

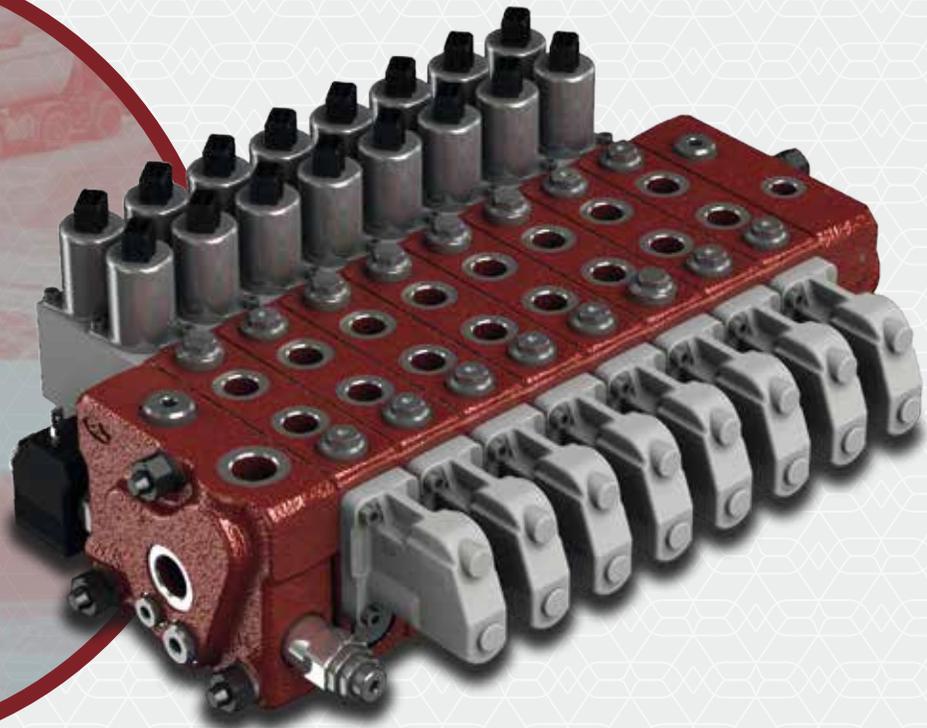


# walvoil

MOTION BY PEOPLE

## DPX Series

Full Flow Sharing  
Sectional Valve



DIRECTIONAL VALVES

**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.

1<sup>st</sup> edition February 2026

**Content**

DPX050.....page 9

DPX100.....page 47

DPX160.....page 119

**Accessories**

Intermediate sections.....page 157

Coils and connectors.....160

**Installation and maintenance**

Main rules.....page 164

Connection between two directiona valves..... 165

Electrohydraulic controls connection..... 168

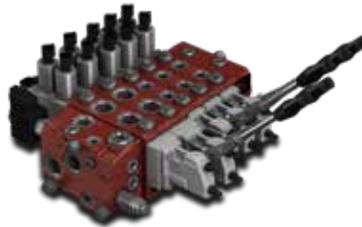
**Appendice A**.....page 170

### 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



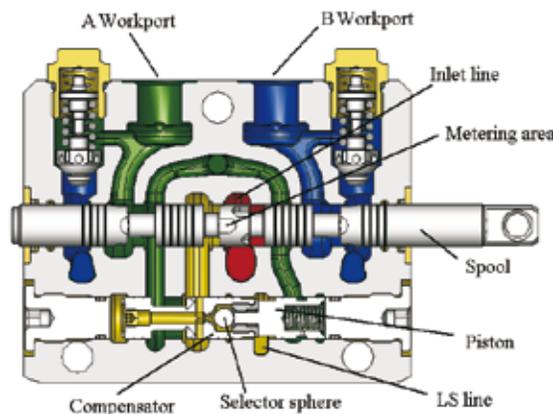
DPX100



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.

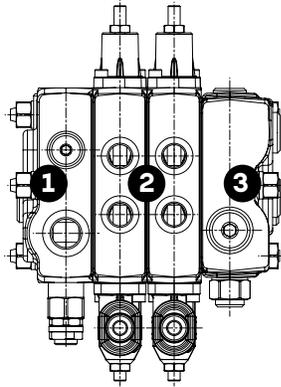
#### Advantages and options

- 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

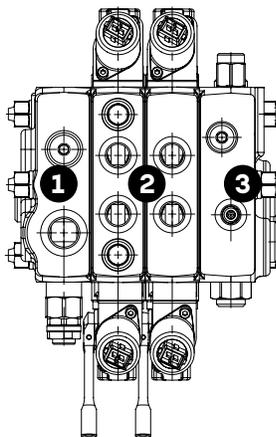
**Configuration with only electrohydraulic or mixed controls**

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

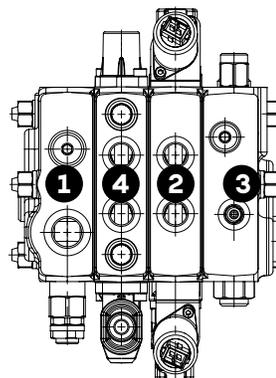
In a valve configured with electrohydraulic mixed sections (two-sides and one side type controls), the two-side control section have to be positioned after (on the right) one-side control section, close to the outlet one.

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 mm<sup>2</sup>/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	<b>P</b> inlet port	300 bar 4350 psi	300 bar 4350 psi	380 bar <sup>(1)</sup> 5550 psi <sup>(1)</sup>	380 bar <sup>(1)</sup> 5550 psi <sup>(1)</sup>	300 bar	380 bar <sup>(3)</sup>
	<b>A</b> and <b>B</b> working ports	350 bar 5100 psi	300 bar 4350 psi	420 bar <sup>(1)</sup> 6000 psi <sup>(1)</sup>	420 bar <sup>(1)</sup> 6000 psi <sup>(1)</sup>	300 bar	420 bar <sup>(3)</sup>
Back pressure (max.) on outlet <b>T</b> 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	<b>On std. working section</b>						
	Δp=100 bar - 1450 psi	max. 6.5 cm <sup>3</sup> /min max. 0.40 in <sup>3</sup> /min		max. 9 cm <sup>3</sup> /min max. 0.55 in <sup>3</sup> /min		max. 12 cm <sup>3</sup> /min max. 0.73 in <sup>3</sup> /min	
	with port valves, Δp=100 bar - 1450 psi	max. 11.5 cm <sup>3</sup> /min max. 0.70 in <sup>3</sup> /min		max. 14 cm <sup>3</sup> /min max. 0.85 in <sup>3</sup> /min		max. 17 cm <sup>3</sup> /min max. 1.04 in <sup>3</sup> /min	
	<b>On Low Leak section</b>						
	Δp=180 bar	max. 3 cm <sup>3</sup> /min max. 0.18 in <sup>3</sup> /min	max. 3 cm <sup>3</sup> /min max. 0.18 in <sup>3</sup> /min	-	-	-	
	with port valves, Δp=180 bar - 2600 psi	max. 4 cm <sup>3</sup> /min max. 0.24 in <sup>3</sup> /min	max. 4 cm <sup>3</sup> /min max. 0.24 in <sup>3</sup> /min	-	-	-	
Fluids				Mineral oil			
Fluid temperature range	standard configuration		from -20°C to 100°C - from -4°F to 212°F				
	operating range		from 15 to 75 mm <sup>2</sup> /s - from 15 to 75 cSt				
Viscosity	min.		12 mm <sup>2</sup> /s - 12 cSt				
	max.		400 mm <sup>2</sup> /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: <sup>(1)</sup> 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 - <sup>(2)</sup> 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 - <sup>(3)</sup> 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 <sup>(4)</sup>	METRIC ISO <sup>(4)</sup>	NPTF
THREAD ACCORDING TO	ISO 228/1 BS 2779	ISO 263 ANSI B1.1 unified	ISO 262	ISO 262	ANSI B1.20.3
CAVITY	ISO 1179	11926	9974-1	6149	
DIMENSION	SAE	J1926		J2244	J476a
ACCORDING TO	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 <sup>(6)</sup>	7/8-14 (SAE10) 1 1/16-12 (SAE12) <sup>(6)</sup>	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 <sup>(6)</sup> - G 3/4 <sup>(6)</sup>	3/4-16 (SAE8) 1 1/16-12 (SAE12) <sup>(6)</sup>	G 3/4	1 1/16-12 (SAE12)
T outlet	G 1/2	3/4-16 (SAE 8)	G 1/2 - G 3/4 <sup>(6)</sup>	7/8-14 (SAE10) 1 1/16-12 (SAE12) <sup>(6)</sup>	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:

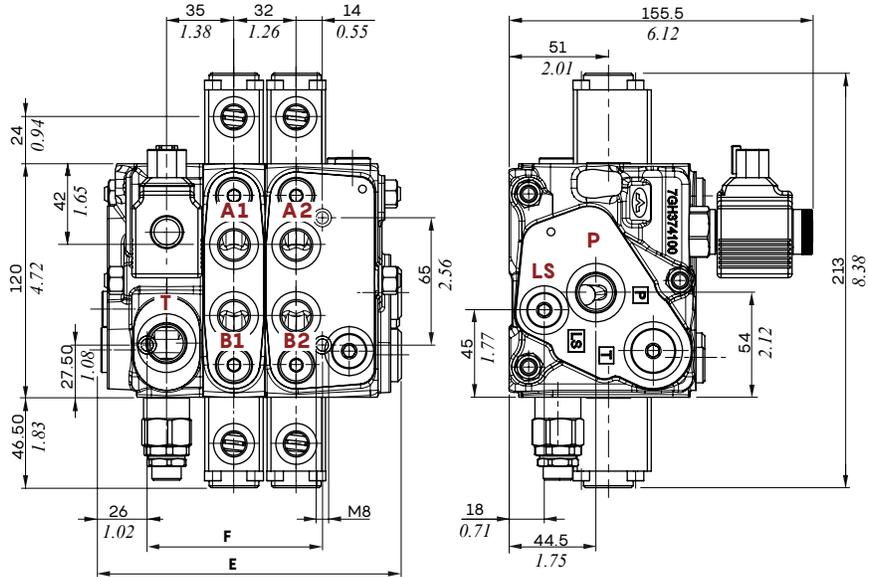
<sup>(6)</sup> - Optional threading / <sup>(6)</sup> - only for High Flow sections



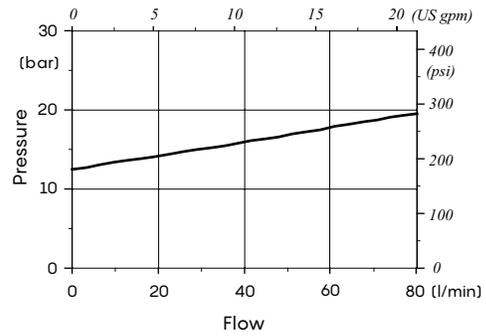
## Content

Dimensional data and performance .....	page 10
<u>Hydraulic circuit</u>	
Configuration example with mechanical and hydraulic controls .....	page 11
Configuration example with electrohydraulic controls .....	11
<u>Guide to configuration</u>	
Pressure peak reduction .....	page 12
Directional valve with Low Leak working sections .....	12
Complete section ordering codes .....	14
<u>Inlet section</u>	
Parts ordering codes .....	page 16
Dimensional data and hydraulic circuit .....	17
Main pressure relief valve .....	19
Solenoid operated unloading valve .....	19
<u>Working and outlet section</u>	
Parts ordering code .....	page 20
Dimensional data and hydraulic circuit .....	24
Spool .....	27
"A" side spool positioner .....	29
"B" side spool control kit .....	31
Proportional hydraulic control .....	32
Electrohydraulic controls	
Performance data .....	page 34
Spool position sensor .....	36
Two-side electrohydraulic controls .....	37
One-side electrohydraulic control: "A" side .....	38
One-side electrohydraulic control: "B" side options .....	39
Port valves .....	40
• <b>DPX050 Low leak</b>	
Complete section ordering codes .....	page 41
<u>Working section</u>	
Parts ordering code .....	page 42
Dimensional data and hydraulic circuit .....	44
Spool .....	45

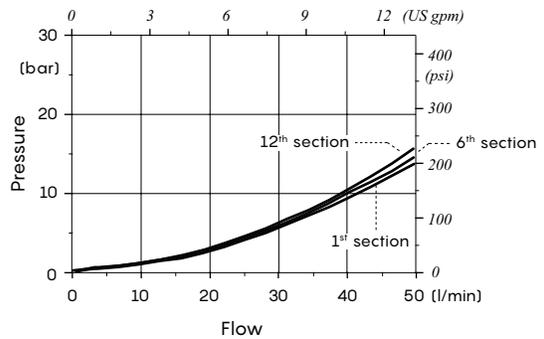
Dimensional data and performance



P⇒T Pressure drop inlet compensator (margin pressure)

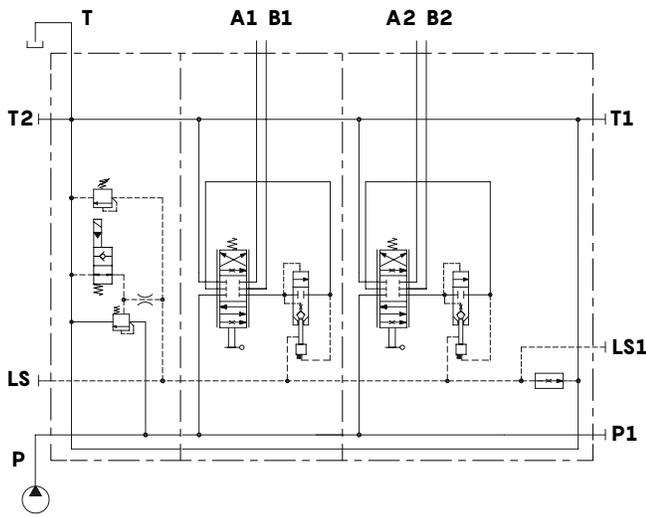


A(B)⇒T pressure drop (standard spool @ max. stroke)

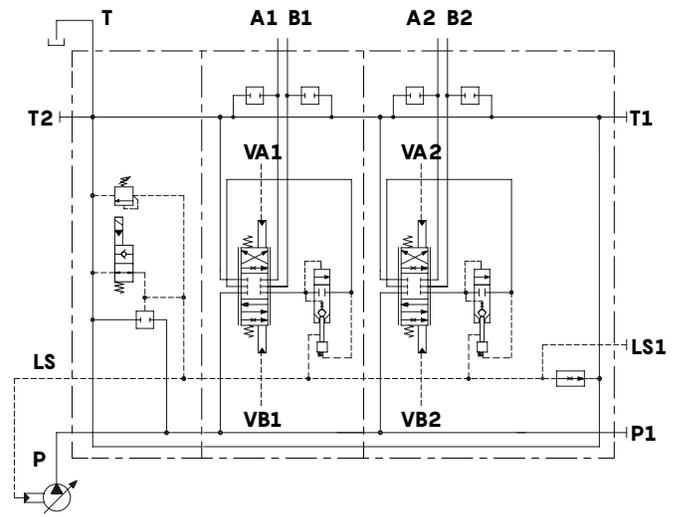


Type	E		F	
	mm	in	mm	in
DPX050/1	119	4.69	57.5	2.26
DPX050/2	151	5.95	89.5	3.52
DPX050/3	183	7.20	121.5	4.78
DPX050/4	215	8.46	153.5	6.04
DPX050/5	247	9.72	185.5	7.30
DPX050/6	279	10.98	217.5	8.56
DPX050/7	311	12.24	249.5	9.82
DPX050/8	343	13.50	281.5	11.08
DPX050/9	375	14.76	313.5	12.34
DPX050/10	407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

Configuration example with mechanical and hydraulic controls

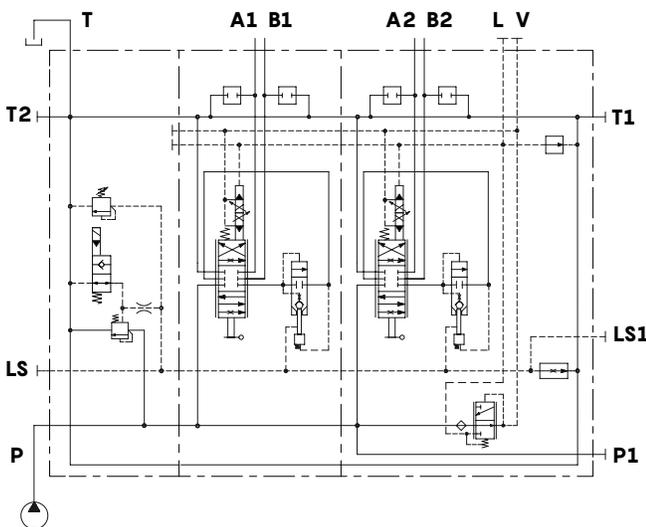


Open center circuit and lever control, with unloader valve, without port valve arrangement

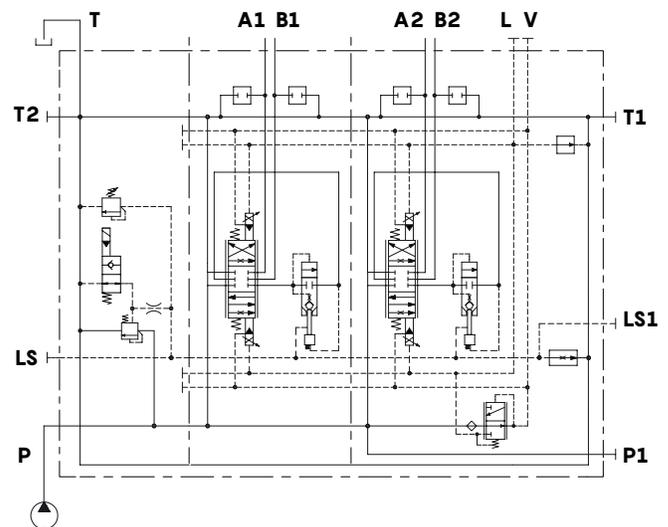


Closed center circuit and proportional hydraulic control, with unloader valve and port valve arrangement

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

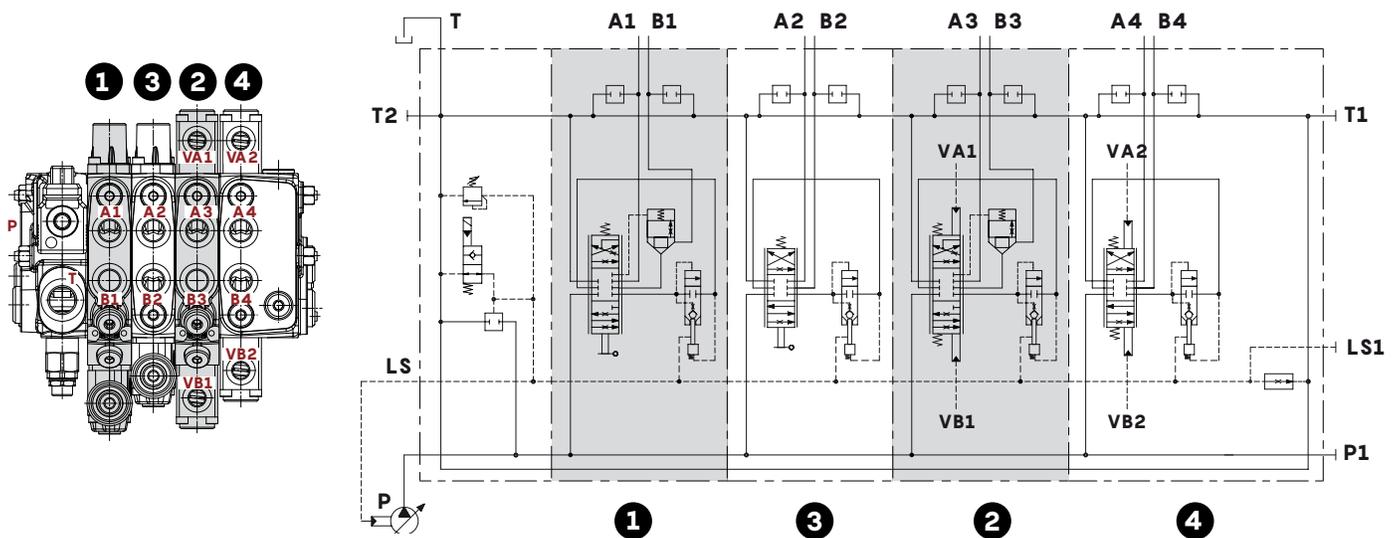
The DPX050 directional valve can be configured with working sections fitted with a Low Leak valve, and it can be used in all applications that require reduced leakage, such as: Tractors, Boom Mowers, Backhoe Loaders, Graders, Mini-excavator, Compact Wheel Loaders, Fork Lifts.

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

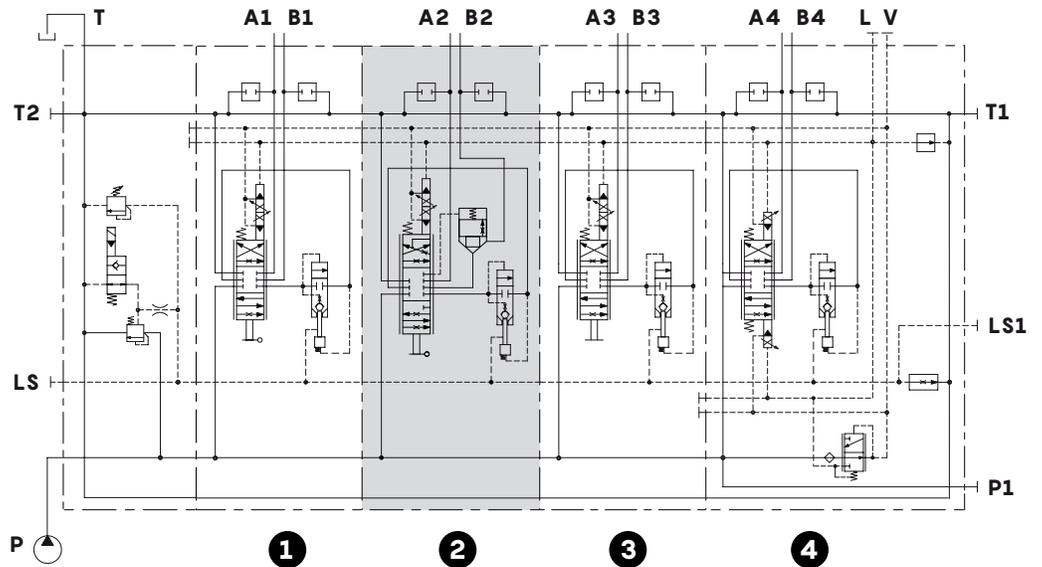
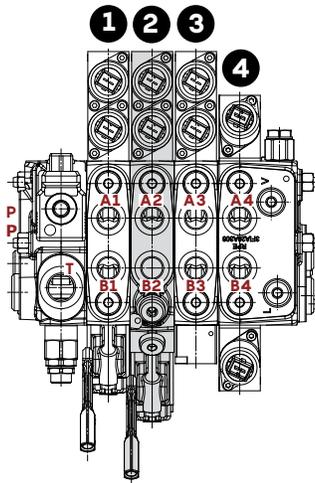
**Directional valve with Low Leak working sections**

**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

**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 circuit**

TYPE: **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 control**

TYPE: **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 control**

TYPE: **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 control**

TYPE: **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

**Proportional hydraulic control**

TYPE: **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 control**

TYPE: **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 control**

TYPE: **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**

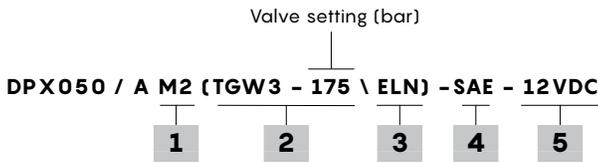
Specify the voltage of electric devices.

**6 Assembling kit**

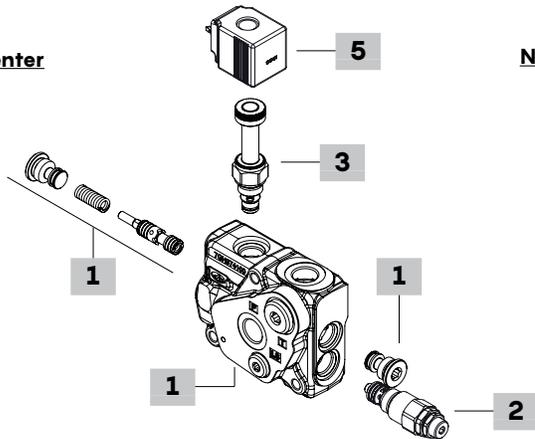
CODE	DESCRIPTION	CODE	DESCRIPTION
5TIR108125	For 1 section valve	5TIR108320	For 7 sections valve
5TIR108157	For 2 sections valve	5TIR108349	For 8 sections valve
5TIR108192	For 3 sections valve	5TIR108381	For 9 sections valve
5TIR108222	For 4 sections valve	5TIR108413	For 10 sections valve
5TIR108253	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.

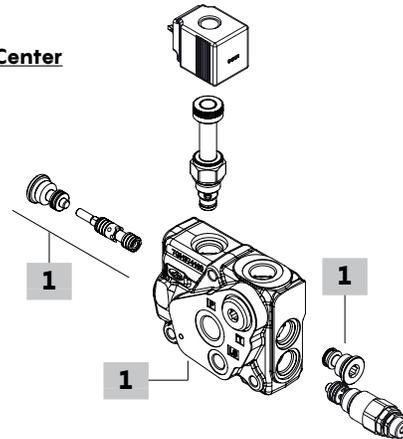
## Inlet section part ordering codes



**M: Open Center**



**N: Closed Center**



### 1 Inlet section kit \* page 17

**Open Center circuit**

TYPE: **DPX050/AM2-SAE/EL** CODE: 5FIA150740S  
 DESCRIPTION: With P-T-T2-LS ports (T2-LS plugged) arranged for unloader valve

TYPE: **DPX050/AM2(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/AM2(SO)-SAE/EL** CODE: 5FIA150731S  
 DESCRIPTION: As AM2 type with non return flow limiter from inlet section to working section and by-pass valve

**Closed Center circuit**

TYPE: **DPX050/AN2-SAE/EL** CODE: 5FIA150741S  
 DESCRIPTION: With P-T-T2-LS ports, arranged for unloader valve (T2 plugged)

TYPE: **DPX050/AN2(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/AN2(SO)-SAE/EL** CODE: 5FIA150733S  
 DESCRIPTION: As AN2 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
<b>(TGW2-80)</b>	OMC09002000	Range 10-120 bar (145-1750 psi) std setting 80 bar (1160 psi)
<b>(TGW3-175)</b>	OMC09002001	Range 40-220 bar (580-3200 psi) std setting 175 bar (2550 psi)
<b>(TGW4-250)</b>	OMC09002002	Range 200-350 bar (2900-5100 psi) std setting 250 bar (3600 psi)
<b>SV</b>	XTAP524340D	Relief valve blanking plug

### 3 Solenoid operated unloading valve page 19

TYPE	CODE	DESCRIPTION
<b>ELN</b>	0EF08002000	Without emergency override
<b>ELV</b>	0EF08002003	With screw type emergency override
<b>ELP</b>	0EF08002002	With push-button emergency override
<b>ELT</b>	0EF08002004	With "twist & push" emergency override
<b>LT</b>	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
<b>12VDC</b>	4SLE001200A	12VDC coil type <b>BER</b> , ISO4400 connector

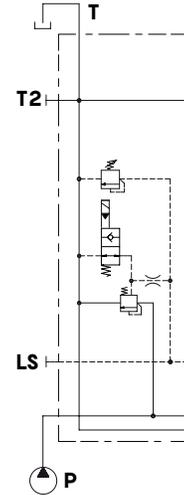
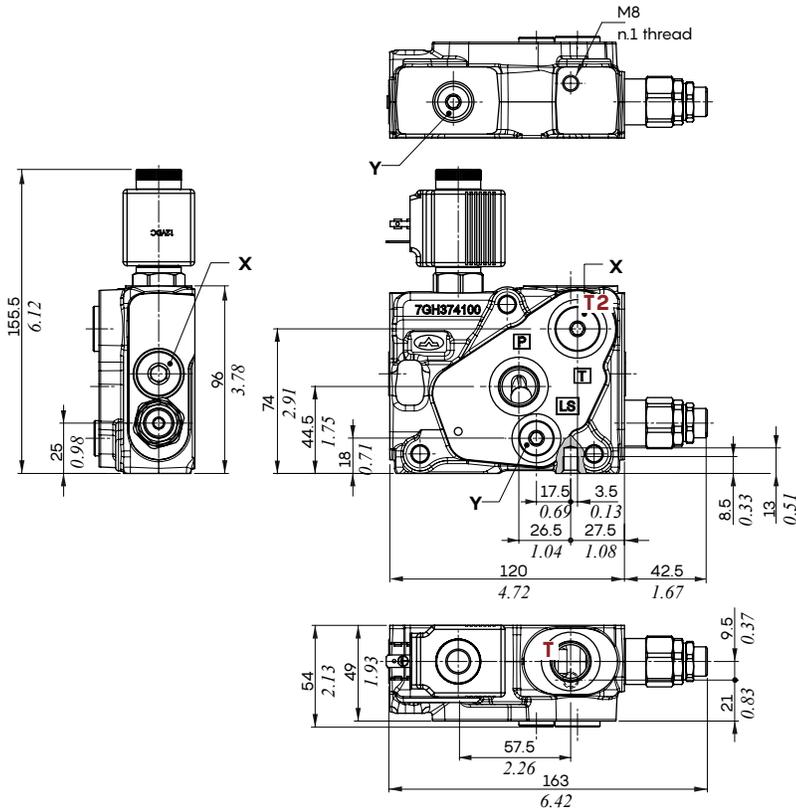
For complete available coil list see page 160.

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

Dimensions and hydraulic circuit

Example of M type Open Center section

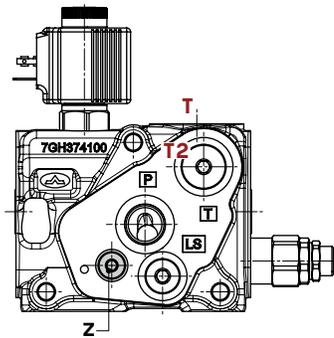
Type AM2



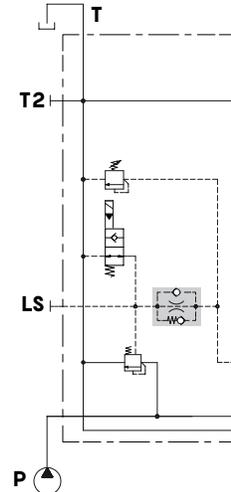
Wrenches and tightening torques

X = allen wrench 8 - 24 Nm (17.7 lbf ft)  
 Y = allen wrench 6 - 24 Nm (17.7 lbf ft)  
 Z = allen wrench 5 - 9.8 Nm (7.2 lbf ft)  
 NOTE: for valves wrench and torque see related pages

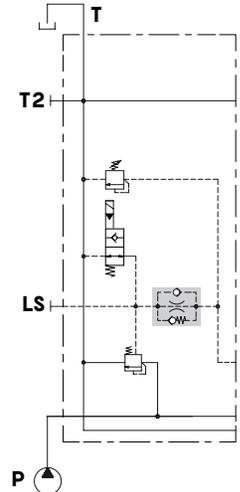
Type AM2(SO) or AM2(SU)



Type AM2(SU)



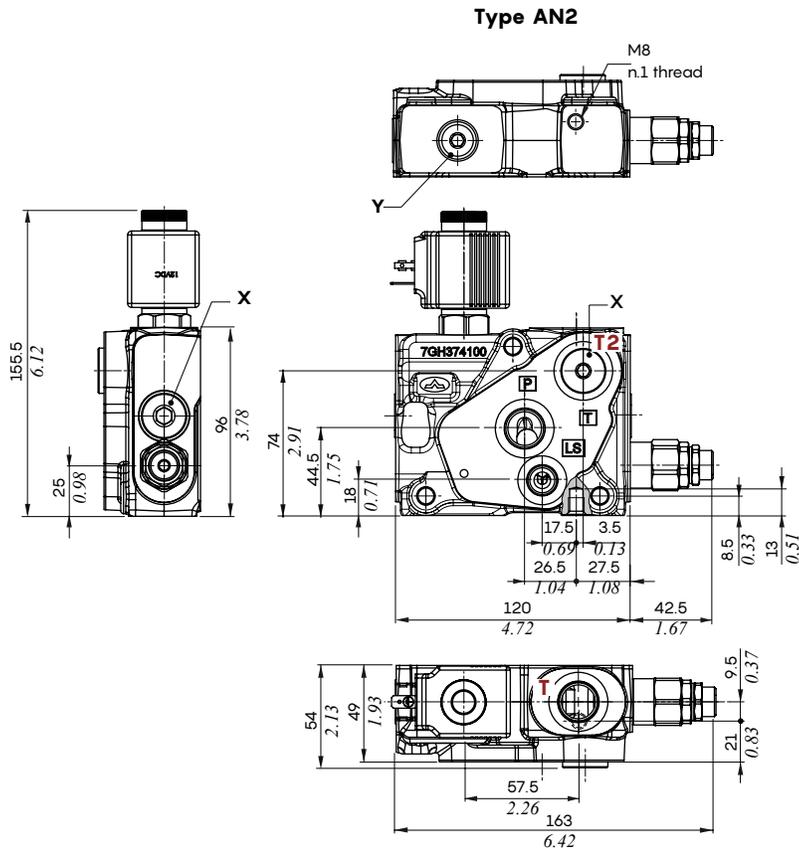
Type AM2(SO)



## Inlet section

### Dimensions and hydraulic circuit

#### Example of N type Closed Center section



#### Wrenches and tightening torques

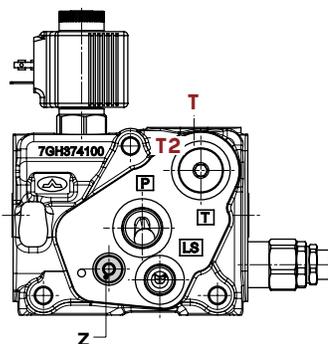
X = allen wrench 8 - 24 Nm (17.7 lbft)

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

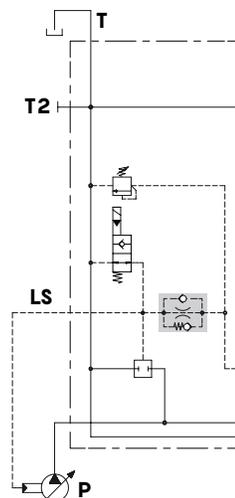
Z = allen wrench 5 - 9.8 Nm (7.2 lbft)

NOTE: for valves wrench and torque see related pages

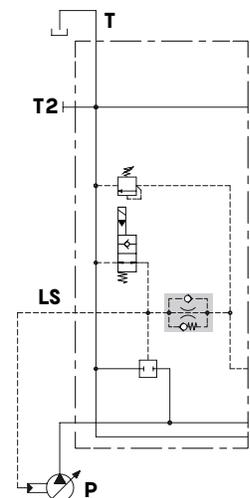
#### Type AN2(SO) or AN2(SU)



#### Type AN2(SU)

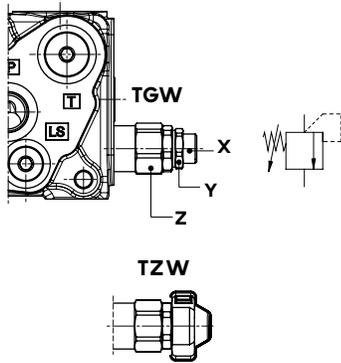


#### Type AN2(SO)

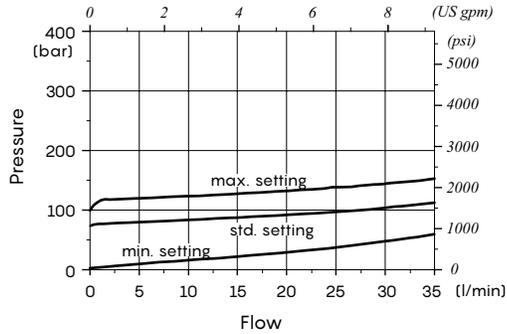


Main pressure relief valve

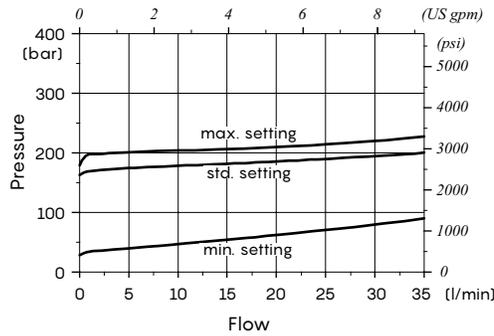
Setting types



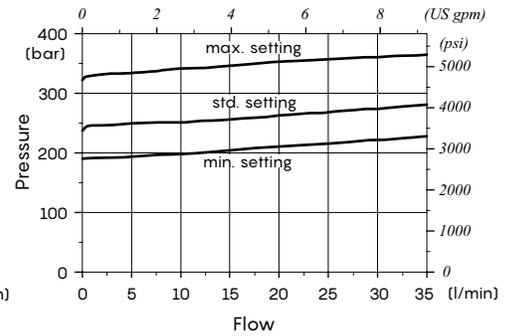
Setting range: type TGW2



Setting range: type TGW3



Setting range: type TGW4

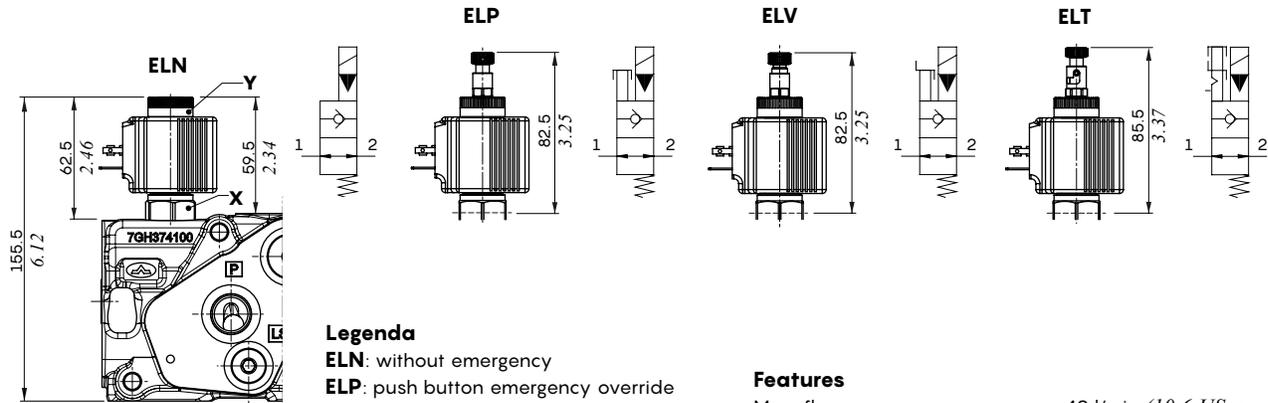


Legenda

- 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 lbft)
- Z = wrench 24 - 42 Nm (31 lbft)

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 lbft)
- Y = manual tightening

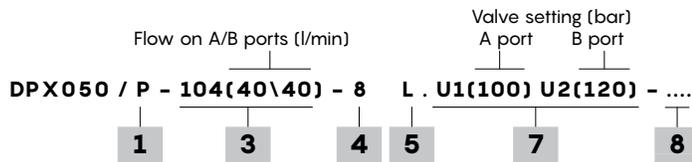
Features

- Max. flow ..... 40 l/min (10.6 US gpm)
- Max. pressure ..... 380 bar (5500 psi)
- Internal leakage ..... 0.25 cm<sup>3</sup>/min @ 210 bar (0.015 in<sup>3</sup>/min @ 3050 psi)

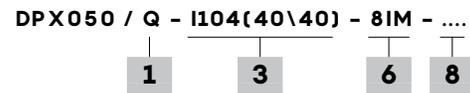
For coil features and options see BER type coil at page 160.

