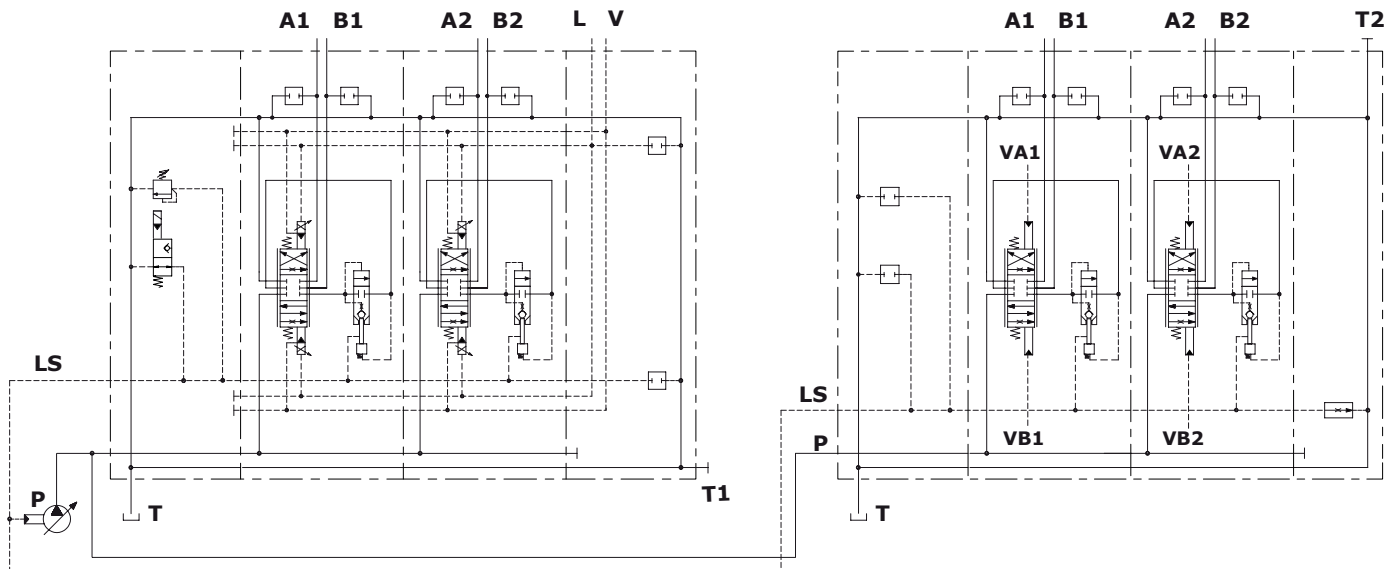
Connection between two directional valves