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

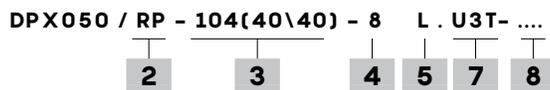
**A Mechanical control configuration (section):**



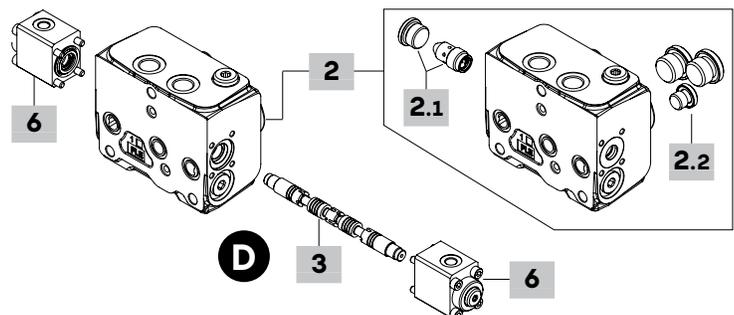
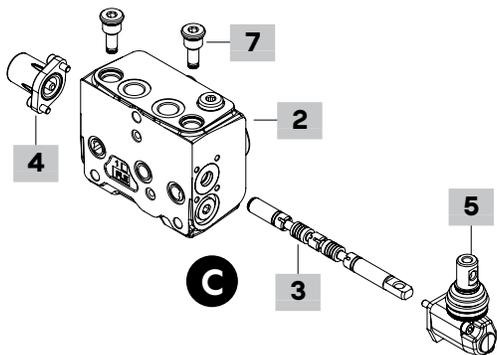
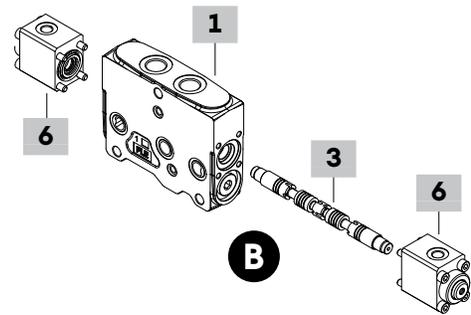
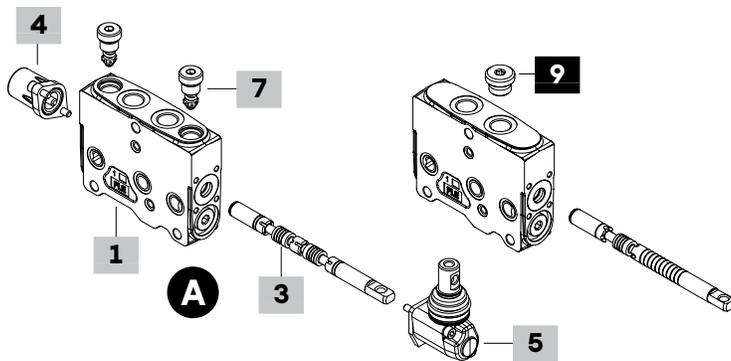
**B Prop. hydraulic control configuration (section):**



**C Mechanical control configuration (outlet section):**



**D Prop. hydraulic control configuration (outlet section):**



**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 proportional 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 proportional 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

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

## 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
------	------	-------------

#### For mechanical control

Double acting with A and B closed in neutral position, floating circuit with 13RZ type positioner (4 position)

<b>105(50)</b>	3CUA110005	50 l/min (13 US gpm) flow
<b>104(40)</b>	3CUA110004	40 l/min (10.5 US gpm) flow
<b>103(30)</b>	3CUA110003	30 l/min (7.9 US gpm) flow
<b>102(20)</b>	3CUA110002	20 l/min (5.3 US gpm) flow
<b>101(10)</b>	3CUA110001	10 l/min (2.6 US gpm) flow
<b>106(5)</b>	3CUA110006	5 l/min (1.3 US gpm) flow

Double acting with A and B to tank in neutral position

<b>202(20)</b>	3CUA123002	20 l/min (5.3 US gpm) flow
<b>201(10)</b>	3CUA123001	10 l/min (2.6 US gpm) flow

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

<b>2H05(50)</b>	3CUA124005	50 l/min (13 US gpm) flow
<b>2H04(40)</b>	3CUA124004	40 l/min (10.5 US gpm) flow
<b>2H03(30)</b>	3CUA124003	30 l/min (7.9 US gpm) flow
<b>2H02(20)</b>	3CUA124002	20 l/min (5.3 US gpm) flow
<b>2H01(10)</b>	3CUA124001	10 l/min (2.6 US gpm) flow
<b>2H06(5)</b>	3CUA124006	5 l/min (1.3 US gpm) flow

Single acting on A, B plugged: SAE6 plug is required

<b>305(50)</b>	3CUA131005	50 l/min (13 US gpm) flow
<b>302(20)</b>	3CUA131002	20 l/min (5.3 US gpm) flow

#### For proportional hydraulic control

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

<b>I105(50)</b>	3CUA310005	50 l/min (13 US gpm) flow
<b>I104(40)</b>	3CUA310004	40 l/min (10.5 US gpm) flow
<b>I103(30)</b>	3CUA310003	30 l/min (7.9 US gpm) flow
<b>I102(20)</b>	3CUA310002	20 l/min (5.3 US gpm) flow
<b>I101(10)</b>	3CUA310001	10 l/min (2.6 US gpm) flow
<b>I106(5)</b>	3CUA310006	5 l/min (1.3 US gpm) flow

Double acting with A and B to tank in neutral position

<b>I204(40)</b>	3CUA325004	40 l/min (10.5 US gpm) flow
<b>I203(30)</b>	3CUA325003	30 l/min (7.9 US gpm) flow
<b>I202(20)</b>	3CUA325002	20 l/min (5.3 US gpm) flow
<b>I201(10)</b>	3CUA325001	10 l/min (2.6 US gpm) flow
<b>I206(5)</b>	3CUA325006	5 l/min (1.3 US gpm) flow

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

<b>I2H05(50)</b>	3CUA324005	50 l/min (13 US gpm) flow
<b>I2H04(40)</b>	3CUA324004	40 l/min (10.5 US gpm) flow
<b>I2H08(30)</b>	3CUA324008	30 l/min (7.9 US gpm) flow
<b>I2H07(20)</b>	3CUA324007	20 l/min (5.3 US gpm) flow
<b>I2H01(10)</b>	3CUA324001	10 l/min (2.6 US gpm) flow
<b>I2H06(5)</b>	3CUA324006	5 l/min (1.3 US gpm) flow

Single acting on A or B, other port plugged: SAE6 plug is required

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

### 4 "A" side spool positioners page 29

TYPE	CODE	DESCRIPTION
<b>7FT</b>	5V0710A001	With friction and neutral position notch
<b>8</b>	5V08102000	3 pos. with spring return to neutral position
<b>8F2</b>	5V0810A001	Spool stroke limiter on B port
<b>8D</b>	5V08102200	External pin with M6 female thread
<b>8D2</b>	5V08102220	External pin with M8 male thread
<b>9BZ</b>	5V09202010	Detent in position 1
<b>10BZ</b>	5V10202010	Detent in position 2
<b>11BZ</b>	5V11202010	Detent in positions 1 and 2
<b>12</b>	5V12102000	2 positions, detent in pos. 1 and 2

For floating circuit (standard spool)

<b>13RZ</b>	5V13306020	4 pos., detent in 4 <sup>th</sup> position with spool in, spring return to neutral position
-------------	------------	---

### 5 "B" side spool control kit page 31

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

### 6 Proportional hydraulic control \* page 32

TYPE	CODE	DESCRIPTION
<b>8IM-SAE</b>	5IDR20A700AV	Range 8-27 bar (116-392 psi)
<b>8IMX-SAE</b>	5IDR20A701AV	Range 3.5-20 bar (51-290 psi)
<b>8IMF3-SAE</b>	5IDR20A702AV	Range 8-27 bar (116-392 psi), with spool stroke limiter on A and B ports
<b>8IMXF3-SAE</b>	5IDR20A703AV	Range 3.5-20 bar (51-290 psi), with spool stroke limiter on A and B ports

For floating circuit (standard spool)

<b>13IMP-SAE</b>	5IDR20A710V	Range 4-16.5-28 bar (58-239-406 psi)
------------------	-------------	--------------------------------------

### 7 Port valves page 40

TYPE	CODE	DESCRIPTION
<b>UT</b>	XTAP518370V	Valve blanking plug
<b>C</b>	5KIT411000	Anticavitation valve

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

TYPE: <b>U 100</b>	CODE: 5KIT308 100
└ setting (bar)	└ setting (bar)

SETTING:		
40 bar (580 psi)	50 bar (725 psi)	63 bar (870 psi)
80 bar (1150 psi)	100 bar (1450 psi)	120 bar (1750 psi)
130 bar (1900 psi)	140 bar (2050 psi)	150 bar (2150 psi)
165 bar (2400 psi)	175 bar (2550 psi)	185 bar (2700 psi)
200 bar (2900 psi)	210 bar (3050 psi)	220 bar (3200 psi)
235 bar (3400 psi)	250 bar (3600 psi)	270 bar (3900 psi)
300 bar (4350 psi)	340 bar (4950 psi)	

### 8 Section threading

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

### 9 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 One-side electrohydraulic control configuration (section):

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

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

1    3    4    5    7    8    4

### B Two-side electrohydraulic control configuration (section):

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

1    3    6    8    6

### C One-side electrohydraulic control configuration (outlet section):

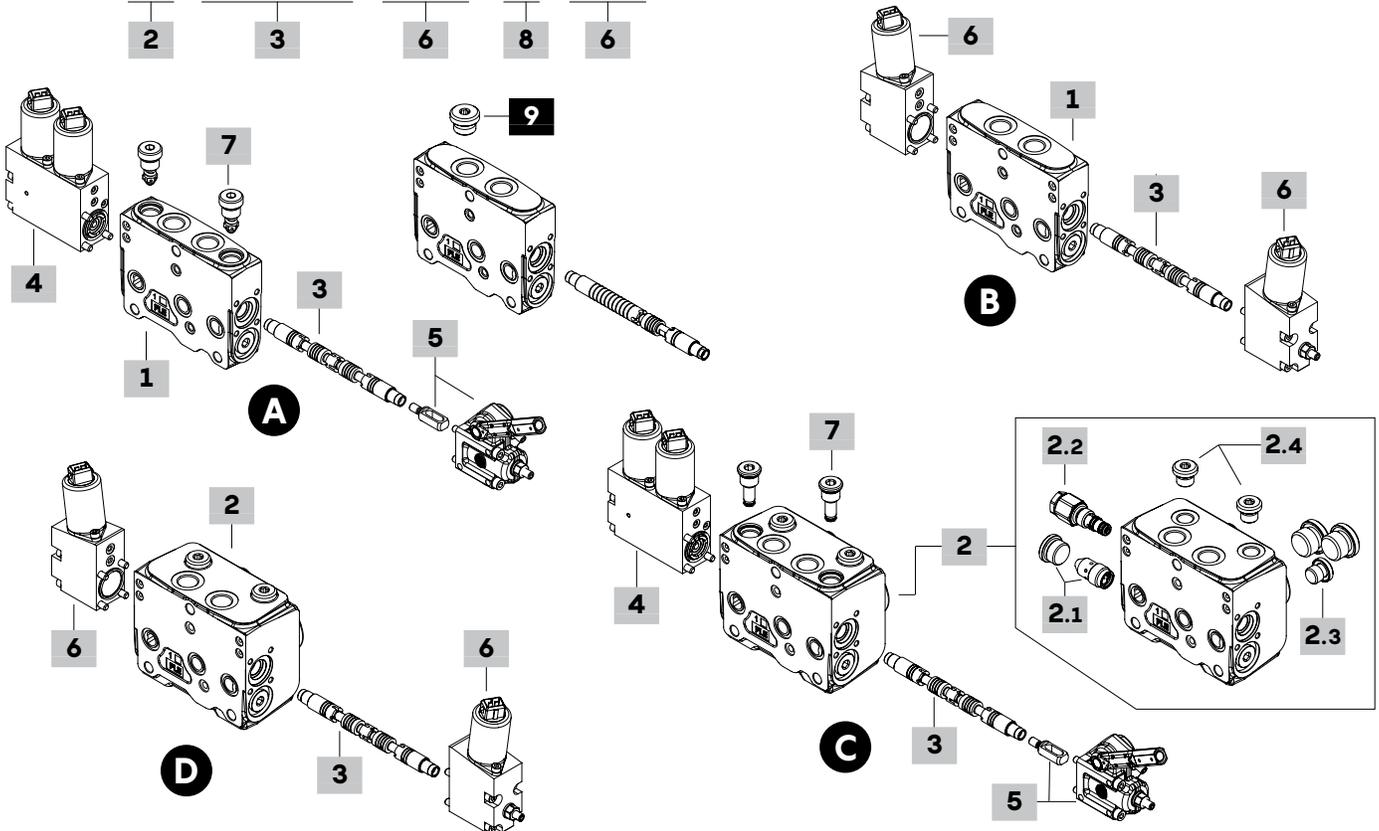
DPX050 / RQZ - I104(40\40) - 8EZ3 LQF3 . U3T - (VBT \ RT) - F1 - NOTAP(VL) - SAE - 12VDC

2    3    4    5    7    2.1    2.2    2.3    2.4    8    4

### D Two-side electrohydraulic control configuration (outlet section):

DPX050 / RQE - I104(40\40) - 8EB3F3 - SAE - 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

#### 1 Working section kit \* page 24

**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

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

## Working and outlet section part ordering codes (electrohydraulic)

**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 plugged port, without port valve arrangement

TYPE: **DPX050/RPE-SAE** CODE: 5FIA20A701S  
 DESCRIPTION: As previous one with port valve arrangement

**For one-side electrohydraulic control**

TYPE: **DPX050/RGZ-SAE** CODE: 5FIA20A721S  
 DESCRIPTION: With bleed valve, with P1-T1-LS1 plugged port, without port valve arrangement

TYPE: **DPX050/RPZ-SAE** CODE: 5FIA20A720S  
 DESCRIPTION: As previous one with port valve arrangement

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

**2.4 Pilot and drain \***

TYPE	CODE	DESCRIPTION
(-)	3XTAP814120	SAE4 plug, nr.1 for internal pilot
(-)	3XTAP817130	SAE6 plug, nr.1 for internal 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  
Double acting with A and B closed in neutral position, floating circuit with 4 positions controls (13... type)

<b>I105(50)</b>	3CUA310005	50 l/min (13 US gpm) flow
<b>I104(40)</b>	3CUA310004	40 l/min (10.5 US gpm) flow
<b>I103(30)</b>	3CUA310003	30 l/min (7.9 US gpm) flow
<b>I102(20)</b>	3CUA310002	20 l/min (5.3 US gpm) flow
<b>I101(10)</b>	3CUA310001	10 l/min (2.6 US gpm) flow
<b>I106(5)</b>	3CUA310006	5 l/min (1.3 US gpm) flow

Double acting with A and B to tank in neutral position

<b>I204(40)</b>	3CUA325004	40 l/min (10.5 US gpm) flow
<b>I203(30)</b>	3CUA325003	30 l/min (7.9 US gpm) flow
<b>I202(20)</b>	3CUA325002	20 l/min (5.3 US gpm) flow
<b>I201(10)</b>	3CUA325001	10 l/min (2.6 US gpm) flow
<b>I206(5)</b>	3CUA325006	5 l/min (1.3 US gpm) flow

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

<b>I2H05(50)</b>	3CUA324005	50 l/min (13 US gpm) flow
<b>I2H04(40)</b>	3CUA324004	40 l/min (10.5 US gpm) flow
<b>I2H08(30)</b>	3CUA324008	30 l/min (7.9 US gpm) flow
<b>I2H07(20)</b>	3CUA324007	20 l/min (5.3 US gpm) flow
<b>I2H01(10)</b>	3CUA324001	10 l/min (2.6 US gpm) flow
<b>I2H06(5)</b>	3CUA324006	5 l/min (1.3 US gpm) flow

Single acting on A or B, other port plugged: SAE6 plug is required

<b>I305-I405(50)</b>	3CUA331005	50 l/min (13 US gpm) flow
<b>I302-I402(20)</b>	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
<b>8EZ3-12VDC</b>	5V0810A780V	AMP connector
<b>8EZ3-24VDC</b>	5V0810A785V	As previous one
<b>8EZ3F2-12VDC</b>	5V0810A781V	AMP conn., spool stroke limiter
<b>8EZ3F2-24VDC</b>	5V0810A782V	As previous one
<b>8EZ34-12VDC</b>	5V0810A786V	Deutsch connector
<b>8EZ34-24VDC</b>	5V0810A787V	As previous one
<b>8EZ34F2-12VDC</b>	5V0810A783V	Deutsch conn., spool stroke limiter
<b>8EZ34F2-24VDC</b>	5V0810A784V	As previous one

For floating circuit (standard spool)

<b>13EZ3P-12VDC</b>	5V1310A788V	With Step, with AMP connector
<b>13EZ3P-24VDC</b>	5V1310A790V	As previous one
<b>13EZ34P-12VDC</b>	5V1310A789V	With Step, with Deutsch conn.
<b>13EZ34P-24VDC</b>	5V1310A791V	As previous one

With spool position sensor

<b>8EZ3SPSD-12VDC</b>	5V0810A790V	AMP connector and digital sensor
<b>8EZ3SPSD-24VDC</b>	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
<b>LQ</b>	5LEV10A005V	Lever control
<b>LQ180</b>	5LEV10A006V	As previous one, turned of 180°
<b>LQF3</b>	5LEV10A004V	As LQ, spool stroke limiter on A, B ports
<b>LQF3180</b>	5LEV10A003V	As previous one, turned of 180°
<b>SLC</b>	5COP150010V	Endcap
<b>SLCF1</b>	5COP150011V	Endcap with spool stroke limiter

**6 Two-side electrohydraulic control page 37**

TYPE	CODE	DESCRIPTION
<b>8EB3-12VDC</b>	5IDR90A200V	AMP connector
<b>8EB3-24VDC</b>	5IDR90A201V	As previous one
<b>8EB34-12VDC</b>	5IDR90A202V	Deutsch connector
<b>8EB34-24VDC</b>	5IDR90A203V	As previous one
<b>8EB3F3-12VDC</b>	5IDR90A204V	AMP connector, spool stroke limiter on A and B ports
<b>8EB3F3-24VDC</b>	5IDR90A205V	As previous one
<b>8EB34F3-12VDC</b>	5IDR90A206V	Deutsch onconnector, spool stroke limiter on A and B ports
<b>8EB34F3-24VDC</b>	5IDR90A207V	As previous one

For floating circuit (standard spool)

<b>13EB3P-12VDC</b>	5IDR91A208V	With Step, AMP connector
<b>13EB3P-24VDC</b>	5IDR91A209V	As previous one
<b>13EB34P-12VDC</b>	5IDR91A210V	With Step, Deutsch connector
<b>13EB34P-24VDC</b>	5IDR91A211V	As previous one

**7 Port valves page 40**

TYPE	CODE	DESCRIPTION
<b>U040</b>	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).

**9 Plug for single acting spool \***

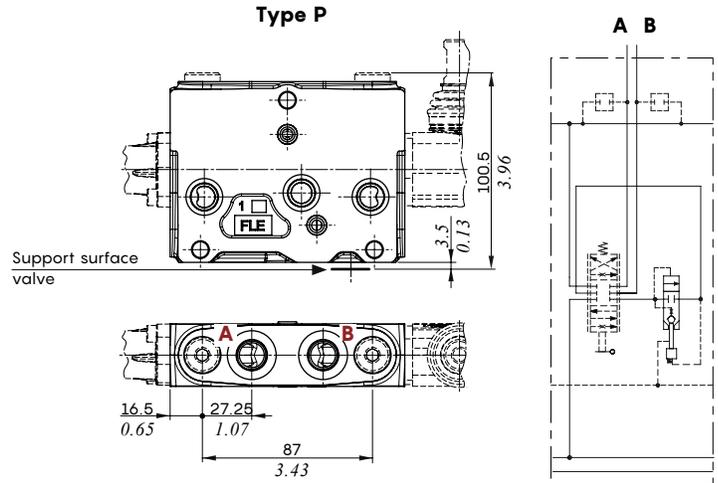
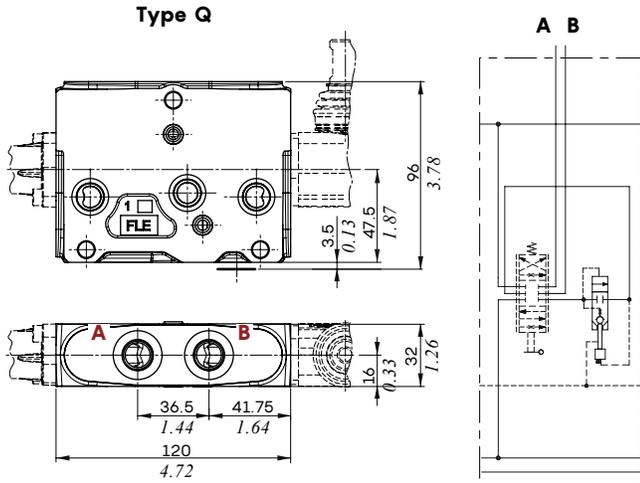
CODE	DESCRIPTION
3XTAP817130	SAE6 plug

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

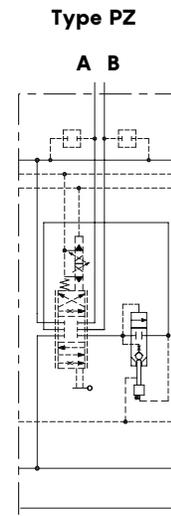
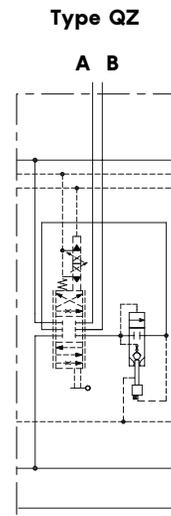
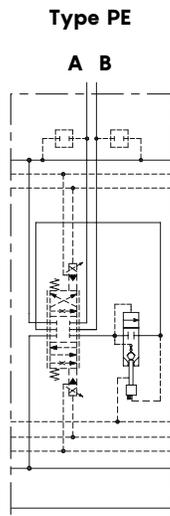
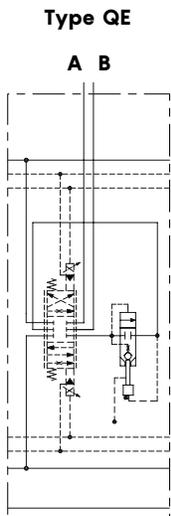
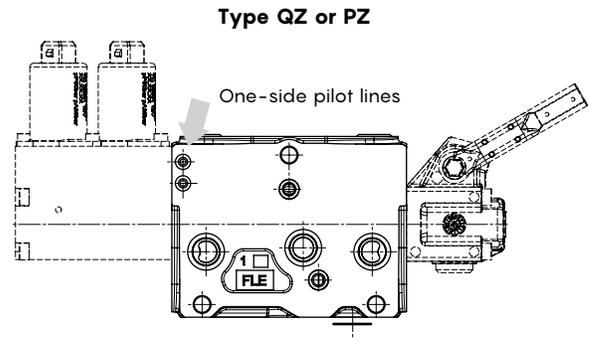
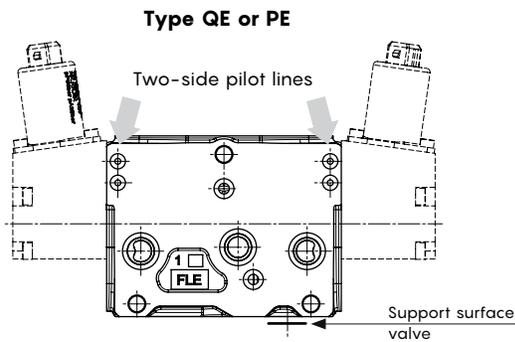
Working and outlet section

Dimensions and hydraulic circuit

Section for mechanical and hydraulic controls



Section for electrohydraulic controls

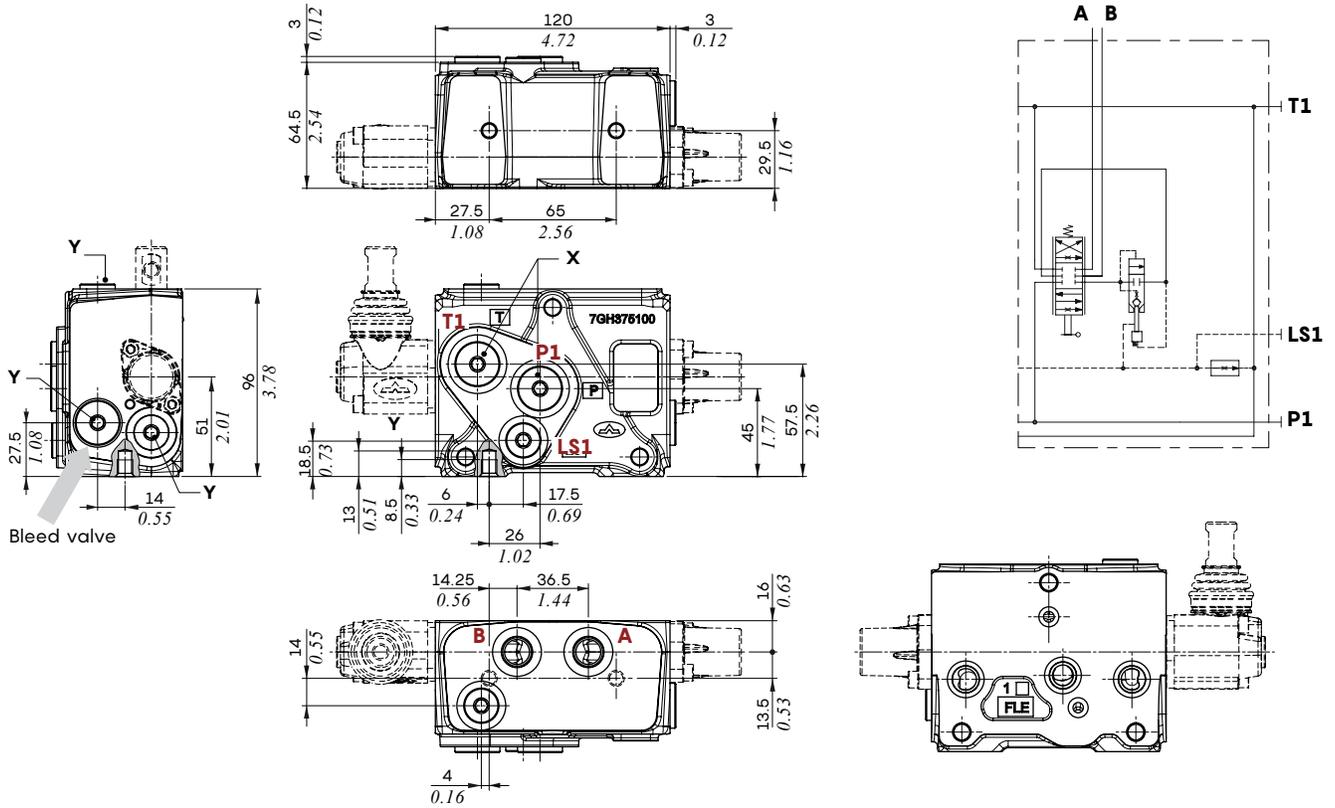


Working and outlet section

Dimensions and hydraulic circuit

Section with outlet for mechanical and hydraulic controls

Type RQ

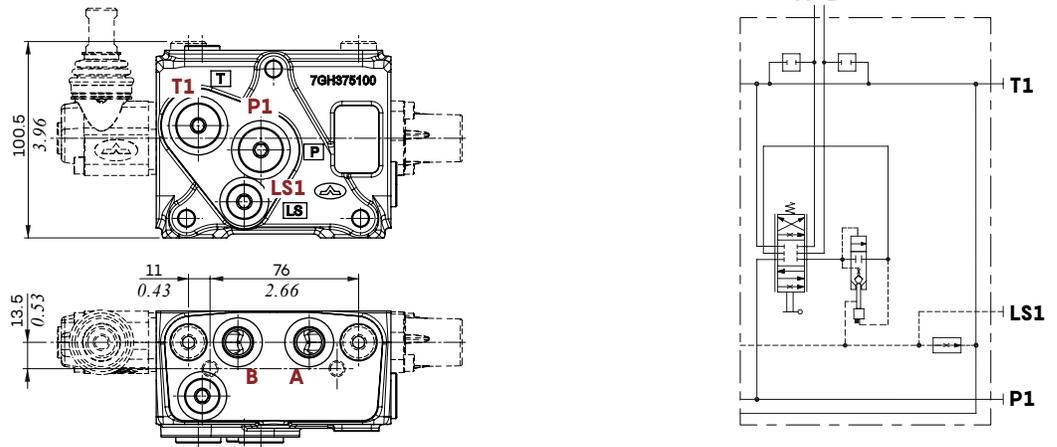


Wrenches and tightening torques

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

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

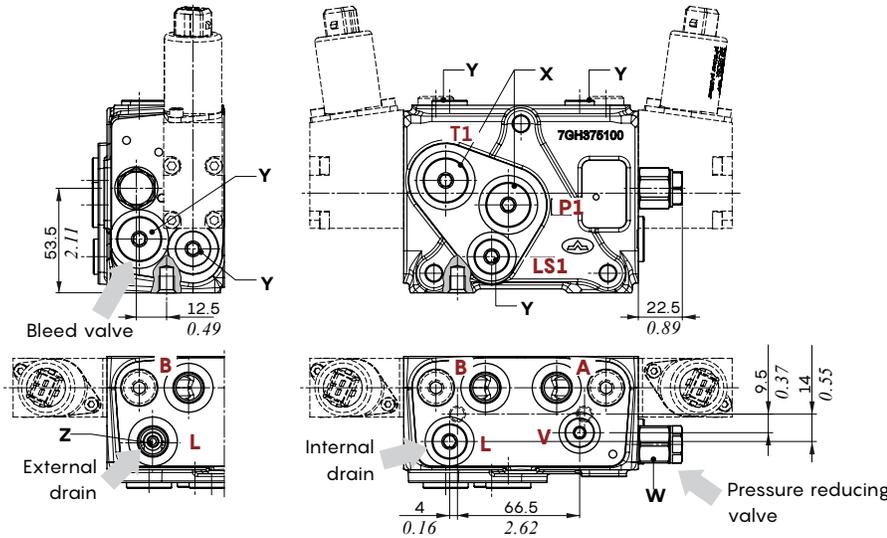
Type RP



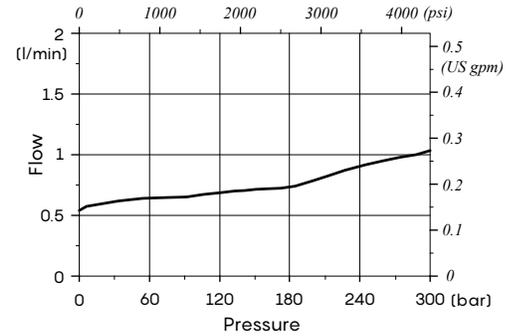
Working and outlet section

Dimensions and hydraulic circuit

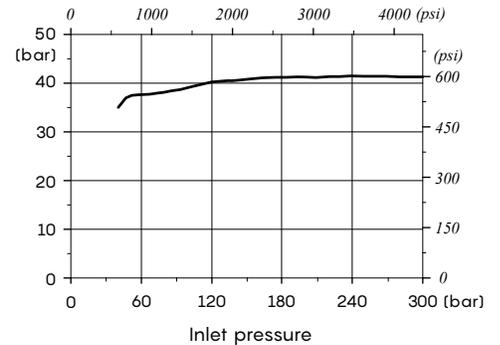
Section with outlet for electrohydraulic controls



Bleed valve diagram  
Flow vs. Pressure



Pressure reducing valve diagram  
Reduced pressure vs. Inlet pressure



Wrenches and tightening torques

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

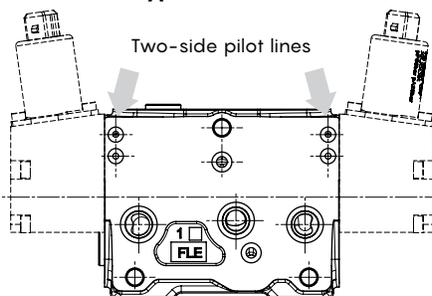
Bleed valve features

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

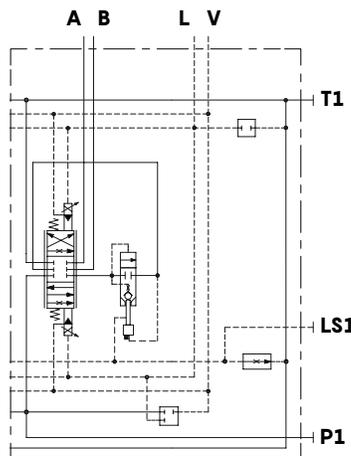
Pressure reducing valve features

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

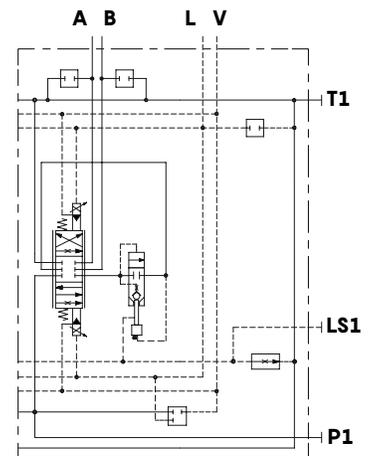
Type RQE or RPE



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

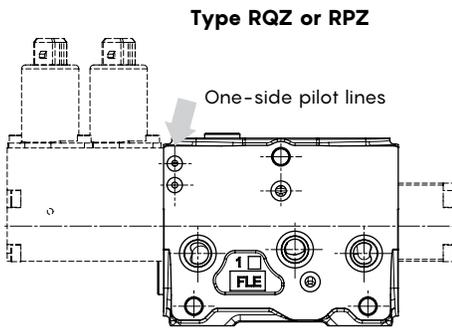


Type RPE  
(RT configuration; without pressure reducing valve, seat plugged)

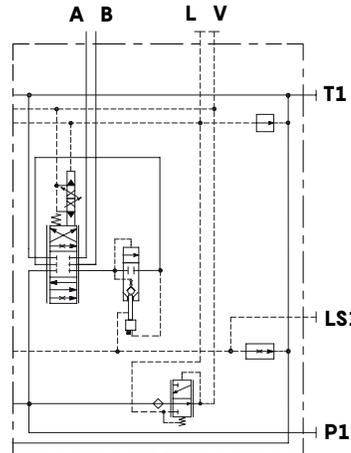


Working and outlet section

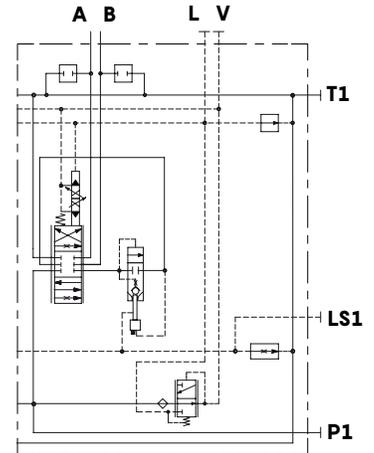
Dimensions and hydraulic circuit



**Type RQZ**  
(With pressure reducing valve)



**Type RPZ**  
(With pressure reducing valve)

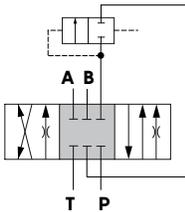


Spool

**Type 1 (1../11..)**

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

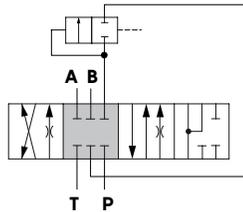
1 0 2



**Stroke**

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

1 0 2 3



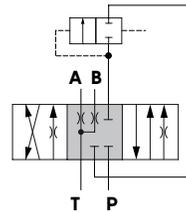
**Stroke**

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

**Type 2 (2../12..)**

A, B to tank  
in neutral position

1 0 2



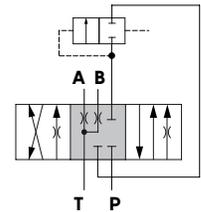
**Stroke**

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

**Type 2H (2H../12H..)**

A, B partially to tank  
in neutral position

1 0 2



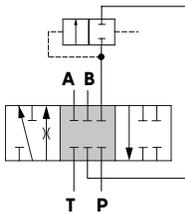
**Stroke**

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

**Type 3 (3../13..)**

Single acting on A

1 0 2



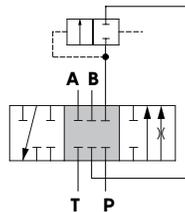
**Stroke**

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

**Type 4 (4../14..)**

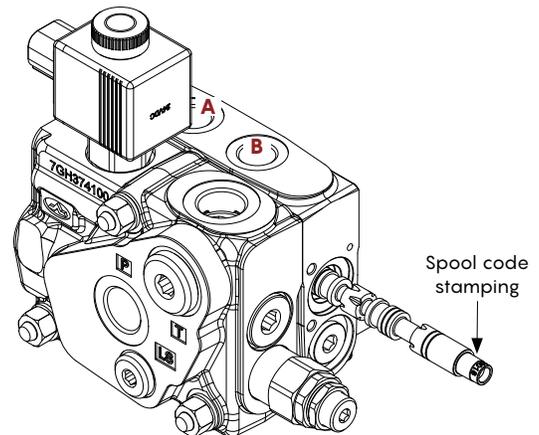
Single acting on B

1 0 2



**Stroke**

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



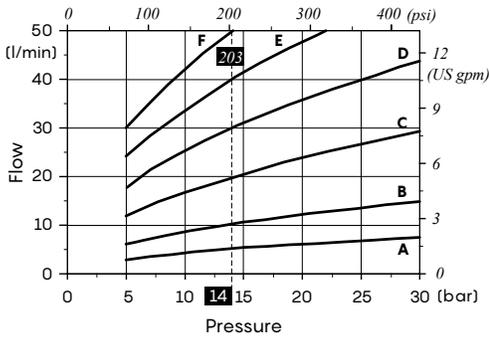
In case of spool replacement the code stamping must be oriented toward B port.

Working and outlet section

Spool

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.

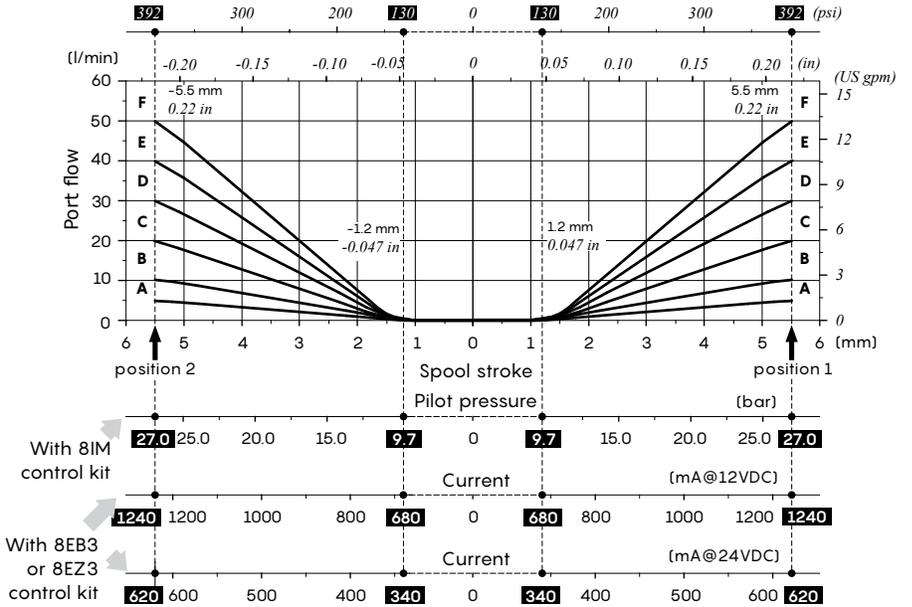
Spool flow vs. Stand-by pressure (margin pressure)



Curves with spool nominal flow @ 14 bar (200 psi) stand-by (margin pressure)  
 A = 5 l/min (1.3 US gpm) ± 10%  
 B = 10 l/min (2.6 US gpm) ± 10%  
 C = 20 l/min (5.3 US gpm) ± 10%  
 D = 30 l/min (7.9 US gpm) ± 10%  
 E = 40 l/min (10.6 US gpm) ± 10%  
 F = 50 l/min (12.2 US gpm) ± 10%

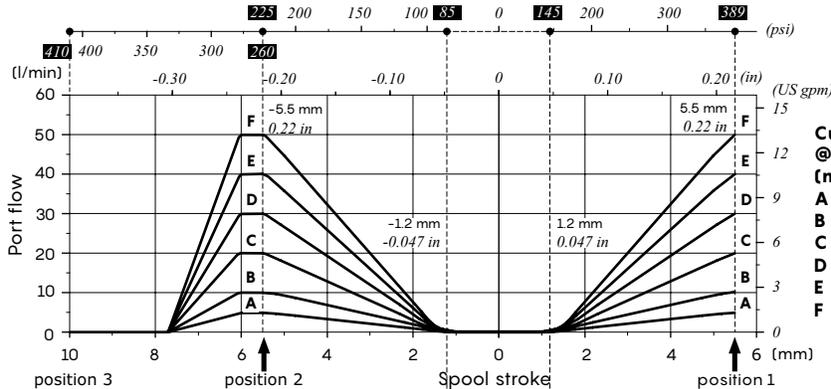
3 positions spools metering curve

Q<sub>in</sub> = 50 l/min (13.2 US gpm) - Open center circuit



Floating spool metering curve

Q<sub>in</sub> = 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)

With 13IMP control kit with STEP →

With 13EB3 or 13EZ3 control kit, without STEP →

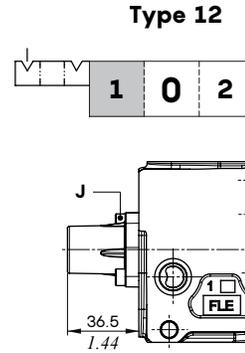
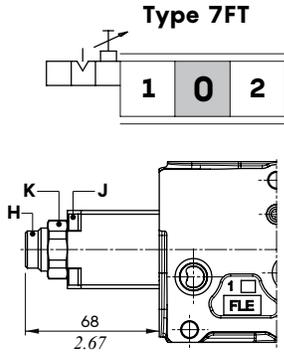
With 13EB3P or 13EZ3P control kit, with STEP →

Working and outlet section

"A" side spool positioners

With friction and neutral position notch

2 positions, with detent in position 1 and 2

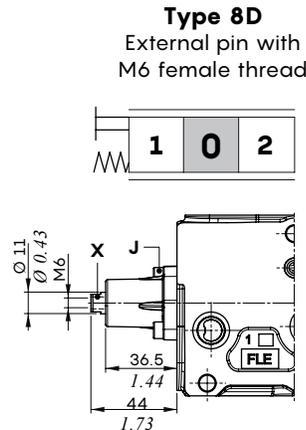
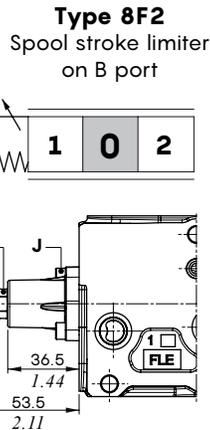
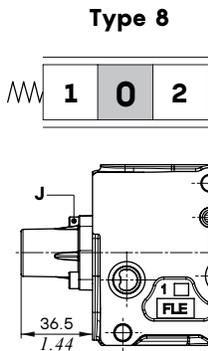


Release force 230 N ± 10 N  
(51.7 lbf ± 2.2 lbf)

**Wrenches and tightening torques**

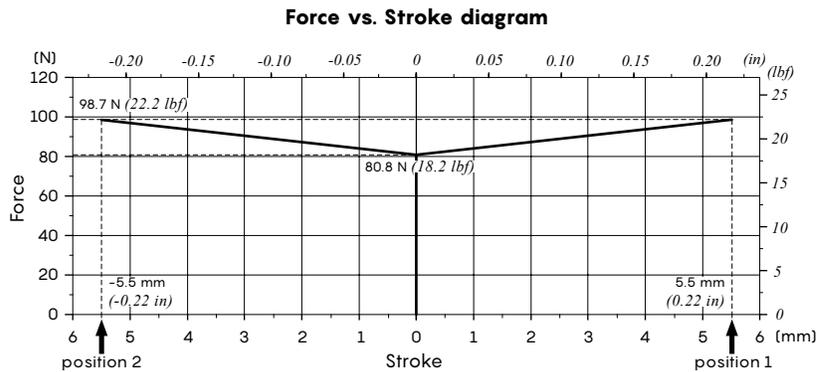
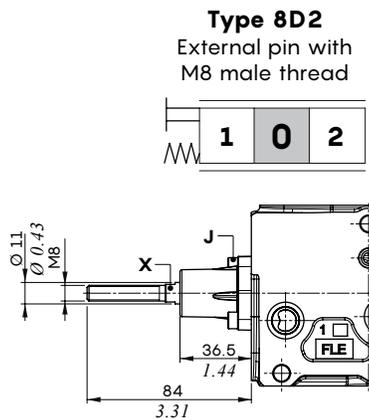
- J = allen wrench 4 - 6,6 Nm (4.9 lbft)
- H = allen wrench 4
- K = wrench 28 - manual tightening

With spring return to neutral position



**Wrenches and tightening torques**

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

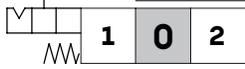


Working and outlet section

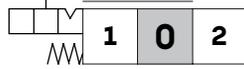
"A" side spool positioners

With detent and spring return to neutral position

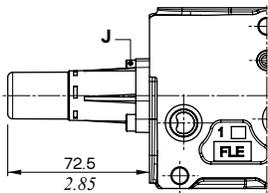
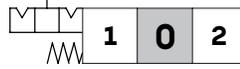
**Type 9BZ**  
Detent in position 1  
(see A curve)



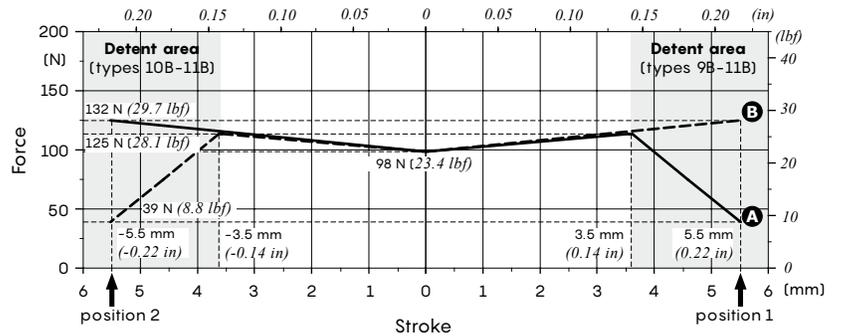
**Type 10BZ**  
Detent in position 2  
(see B curve)



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



Force vs. Stroke diagram



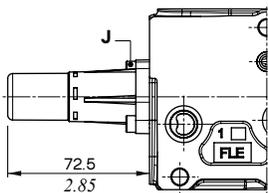
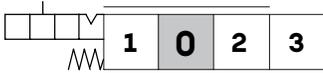
Release force 230 N ± 10% (51.7 lbf ± 10%)

Wrenches and tightening torques

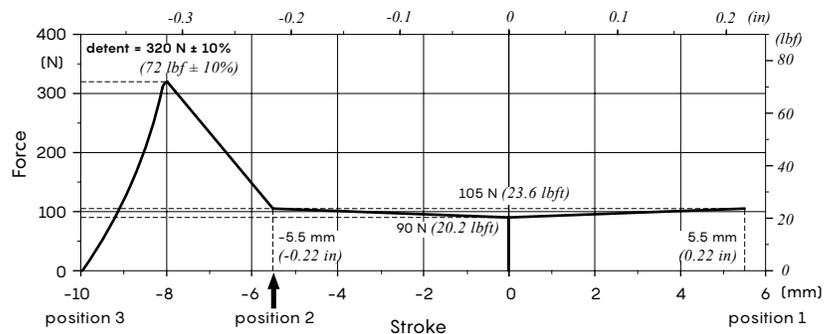
J = allen wrench 4 - 6.6 Nm (4.9 lbf)

With detent and spring return to neutral position, for floating circuit

**Type 13RZ**



Force vs. Stroke diagram



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

Wrenches and tightening torques

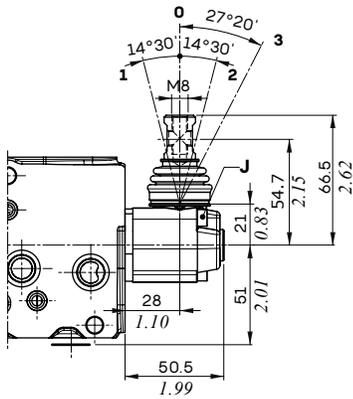
J = allen wrench 4 - 6.6 Nm (4.9 lbf)

Working and outlet section

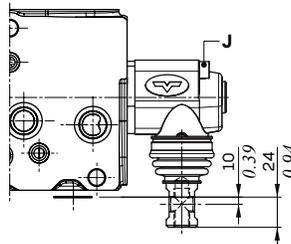
"B" side spool control kit

Lever box

Type L

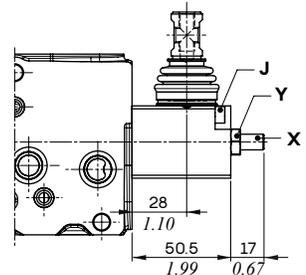
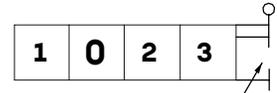


L180 configuration



Type LF1

Spool stroke limiter on A port



Wrenches and tightening torques

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

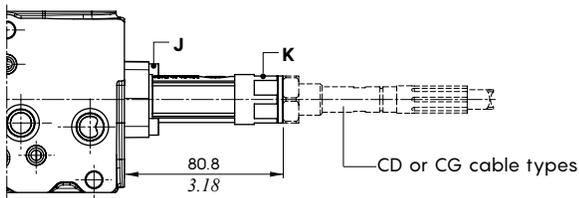
X = allen wrench 4

Y = wrench 13 - 24 Nm (17.7 lbft)

Without lever box

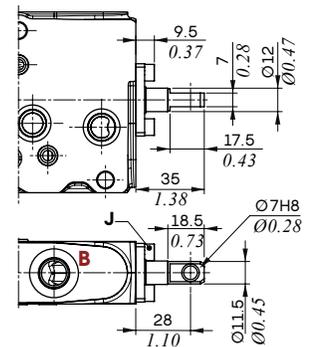
Type TQ

Flexible cable connection



Type SLP

Dust-proof plate



Wrenches and tightening torques

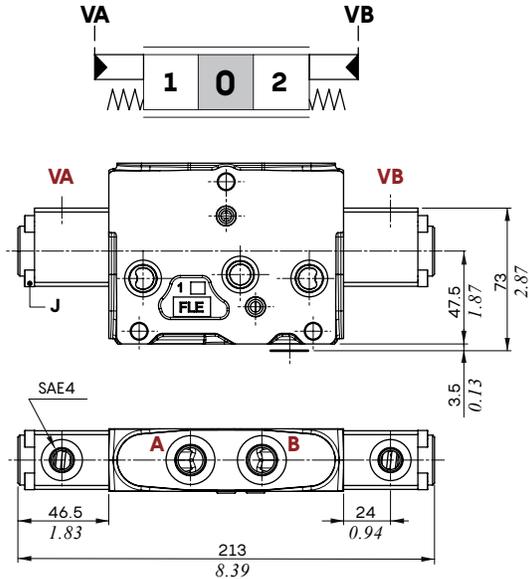
J = allen wrench 4 - 6.6 Nm (4.9 lbft)

K = wrench 24 (17.7 lbft)

Working and outlet section

Proportional hydraulic control

Types 8IM - 8IMX

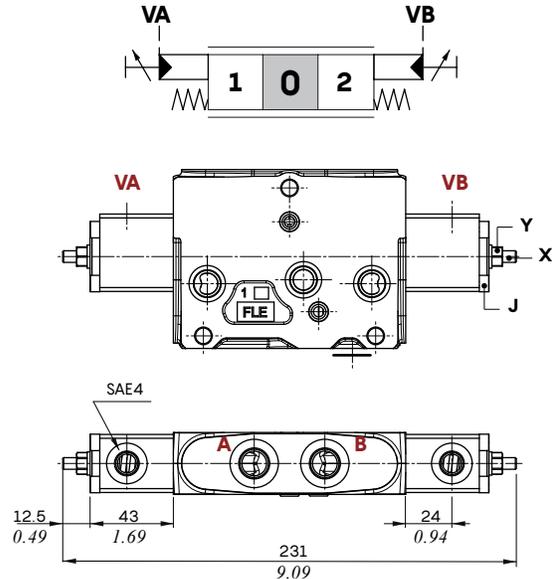


Features (all types)

Max. pressure ..... : 70 bar (1010 psi)

Types 8IMF3 - 8IMXF3

With spool stroke limiter on A and B ports



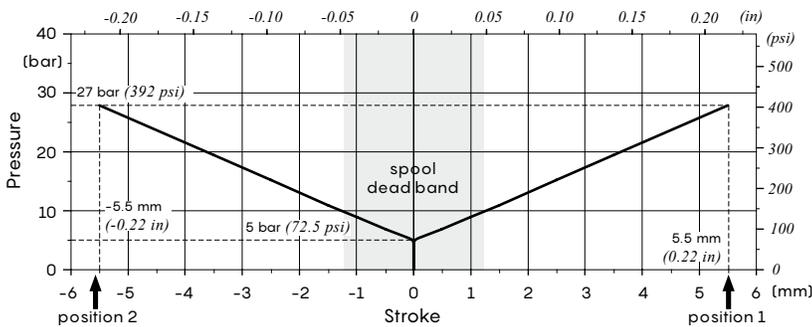
Wrenches and tightening torques

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

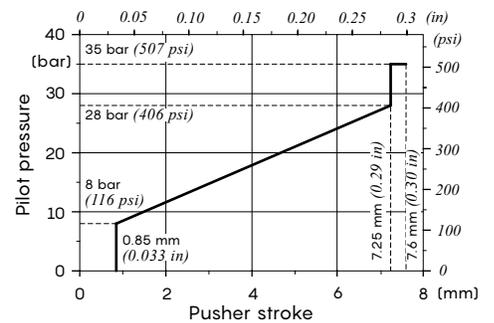
X = allen wrench 3

Y = wrench 10 - 9.8 Nm (7.2 lbft)

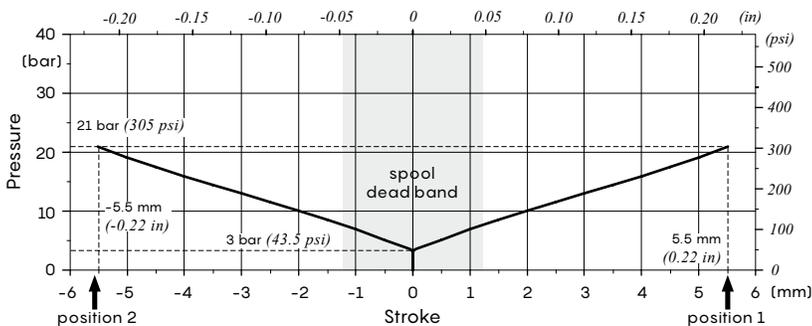
Types 8IM-8IMF3: Stroke vs. Pressure diagram



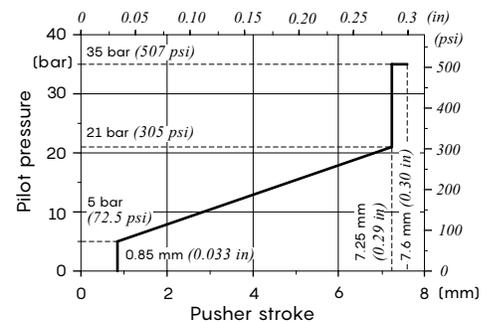
Suggested pressure control curve: type 089



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



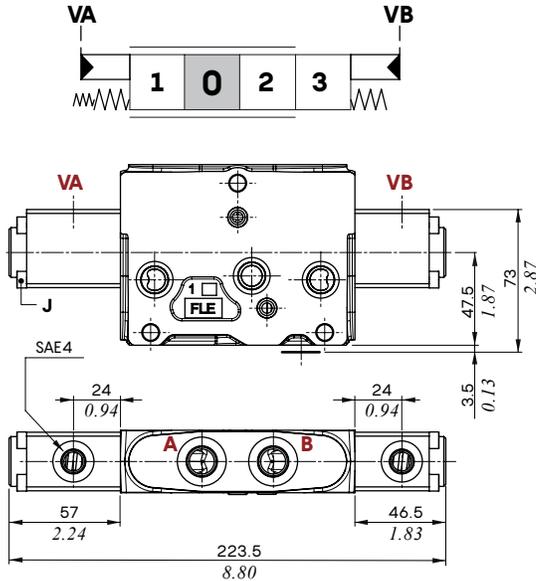
Suggested pressure control curve: type 028



Proportional hydraulic control

Type 13IMP

For floating circuit



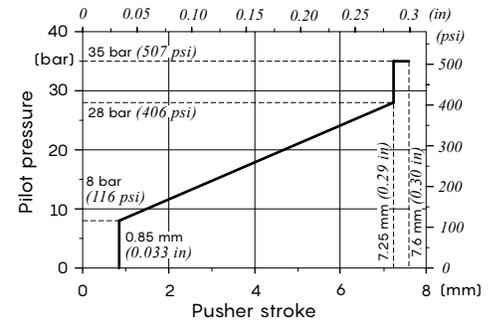
Wrenches and tightening torques

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

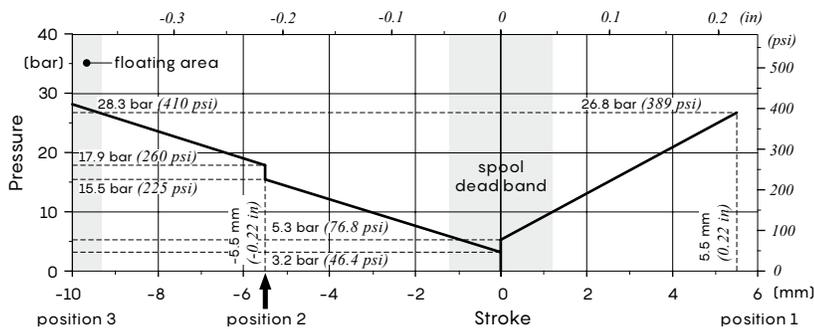
Features

Max. pressure .....: 70 bar (1010 psi)

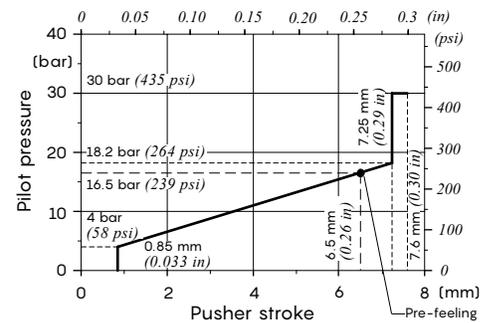
Suggested pressure control curve on VA port: type O89



Stroke vs. Pressure diagram



Suggested pressure control curve on VB port: type O86



## Working and outlet section

### Electrohydraulic control performance data

Following specifications are measured with:

- mineral oil of 46 mm<sup>2</sup>/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.

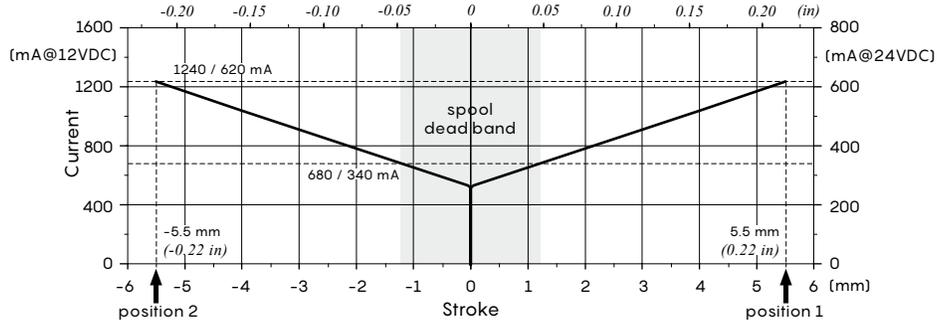
Following electrohydraulic controls need CED400W electronic unit; for information please contact Sales Department.

Specifications		Spool control type			
		8EB3	13EB3P	8EZ3	13EZ3P
<b>Electric specifications</b>					
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. <sup>(1)</sup>	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
				<u>With lever box configured controls</u>	
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)	
<b>Hydraulic specifications</b>					
Max. pressure		40 bar (580 psi)		50 bar (725 psi)	
Max. back pressure		10 bar (145 psi)		10 bar (145 psi)	

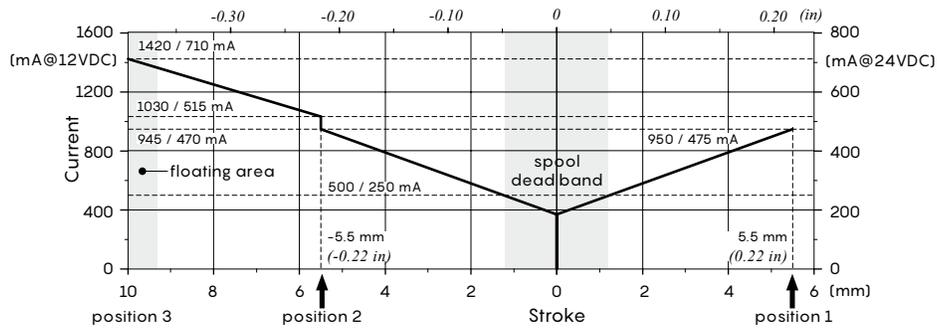
Note (1) hysteresis is indicated at nominal supply voltage and f = 0.008 Hz for one cycle (one cycle = neutral ⇒ full A ⇒ neutral ⇒ full B ⇒ neutral). For the calculation rules see "Appendix A" on page 170.

Electrohydraulic control performance data

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



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



## Working and outlet section

### Electrohydraulic controls: spool position sensor

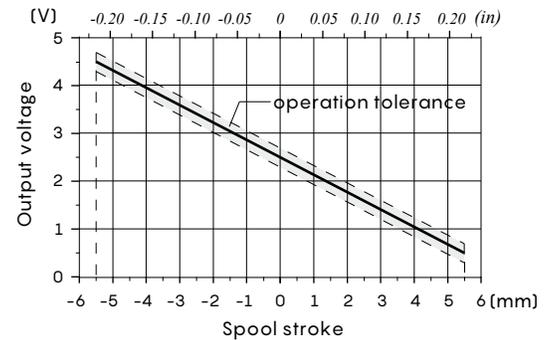
The sensor can be ordered exclusively through the EB and EZ type electrohydraulic controls; see page 23 for available control list.

#### SPSL sensor

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

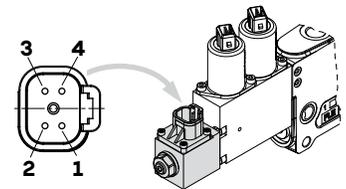
Working conditions	
Voltage supply	5 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 <sup>6</sup>
Connector type	DT04-4P Deutsch
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke	±10 mm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



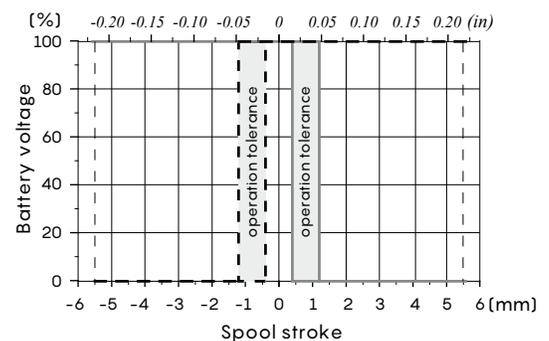
Deutsch DT06-4S mating connector, code 5CON140072

#### SPSD sensor

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

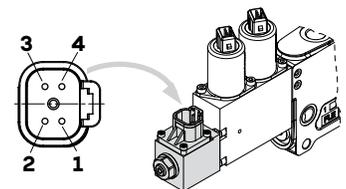
Working conditions	
Voltage supply	from 9 to 32 VDC
Current absorption	< 10 mA (no load)
Mechanical life	3x10 <sup>6</sup>
Connector type	DT04-4P Deutsch
Weather protection	IP67 / IP69K
Working temperature	from -40°C to 105°C (from -40°F to 221°F)
Working pressure	350 bar (5100 psi)
Max. electrical stroke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



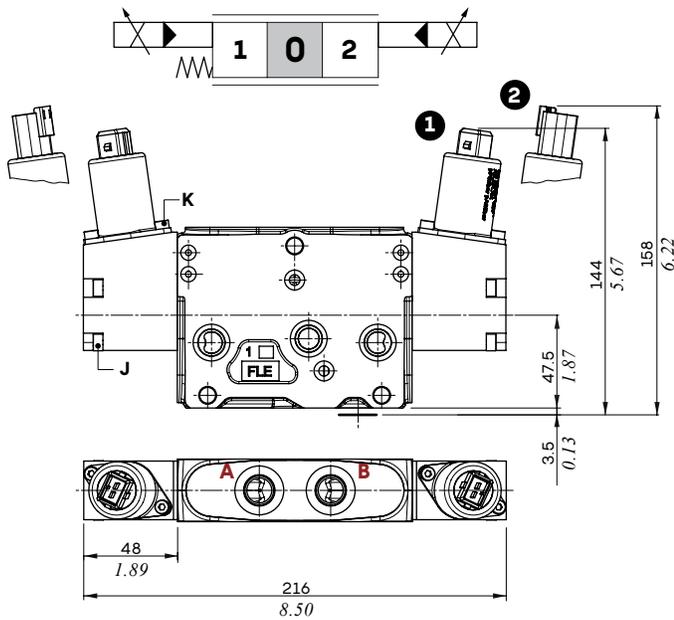
Deutsch DT06-4S mating connector, code 5CON140072

Two-side electrohydraulic control

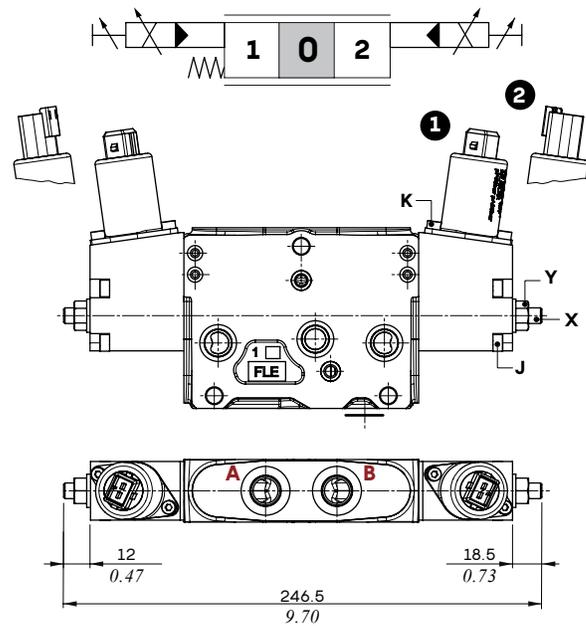
Control types

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

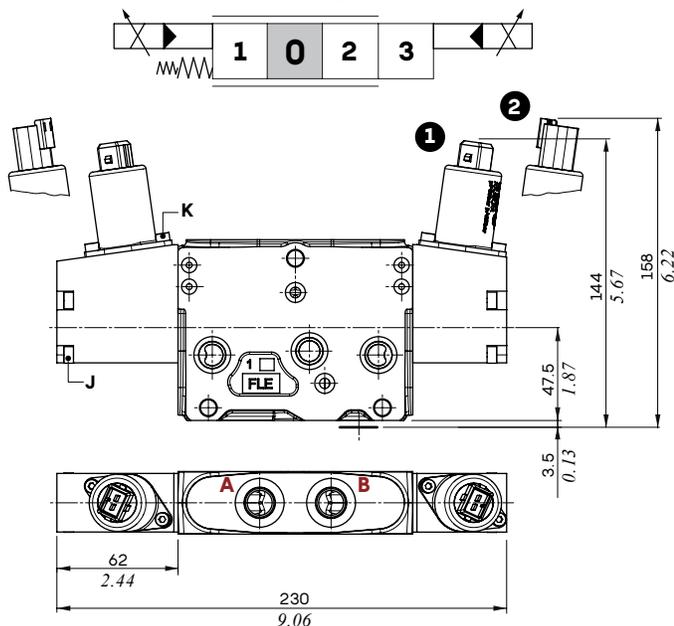
Types 8EB3 – 8EB34



Types 8EB3F3 – 8EB34F3  
With spool stroke limiter



Types 13EB3P – 13EB34P  
For floating circuit



Wrenches and tightening torques

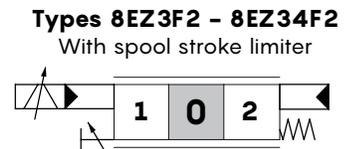
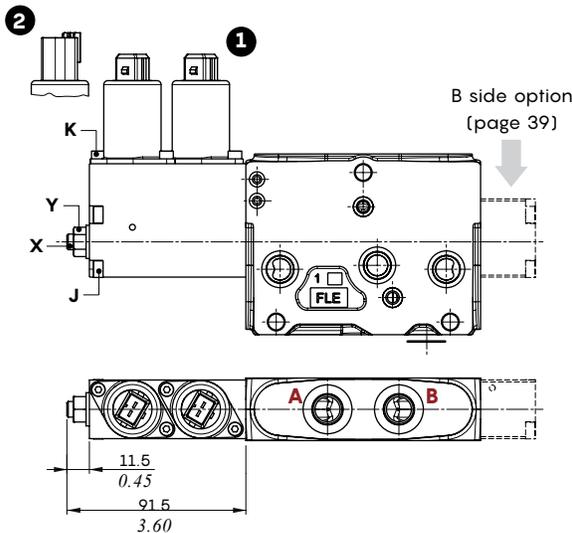
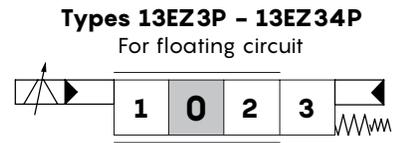
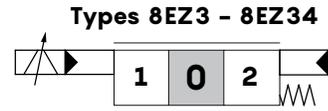
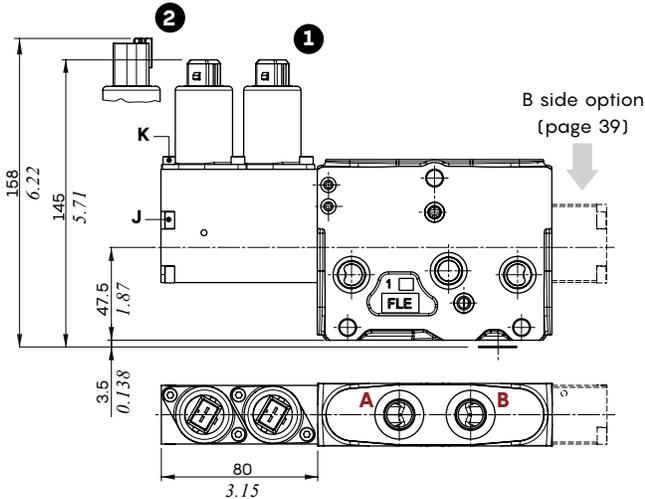
- J = allen wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)
- K = allen wrench 3 - 5 Nm (3.7 lbf<sub>t</sub>)
- X = allen wrench 4
- Y = wrench 13 - 24 Nm (17.7 lbf<sub>t</sub>)

Working and outlet section

One-side electrohydraulic control: "A" side

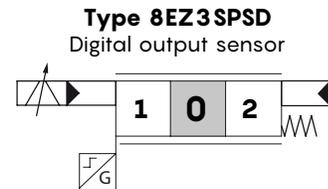
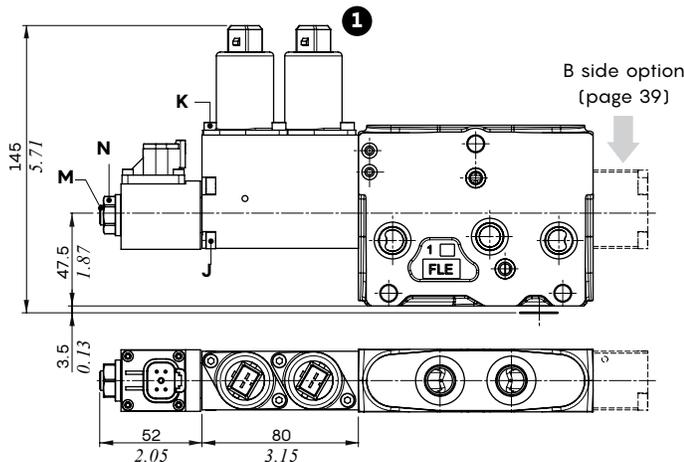
Control types

- 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 lbft)
- K = allen wrench 3 – 5 Nm (3.7 lbft)
- X = allen wrench 4
- Y = wrench 13 – 24 Nm (17.7 lbft)
- M = allen wrench 4 – 9.8 Nm (7.2 lbft)
- N = wrench 17 – 9.8 Nm (7.2 lbft)

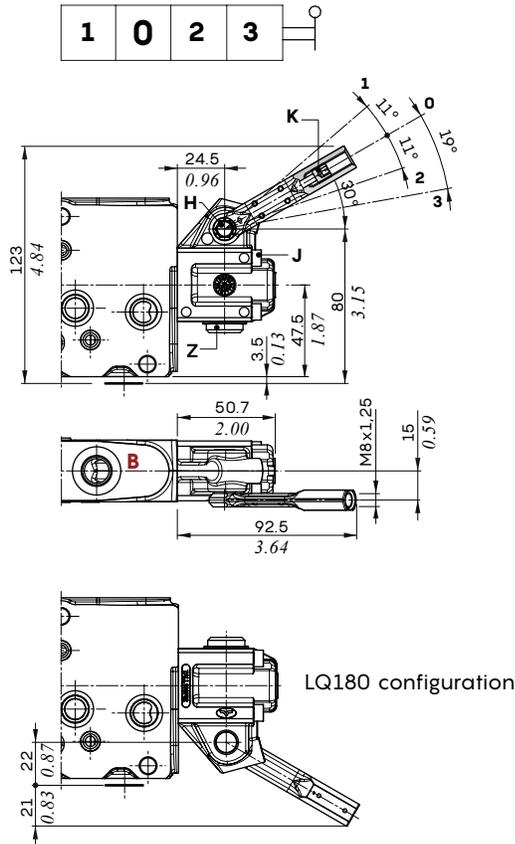


Working and outlet section

One-side electrohydraulic control: "B" side option

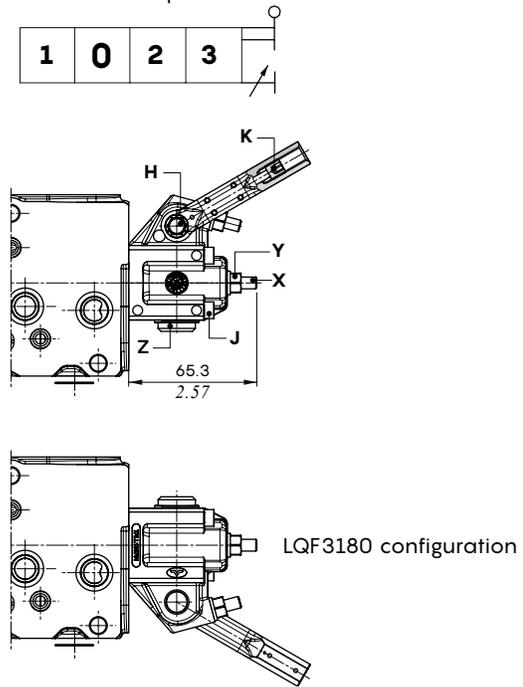
These options are available for one-side electrohydraulic controls only.

Types LQ - LQ180

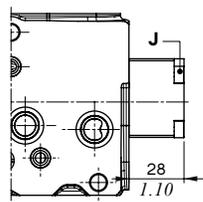


Types LQF3 - LQF3180

With stroke limiters on A and B ports

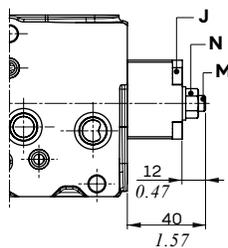


Type SLC  
With endcap



Type SLCF1

Spool stroke limiter on A port



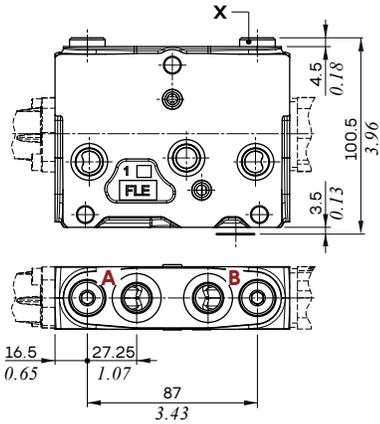
Wrenches and tightening torques

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

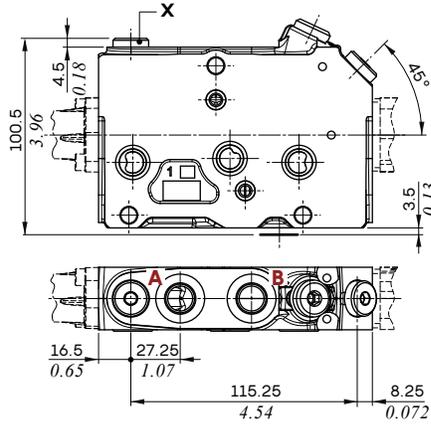
Working and outlet section

Port valves

On standard section



On Low Leak section



Type U valve: antishock valves with prefill



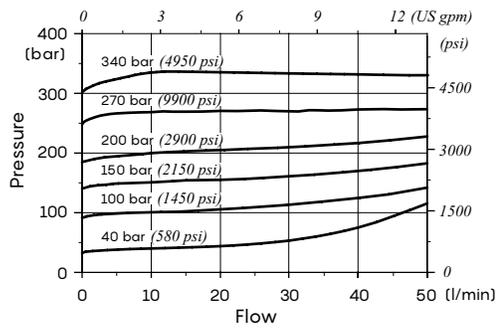
Type C valve: anticavitation



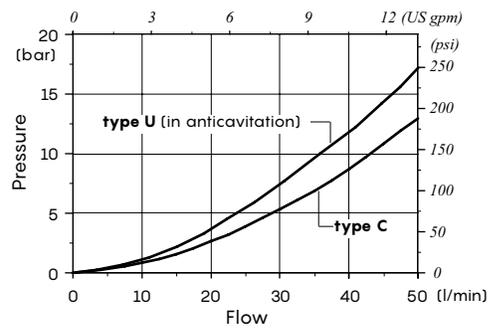
Wrenches and tightening torques

X = allen wrench 6 - 24 Nm (17.7 lbf<sup>t</sup>)

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



Types U and C: pressure drops



LL complete section ordering codes

**A Mechanical and hydraulic controls configuration:**

Nr. of working sections  
**DPX050/4/AM2(TGW3-175\ELN)/PLL-I104LL(40\40)-8IM.U3T/Q-104(40\40)-8IM/RQ-104(40\40)-8L-SAE-12VDC**



**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:**

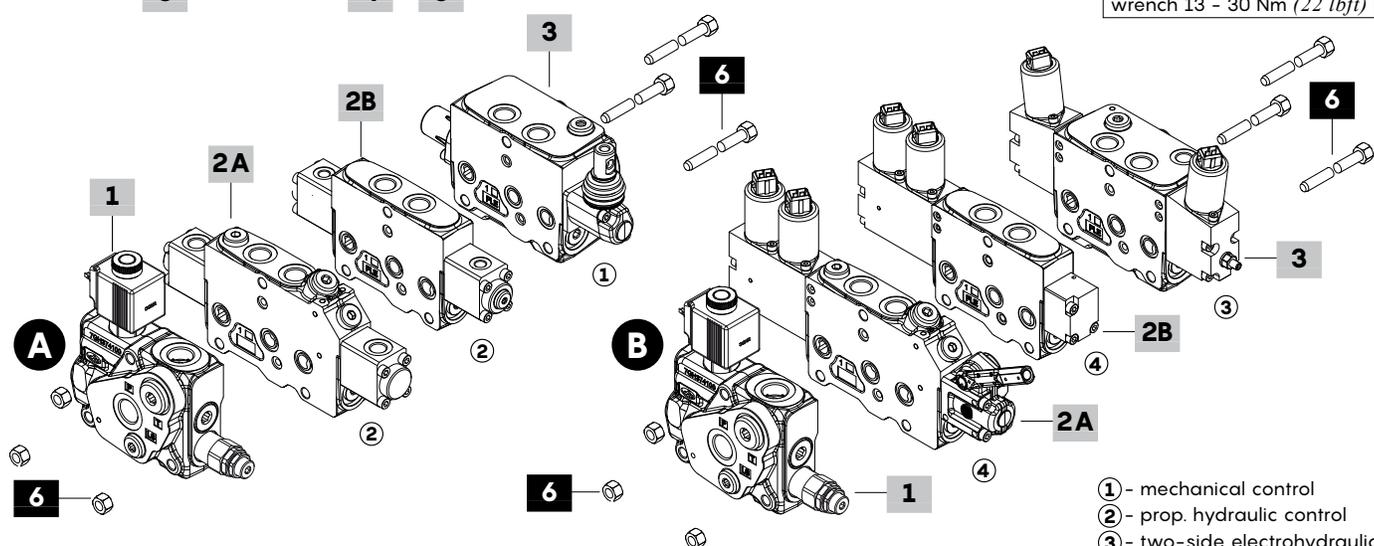
**DPX050/4/AM2(TGW3-175\ELN)/PZLL-I104LL(40\40)-8EZ3LQ.U3T/QZ-I104(40\40)-8EZ3SLC/**



**RQE-I104(40\40)-8EB3F3-SAE-12VDC**



**Tie rod tightening**  
 wrench 13 - 30 Nm (22 lbf<sub>t</sub>)



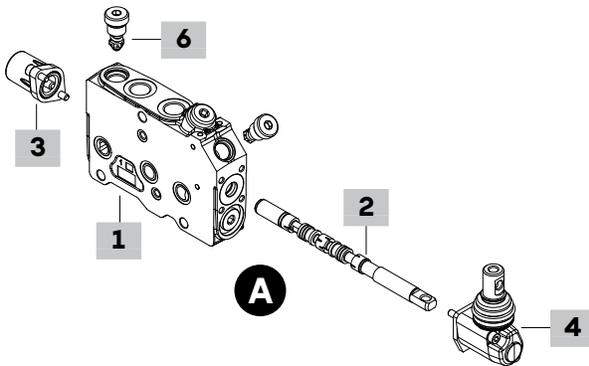
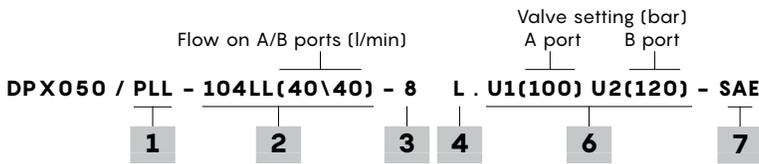
- ① - mechanical control
- ② - prop. hydraulic control
- ③ - two-side electrohydraulic control
- ④ - one-side electrohydraulic control

- 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-I104LL(40\40)-8L-SAE**  
 CODE: 660100007S  
 DESCRIPTION: Lever control without port valve arrangement  
 TYPE: **DPX050/PLL-I104LL(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-I104(40\40)-8EZ3LQF3.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

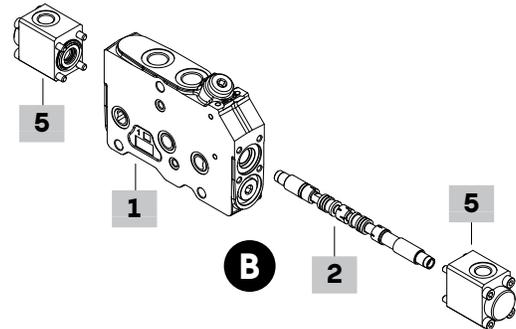
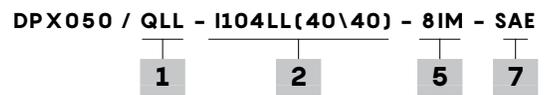
NOTE (\*): Codes are referred to **UN-UNF** thread.