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

Bleed valve has to be installed only on one DPX valve

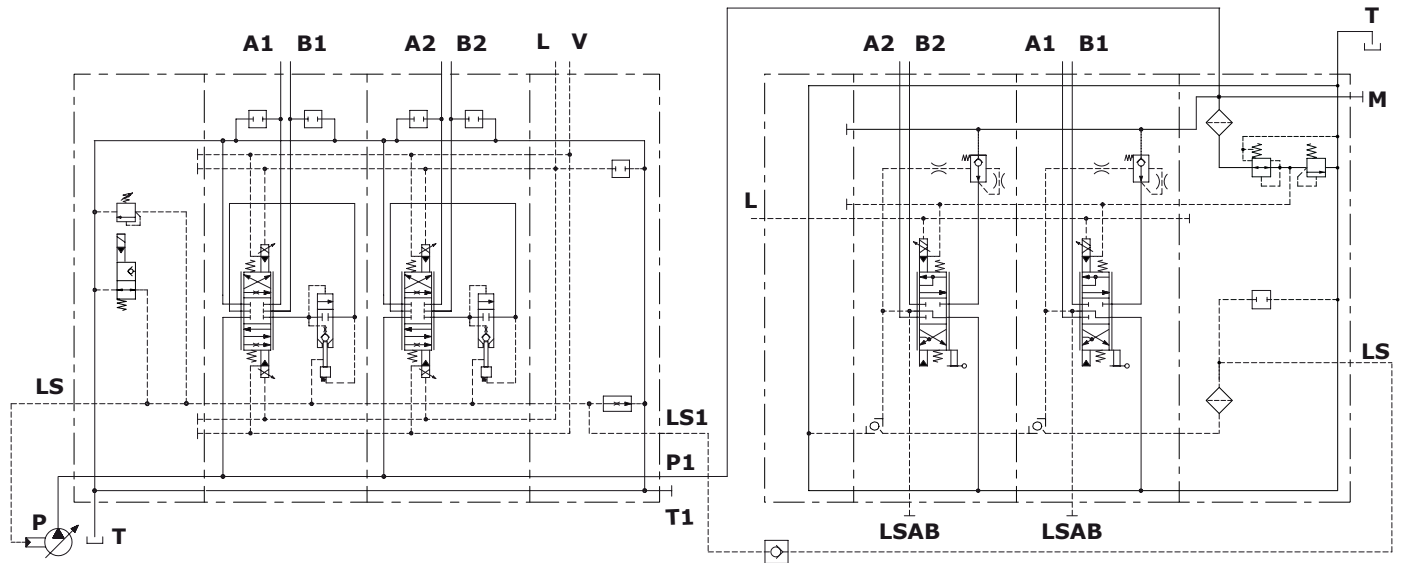


NOTE: if there is a big distance between the valves, the following circuit is suggested.



Connection between two directional valves

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

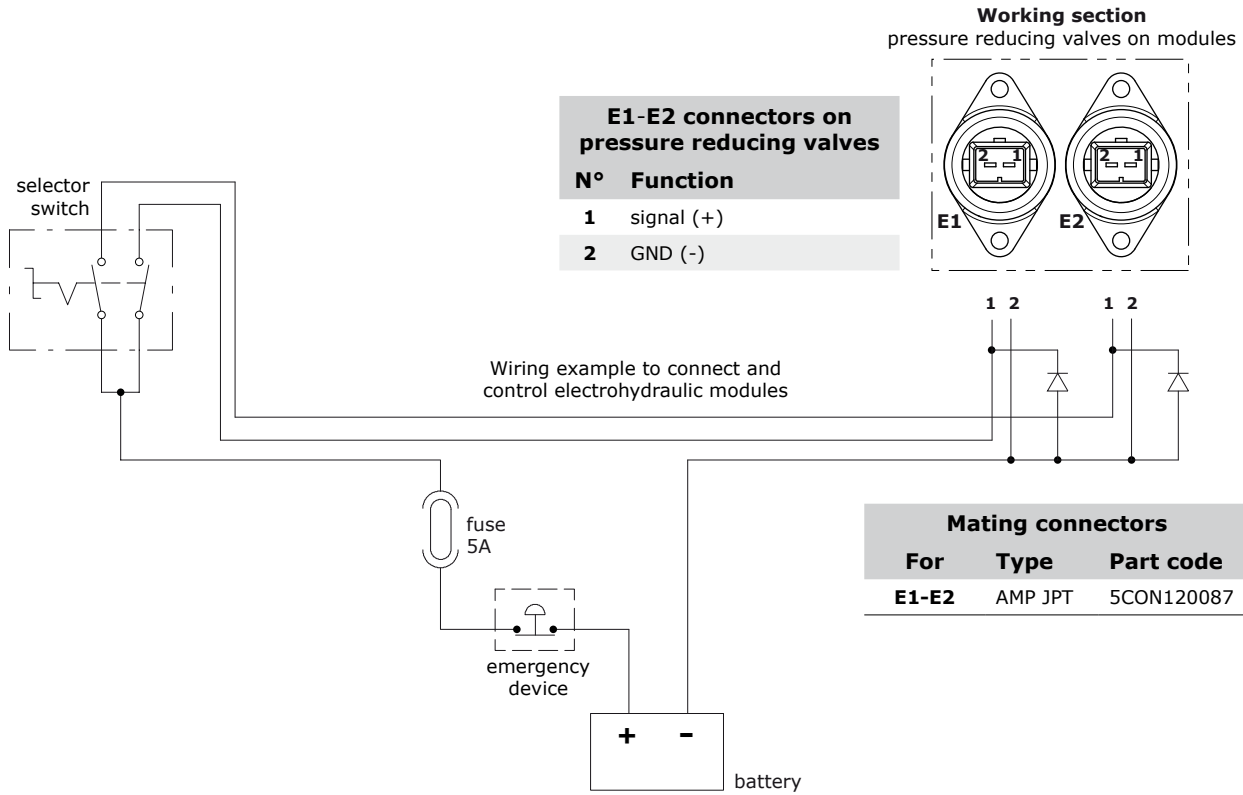


Check valve on L.S. line

Electrohydraulic control connection

On/off electrohydraulic control

See below an example of on/off control for a working section.