## LL working section part ordering codes (mechanical and hydraulic)

### A Mechanical control configuration:



### B Prop. hydraulic control configuration:



### 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 proportional hydraulic control

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

DESCRIPTION: Without port valve arrangement

TYPE: DPX050/PLL-IM-SAE-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 proportional 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

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

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 <sup>th</sup> position with spool in, spring return to neutral position

### 4 "B" side spool control kit page 31

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

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

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

TYPE	CODE	DESCRIPTION
8IM-SAE	5IDR20A700AV	Range 8-27 bar (116-392 psi)
8IMX-SAE	5IDR20A701AV	Range 3.5-20 bar (51-290 psi)
8IMF3-SAE	5IDR20A702AV	Range 8-27 bar (116-392 psi), with spool stroke limiter on A and B ports
8IMXF3-SAE	5IDR20A703AV	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.

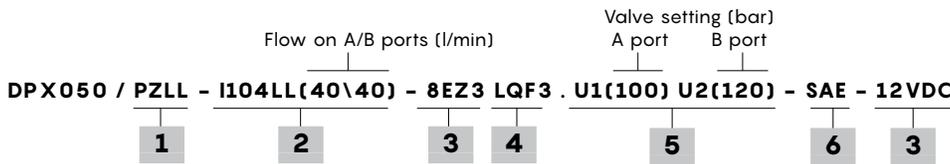
### 7 Section threading

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

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

LL working section part ordering codes (electrohydraulic)

One-side electrohydraulic control configuration:



**1 Low Leak working section kit \* page 44**

For one-side electrohydraulic control

TYPE: **DPX050/QZLL-SAE-FPM** CODE: 5EL10A7210LV

DESCRIPTION: Without port valve arrangement

TYPE: **DPX050/PZLL-SAE-FPM** CODE: 5EL10A7217V

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

Double acting with A and B closed in neutral position, floating circuit with 13EZ3 type positioner (4 position).

<b>1105LL(50)</b>	3CUA310005L	50 l/min (13 US gpm) flow
<b>1104LL(40)</b>	3CUA310004L	40 l/min (10.5 US gpm) flow
<b>1103LL(30)</b>	3CUA310003L	30 l/min (7.9 US gpm) flow
<b>1102LL(20)</b>	3CUA310002L	20 l/min (5.3 US gpm) flow
<b>1101LL(10)</b>	3CUA310001L	10 l/min (2.6 US gpm) flow
<b>1106LL(5)</b>	3CUA310006L	5 l/min (1.3 US gpm) flow

**5 Port valves page 40**

TYPE CODE DESCRIPTION

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

For complete list see page 21.

**6 Section threading**

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

**3 One-side electrohydr.control; "A" side page 38**

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

**These controls must be coupled with "B" side options**

TYPE	CODE	DESCRIPTION
<b>8EZ3-12VDC</b>	5V0810A780V	AMP connector
<b>8EZ3-24VDC</b>	5V0810A785V	As previous one
<b>8EZ3F2-12VDC</b>	5V0810A781V	AMP connector, with spool stroke limiter
<b>8EZ3F2-24VDC</b>	5V0810A782V	As previous one
<b>8EZ34-12VDC</b>	5V0810A786V	Deutsch connector
<b>8EZ34-24VDC</b>	5V0810A787V	As previous one
<b>8EZ34F2-12VDC</b>	5V0810A783V	Deutsch connector, with spool stroke limiter
<b>8EZ34F2-24VDC</b>	5V0810A784V	As previous one
<u>For floating circuit (standard spool)</u>		
<b>13EZ3P-12VDC</b>	5V1310A788V	With Step, with AMP connector
<b>13EZ3P-24VDC</b>	5V1310A790V	As previous one
<b>13EZ34P-12VDC</b>	5V1310A789V	With Step, with Deutsch connector
<b>13EZ34P-24VDC</b>	5V1310A791V	As previous one
<u>With spool position sensor</u>		
<b>8EZ3SPSD-12VDC</b>	5V0810A790V	AMP connector and digital sensor
<b>8EZ3SPSD-24VDC</b>	5V0810A791V	As previous one

**4 One-side electrohydr.option; "B" side page 39**

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

**These options must be coupled with "A" side controls**

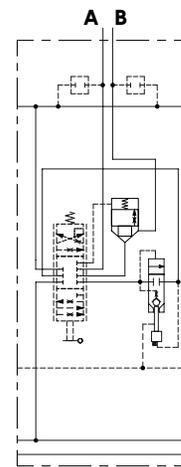
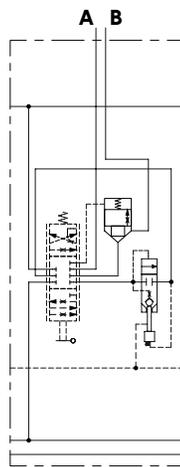
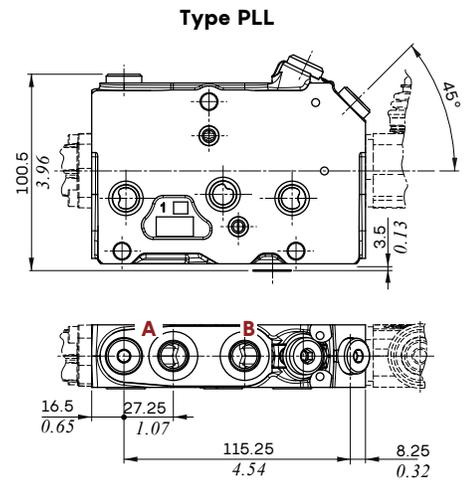
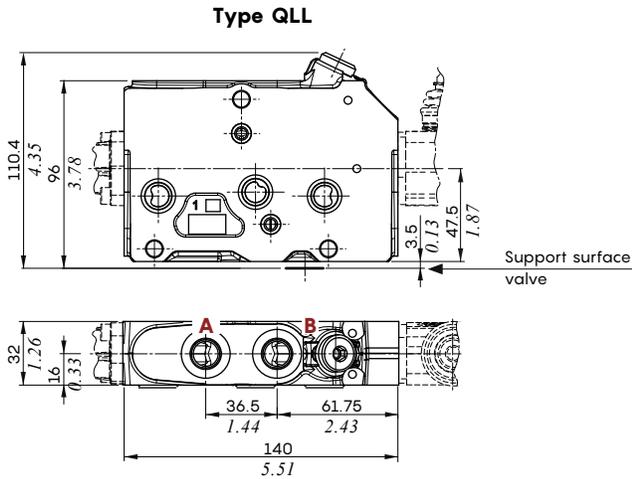
TYPE	CODE	DESCRIPTION
<b>LQ</b>	5LEV10A005V	Lever control
<b>LQ180</b>	5LEV10A006V	As previous one, turned of 180°
<b>LQF3</b>	5LEV10A004V	As LQ, spool stroke limiter on A, B ports
<b>LQF3180</b>	5LEV10A003V	As previous one, turned of 180°
<b>SLC</b>	5COP150010V	Endcap
<b>SLCF1</b>	5COP150011V	Endcap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

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

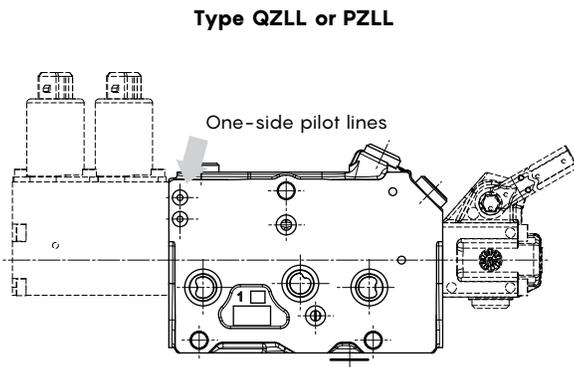
## LL working section

### Dimensions and hydraulic circuit

#### Section for mechanical and hydraulic controls

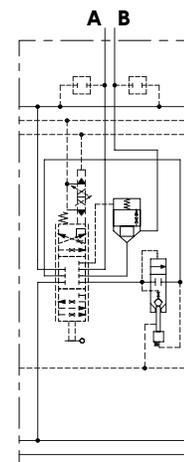
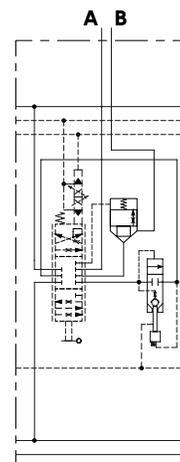


#### Section for electrohydraulic controls



**Type QZLL**

**Type PZLL**



**Spool**

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

**Type 1LL (1LL../1LL..)**

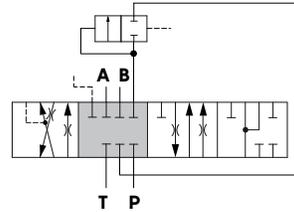
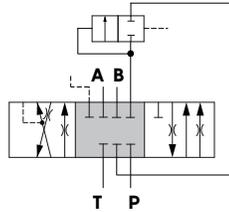
A, B closed in neutral position

with 3 position control

with 4 position control

1 0 2

1 0 2 3

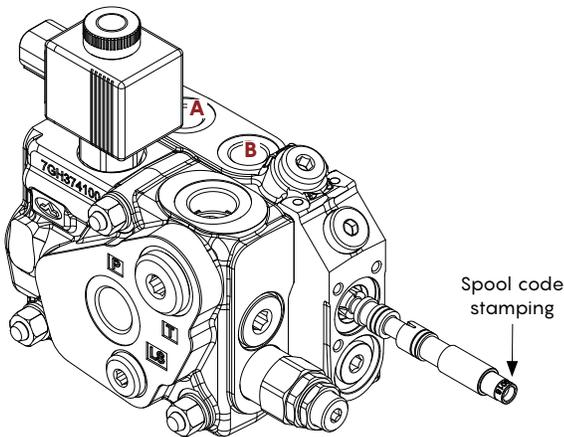


**Stroke**

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

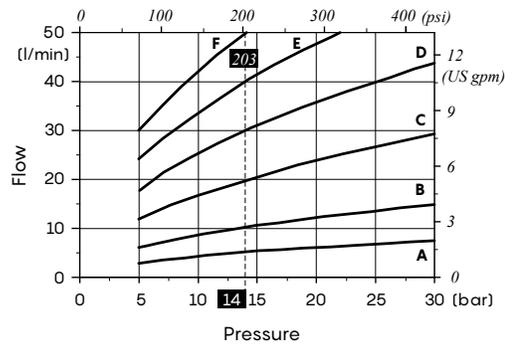
**Stroke**

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**

• **DPX100**

Dimensional data and performance ..... page 48

Hydraulic circuit

Configuration example with mechanical and hydraulic controls ..... page 49

Configuration example with electrohydraulic controls ..... 49

Guide to configuration

Pressure peak reduction ..... page 50

High Pressure (HP) valve configuration ..... 51

High Flow (HF) valve configuration ..... 52

Directional valve with Low Leak working sections ..... 54

Complete section ordering codes ..... 56

Inlet section

Parts ordering codes ..... page 58

Dimensional data and hydraulic circuit ..... 60

Main pressure relief valve ..... 64

Solenoid operated unloading valve ..... 64

Priority valve kit ..... 65

Shut-off valve ..... 65

Working section

Parts ordering code ..... page 66

Dimensional data and hydraulic circuit ..... 72

Spool ..... 73

"A" side spool positioner ..... 75

"B" side spool control kit ..... 80

Proportional hydraulic control ..... 82

On/off solenoid control ..... 84

Electrohydraulic controls

Performane data ..... page 85

Spool position sensor ..... 87

Two-side electrohydraulic controls ..... 88

One-side electrohydraulic control: "A" side ..... 90

One-side electrohydraulic control: "B" side options ..... 91

Complete one-side electrohydraulic control ..... 92

Port valves ..... 94

Outlet section

Parts ordering code ..... page 95

Dimensional data and hydraulic circuit ..... 96

• **DPX100 High Flow**

Complete section ordering codes ..... page 98

Working section

Parts ordering code ..... page 101

Dimensional data and hydraulic circuit ..... 104

Spool ..... 105

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

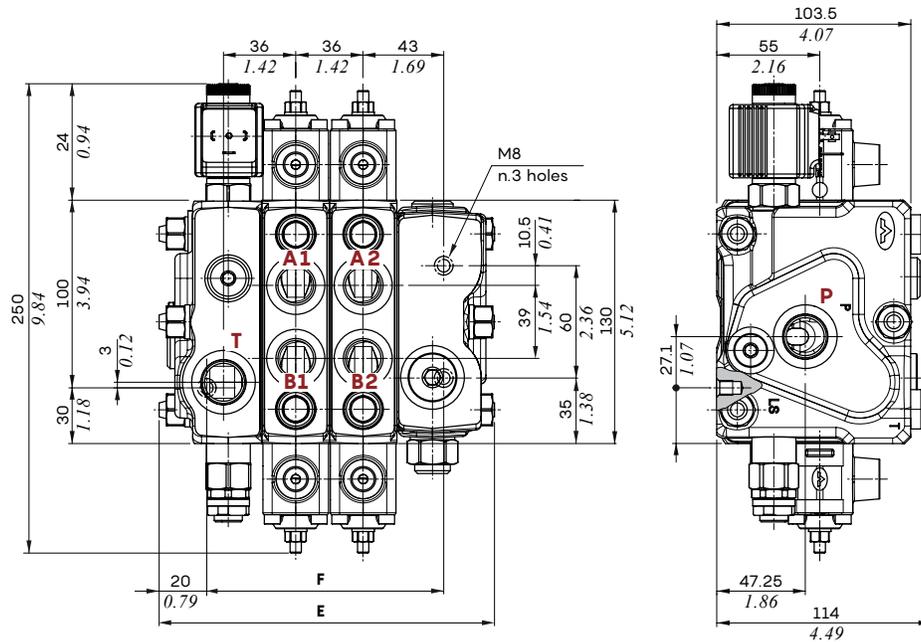
Dimensional data and hydraulic circuit ..... 114

Spool ..... 116

One-side electrohydraulic control: "A" side ..... 118

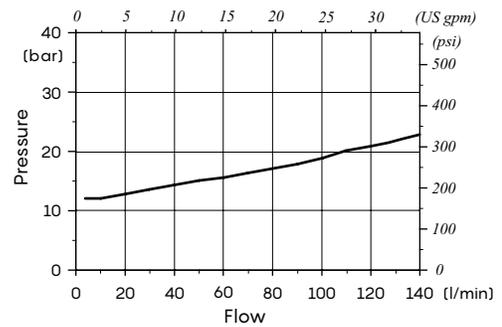
One-side electrohydraulic control: "B" side options ..... 118

## Dimensional data and performance

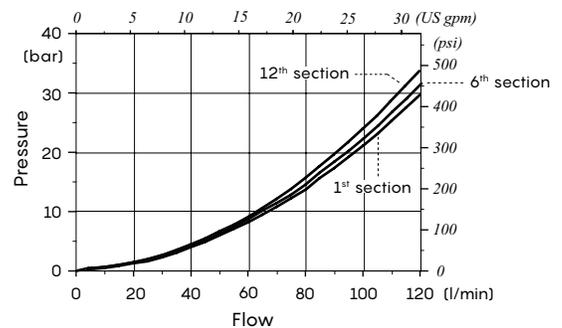


TYPE	E		F	
	mm	in	mm	in
DPX100/1	144	5.67	90.5	3.56
DPX100/2	180	7.09	126.5	4.98
DPX100/3	216	8.50	162.5	6.40
DPX100/4	252	9.92	198.5	7.81
DPX100/5	288	11.34	234.5	9.23
DPX100/6	324	12.76	270.5	10.65
DPX100/7	360	14.17	306.5	12.07
DPX100/8	396	15.59	342.5	13.48
DPX100/9	432	17.01	378.5	14.90
DPX100/10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

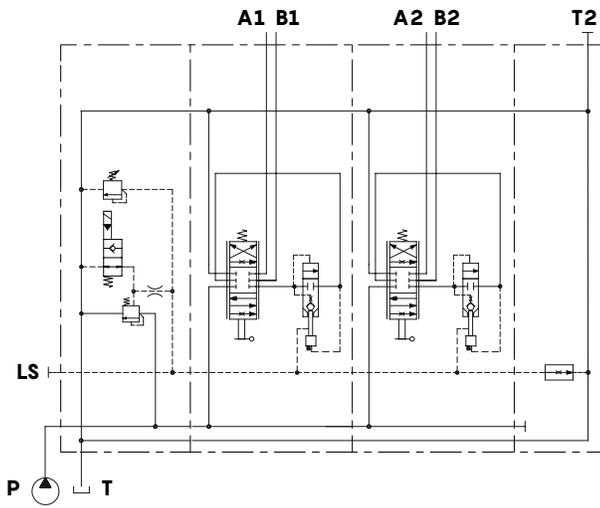
**P⇒T Pressure drop inlet compensator (margin pressure)**



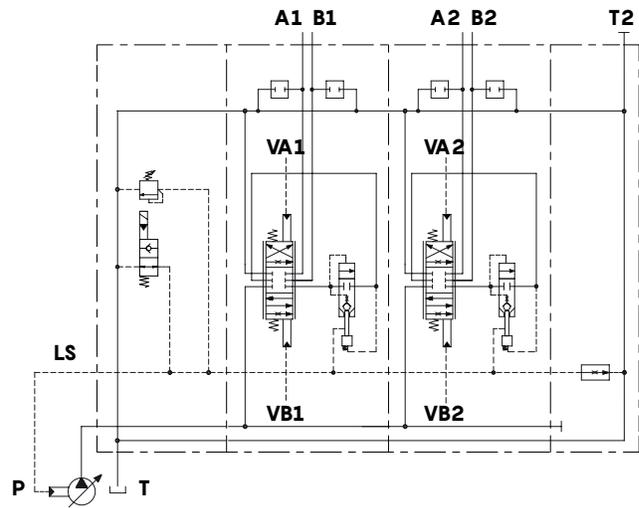
**A(B)⇒T pressure drop (standard spool @ max. stroke)**



Configuration example with mechanical and hydraulic controls

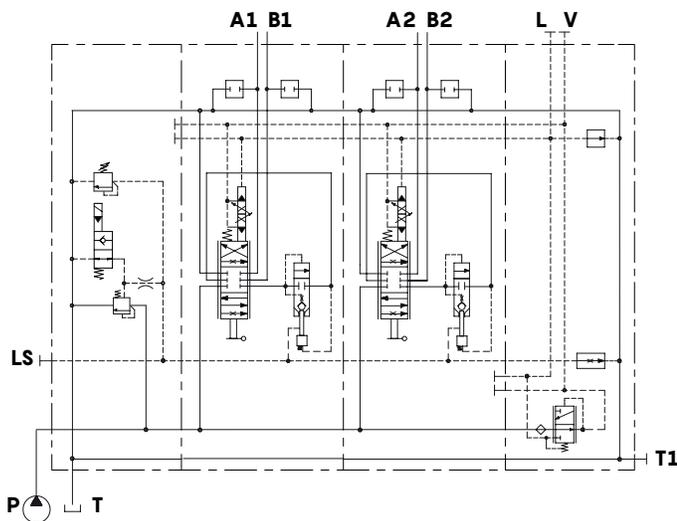


Open center circuit and lever control, with unloader valve, without port valve arrangement

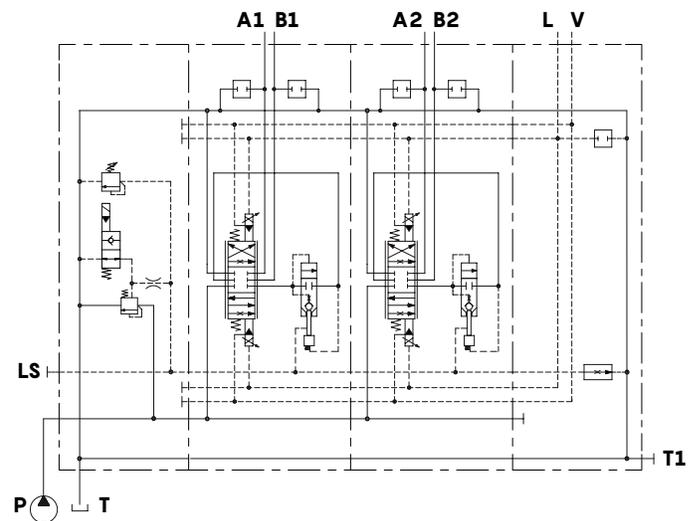


Closed center circuit and proportional hydraulic control, with unloader valve and port valve arrangement

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 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.

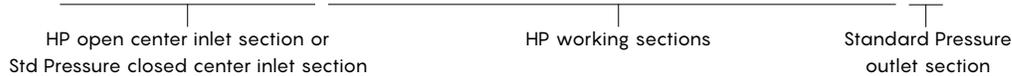
**Example of entirely Standard Pressure valve configuration**

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



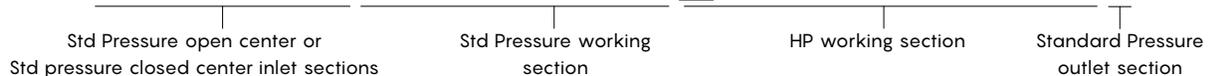
**Example of entirely High Pressure (HP) valve configuration**

**DPX100<sup>HP</sup>/2/AM1(TGW5-300\ELN)/P-101(80\80)-8IMN.U3T/Q-101(80\80)-8IMN/RF-SAE-12VDC**



**Example of mixed - Standard/HP - valve configuration**

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



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~~HP~~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 SAE12 P port

HF working sections

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

HF working sections

Standard Pressure outlet section

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

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

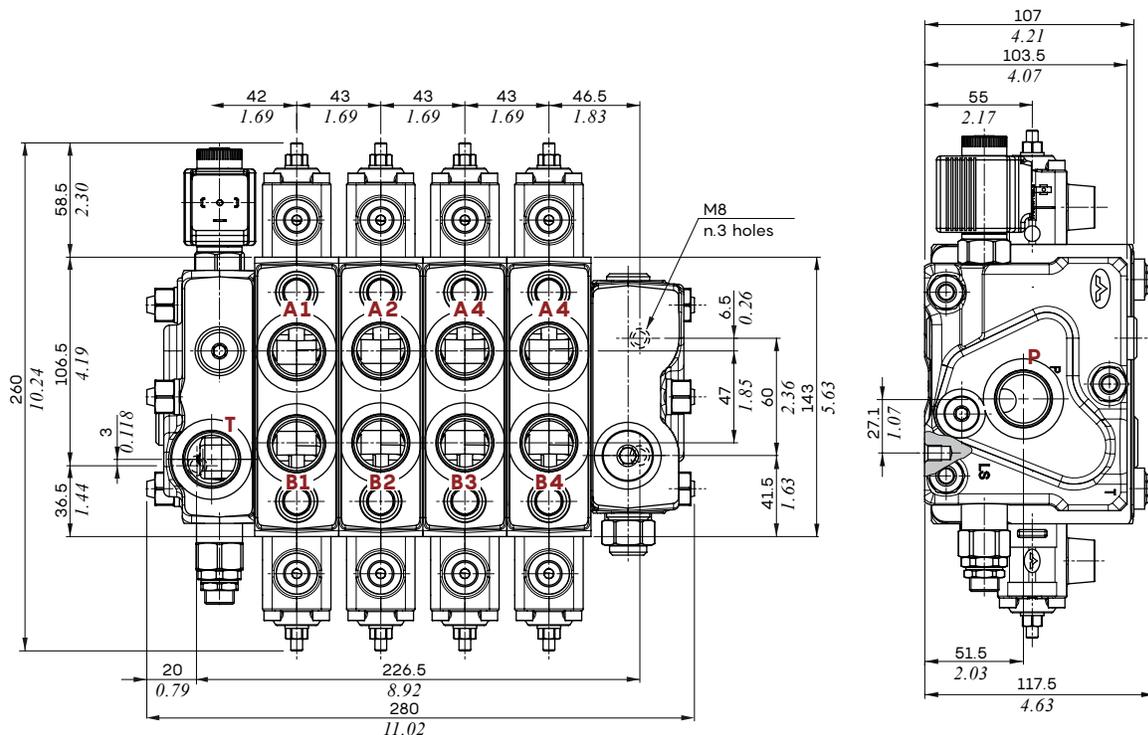
HP Pressure open center or Std pressure closed center inlet section, with SAE12 P port

HF working sections

~~HP~~P-E101(120\120)-8IMNF3.U3(320)~~HP~~P-E101(120\120)-8IMNF3.U3(320)/RF-SAE-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)/

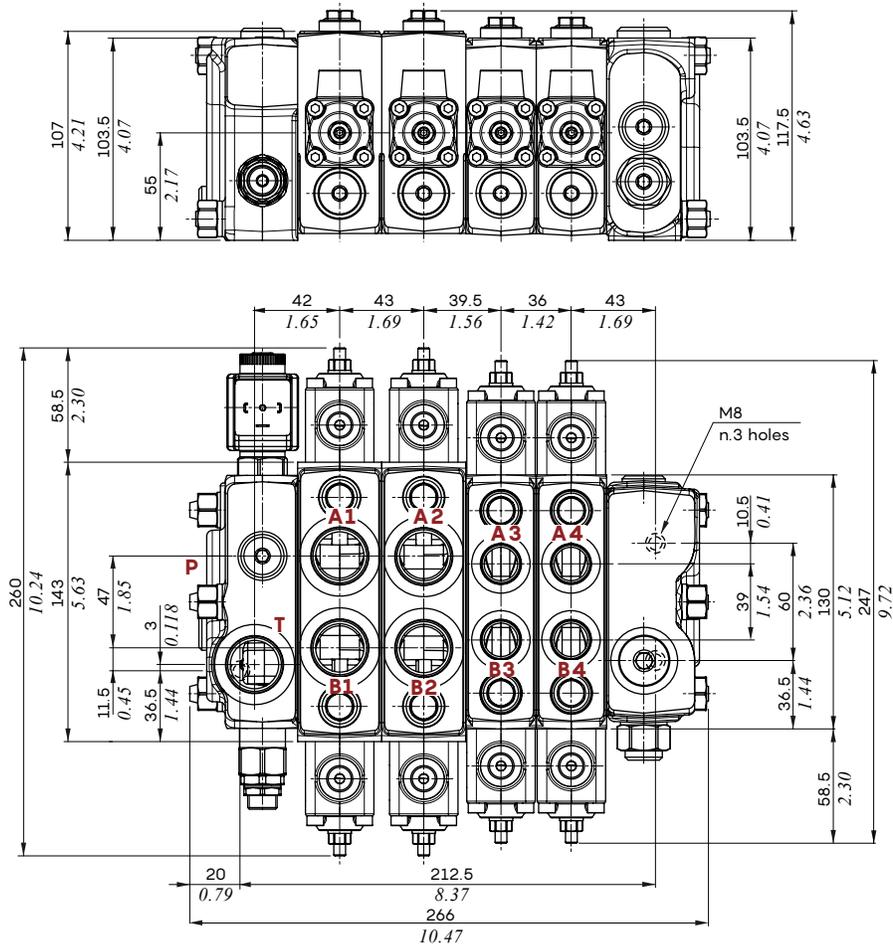
Std Pressure open center or Std pressure closed center inlet section, with SAE12 P port

HF working sections

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

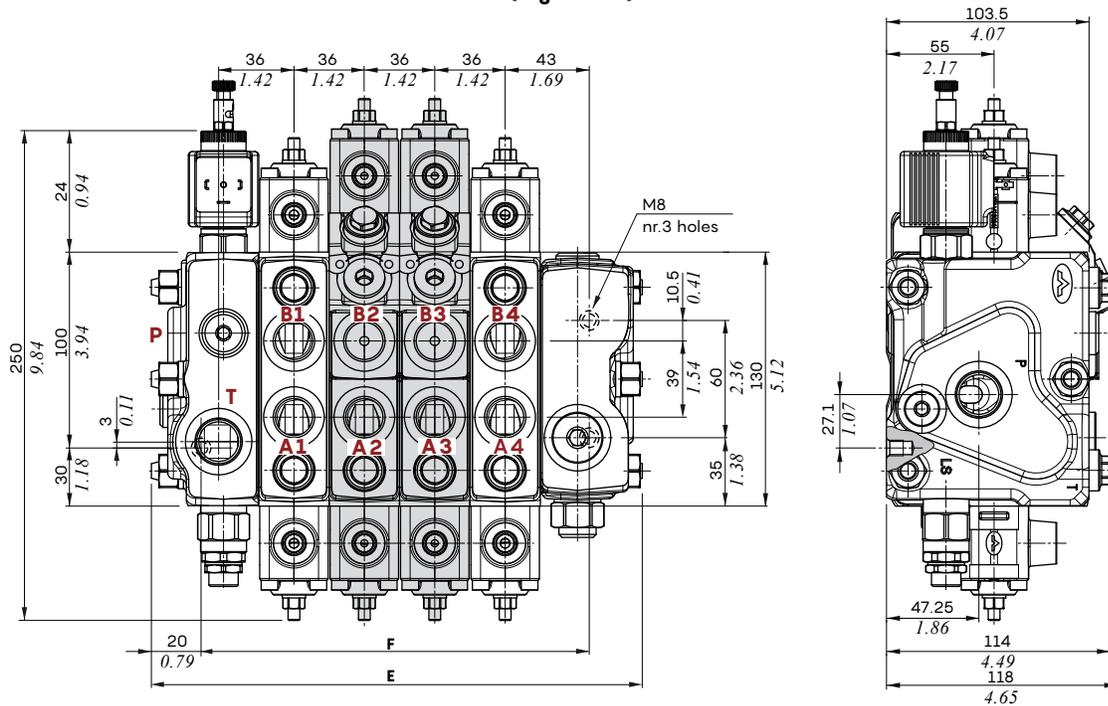
The working sections have the following features:

- 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.

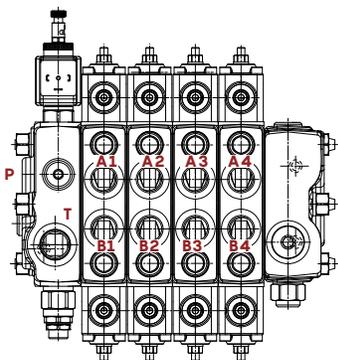
Low Leak sections can be assembled with Standard, HP or HF working sections

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)**



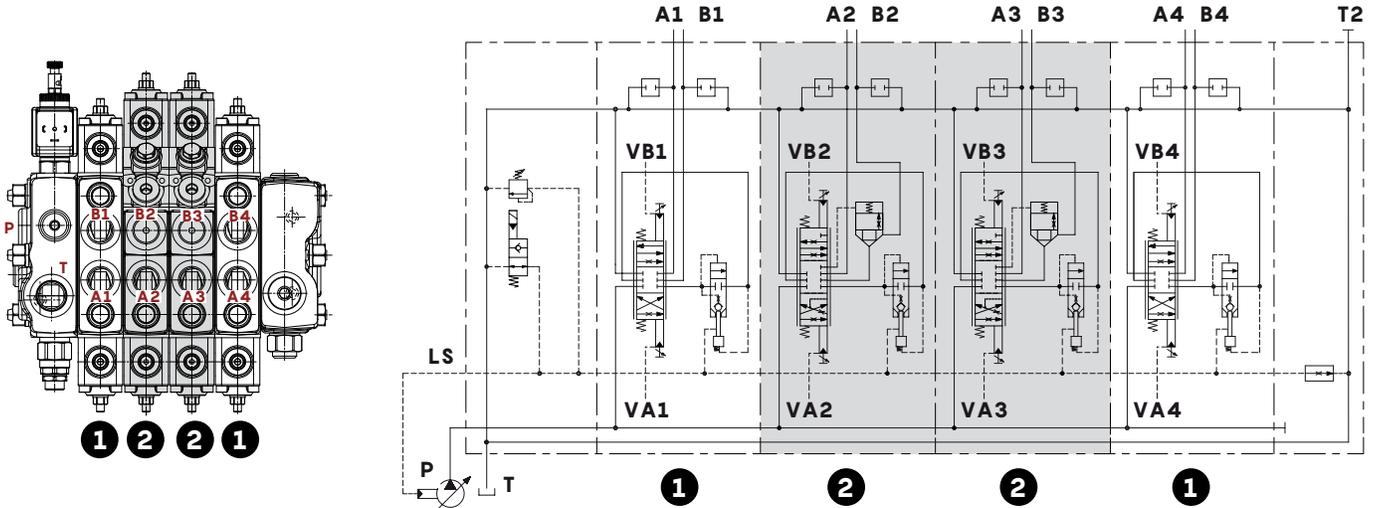
TYPE	E		F	
	mm	in	mm	in
DPX100/1	144	5.67	90.5	3.56
DPX100/2	180	7.09	126.5	4.98
DPX100/3	216	8.50	162.5	6.40
DPX100/4	252	9.92	198.5	7.81
DPX100/5	288	11.34	234.5	9.23
DPX100/6	324	12.76	270.5	10.65

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.



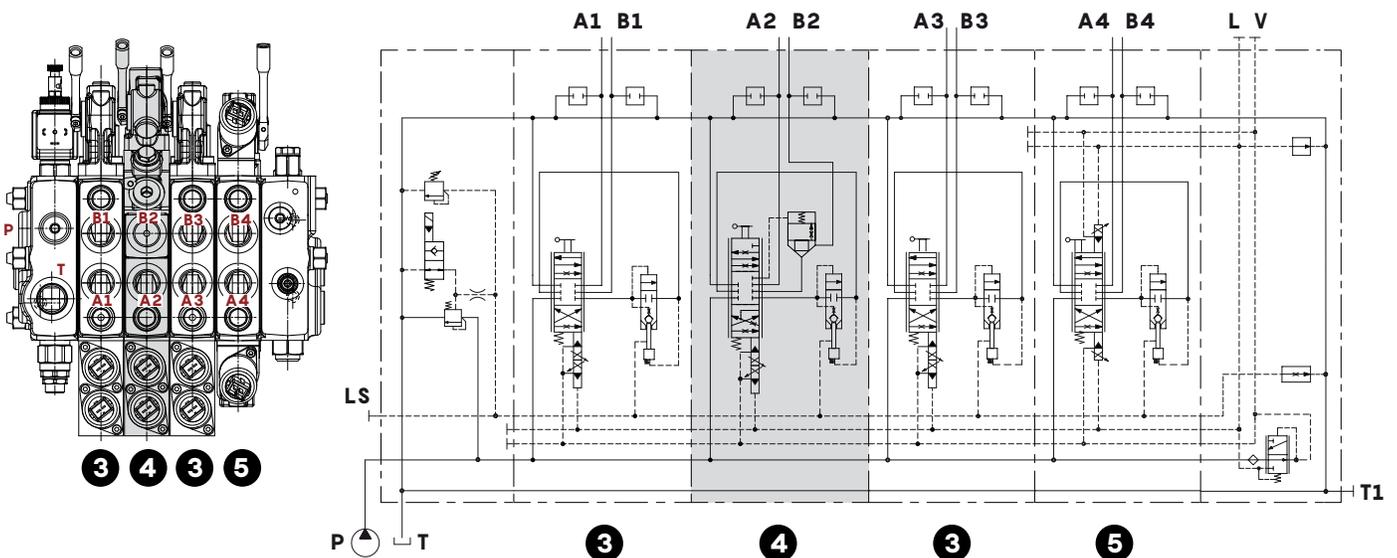
- 1: Hydraulic control working section in Right inlet configuration
- 2: Low Leak working section with hydraulic control (Right Inlet)

**Valve with electrohydraulic controls**

The Low Leak sections can only be configured with one-side electro-hydraulic controls.

These sections can be mounted at any point of the valve considering that any electro-hydraulic standard sections present upstream must also have one-side controls and be configured in Right Inlet version.

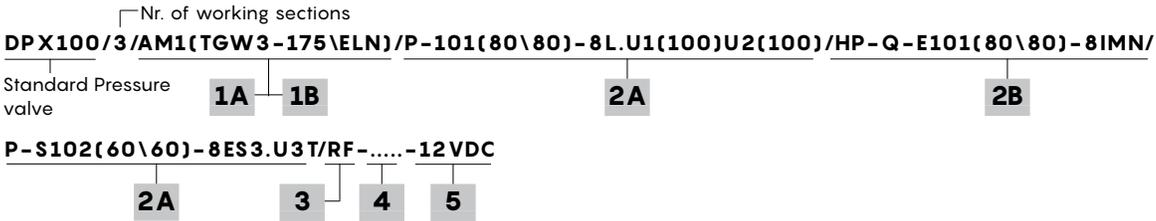
The downstream standard sections, always in Right Inlet version, can be configured with both one-side and two-side controls; the sections with two-side controls must be positioned just before the outlet section.



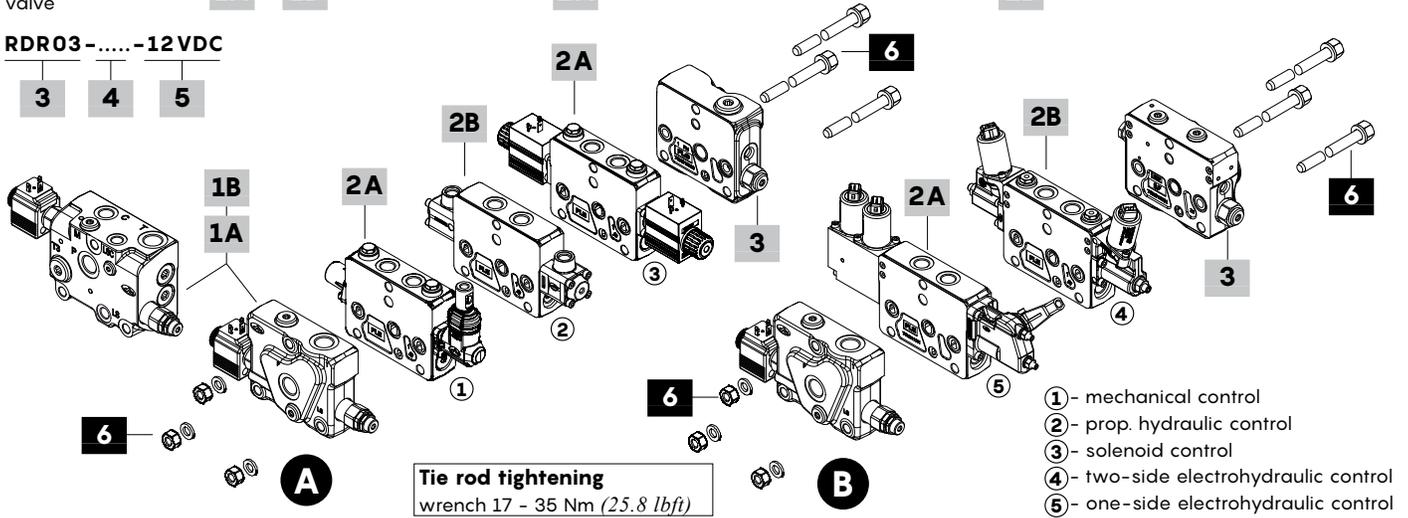
- 3: One-side electrohydraulic control working section in Right inlet configuration
- 4: Low Leak working section with one-side electrohydraulic control (Right Inlet)
- 5: Two-side electrohydraulic control working section in Right inlet configuration

Complete section ordering codes

**A Mechanical-hydraulic controls configuration:**



**B Electrohydraulic controls configuration:**



**1A Std pressure inlet section \***

**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)  
 TYPE: DPX100/AM1(TGW3-175\ELN)-SAE12-SAE-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 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\VR5-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 rods  
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\ELN)-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

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

Complete section ordering codes

**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 control**

TYPE: **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 valves

**On/off solenoid control**

TYPE: **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 valves

**Two-side proportional electrohydraulic control**

TYPE: **DPX100/QE-E101(80\80)-8EB3TF3-SAE-12VDC**  
 CODE: 640105058S  
 DESCRIPTION: With spool stroke limiter, without port valve arrang.  
 TYPE: **DPX100/PE-E101(80\80)-8EB3TF3.U3T-SAE-12VDC**  
 CODE: 64010509S  
 DESCRIPTION: As previous one with port valves 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 control**

TYPE: **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 control**

TYPE: **DPX100HP/Q-E101(80\80)-8IMN-SAE**  
 CODE: 640115017S DESCRIPTION: Without port valve arrang.  
 TYPE: **DPX100HP/P-E101(80\80)-8IMN.U3(320)-SAE**  
 CODE: 640105021S DESCRIPTION: With antishock port valves

**On-off solenoid control**

TYPE: **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 control**

TYPE: **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 control**

TYPE: **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 port valve arrangement

**3 Outlet section \***

Outlet section is the same type for standard and High Pressure valve  
**For mechanical, proportional 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 V pilot and L drain ports, with Bleed valve and side T1 port (plugged)  
 TYPE: **DPX100/RDR-SAE** CODE: 640305006S  
 DESCRIPTION: With pressure reducing valve and Bleed valve, internal pilot and drain (V-L plugged ports), side T1 port (plugged)  
 TYPE: **DPX100/RDR(03)-SAE** CODE: 640305007S  
 DESCRIPTION: With pressure reducing valve and Bleed valve, internal V pilot and L drain ports (plugged), 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**

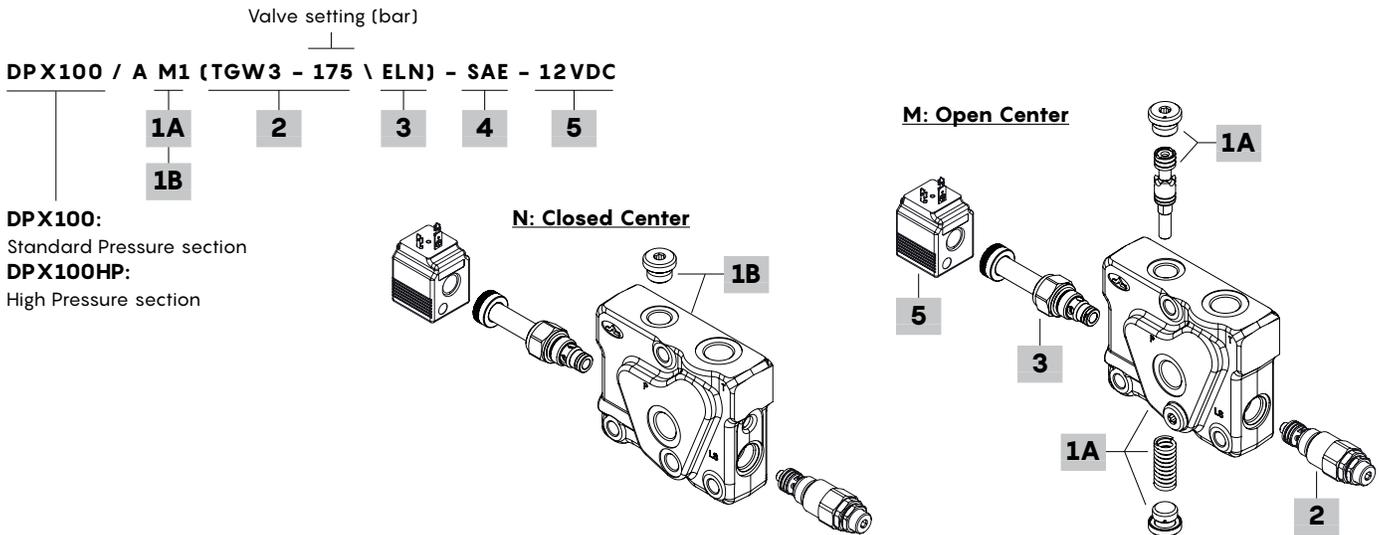
Specify the voltage of electric devices.

**6 Assembling kit**

CODE	DESCRIPTION	CODE	DESCRIPTION
<b>Standard tie rods: for M and N type inlet sections</b>			
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
<b>Special tie rods: for PFS type inlet section</b>			
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.

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/AM1-SAE/EL** CODE: YFIA104509S  
DESCRIPTION: With compensator, P-T-LS ports (LS plugged), arranged for unloader valve  
TYPE: **DPX100/AM1-SAE12/EL** CODE: YFIA104518S  
DESCRIPTION: As previous one with SAE12 P and T ports  
TYPE: **DPX100/AM1(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/AM1(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/AN1-SAE/EL** CODE: YFIA104512S  
DESCRIPTION: Without compensator, with P-T-LS ports, arranged for unloader valve  
TYPE: **DPX100/AN1-SAE12/EL** CODE: YFIA104520S  
DESCRIPTION: As previous one with SAE12 P and T ports  
Not available for High Pressure configuration  
TYPE: **DPX100/AN1(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/AN1(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
<b>(TGW2-80)</b>	OMC09002000	Range 10-120 bar (145-1750 psi) std setting 80 bar (1160 psi)
<b>(TGW3-175)</b>	OMC09002001	Range 40-220 bar (580-3200 psi) std setting 175 bar (2550 psi)
<b>(TGW4-250)</b>	OMC09002002	Range 200-350 bar (2900-5100 psi) std setting 250 bar (3600 psi)
<b>(TGW5-300)</b>	OMC09002003	Range 290-385 bar (4200-5600 psi) std setting 300 bar (4350 psi)
<b>SV</b>	XTAP524340D	Relief valve blanking plug

**1B High pressure inlet section kit \* page 60**

**Open Center circuit**  
TYPE: **DPX100HP/AM1-SAE/EL** CODE: YFIA104515S  
DESCRIPTION: With compensator, P-T-LS ports (LS plugged) arranged for unloader valve  
TYPE: **DPX100HP/AM1-SAE12/EL** CODE: YFIA104519S  
DESCRIPTION: As previous one with SAE12 P and T ports  
TYPE: **DPX100HP/AM1(SU)-SAE/EL** CODE: YFIA104516S  
DESCRIPTION: As first one with non return flow limiter from working section to inlet section and by-pass valve  
TYPE: **DPX100HP/AM1(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
<b>ELN</b>	0EF08002000	Without emergency override
<b>ELV</b>	0EF08002003	With screw type emergency override
<b>ELP</b>	0EF08002002	With push-button emergency override
<b>ELT</b>	0EF08002004	With "twist & push" emergency override
<b>LT</b>	XTAP510320	Unloading valve blanking plug

**4 Section threading**

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

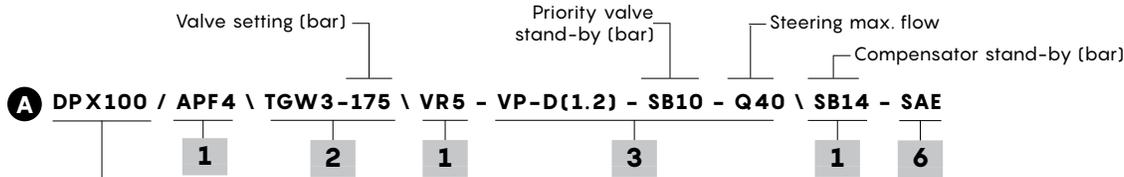
**5 Coil**

TYPE	CODE	DESCRIPTION
<b>12VDC</b>	4SLE001200A	12VDC <b>BER</b> type coil, ISO4400 connector

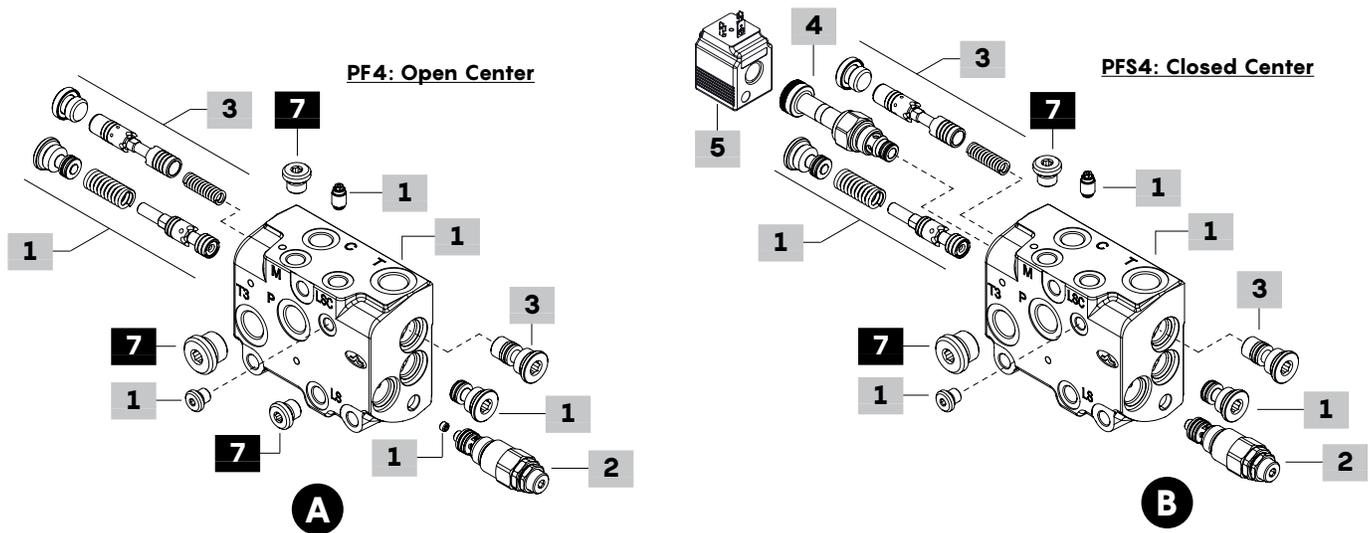
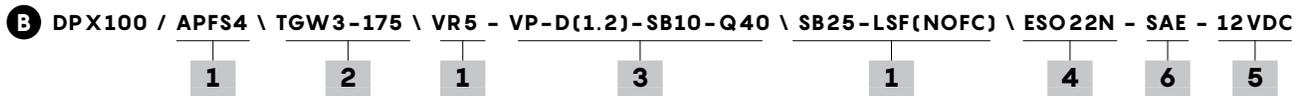
For complete available coils list see page 160.

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

**4 Solenoid operated shut-off valve** page 65

TYPE	CODE	DESCRIPTION
<b>ESO22N</b>	OEC08002031	Without emergency override
<b>ESO22P</b>	OEC08002033	With push-button emergency override
<b>ESO22V</b>	OEC08002034	With screw type emergency override
<b>ESO22T</b>	OEC08002035	With "twist & push" emergency override
<b>EST</b>	XTAP510320	Valve blanking plug

**5 Coil**

TYPE	CODE	DESCRIPTION
<b>12VDC</b>	4SLE001200A	12VDC <b>BER</b> 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 \***

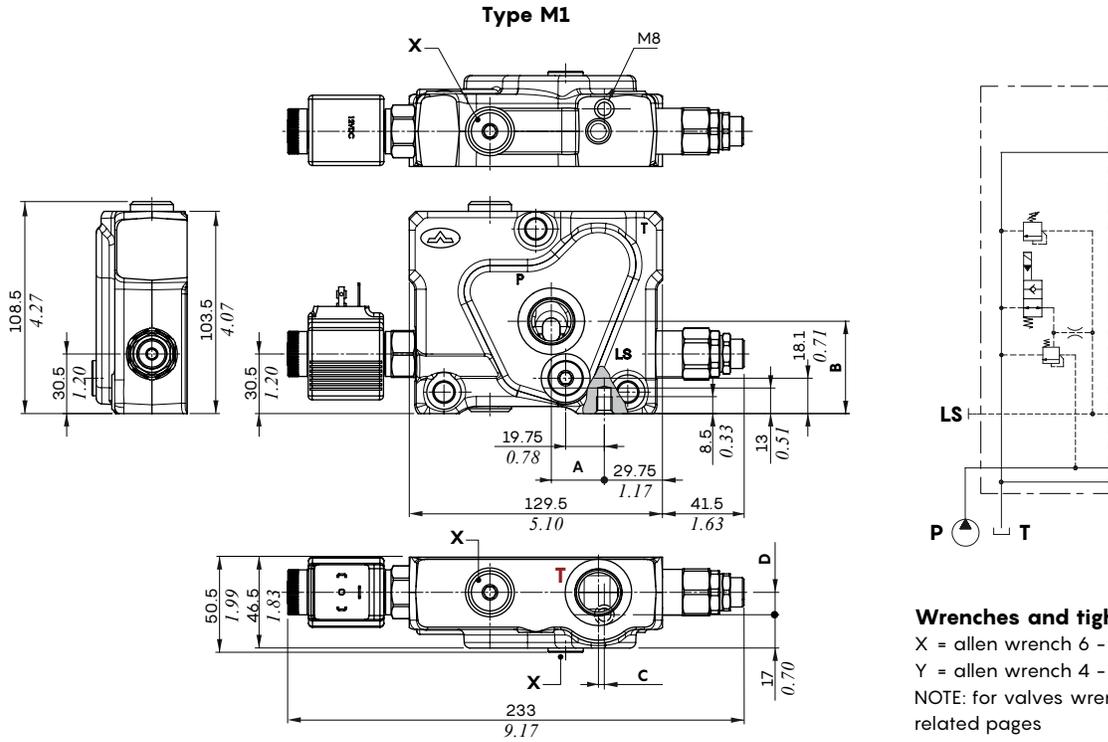
CODE	DESCRIPTION
3XTAP817130	SAE6 plug, nr.1 for PFS section, nr.2 for PF section
3XTAP826160	SAE10 plug, nr.1

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

Inlet section

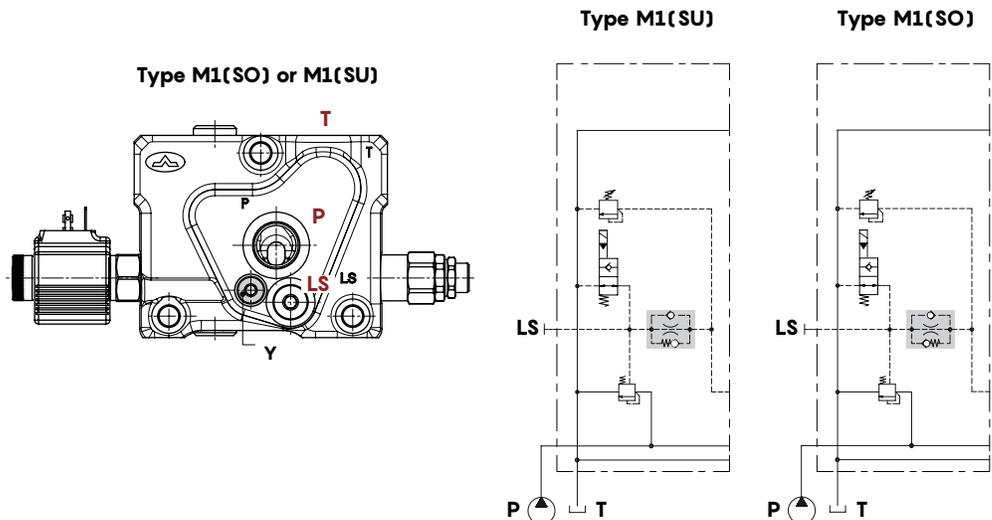
Dimensions and hydraulic circuit

Example of M Open Center section, standard pressure type



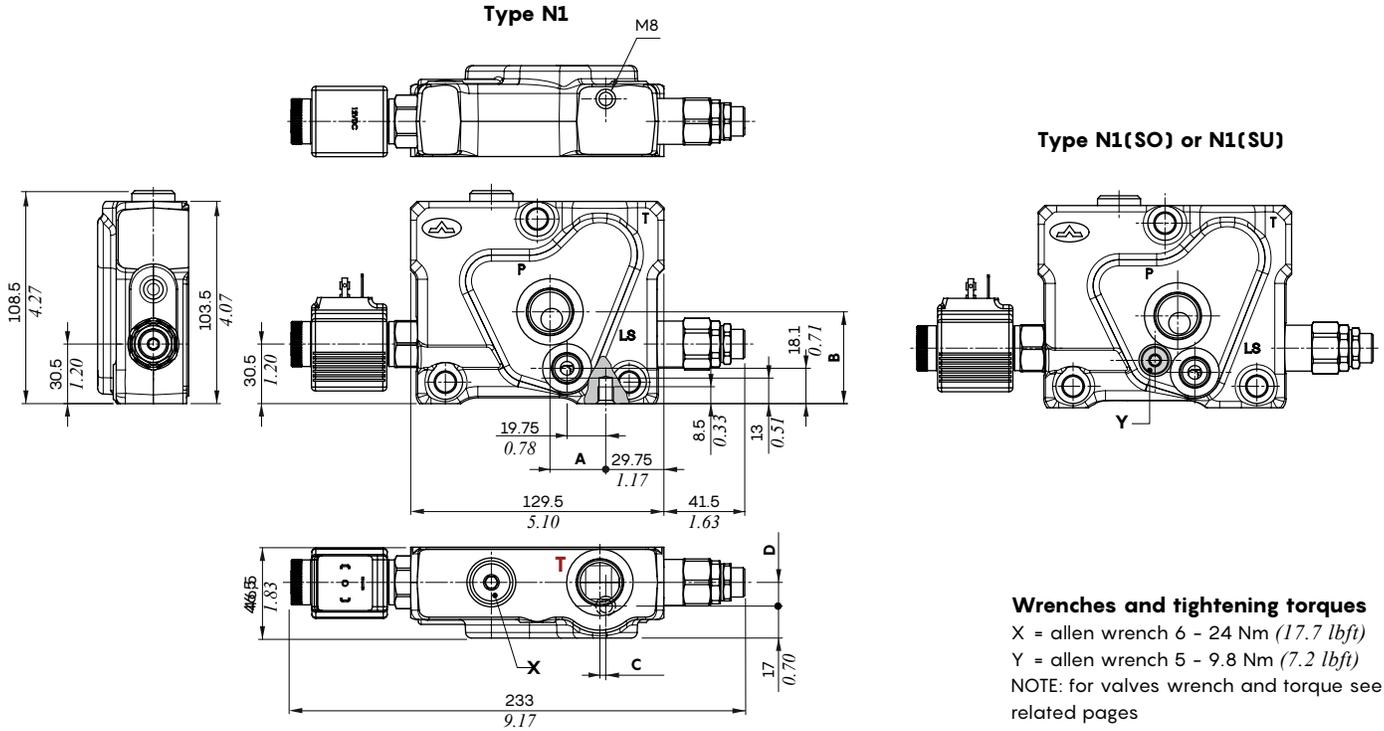
**Wrenches and tightening torques**  
 X = allen wrench 6 - 24 Nm (17.7 lbft)  
 Y = allen wrench 4 - 9.8 Nm (7.2 lbft)  
 NOTE: for valves wrench and torque see related pages

INLET SECTION TYPE		P inlet port				T outlet port			
		A		B		C		D	
		mm	in	mm	in	mm	in	mm	in
Standard pressure	Standard thread	27.1	1.07	47.25	1.86	3	0.118	11.5	0.45
	High pressure (HP)	27.1	1.07	51.5	2.03	3	0.118	11.5	0.45
	SAE12 thread	28	1.10	52.5	2.07	3	0.118	6.5	0.26

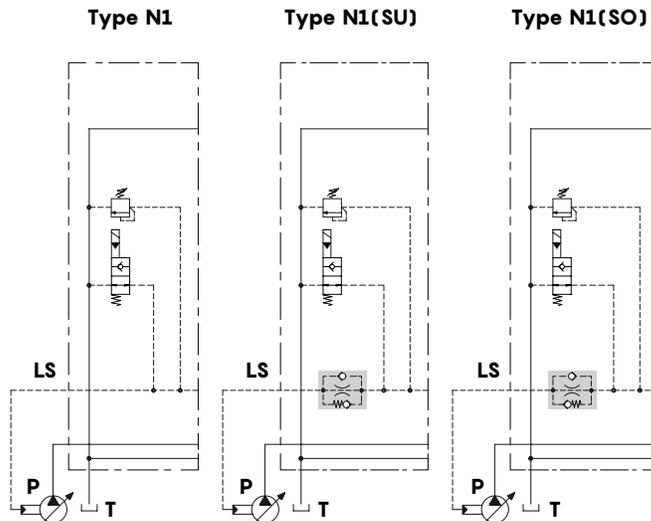


Dimensions and hydraulic circuit

Example of N Closed Center section



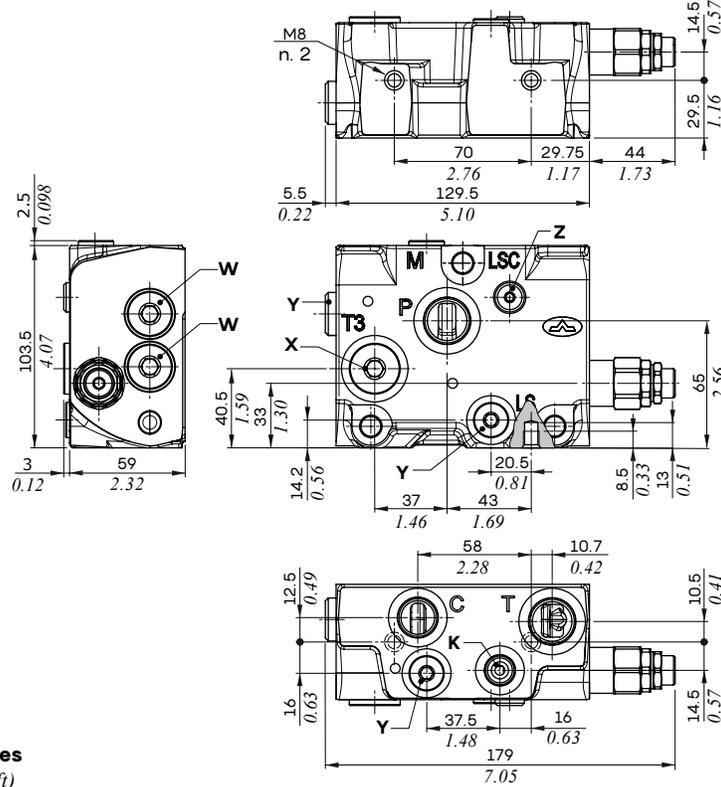
INLET SECTION TYPE	P inlet port				T outlet port			
	A		B		C		D	
	mm	in	mm	in	mm	in	mm	in
Standard thread	26	1.02	44.5	1.75	3	0.118	11.5	0.45
SAE12 thread	27.4	1.08	52.5	2.07	3	0.118	6.5	0.26



## Inlet section

### Dimensions and hydraulic circuit

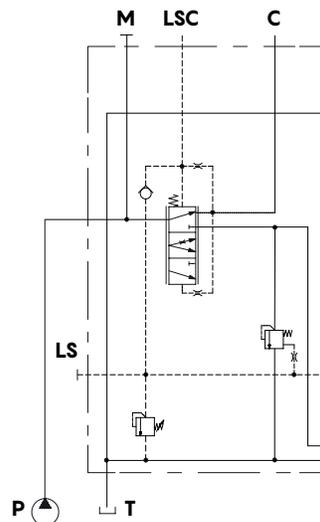
#### PF4 Open Center section, with priority valve



#### Wrenches and tightening torques

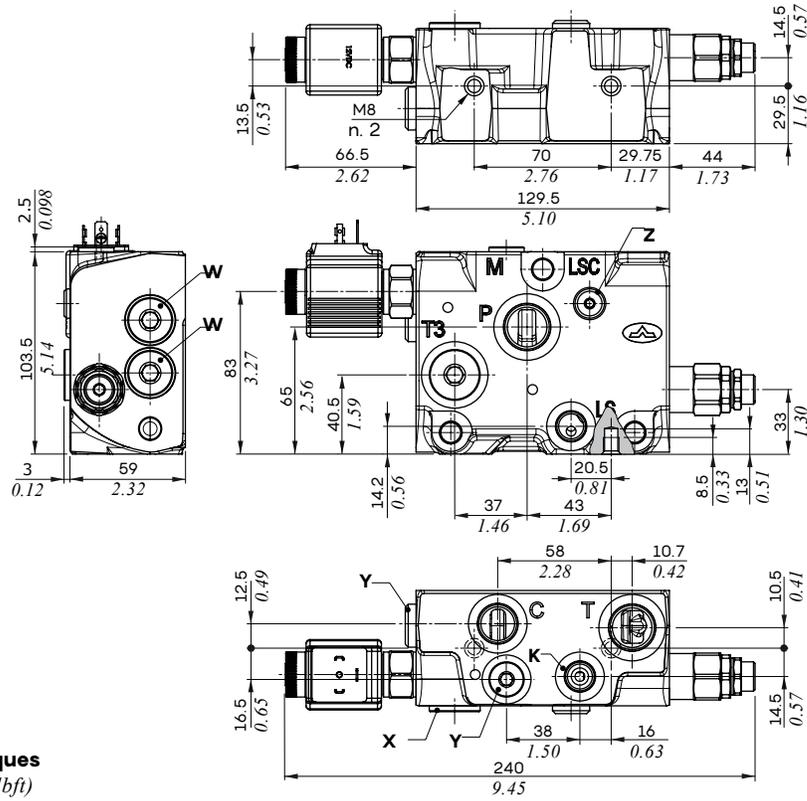
- K = allen wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- X = allen wrench 8 - 24 Nm (17.7 lbf<sub>t</sub>)
- Y = allen wrench 6 - 24 Nm (17.7 lbf<sub>t</sub>)
- Z = allen wrench 4 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- W = allen wrench 8 - 24 Nm (17.7 lbf<sub>t</sub>)

NOTE: for valves wrench and torque see related pages



Dimensions and hydraulic circuit

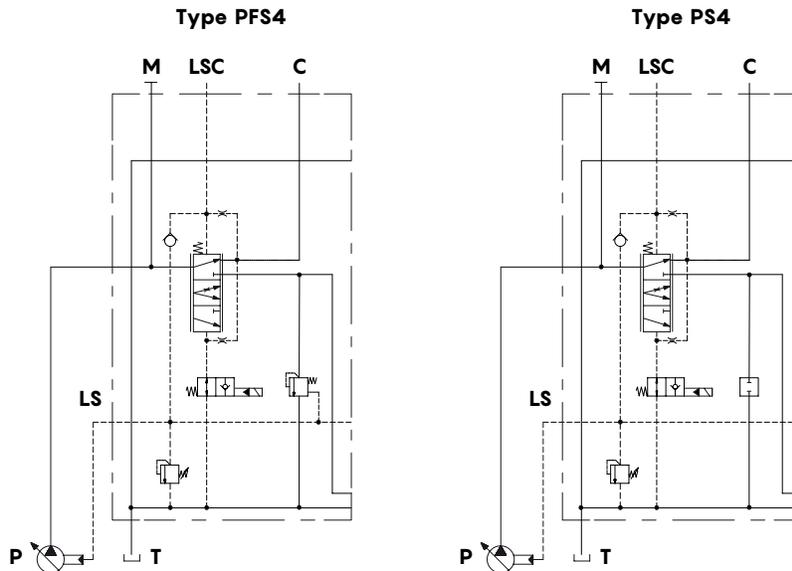
PFS4 Closed Center section, with priority valve and shut-off valve arrangement



Wrenches and tightening torques

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

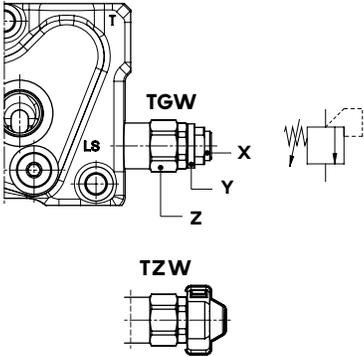
NOTE: for valves wrench and torque see related pages



Inlet section

Main pressure relief valve

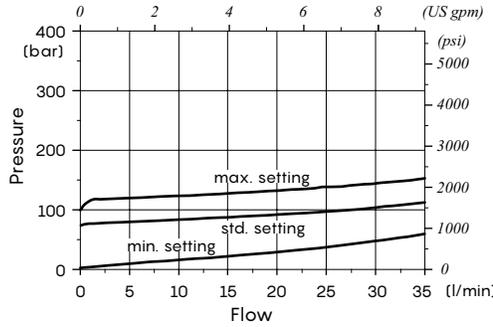
Setting types



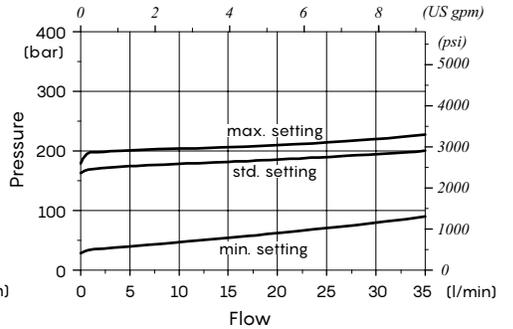
Legenda

- 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 lbft)
- Z = wrench 24 - 42 Nm (31 lbft)

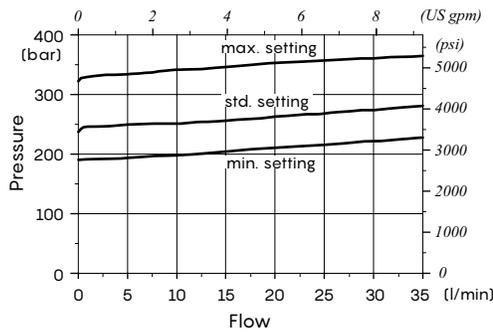
Setting range: type TGW2



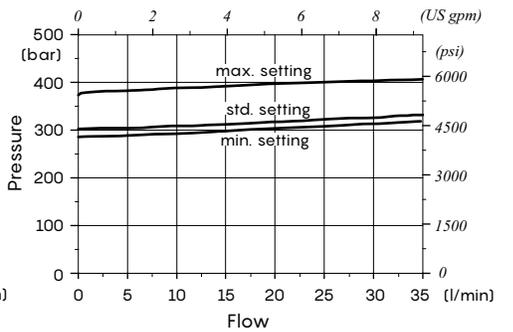
Setting range: type TGW3



Setting range: type TGW4

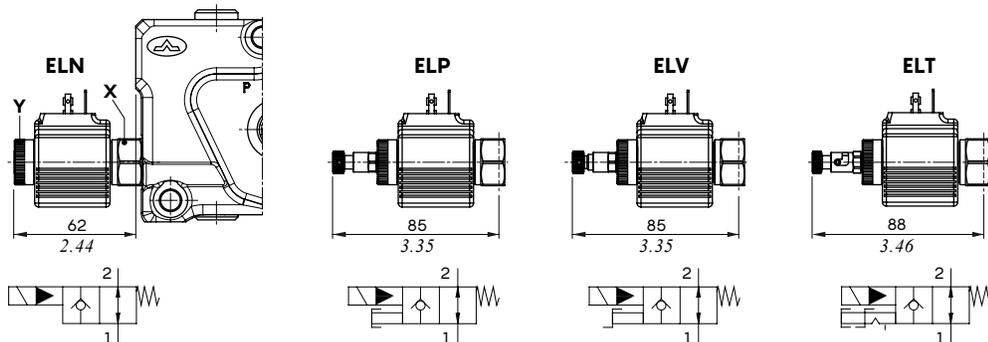


Setting range: type TGW5



Solenoid operated unloading valve

Manual emergency types



Legenda

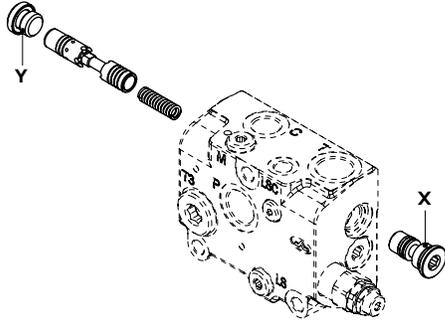
- ELN:** without emergency
- ELP:** push button emergency override
- ELV:** screw emergency override
- ELT:** "push&twist" emergency override
- Wrenches and tightening torques**
- X = wrench 24 - 30 Nm (22 lbft)
- Y = manual tightening

Features

- Max. flow .....: 40 l/min (10.6 US gpm)
- Max. pressure .....: 380 bar (5500 psi)
- Internal leakage .....: 0.25 cm<sup>3</sup>/min @ 210 bar  
(0.015 in<sup>3</sup>/min @ 3050 psi)

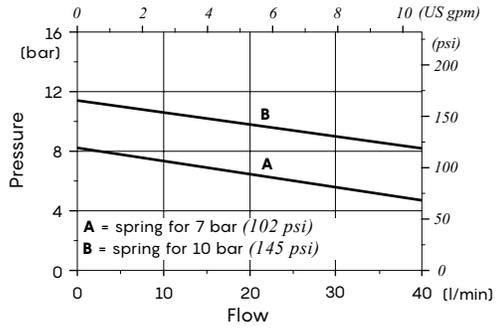
For coil features and options see **BER** type coil at page 160.

Priority valve kit



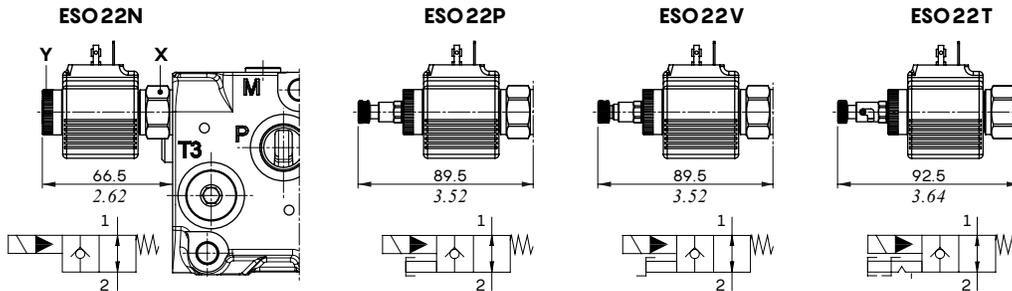
**Wrenches and tightening torques**  
 X = allen wrench 8 - 24 Nm (17.7 lbft)  
 Y = allen wrench 6 - 24 Nm (17.7 lbft)

**Stand-by (margin pressure) vs. regulated flow**  
 Regulated flow = 40 l/min (10.6 US gpm)



Shut-off valve

Manual emergency types



**Legenda**

**ESO 22N:** without emergency  
**ESO 22P:** push button emergency override  
**ESO 22V:** screw emergency override  
**ESO 22T:** "push&twist" emergency override

**Wrenches and tightening torques**

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

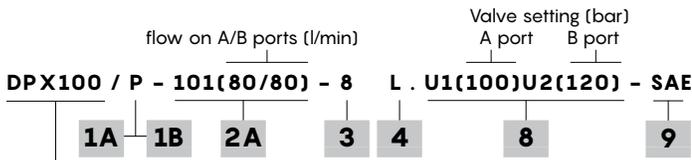
**Features**

Max. flow ..... 40 l/min (10.6 US gpm)  
 Max. pressure ..... 380 bar (5500 psi)  
 Internal leakage ..... 0.25 cm<sup>3</sup>/min @ 210 bar  
 (0.015 in<sup>3</sup>/min @ 3050 psi)

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

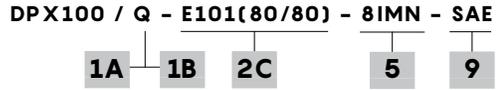
## Working section part ordering codes (mechanical, hydraulic, solenoid)

### A Mechanical control configuration:

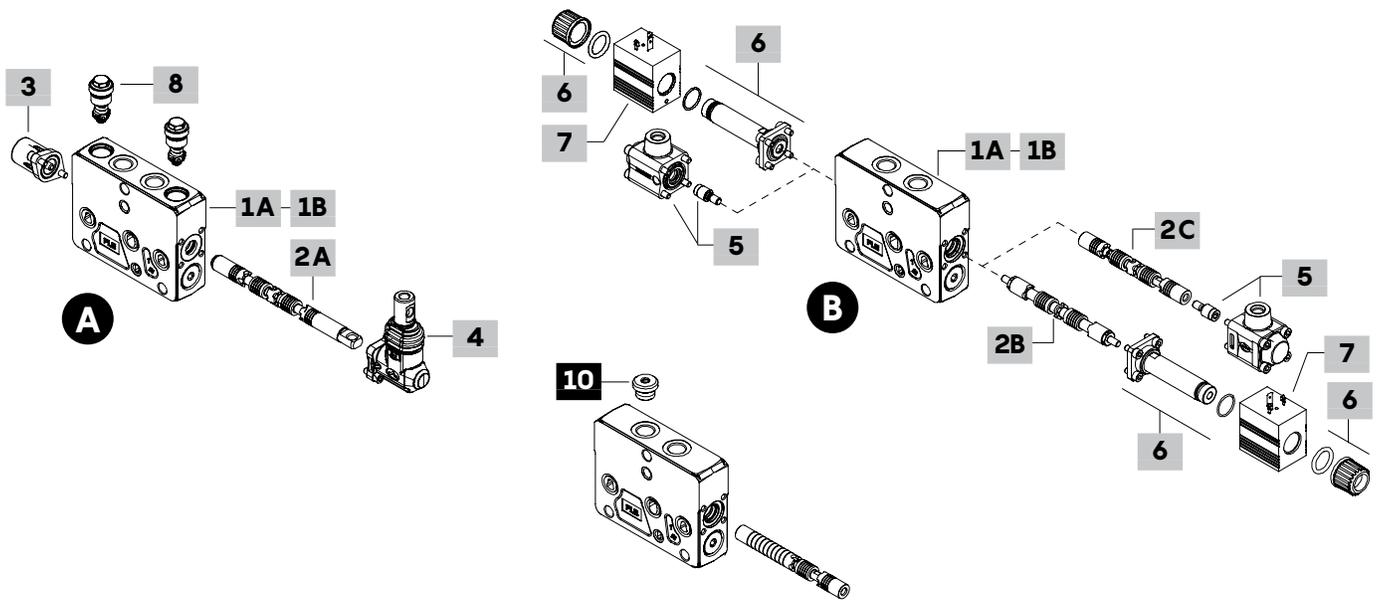


DPX100: Pressure Standard section  
DPX100HP: High Pressure section

### B Prop. hydraulic control configuration:



### B Solenoid control configuration:



### 1A Std Pressure working section kit \* page 72

**For mechanical control**  
 TYPE: DPX100/Q-SAE-FPM CODE: 5EL1045010V  
 DESCRIPTION: Without port valve arrangement  
 TYPE: DPX100/P-SAE-FPM CODE: 5EL1045000V  
 DESCRIPTION: With port valve arrangement  
**For proportional hydraulic and solenoid control**  
 TYPE: DPX100/Q-IM-SAE-FPM CODE: 5EL1045010AV  
 DESCRIPTION: Without port valve arrangement  
 TYPE: DPX100/P-IM-SAE-FPM CODE: 5EL1045000AV  
 DESCRIPTION: With port valve arrangement

### 1B High Pressure working section kit \* page 72

**For mechanical control**  
 TYPE: DPX100HP/Q-SAE-FPM CODE: 5EL1045011V  
 DESCRIPTION: Without port valve arrangement  
 TYPE: DPX100HP/P-SAE-FPM CODE: 5EL1045001V  
 DESCRIPTION: With port valve arrangement  
**For proportional hydraulic and solenoid control**  
 TYPE: DPX100HP/Q-IM-SAE-FPM CODE: 5EL1045010BV  
 DESCRIPTION: Without port valve arrangement  
 TYPE: DPX100HP/P-IM-SAE-FPM 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