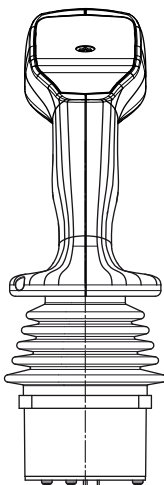
Electrohydraulic control connection

Proportional electrohydraulic control

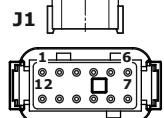
See below a proportional control system for two working sections, equipped with a proportional analog Hall-effect joystick. The circuit is a connection example, the pin-out refers to standard devices; for ordering codes, detailed information and customization, please contact our Sales Department.

Stroke

Handle type P
up to 3 proportional axes



Joystick AJW
analog,
two prop. axes



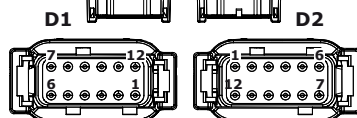
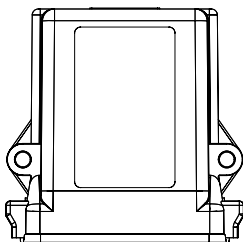
E1-E4 connectors on pressure reducing valves

Nr	Function
1	signal (+)
2	GND (-)

J1 joystick connector

Nr	Function	N°	Function
1	VJ+	7	/
2	VJ-	8	VJ+
3	/	9	operator presence
4	X axis	10	/
5	Y axis	11	/
6	/	12	/

CED400W control unit
up to 4 working sections



D1 control unit connector

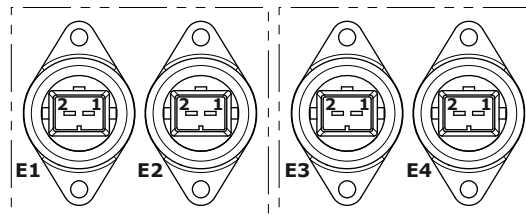
Nr	Function	Nr	Function
1	Vbb (+)	7	/
2	/	8	/
3	/	9	/
4	operator presence	10	X axis
5	/	11	Y axis
6	/	12	GND (-)

D2 control unit connector

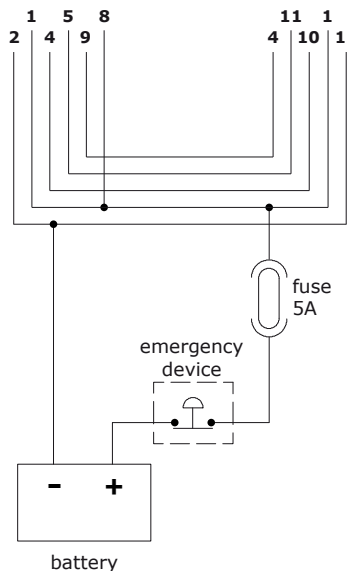
Nr	Function	Nr	Function
1	/	7	/
2	valve E2 (+)	8	valves E3/E4 (-)
3	valve E4 (+)	9	valves E1/E2 (-)
4	valve E3 (+)	10	/
5	/	11	valve E1 (+)
6	/	12	/

1st working section
pressure reducing valves
on module

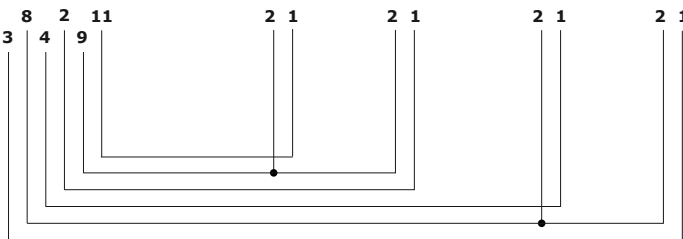
2nd working section
pressure reducing valves
on module



Wiring example
to connec and
control unit
to joysticks



Wiring example to connect
control unit to electrohydraulic modules



Mating connectors

For	Type	Part code
J1	Deutsch DTM06-12S	5CON140041
D1	Deutsch DTM06-12S	5CON140041
D2	Deutsch DTM06-12SB	5CON140067
E1-E4	AMP JPT	5CON120087

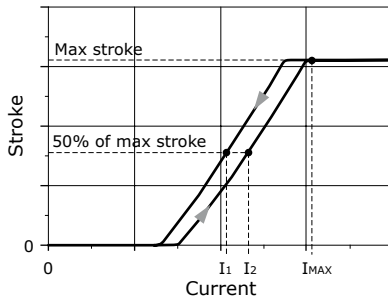
Appendix A

Electrohydraulic controls: hysteresis calculation rule

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

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

Example diagram for data detection



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



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