<b>101(80)</b>	3CU7110101	80 l/min (21 US gpm) flow
<b>109(70)</b>	3CU7110109	70 l/min (18.5 US gpm) flow
<b>102(60)</b>	3CU7110102	60 l/min (16 US gpm) flow
<b>112(50)</b>	3CU7110003	50 l/min (13.2 US gpm) flow
<b>103(40)</b>	3CU7110103	40 l/min (10.5 US gpm) flow
<b>111(30)</b>	3CU7110002	30 l/min (7.9 US gpm) flow
<b>104(20)</b>	3CU7110104	20 l/min (5.3 US gpm) flow
<b>113(10)</b>	3CU7110113	10 l/min (2.6 US gpm) flow

Double acting with A and B to tank in neutral position

<b>201(80)</b>	3CU7110201	80 l/min (21 US gpm) flow
<b>211(70)</b>	3CU7125211	70 l/min (18.5 US gpm) flow
<b>206(60)</b>	3CU7110204	60 l/min (16 US gpm) flow
<b>209(50)</b>	3CU7125209	50 l/min (13.2 US gpm) flow
<b>208(40)</b>	3CU7125208	40 l/min (10.5 US gpm) flow
<b>212(30)</b>	3CU7125212	30 l/min (7.9 US gpm) flow
<b>205(20)</b>	3CU7110205	20 l/min (5.3 US gpm) flow
<b>214(5)</b>	3CU7125214	5 l/min (1.3 US gpm) flow

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

<b>2H01(80)</b>	3CU7110202	80 l/min (21 US gpm) flow
<b>2H12(70)</b>	3CU7124220	70 l/min (18.5 US gpm) flow
<b>2H06(60)</b>	3CU7124213	60 l/min (16 US gpm) flow
<b>2H05(40)</b>	3CU7124212	40 l/min (10.5 US gpm) flow
<b>2H03(30)</b>	3CU7110206	30 l/min (7.9 US gpm) flow
<b>2H04(20)</b>	3CU7124211	20 l/min (5.3 US gpm) flow
<b>2H07(10)</b>	3CU7124214	10 l/min (2.6 US gpm) flow

Single acting on A, B plugged: SAE8 plug is required

<b>301(80)</b>	3CU7110301	80 l/min (21 US gpm) flow
<b>304(60)</b>	3CU7131304	60 l/min (16 US gpm) flow
<b>303(40)</b>	3CU7131303	40 l/min (10.5 US gpm) flow
<b>302(20)</b>	3CU7131302	20 l/min (5.3 US gpm) flow

Single acting on B, A plugged: SAE8 plug is required

<b>401(80)</b>	3CU7110401	80 l/min (21 US gpm) flow
<b>404(60)</b>	3CU7135404	60 l/min (16 US gpm) flow
<b>403(40)</b>	3CU7135403	40 l/min (10.5 US gpm) flow
<b>402(20)</b>	3CU7135402	20 l/min (5.3 US gpm) flow

Double acting with A and B closed in neutral pos., 4 positions, floating in 4<sup>th</sup> pos. with spool in: type 13 or 13F positioner is required

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

<b>S102(60)</b>	3CU7410102	60 l/min (16 US gpm) flow
<b>S108(40)</b>	3CU7410108	40 l/min (10.5 US gpm) flow
<b>S107(30)</b>	3CU7410107	30 l/min (7.9 US gpm) flow
<b>S105(20)</b>	3CU7410105	20 l/min (5.3 US gpm) flow
<b>S106(10)</b>	3CU7410106	10 l/min (2.6 US gpm) flow
<b>S109(5)</b>	3CU7410109	5 l/min (1.3 US gpm) flow

Double acting with A and B to tank in neutral position

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

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

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

Single acting on A or B, other port plugged: SAE8 plug is required

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

**2C Spool for prop. 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

<b>E101(80)</b>	3CU7710101	80 l/min (21 US gpm) flow
<b>E108(60)</b>	3CU7710108	60 l/min (16 US gpm) flow
<b>E123(50)</b>	3CU7710123	50 l/min (13.2 US gpm) flow
<b>E105(40)</b>	3CU7710105	40 l/min (10.5 US gpm) flow
<b>E113(30)</b>	3CU7710113	30 l/min (7.9 US gpm) flow
<b>E106(20)</b>	3CU7710106	20 l/min (5.3 US gpm) flow
<b>E110(10)</b>	3CU7710110	10 l/min (2.6 US gpm) flow
<b>E159(5)</b>	3CU7710159	5 l/min (1.3 US gpm) flow

Double acting with A and B to tank in neutral position

<b>E210(70)</b>	3CU7725006	70 l/min (18.5 US gpm) flow
<b>E209(60)</b>	3CU7725005	60 l/min (16 US gpm) flow
<b>E214(50)</b>	3CU7725010	50 l/min (13.2 US gpm) flow
<b>E206(40)</b>	3CU7725003	40 l/min (10.5 US gpm) flow
<b>E202(30)</b>	3CU7725002	30 l/min (7.9 US gpm) flow
<b>E205(20)</b>	3CU7725001	20 l/min (5.3 US gpm) flow
<b>E211(10)</b>	3CU7725007	10 l/min (2.6 US gpm) flow

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

<b>E2H01(80)</b>	3CU7710202	80 l/min (21 US gpm) flow
<b>E2H05(60)</b>	3CU7724004	60 l/min (16 US gpm) flow
<b>E2H04(40)</b>	3CU7724003	40 l/min (10.5 US gpm) flow
<b>E2H06(20)</b>	3CU7724005	20 l/min (5.3 US gpm) flow
<b>E2H03(10)</b>	3CU7724002	10 l/min (2.6 US gpm) flow
<b>E2H25(5)</b>	3CU7724159	5 l/min (1.3 US gpm) flow

Single acting on A or B, other port plugged: SAE8 plug is required

<b>E301-E401(80)</b>	3CU7710301	80 l/min (21 US gpm) flow
<b>E305-E405(60)</b>	3CU7731305	60 l/min (16 US gpm) flow
<b>E304-E404(40)</b>	3CU7731304	40 l/min (10.5 US gpm) flow
<b>E303-E403(20)</b>	3CU7731303	20 l/min (5.3 US gpm) flow

Double acting with A and B closed in neutral pos., 4 positions, floating in 4<sup>th</sup> pos. with spool in: type 13IMS control is required

<b>I504(60)</b>	YCU7742504	60 l/min (16 US gpm) flow
<b>I503(20)</b>	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 (electrohydraulic)

**A** One-side electrohydraulic control configuration:

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

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

1A 1B 2 3 4 7 8 3

DPX100: Standard Pressure section  
 DPX100HP: High Pressure section

**B** One-side complete electrohydraulic control configuration:

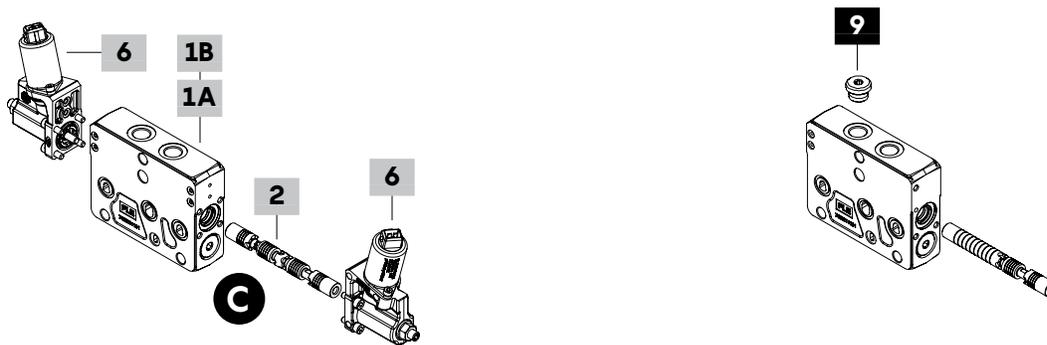
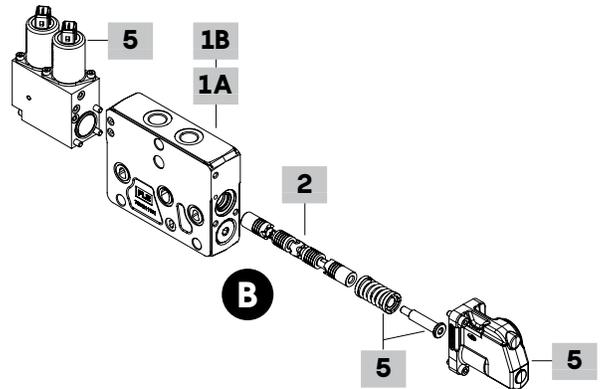
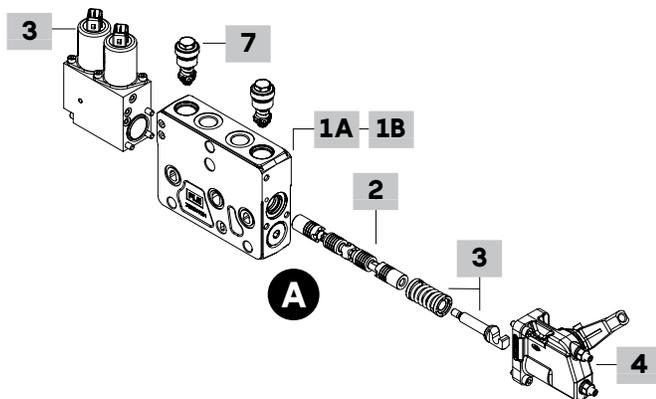
DPX100 / QZ - E101(80\80) - 8EZ3SLCQ - SAE -12VDC

1A 1B 2 5 8 5

**C** Two-side electrohydraulic control configuration:

DPX100 / QE - E101(80\80) - 8EB3TF3 - SAE -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 valves arrangement  
 TYPE: **DPX100/PZ-SAE-FPM** CODE: 5EL1047006V  
 DESCRIPTION: With port valve arrangement

**2 Spool page 73**

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

TYPE	CODE	DESCRIPTION
<u>Double acting with A and B closed in neutral position</u>		
<b>E101(80)</b>	3CU7710101	80 l/min (21 US gpm) flow
<b>E108(60)</b>	3CU7710108	60 l/min (16 US gpm) flow
<b>E123(50)</b>	3CU7710123	50 l/min (13.2 US gpm) flow
<b>E105(40)</b>	3CU7710105	40 l/min (10.5 US gpm) flow
<b>E113(30)</b>	3CU7710113	30 l/min (7.9 US gpm) flow
<b>E106(20)</b>	3CU7710106	20 l/min (5.3 US gpm) flow
<b>E110(10)</b>	3CU7710110	10 l/min (2.6 US gpm) flow
<b>E159(5)</b>	3CU7710159	5 l/min (1.3 US gpm) flow
<u>Double acting with A and B to tank in neutral position</u>		
<b>E210(70)</b>	3CU7725006	70 l/min (18.5 US gpm) flow
<b>E209(60)</b>	3CU7725005	60 l/min (16 US gpm) flow
<b>E214(50)</b>	3CU7725010	50 l/min (13.2 US gpm) flow
<b>E206(40)</b>	3CU7725003	40 l/min (10.5 US gpm) flow
<b>E202(30)</b>	3CU7725002	30 l/min (7.9 US gpm) flow
<b>E205(20)</b>	3CU7725001	20 l/min (2.6 US gpm) flow
<b>E211(10)</b>	3CU7725007	10 l/min (2.6 US gpm) flow
<u>Double acting with A and B partially to tank in neutral position</u>		
<b>E2H01(80)</b>	3CU7710202	80 l/min (21 US gpm) flow
<b>E2H05(60)</b>	3CU7724004	60 l/min (16 US gpm) flow
<b>E2H04(40)</b>	3CU7724003	40 l/min (10.5 US gpm) flow
<b>E2H06(20)</b>	3CU7724005	20 l/min (5.3 US gpm) flow
<b>E2H03(10)</b>	3CU7724002	10 l/min (2.6 US gpm) flow
<b>E2H25(5)</b>	3CU7724159	5 l/min (1.3 US gpm) flow
<u>Single acting on A or B, other port plugged; SAE8 plug is required</u>		
<b>E301-E401(80)</b>	3CU7710301	80 l/min (21 US gpm) flow
<b>E305-E405(60)</b>	3CU7731305	60 l/min (16 US gpm) flow
<b>E304-E404(40)</b>	3CU7731304	40 l/min (10.5 US gpm) flow
<b>E303-E403(20)</b>	3CU7731303	20 l/min (5.3 US gpm) flow
<u>Double acting with A and B closed in neutral pos., 4 positions, floating in 4<sup>th</sup> pos. with spool in: type 13IMS control is required</u>		
<b>I504(60)</b>	YCU7742504	60 l/min (16 US gpm) flow
<b>I503(20)</b>	YCU7742503	20 l/min (5.3 US gpm) flow

**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 valves arrangement  
 TYPE: **DPX100HP/PZ-SAE-FPM** CODE: 5EL1045006V  
 DESCRIPTION: With port valves arrangement

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

**These controls must be coupled with "B" side options**

TYPE	CODE	DESCRIPTION
<b>8EZ3-12VDC</b>	5IDR604300V	With AMP connector
<b>8EZ3-24VDC</b>	5IDR604301V	As previous one
<b>8EZH3-12VDC</b>	5IDR604329V	With horizontal pressure reducing valves and AMP conn.
<b>8EZH3-24VDC</b>	5IDR604331V	As previous one
<b>8EZ34-12VDC</b>	5IDR604302V	With Deutsch connector
<b>8EZ34-24VDC</b>	5IDR604303V	As previous one
<b>8EZH34-12VDC</b>	5IDR604310V	With horizontal pressure reducing valves and Deutsch connector
<b>8EZH34-24VDC</b>	5IDR604324V	As previous one
<u>With spool position sensor</u>		
<b>8EZ3SPSD-12VDC</b>	5IDR604304V	AMP conn. and digital sensor
<b>8EZ3SPSD-24VDC</b>	5IDR604305V	As previous one
<b>8EZ34SPSD-12VDC</b>	5IDR604306V	Deutsch conn. and digital sensor
<b>8EZ34SPSD-24VDC</b>	5IDR604307V	As previous one
<b>8EZ34SPSL-0.5(A)-4.5(B)-12VDC</b>	5IDR604311V	AMP conn. and analog sensor
<u>For floating circuit (spool E5)</u>		
<b>13EZ3-12VDC</b>	5IDR614300V	With AMP connector
<b>13EZ3-24VDC</b>	5IDR614301V	As previous one
<b>13EZ34-12VDC</b>	5IDR614302V	With Deutsch connector
<b>13EZ34-24VDC</b>	5IDR614303V	As previous one

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

**These options must be coupled with "A" side controls**

TYPE	CODE	DESCRIPTION
<b>LQ</b>	5LEV100707V	Lever box
<b>LQF3</b>	5LEV100708V	Lever box with spool stroke limiter
<b>LQSL</b>	5COP204100AV	Lever box without lever

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

## Working section part ordering codes (electrohydraulic)

**5 One-side complete electrohydr. control page 92****Controls already comprehensive of endcap on B side**

TYPE	CODE	DESCRIPTION
<b>8EZ3SLCQ-12VDC</b>	5IDR604300SV	With AMP connector
<b>8EZ3SLCQ-24VDC</b>	5IDR604301SV	As previous one
<b>8EZ34SLCQ-12VDC</b>	5IDR604302SV	With Deutsch connector
<b>8EZ34SLCQ-24VDC</b>	5IDR604303SV	As previous one
<b>8EZH34SLCQ-12VDC</b>	5IDR604310SV	With horizontal pressure reducing valves and Deutsch connector
<b>8EZH34SLCQ-24VDC</b>	5IDR604325SV	As previous one
<u>With spool position sensor</u>		
<b>8EZ3SPSDSLCQ-12VDC</b>	5IDR604304SV	With AMP connector and digital sensor
<b>8EZ3SPSDSLCQ-24VDC</b>	5IDR604305SV	As previous one
<b>8EZ34SPSDSLCQ-12VDC</b>	5IDR604306SV	With Deutsch connector and digital sensor
<b>8EZ34SPSDSLCQ-24VDC</b>	5IDR604307SV	As previous one
<b>8EZ34SPSL-0.5(A)-4.5(B)SLCQ-12VDC</b>	5IDR604311SV	With AMP connector and analog sensor

**6 Two-side electrohydr. control page 88**

TYPE	CODE	DESCRIPTION
<u>Without lever control</u>		
<b>8EB3T-12VDC</b>	5IDR904214V	With AMP connector
<b>8EB3T-24VDC</b>	5IDR904222V	As previous one
<b>8EB34T-12VDC</b>	5IDR904236V	With Deutsch connector
<b>8EB34T-24VDC</b>	5IDR904237V	As previous one
<b>8EB3TF3-12VDC</b>	5IDR904217V	With AMP, spool stroke limiter
<b>8EB3TF3-24VDC</b>	5IDR904224V	As previous one
<b>8EB34TF3-12VDC</b>	5IDR904235V	Deutsch conn.and stroke limiter
<b>8EB34TF3-24VDC</b>	5IDR904238V	As previous one
<u>Without lever control, with spool position sensor</u>		
<b>8EB34TSPSL-0.5(A)-4.5(B)-12VDC</b>	5IDR904268V	Deutsch conn. and analog sensor
<b>8EB3TSPSD-12VDC</b>	5IDR904233V	AMP conn. and digital sensor
<b>8EB3TSPSD-24VDC</b>	5IDR904226V	As previous one
<u>Without lever control: for floating circuit (E5 spool)</u>		
<b>13EB3T-12VDC</b>	5IDR914201V	With AMP connector
<b>13EB3T-24VDC</b>	5IDR914202V	As previous one
<b>13EB34T-12VDC</b>	5IDR914214V	With Deutsch connector
<b>13EB34T-24VDC</b>	5IDR914215V	As previous one
<u>With lever control</u>		
<b>8EB3TLH-12VDC</b>	5IDR904215AV	With AMP connector
<b>8EB3TLH-24VDC</b>	5IDR904228AV	As previous one
<b>8EB34TLH-12VDC</b>	5IDR904219AV	With Deutsch connector
<b>8EB34TLH-24VDC</b>	5IDR904239AV	As previous one
<b>8EB3TLHF3-12VDC</b>	5IDR904311V	With AMP, spool stroke limiter
<b>8EB3TLHF3-24VDC</b>	5IDR904308V	As previous one
<b>8EB34TLHF3-12VDC</b>	5IDR904240AV	With Deutsch connector with spool stroke limiter
<b>8EB34TLHF3-24VDC</b>	5IDR904241AV	As previous one
<u>With lever control and spool position sensor</u>		
<b>8EB3TLHSPSD-12VDC</b>	5IDR904234AV	AMP connector and digital sensor
<b>8EB3TLHSPSD-24VDC</b>	5IDR904232AV	As previous one
<b>8EB3TLHF3SPSL-0.5(A)-4.5(B)-12VDC</b>	5IDR904259AV	With spool limiter, AMP connector and analog sensor
<b>8EB3TLHF3SPSL-0.5(A)-4.5(B)-24VDC</b>	5IDR904247AV	As previous one
<u>With lever control: for floating circuit (E5 spool)</u>		
<b>13EB3TLH-12VDC</b>	5IDR914220AV	With AMP connector
<b>13EB3TLH-24VDC</b>	5IDR914211AV	As previous one
<b>13EB34TLH-12VDC</b>	5IDR914216V	With Deutsch connector
<b>13EB34TLH-24VDC</b>	5IDR914217AV	As previous one
<b>13EB3TLHF3-12VDC</b>	5IDR914213AV	With AMP and spool stroke limiter
<b>13EB3TLHF3-24VDC</b>	5IDR914210AV	As previous one
<b>13EB34TLHF3-12VDC</b>	5IDR914218AV	With Deutsch, spool stroke limiter
<b>13EB34TLHF3-24VDC</b>	5IDR914219V	As previous one

**7 Port valves page 94**

TYPE	CODE	DESCRIPTION
<b>U025</b>	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

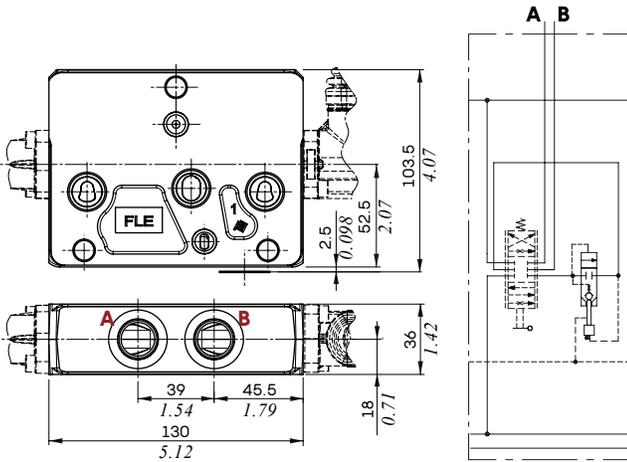
NOTE (\*): Codes are referred to **UN-UNF** thread.

Working section

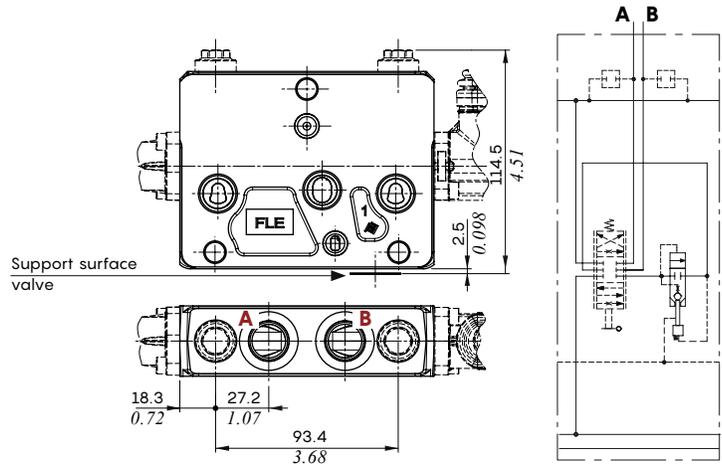
Dimensions and hydraulic circuit

Section for mechanical, hydraulic and solenoid controls

Type Q for Std or HP

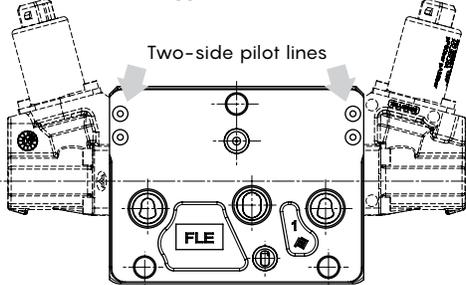


Type P for Std or HP



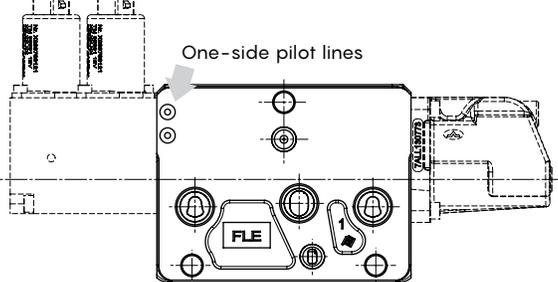
Section for electrohydraulic control

Type QE or PE



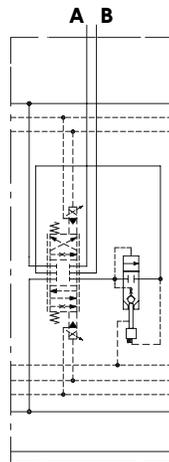
Two-side pilot lines

Type QZ or PZ

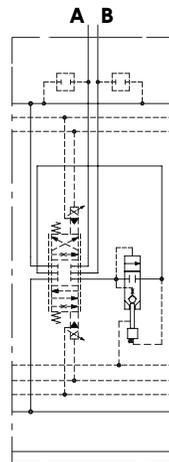


One-side pilot lines

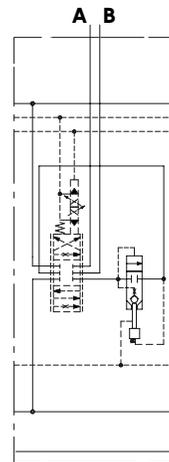
Type QE



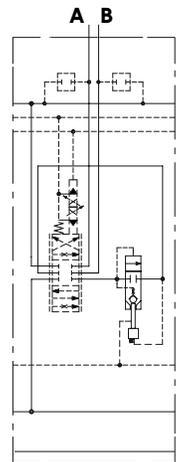
Type PE



Type QZ



Type PZ

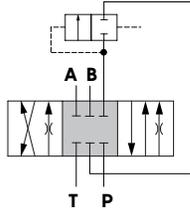


Spool

**Type 1 (1../E1../S1..)**

A, B closed in neutral position

1 0 2



**Stroke (1../E1..)**

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

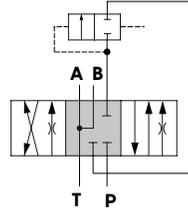
**Stroke (S1..)**

position 1: + 3.5 mm (+ 0.14 in)  
position 2: - 3.5 mm (- 0.14 in)

**Type 2 (E2..)**

A, B to tank in neutral position

1 0 2



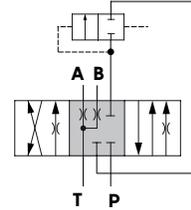
**Stroke**

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

**Type 2H(2H../E2H../S2H..)**

A, B partially to tank in neutral position

1 0 2



**Stroke (2H../E2H..)**

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

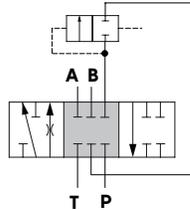
**Stroke (S2H..)**

position 1: + 3.5 mm (+ 0.14 in)  
position 2: - 3.5 mm (- 0.14 in)

**Type 3 (3../E3../S3..)**

Single acting on A

1 0 2



**Stroke (3../E3..)**

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

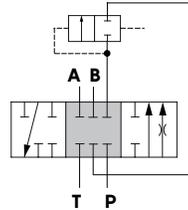
**Stroke (S3..)**

position 1: + 3.5 mm (+ 0.14 in)  
position 2: - 3.5 mm (- 0.14 in)

**Type 4 (4../E4../S4..)**

Single acting on B

1 0 2



**Stroke (4../E4..)**

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

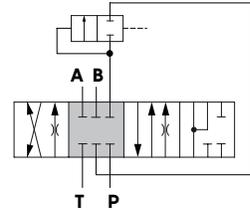
**Stroke (S4..)**

position 1: + 3.5 mm (+ 0.14 in)  
position 2: - 3.5 mm (- 0.14 in)

**Type 5 (5../E5../I5..)**

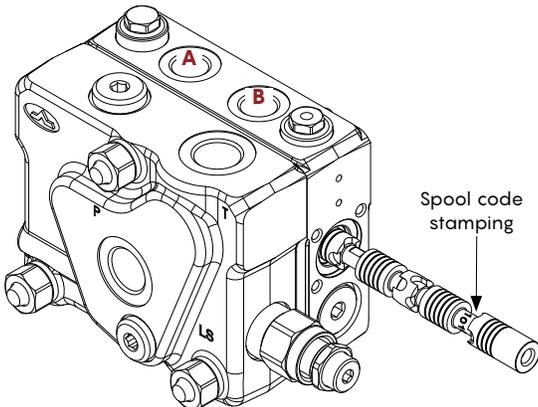
Floating in 4<sup>th</sup> position (pos.3)

1 0 2 3



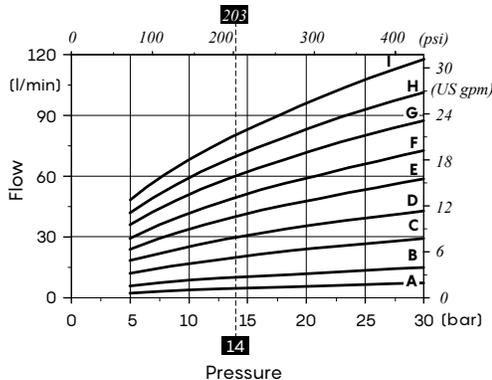
**Stroke**

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) ± 10%
- B = 10 l/min (2.6 US gpm) ± 10%
- C = 20 l/min (5.3 US gpm) ± 10%
- D = 30 l/min (7.9 US gpm) ± 10%
- E = 40 l/min (10.6 US gpm) ± 10%
- F = 50 l/min (13.2 US gpm) ± 10%
- G = 60 l/min (16 US gpm) ± 10%
- H = 70 l/min (18.5 US gpm) ± 10%
- I = 80 l/min (21 US gpm) ± 10%

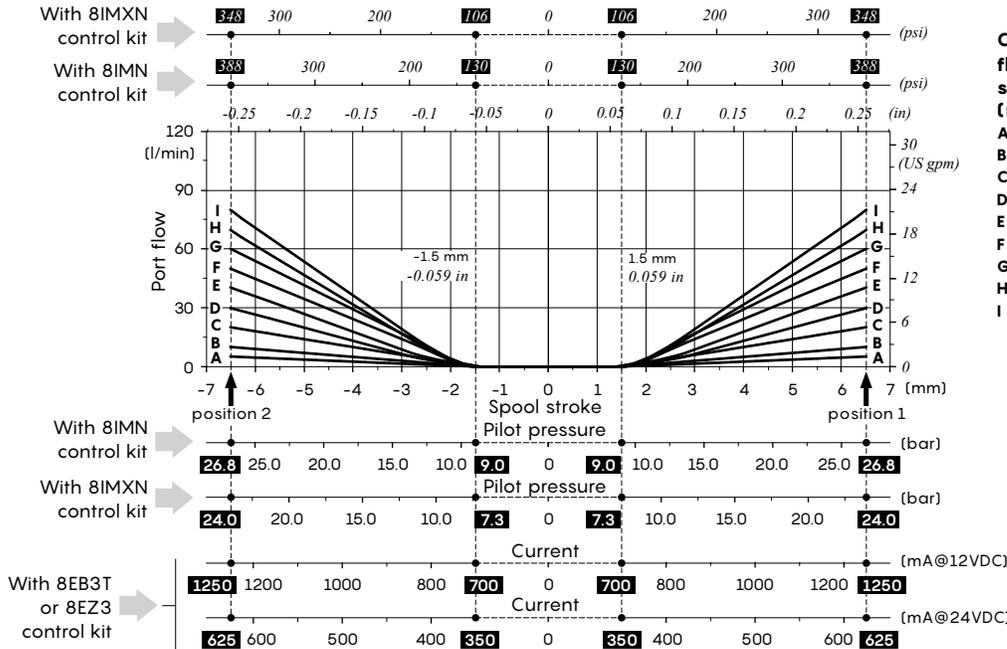
Working section

Spool

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

3 positions spool metering curve

Q<sub>in</sub> = 90 l/min (24 US gpm) - Open center circuit

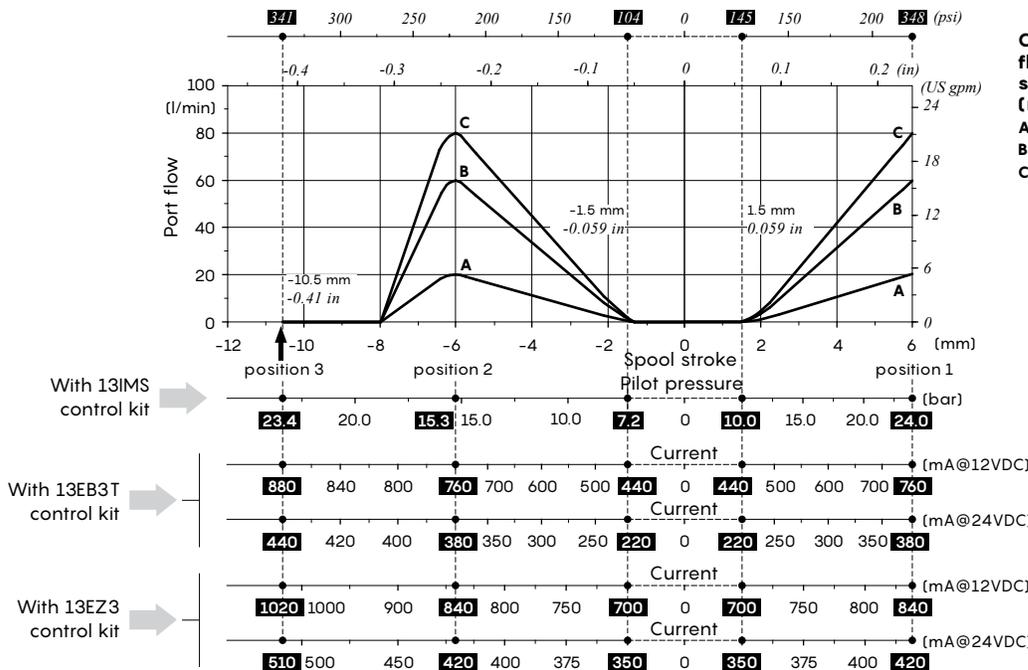


Curves with spool nominal flow @ 14 bar (200 psi) stand-by (margin pressure)

- 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 (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)

Floating spool metering curve

Q<sub>in</sub> = 90 l/min (24 US gpm) - Open center circuit

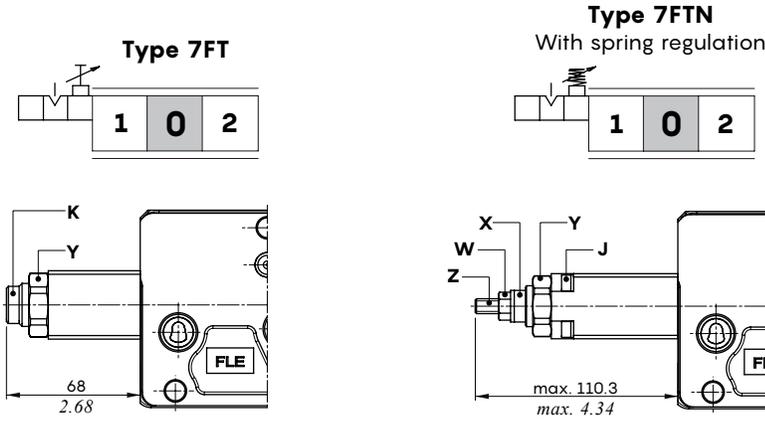


Curves with spool nominal flow @ 14 bar (200 psi) stand-by (margin pressure)

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

"A" side spool positioners

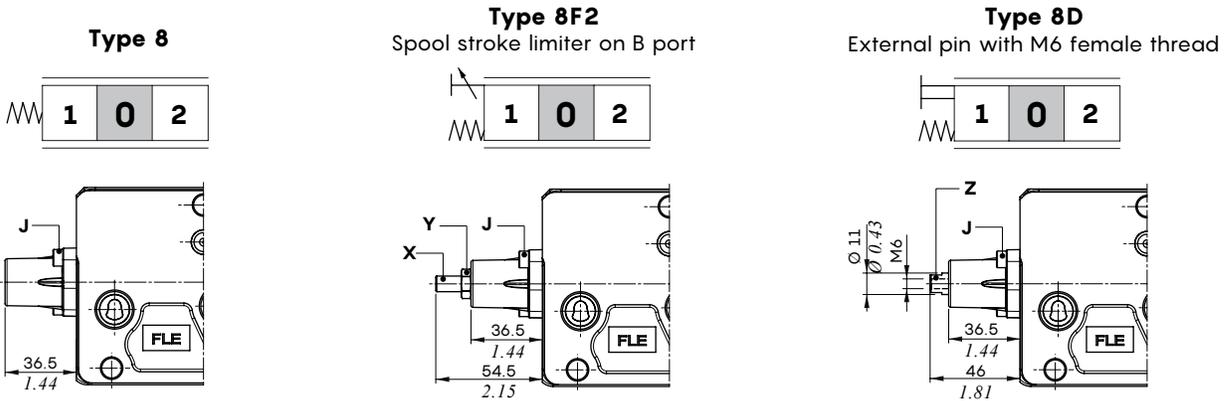
With friction and neutral position notch



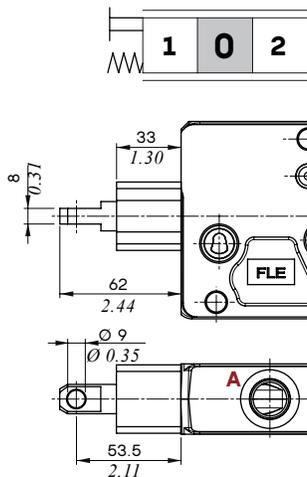
**Wrenches and tightening torques**

- 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



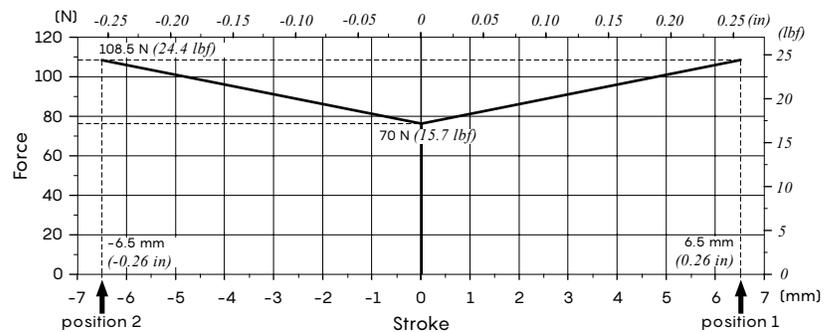
**Type 8TL**  
Arrangement for double mechanical control



**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

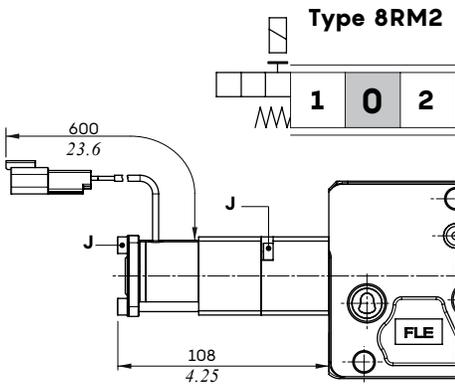
**Force vs. Stroke diagram**



Working section

"A" side spool positioners

With electromagnetic detent in position 2



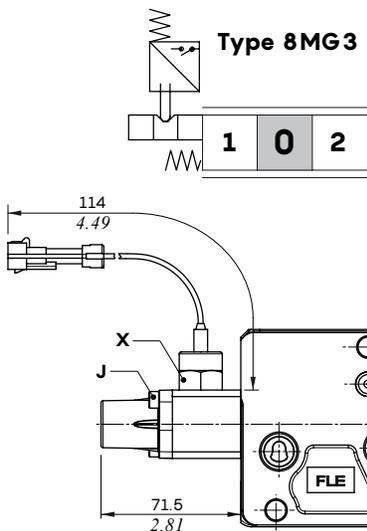
Features

- Nominal voltage ..... 12 VDC ± 10%
- Power rating ..... 5.5 W
- Min. detent release ..... 200 N (45 lbf)
- 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



Features

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

Complete controls

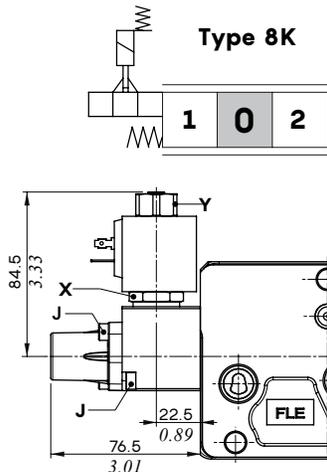
Circuit	Microswitch operation		
	position 1 8MG1	position 2 8MG2	position 1, 2 8MG3
(NO)	5V08107670	5V08107680	5V08107660
(NC)	/	/	5V08107662 (*)

Note (\*): with integrated connector

Wrenches and tightening torques

J = allen wrench 4 - 6.6 Nm (4.9 lbft)  
X = wrench 22 - 24 Nm (17.7 lbft)

With solenoid lock device in neutral position



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.

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)

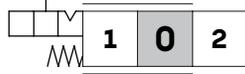
"A" side spool positioners

With detent and spring return to neutral position

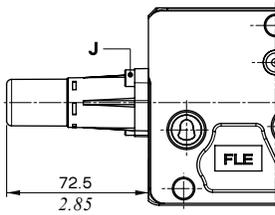
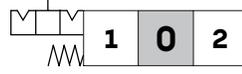
**Type 9B**  
Detent in position 1  
(see A curve)



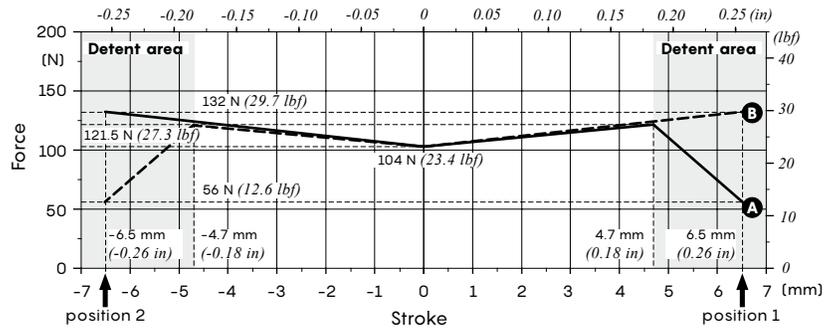
**Type 10B**  
Detent in position 2  
(see B curve)



**Type 11B**  
Detent in positions 1  
(A curve) and 2 (B curve)



Force vs. Stroke diagram



Wrenches and tightening torques

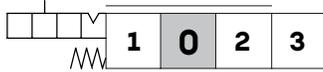
J = allen wrench 4 - 6.6 Nm (4.9 lbf)

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

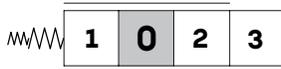
With detent and spring return to neutral position, for floating circuit

Not available for HF (High Flow) sections.

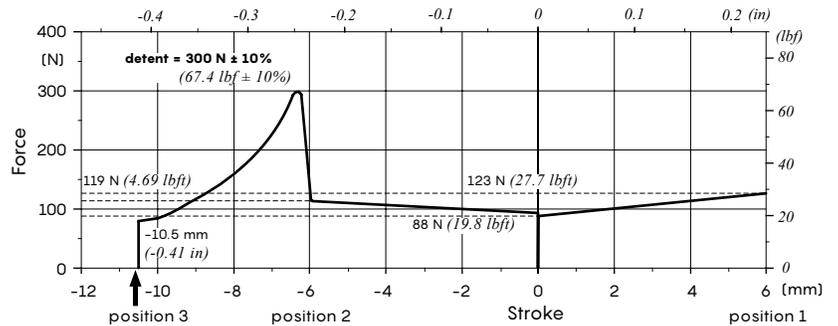
**Type 13N**  
Detent in position 3



**Type 13F**  
Additional spring in position 3

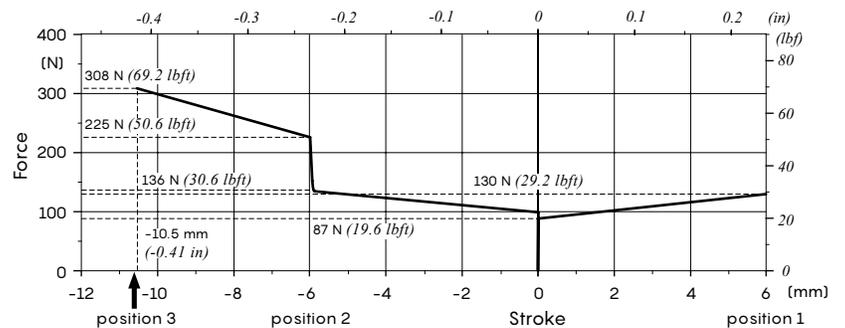


Type 13N: Force vs. Stroke diagram



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

Type 13F: Force vs. Stroke diagram



Wrenches and tightening torques

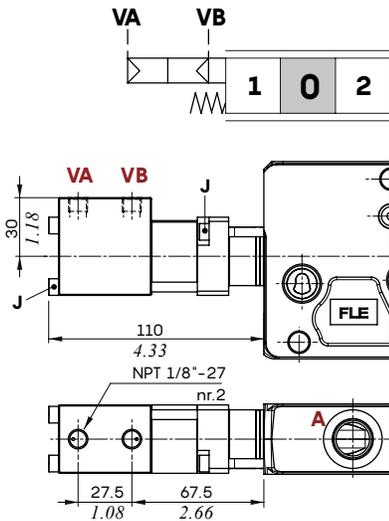
J = allen wrench 4 - 6.6 Nm (4.9 lbf)

Working section

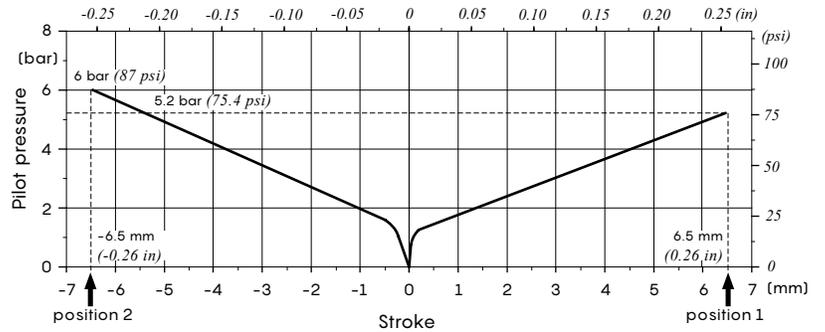
"A" side spool positioners

Proportional pneumatic control

Type 8PP



Stroke vs. Pilot pressure diagram

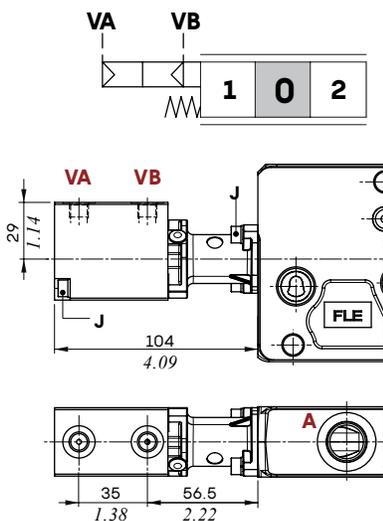


Wrenches and tightening torques

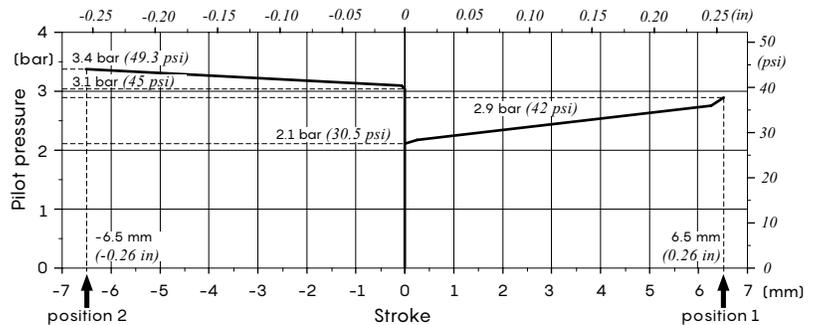
J = allen wrench 4 - 6.6 Nm (4.9 lbft)

On/off pneumatic control

Type 8PNB



Stroke vs. Pilot pressure diagram



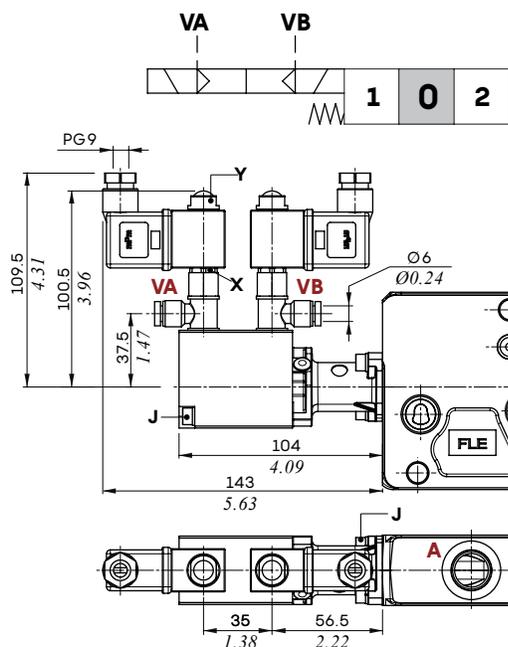
Wrenches and tightening torques

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

"A" side spool positioners

On/off electropneumatic control

Type 8EPNB3



Features

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

For coil features and options see **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

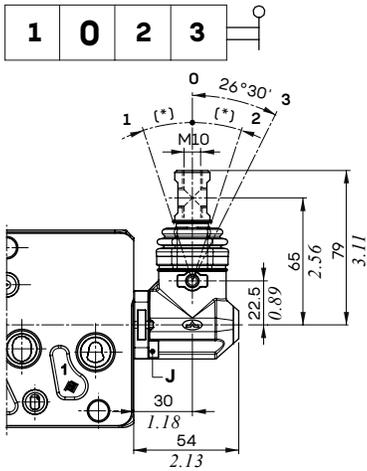
Working section

"B" side spool control kit

Lever box

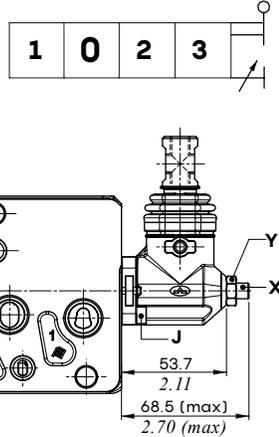
Waterproof lever box

Type L

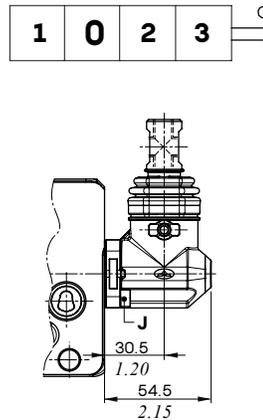


Type LF1

Spool stroke limiter on A port

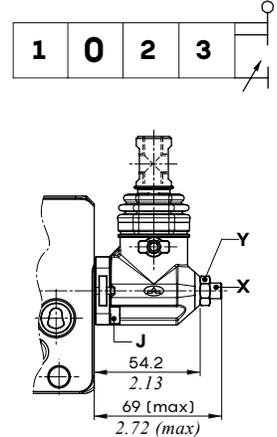


Type LSG

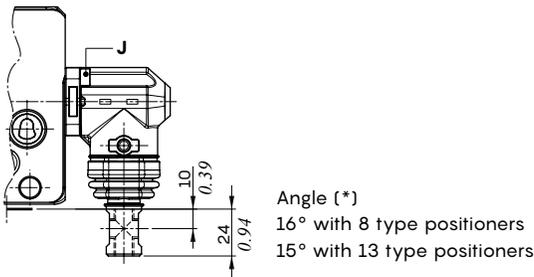


Type LSGF1

Spool stroke limiter on A port



L180 configuration



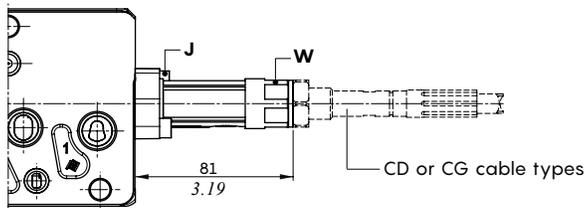
Wrenches and tightening torques

- J = allen wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)
- X = allen wrench 4
- Y = wrench 13 - 24 Nm (17.7 lbf<sub>t</sub>)

Without lever box

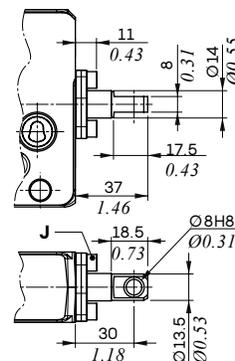
Type TQ

Flexible cable connection



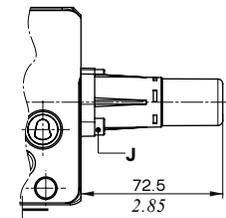
Type SLP

With dust-proof plate



Type SLC

With endcap



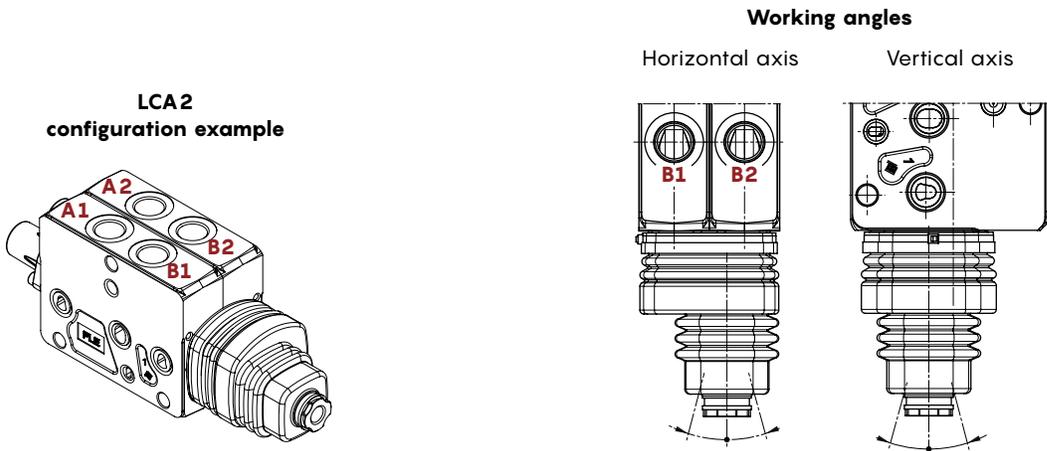
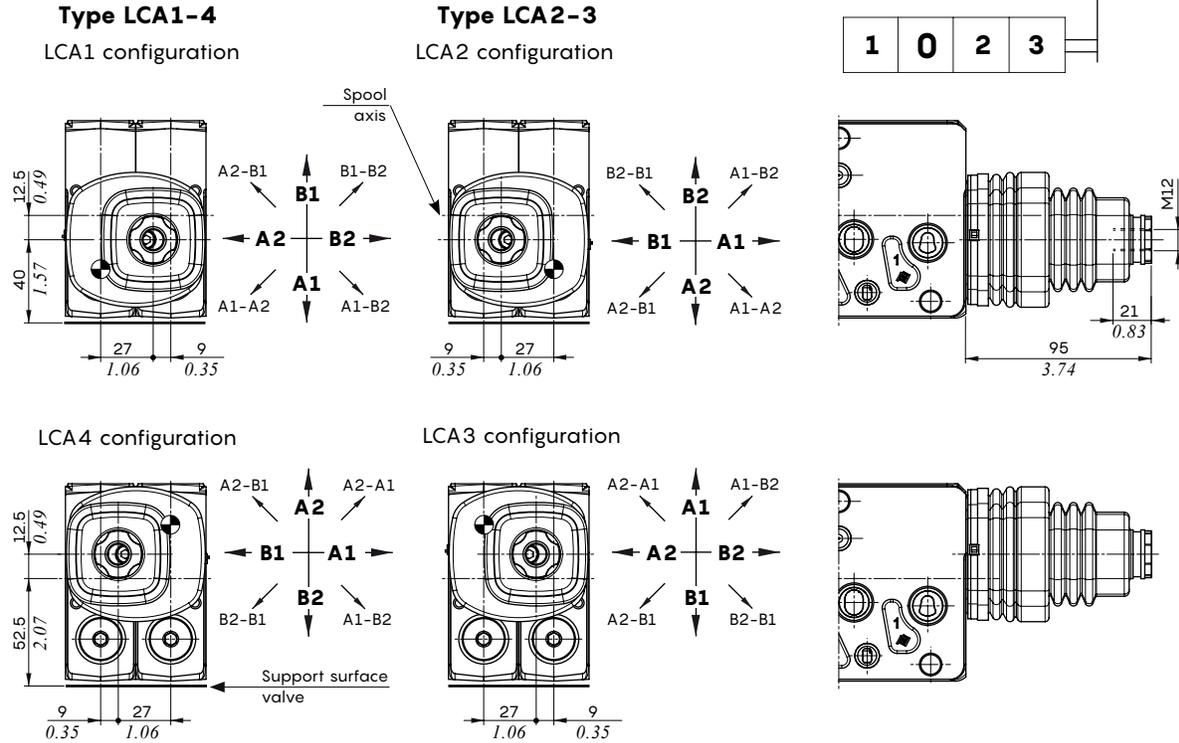
Wrenches and tightening torques

- J = allen wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)
- W = wrench 24

"B" side spool control kit

Joysticks for two section operation

Not available for HF (High Flow) sections.

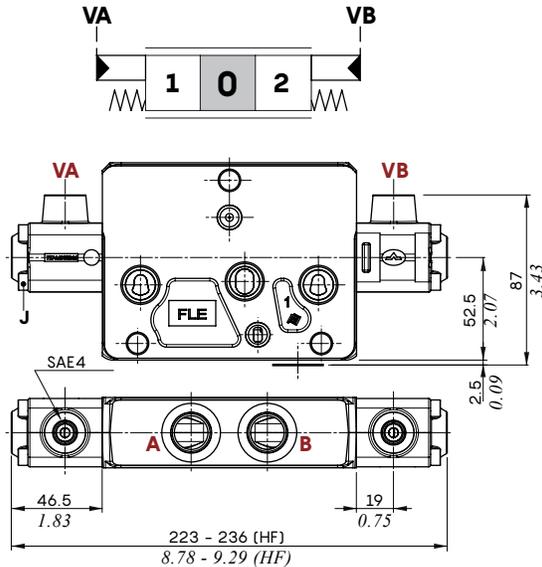


Max. working angles	Horizontal axis	Vertical axis
Single action operation	15°4'	15°4'
Single action operation with floating	25°2'	25°2'
Two section operation	15°52'	15°52'
Two section operation with floating	18°3'	18°3'

Working section

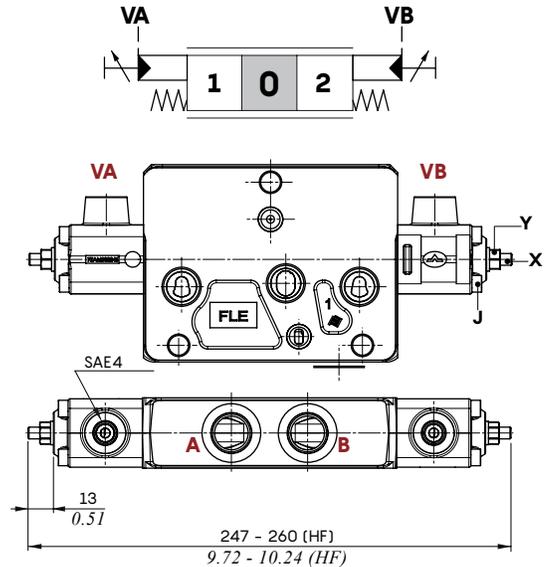
Proportional hydraulic control

Types 81MN - 81MXN



Types 81MF3N - 81MXF3N

With spool stroke limiter on A and B ports



Wrenches and tightening torques

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

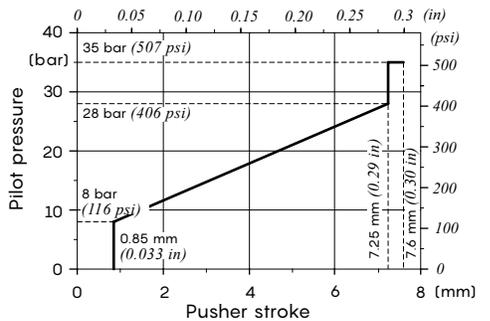
X = allen wrench 3

Y = wrench 10 - 9.8 Nm (7.2 lbft)

Features (all types)

Max. pressure ..... : 70 bar (1015 psi)

Suggested pressure control curve: type 089



Pressure vs. Stroke diagram

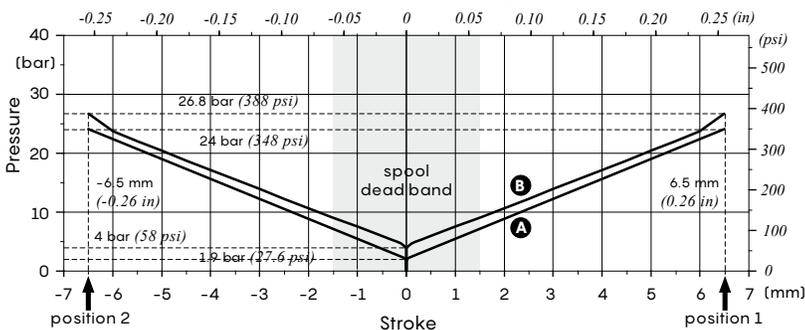
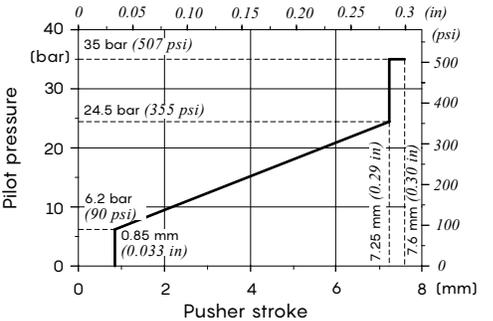


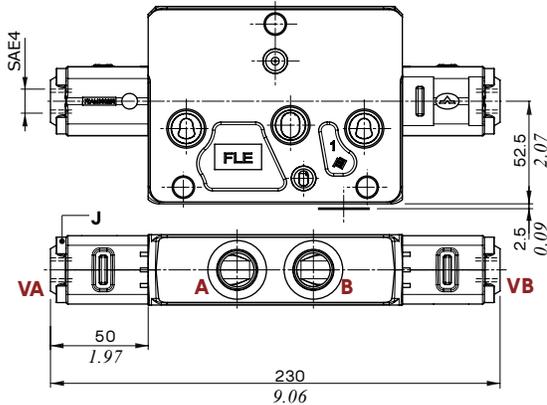
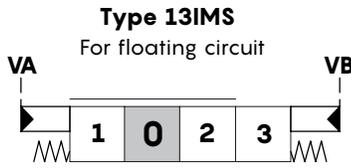
Diagram A = 81MXN-81MXNF3 controls  
Diagram B = 81MN-81MNF3 controls

Suggested pressure control curve: type 054



**Proportional hydraulic control**

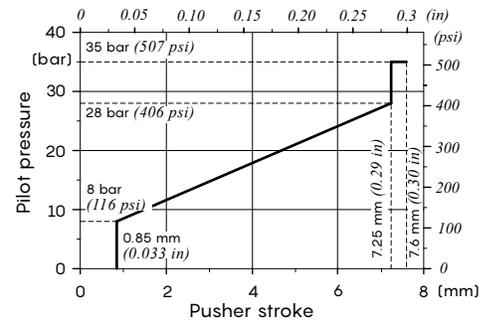
Not available for HF (High Flow) sections.



**Features**

Max. pressure .....: 70 bar (1015 psi)

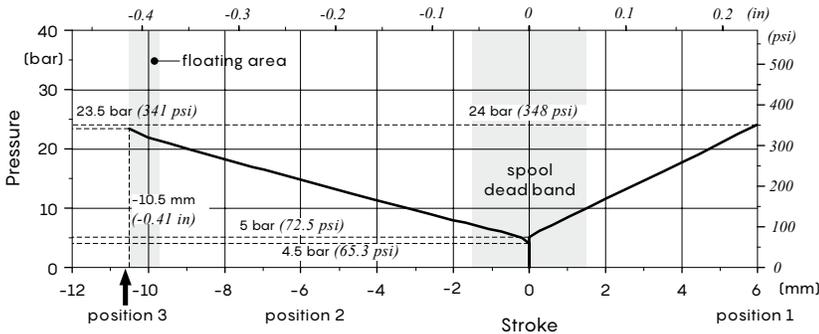
**Suggested pressure control curve: type O89**



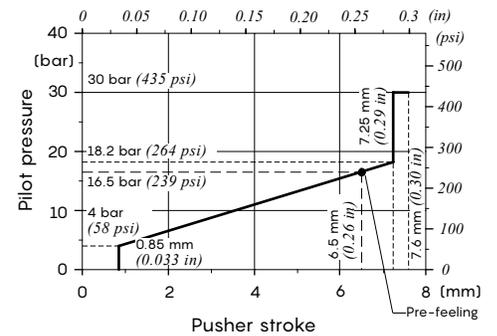
**Wrenches and tightening torques**

J = allen wrench 4 - 6.6 Nm (4.9 lbf<sup>t</sup>)

**Stroke vs. Pressure diagram**



**Suggested pressure control curve on port VB: type O86**

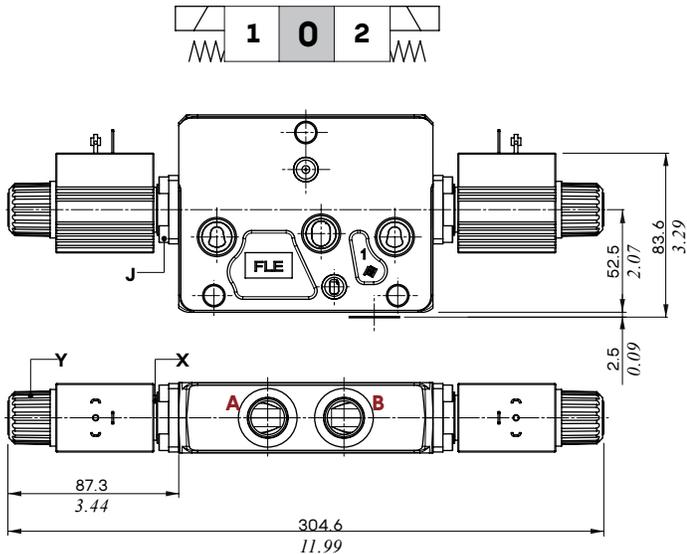


Working section

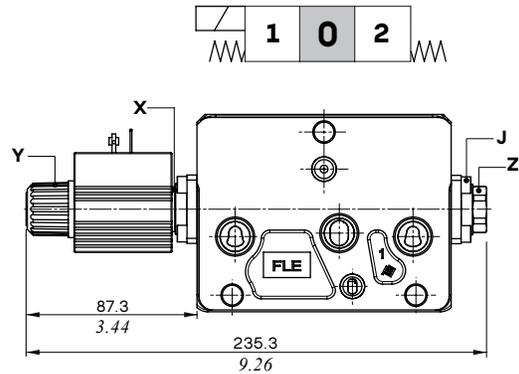
On/off solenoid control

Not available for HF (High Flow) sections.

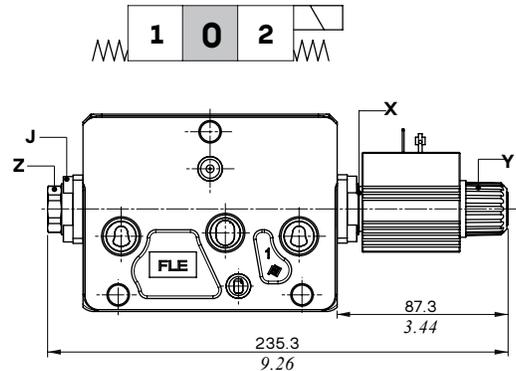
**Type 8ES3**  
Double acting



**Type 8ES1**  
Single acting in A



**Type 8ES2**  
Single acting in B



**Features**

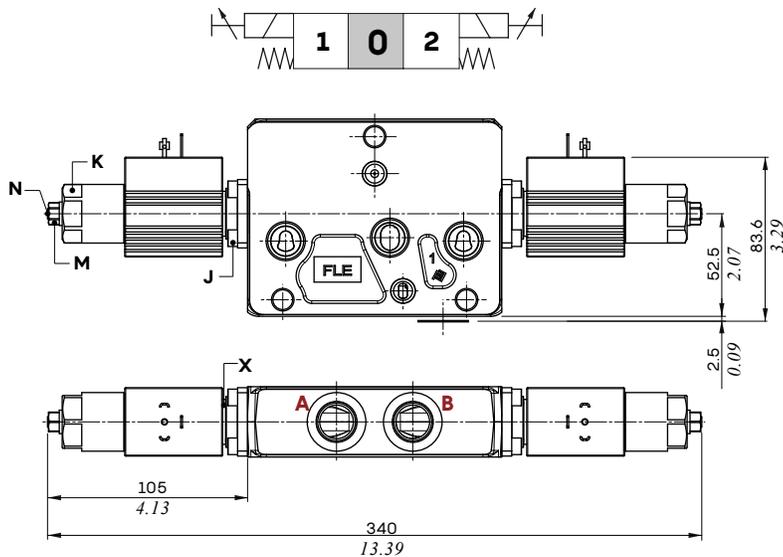
Max. flow on working ports.: **60 l/min (16 US gpm)**

Internal leakage A(B)→T . . . : **15 cm<sup>3</sup>/min @ 100 bar and 20°C**  
(0.92 in<sup>3</sup>/min @ 1450 psi and 68°F)

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

**Type 8ES3F3**

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



**Wrenches and tightening torques**

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

**Electrohydraulic control performance data**

Following specifications are measured with:

- mineral oil of 46 mm<sup>2</sup>/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.

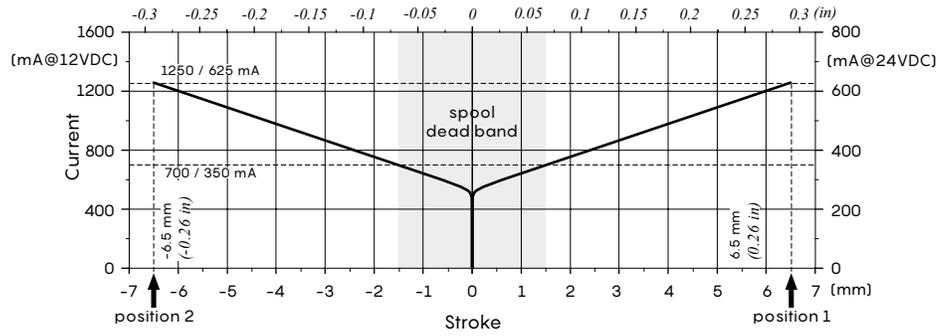
Specifications		Spool control type			
		8EB3	13EB3	8EZ3	13EZ3
<b>Electric specifications</b>					
Coil impedance	12 VDC	4.72 Ω	4.72 Ω	4.72 Ω	4.72 Ω
	24 VDC	20.8 Ω	20.8 Ω	20.8 Ω	20.8 Ω
Max. operating current	12 VDC	1.5 A	1.5 A	1.5 A	1.5 A
	24 VDC	0.75 A	0.75 A	0.75 A	0.75 A
No load current consumption		0	0	0	0
				<u>With lever box configured controls</u>	
Hysteresis max. <sup>(1)</sup>	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)	
<b>Hydraulic specifications</b>					
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.

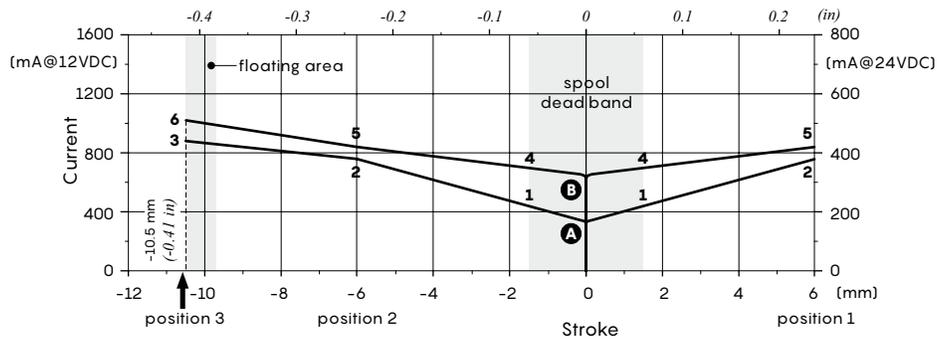
Working section

Electrohydraulic control performance data

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



Types 13EB3T-13EZ3: 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

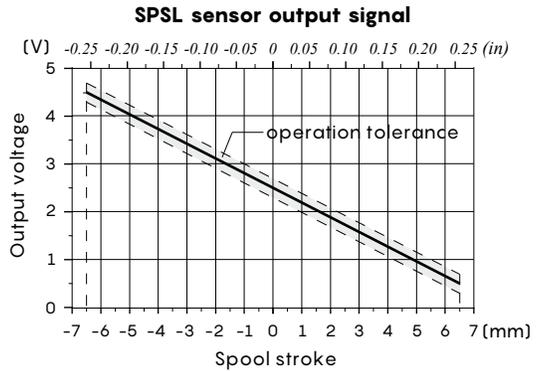
**Electrohydraulic controls: spool position sensor**

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**

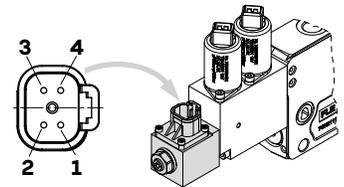
The SPSL position sensor converts the spool movements into a voltage linear signal.

Working conditions		
Voltage supply		5 VDC
Current absorption		< 10 mA (no load)
Mechanical life		3x10 <sup>6</sup>
Connector type		DT04-4P Deusch
Weather protection		IP 67 / IP 69K
Working temperature		from -40°C to 105°C <i>(from -40°F to 221°F)</i>
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

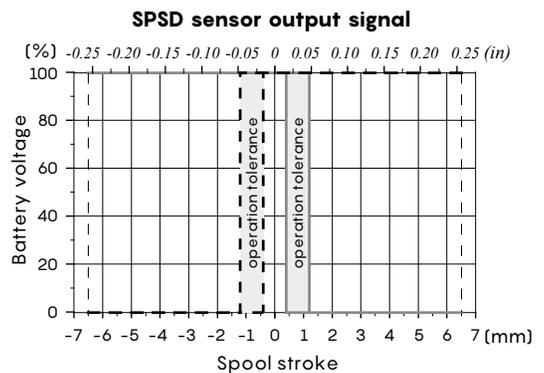


Deutsch DT06-4S mating connector, code 5CON140072

**SPSD sensor**

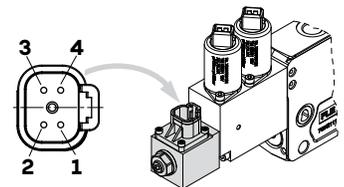
The SPSD position sensor converts the spool movements into an electric digital signal.

Working conditions		
Voltage supply		from 9 to 32 VDC
Current absorption		< 10 mA (no load)
Mechanical life		3x10 <sup>6</sup>
Connector type		DT04-4P Deusch
Weather protection		IP 67 / IP 69K
Working temperature		from -40°C to 105°C <i>(from -40°F to 221°F)</i>
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

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

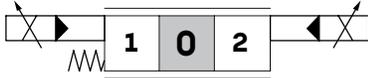
13EB3 type controls are not available for HF sections.

Wrenches and tightening torques

- J = allen wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)
- H = allen wrench 3 - 6.6 Nm (4.9 lbf<sub>t</sub>)
- K = allen wrench 3 - 5 Nm (3.7 lbf<sub>t</sub>)
- Z = wrench 29 - 24 Nm (17.7 lbf<sub>t</sub>)
- W = wrench 8
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbf<sub>t</sub>)

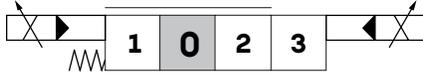
Types 8EB3T - 8EB34T

Without lever control



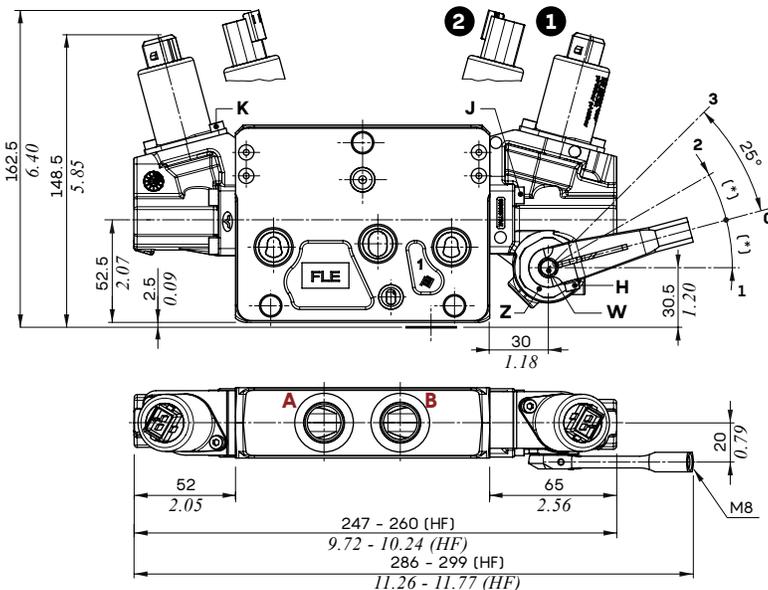
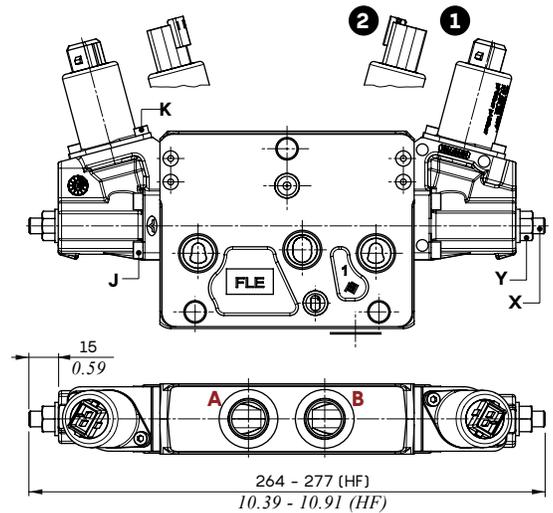
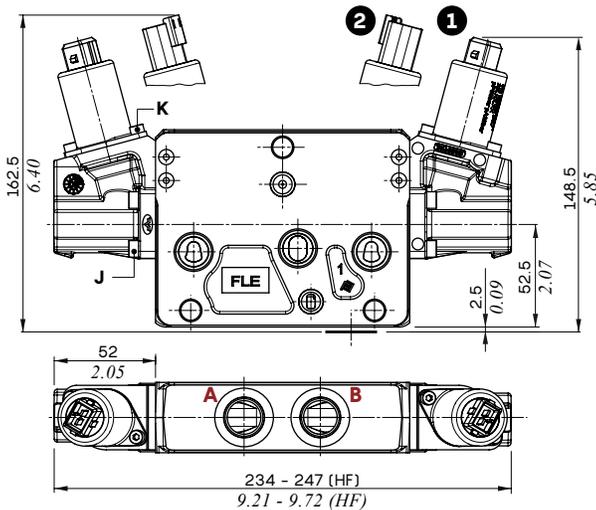
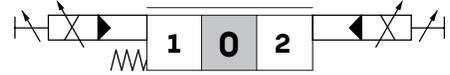
Types 13EB3T - 13EB34T

For floating circuit



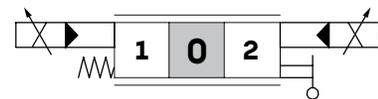
Types 8EB3TF3 - 8EB34TF3

With spool stroke limiter



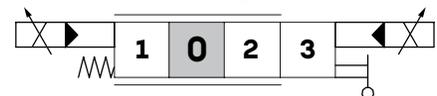
Types 8EB3TLH - 8EB34TLH

Lever control



Types 13EB3TLH - 13EB34TLH

For floating circuit



Angle [°]

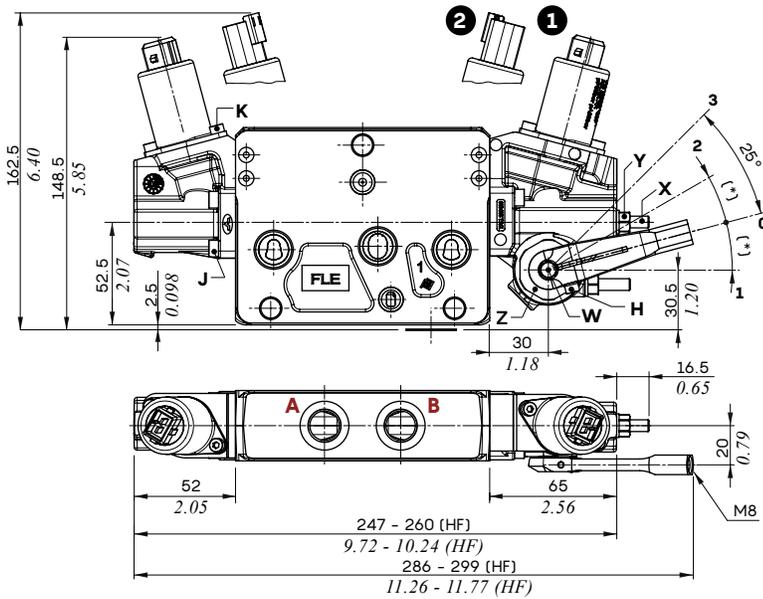
- 15° with 8EB3.. type controls
- 14° with 13EB3.. type controls

**Two-side electrohydraulic control**

**Control types**

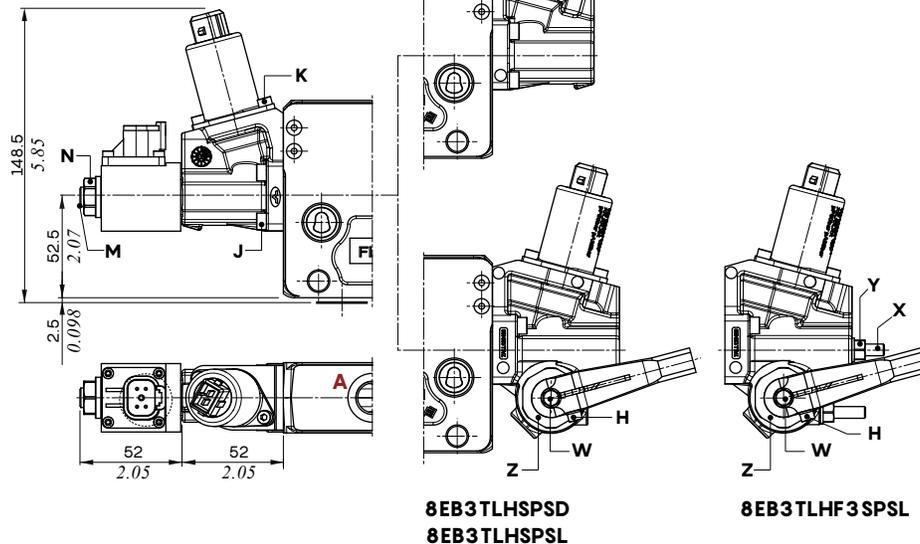
- 1: With AMP JPT connector - AMP JPT mating connector, code: 5CON003
- 2: With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

13EB3 type controls are not available for HF sections.

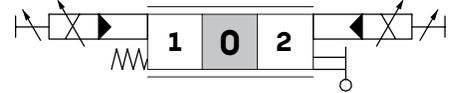


Angle (\*): 15° with 8EB3.. type controls; 14° with 13EB3.. type controls

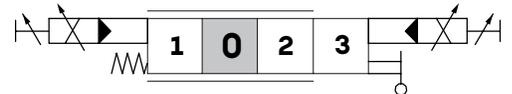
Note: for more dimensions see previous pages



**Types 8EB3TLHF3 - 8EB34TLHF3**  
Lever control with spool stroke limiter



**Types 13EB3TLHF3 - 13EB34TLHF3**  
For floating circuit

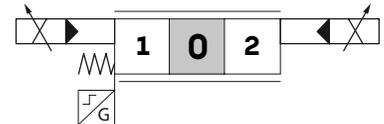


**Wrenches and tightening torques**

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

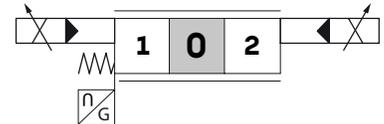
**Type 8EB3TSPSD**

Without lever control and digital output sensor SPSD



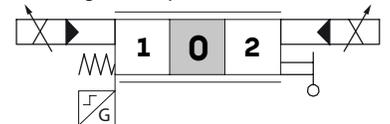
**Type 8EB34TSPSL**

Without lever control and analog output sensor SPSL



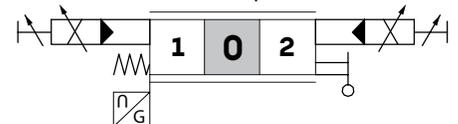
**Type 8EB3TLHSPSD**

With lever control and digital output sensor SPSD



**Type 8EB3TLHF3SPSL**

Analog output sensor SPSL, with lever control and spool stroke limiter



Working section

One-side electrohydraulic control: "A" side

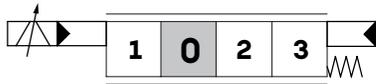
Control types

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

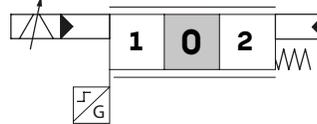
Types 8EZ3 - 8EZ34



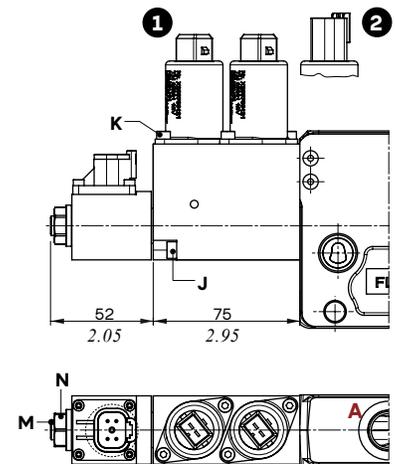
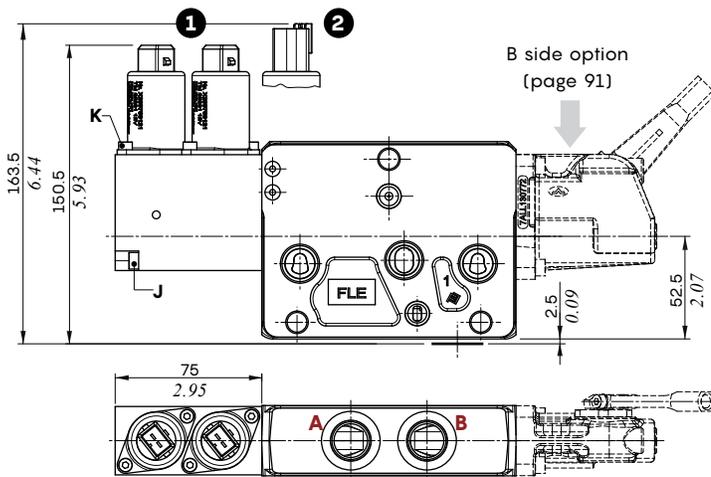
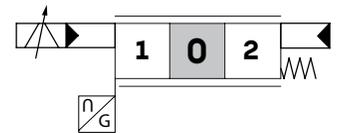
Types 13EZ3 - 13EZ34  
For floating circuit



Types 8EZ3SPSD - 8EZ34SPSD  
Digital output sensor SPSP

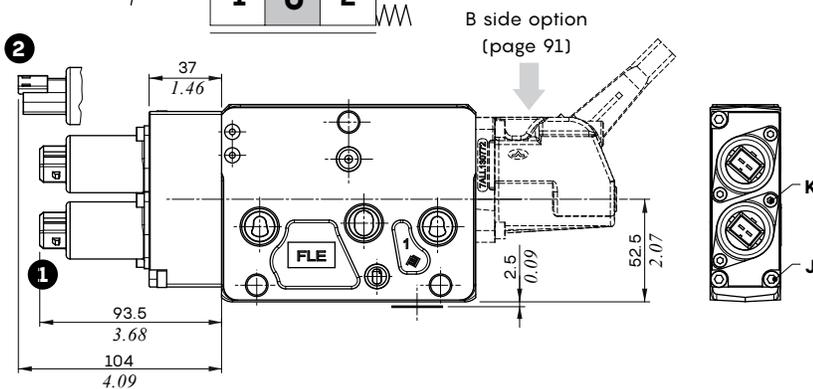


Type 8EZ34SPSL  
Analog output sensor SPSL



Types 8EZH3 - 8EZH34

With horizontal pressure reducing valves

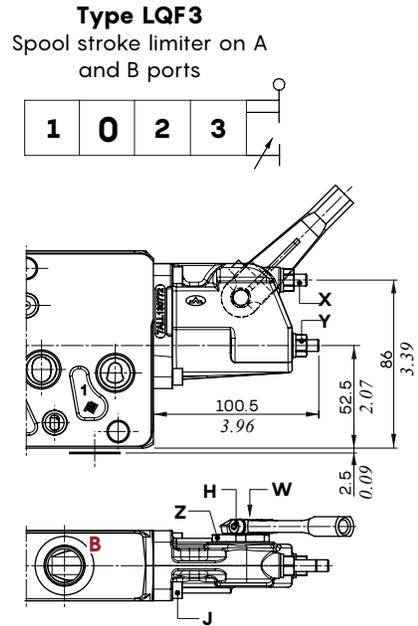
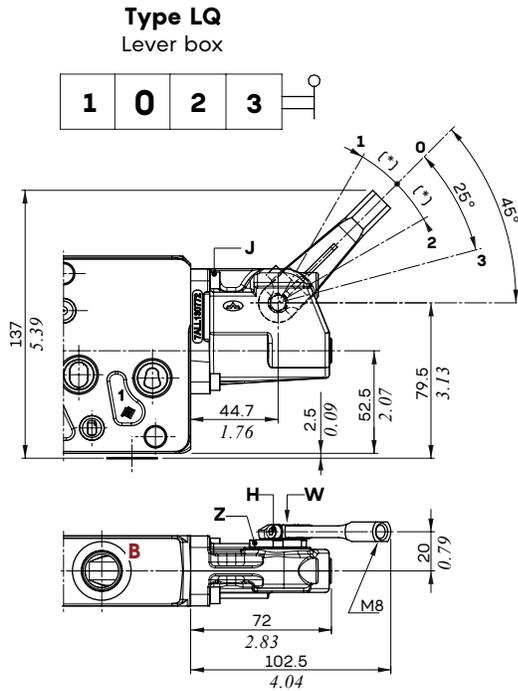


Wrenches and tightening torques

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

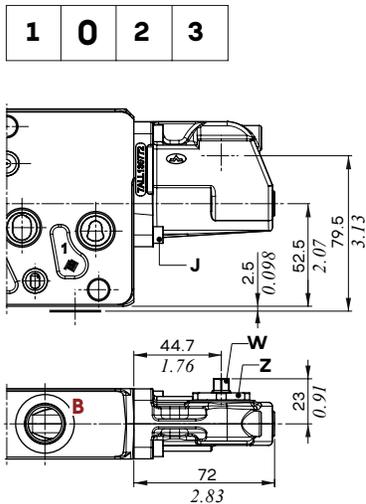
**One-side electrohydraulic control: "B" side option**

These options are available for one-side electrohydraulic controls only



Angle [\*]  
15° with 8EZ3.. type controls  
14° with 13EZ3.. type controls

**Type LQSL**  
Lever box, without lever



**Wrenches and tightening torques**

- H = allen wrench 3 - 6.6 Nm (4.9 lbft)
- J = allen wrench 4 - 6.6 Nm (4.9 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

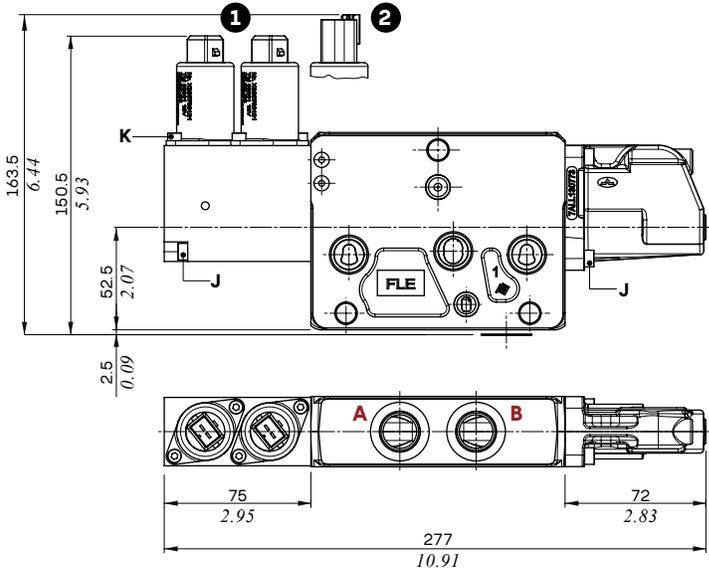
Working section

Complete one-side electrohydraulic control

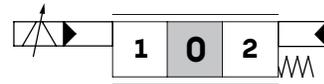
Controls already comprehensive of endcap on B side.

Control types

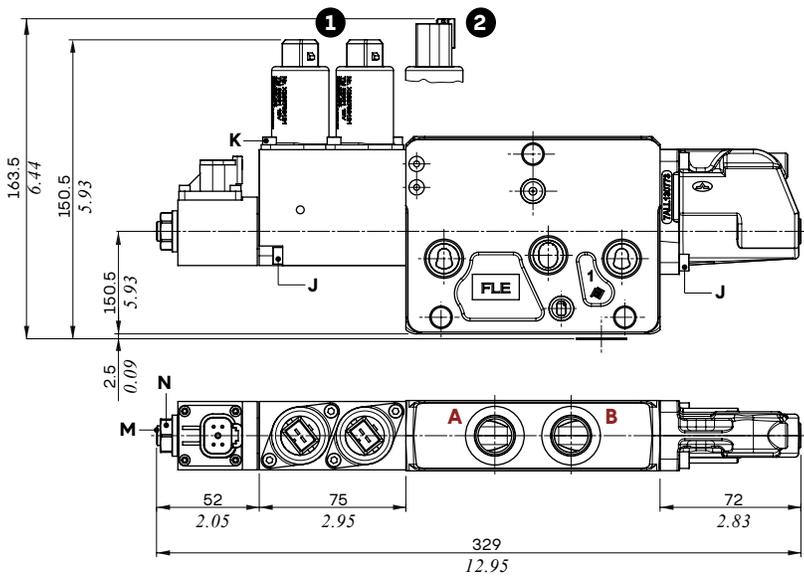
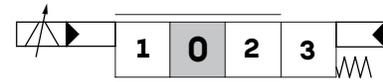
- 1: With AMP JPT connector - AMP JPT mating connector, code: 5CON003
- 2: With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



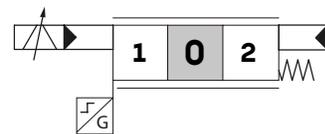
Types  
**8EZ3SLCQ - 8EZ34SLCQ**  
 Without lever control



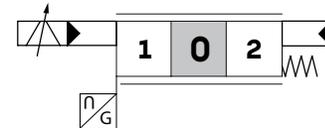
Types  
**13EZ3SLCQ - 13EZ34SLCQ**  
 For floating circuit



Types  
**8EZ3SPSDSLCQ - 8EZ34SPSDSLCQ**  
 Digital output sensor SPSP



Type **8EZ34SPSLSLCQ**  
 Analog output sensor SPSP



Wrenches and tightening torques

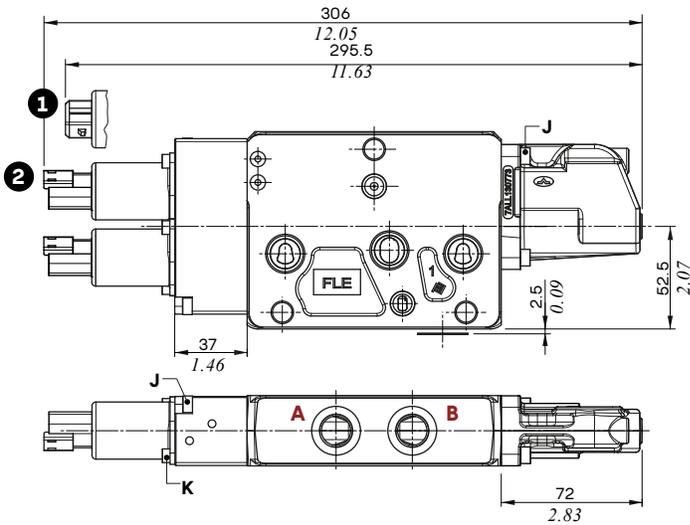
- J = allen wrench 4 - 6.6 Nm (4.9 lbft)
- K = allen wrench 3 - 5 Nm (3.7 lbft)
- M = allen wrench 4 - 9.8 Nm (7.2 lbft)
- N = wrench 17 - 9.8 Nm (7.2 lbft)

**Complete one-side electrohydraulic control**

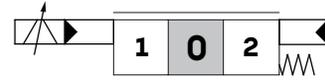
Controls already comprehensive of endcap on B side.

**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



**Type 8EZH34SLCQ**  
With horizontal pressure reducing valves



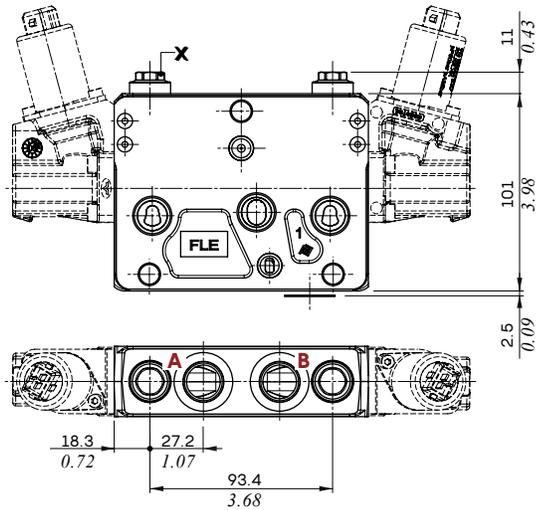
**Wrenches and tightening torques**

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

Note: The control configuration with AMP coil is available on request. Please, contact Walvoil Sales Department.

Working section

Port valves



Type U valve:  
antishock valves with prefill



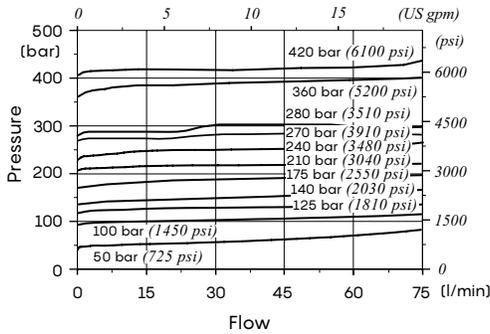
Type C valve:  
anticavitation



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

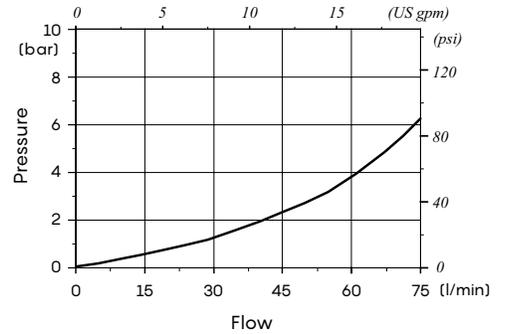
Type U: antishock valves with prefill

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

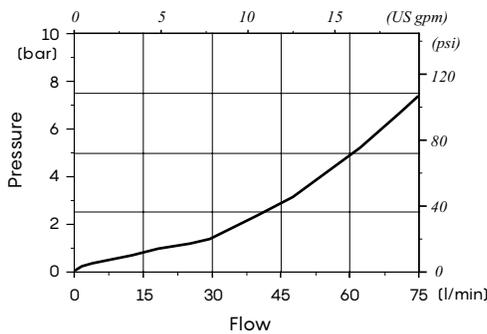


Type C: anticavitation valves

Pressure drop



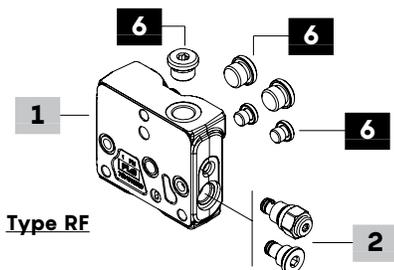
Pressure drop  
(in anticavitation)



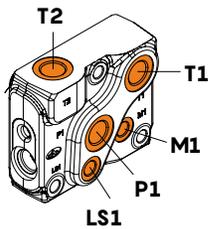
Outlet section part ordering codes

**A** For mechanical, proportional hydraulic and solenoid controls configuration:

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

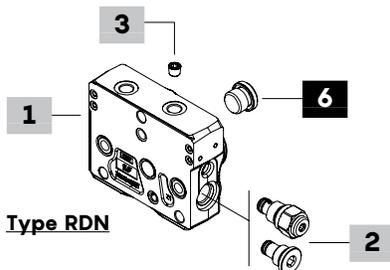
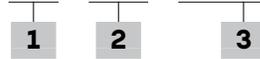


**A**

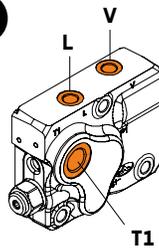


**B** For electrohydraulic control configuration:

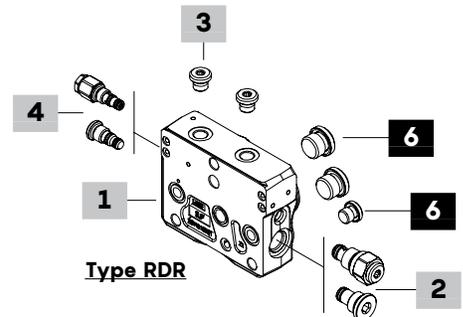
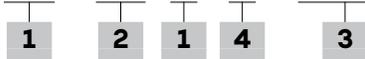
DPX100 / RDN (VBT) - NOTAP(VL) - .....



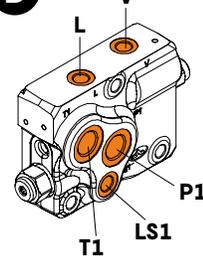
**B**



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



**B**



**1** Outlet section kit \* page 96

Outlet section is the same type for standard and High Pressure valve  
**For mechanical, proportional hydraulic and solenoid controls**  
 TYPE: **DPX100/RF-SAE** CODE: YFIA204700S  
 DESCRIPTION: With T2 upper 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-L upper ports  
 TIPO: **DPX100/RDR-SAE** CODE: YFIA204707S  
 DESCRIPTION: 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 \* page 97

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 \*

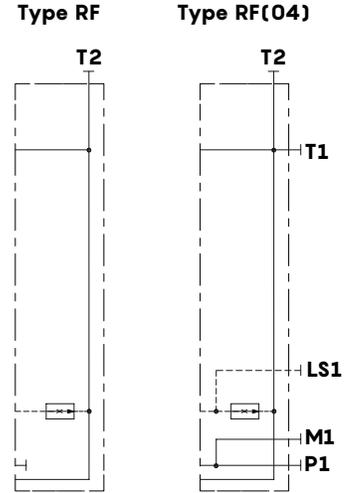
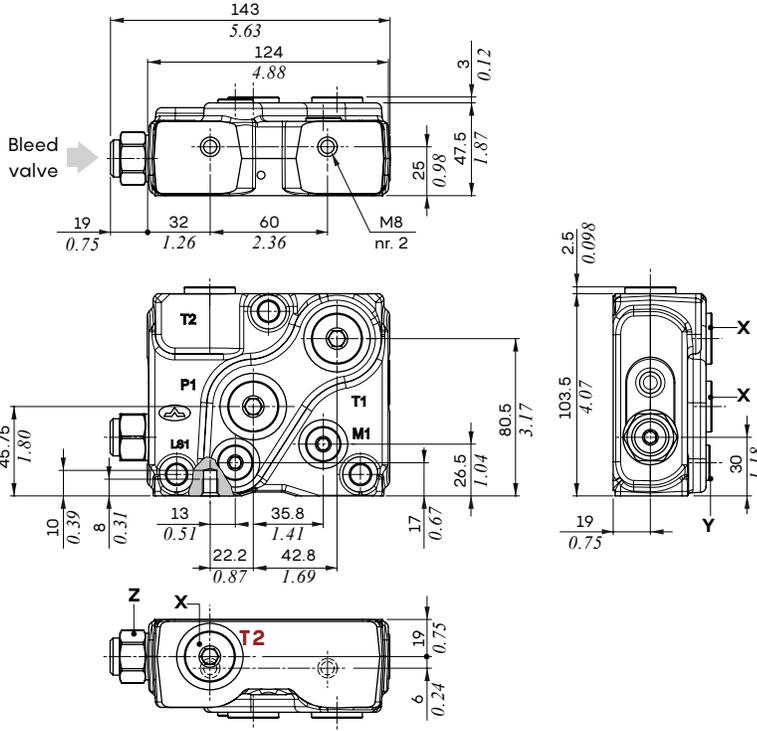
CODE	DESCRIPTION
3XTAP826160	SAE10 plug, nr.1 for RF and RDN section, nr.2 for RDR(03) section, nr.3 for RF(04) section
3XTAP817130	SAE6 plug, nr.1 for RDR(03) section, nr.2 for RF(04) section

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

Outlet section

Dimensions and hydraulic circuit

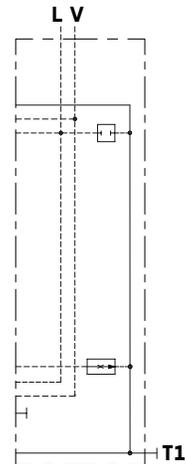
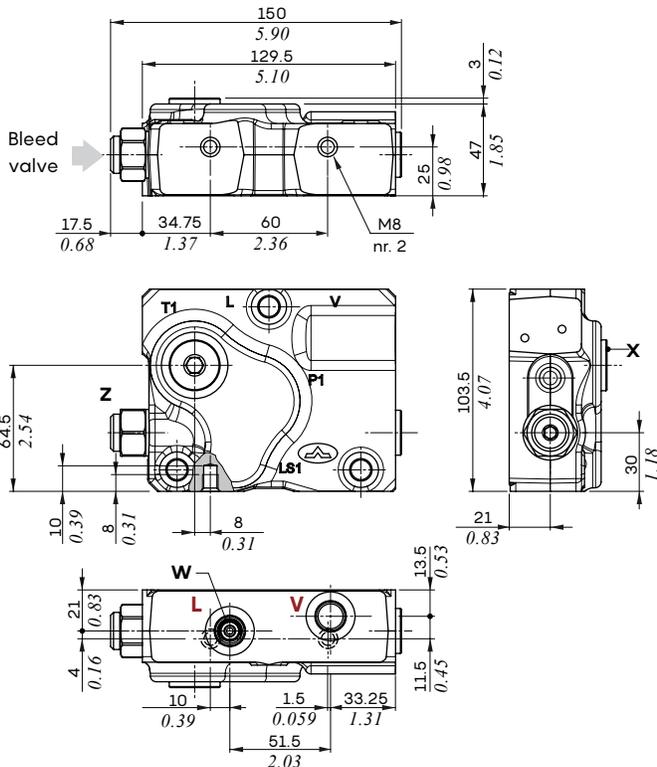
Example of RF(04) outlet section



Wrenches and tightening torques

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

Example of RDN outlet section

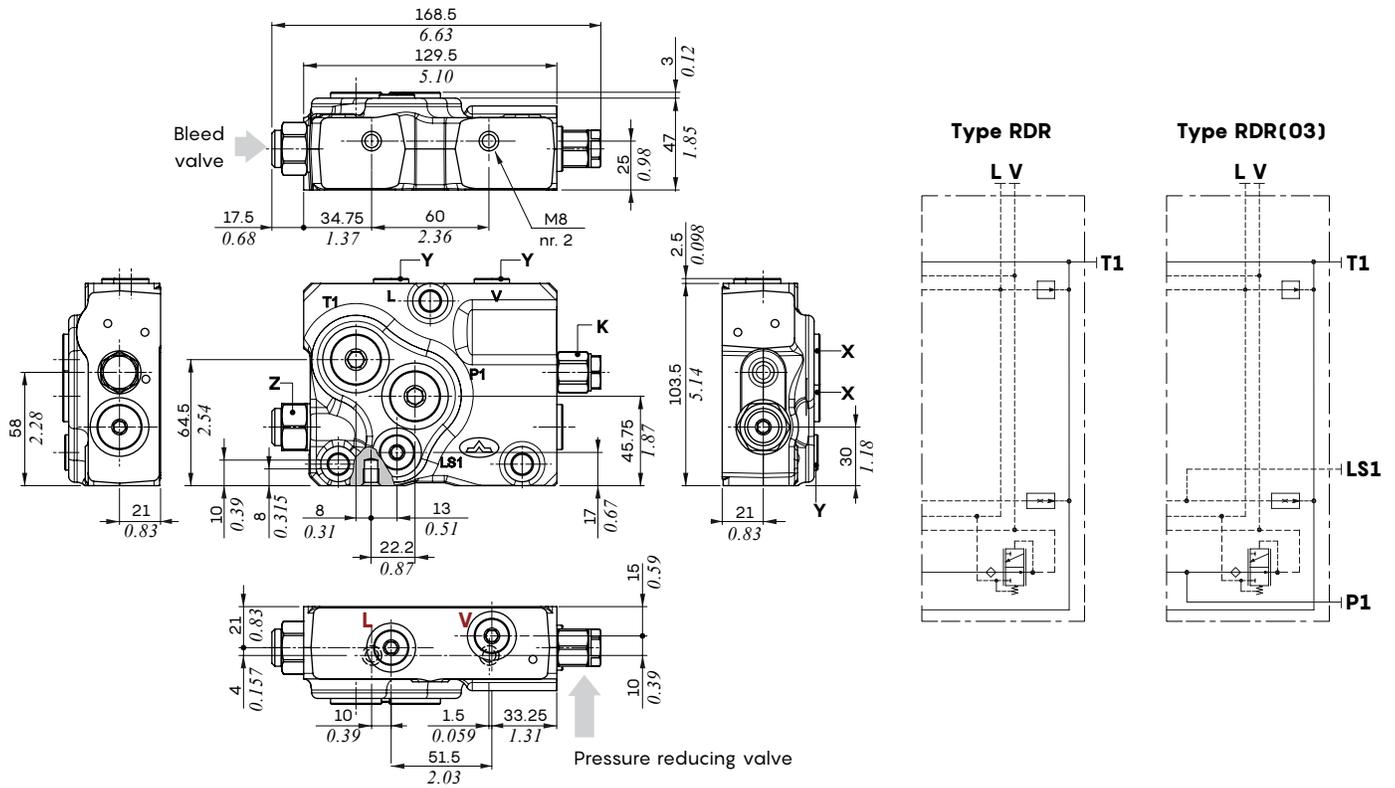


Wrenches and tightening torques

- X = allen wrench 8 - 24 Nm (17.7 lbft)
- Z = wrench 24 - 42 Nm (31 lbft)
- W = allen wrench 5 - 9.8 Nm (7.2 lbft)

Dimensions and hydraulic circuit

Example of RDR(03) outlet section



**Bleed valve features**

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

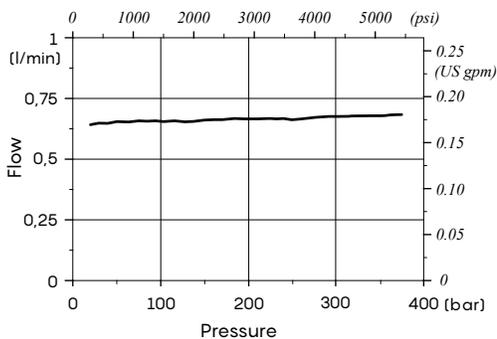
**Pressure reducing valve features**

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

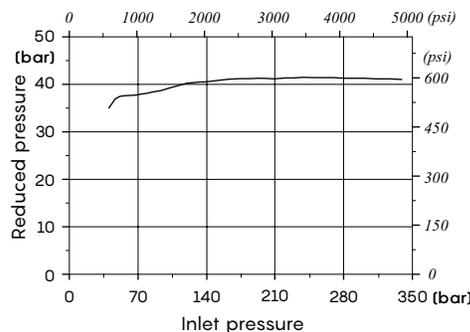
**Wrenches and tightening torques**

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

**Bleed valve diagram**  
 Flow vs. Pressure



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



## HF complete section ordering codes

### A Mechanical and proportional hydraulic 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-SAE-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 proportional hydraulic 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

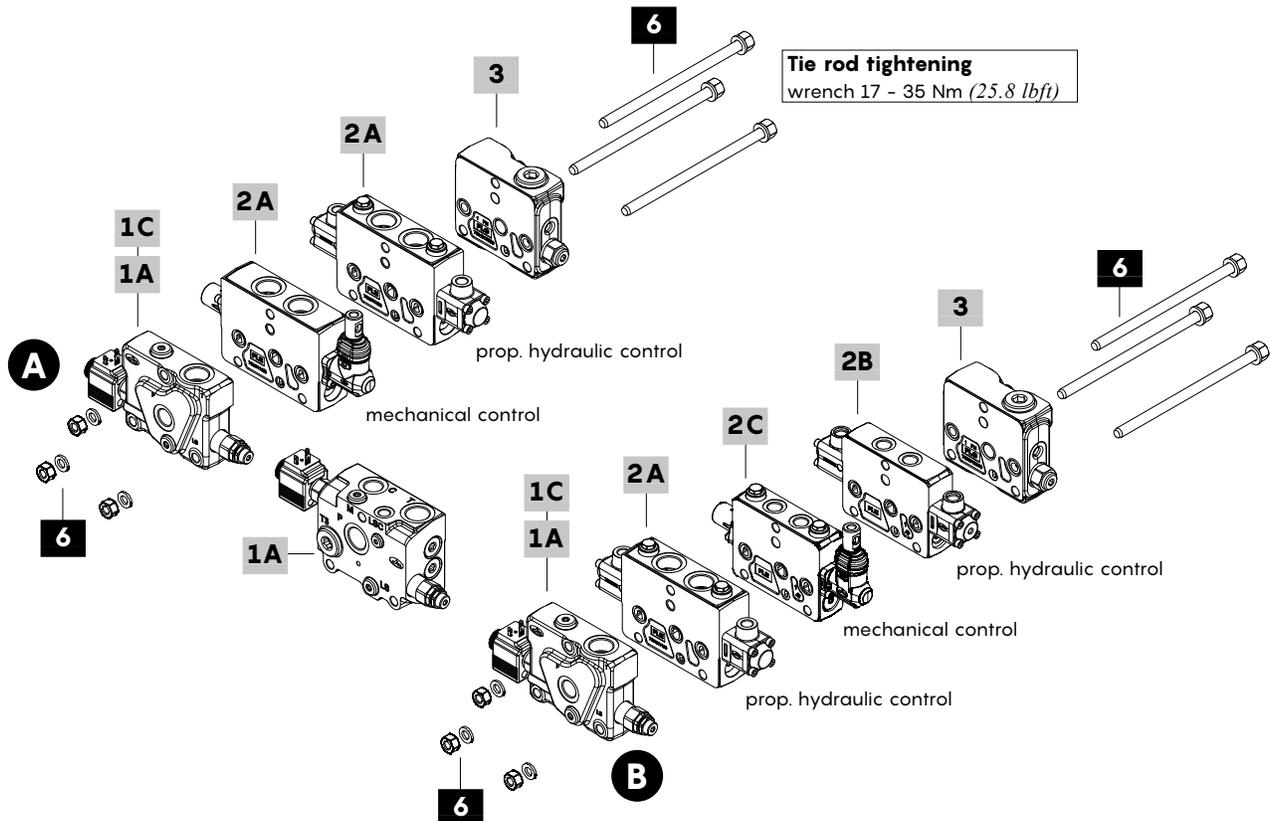
Q-E102(80\80)-8IMN/RF-SAE-12VDC

2B

3

4

5



**A Electrohydraulic 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-SAE-12VDC

3

4

5

**B Electrohydraulic 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

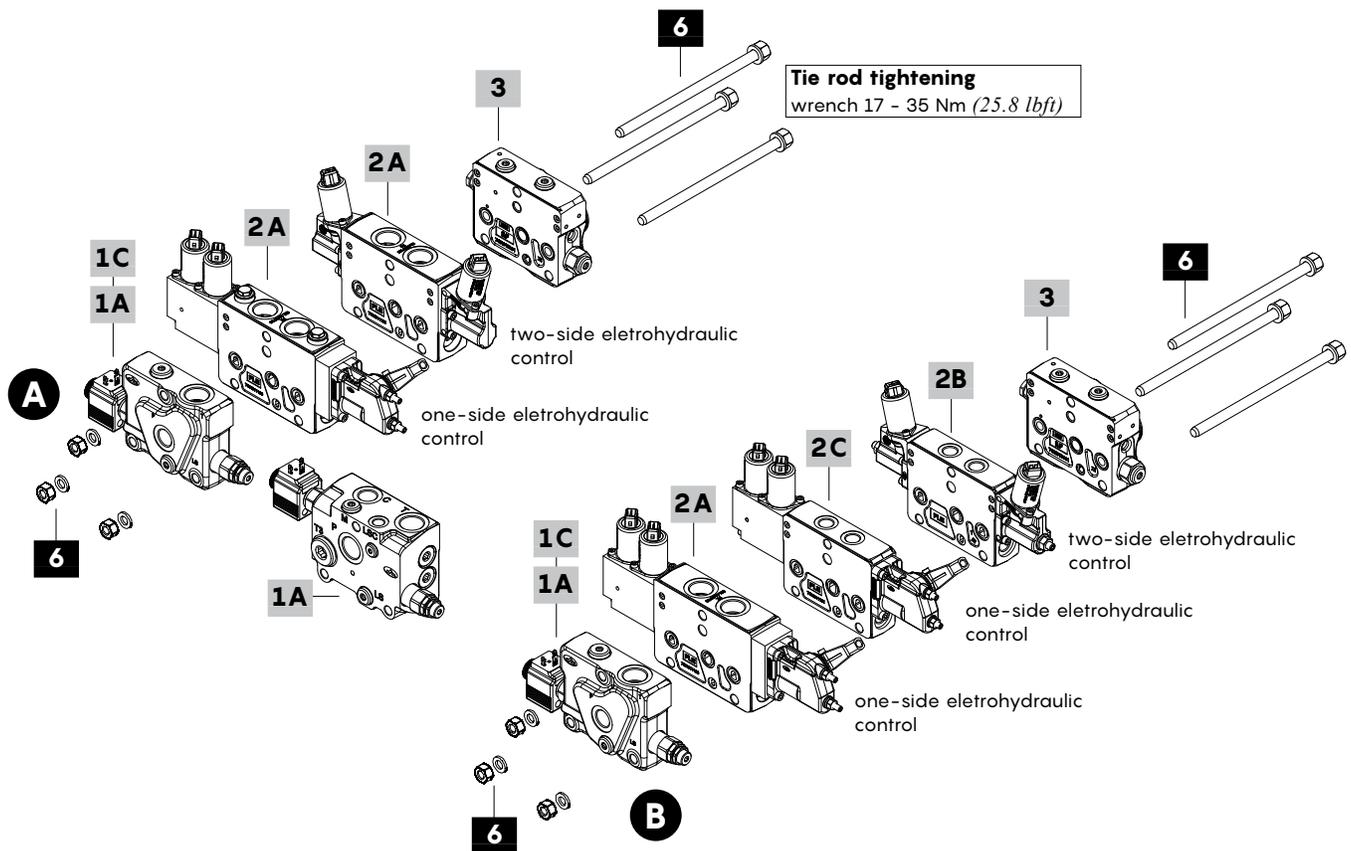
QE-E102(80\80)-8EB3TF3/RDR03-SAE-12VDC

2B

3

4

5



## HF 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), SAE12 P and T ports

**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, SAE12 P and T ports.

### 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-101(120\120)-8L-SAE-FPM**  
 CODE: 640115022V

DESCRIPTION: Lever control without port valve arrangement

TYPE: **DPX100HF/P-101(120\120)-8L.U3T-SAE-FPM**  
 CODE: 640105032V

DESCRIPTION: As previous one with port valve arrangement

**Proportional hydraulic control**

TYPE: **DPX100HF/Q-E101(120\120)-8IMN-SAE-FPM**  
 CODE: 640115023V

DESCRIPTION: Without port valve arrangement

TYPE: **DPX100HF/P-E101(120\120)-8IMN.U3(100)-SAE**  
 CODE: 640105033S

DESCRIPTION: With antishock port valves

**Two-side proportional electrohydraulic control**

TYPE: **DPX100HF/QE-E101(120\120)-8EB3TF3-SAE-12VDC-FPM**  
 CODE: 640115024V

DESCRIPTION: With stroke limiter, without port valve arrangement

TYPE: **DPX100HF/PE-E101(120\120)-8EB3TF3.U3T-SAE-12VDC-FPM**  
 CODE: 640105034V

DESCRIZIONE: As previous one with port valve arrangement

**One-side proportional electrohydraulic control**

TYPE: **DPX100/QZ-E101(120\120)-8EZ34SLCQ-SAE-12VDC-FPM**  
 CODE: 640105048V

DESCRIPTION: With encap on B side, without port valve arrangement

TYPE: **DPX100HF/PZ-E101(120\120)-8EZ34LQF3.U3T-SAE-12VDC-FPM**  
 CODE: 640105047V

DESCRIPTION: With spool stroke limiter, 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 and proportional hydraulic configuration**

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

DESCRIPTION: With bleed valve and upper T2 port (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 side T1 port (plugged).

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

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

TYPE: **DPX100/RDR(O3)-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), P1 and T1 ports

**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**

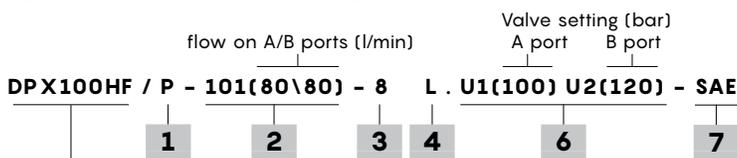
CODE	DESCRIPTION
5TIR110152	Valve with 1 HF section
5TIR110195	Valve with 2 HF sections
5TIR110238	Valve with 3 HF sections
5TIR110280	Valve with 4 HF sections
5TIR110180	Valve with 1 HF section + 2 Standard or HP sections
5TIR110225	Valve with 1 HF section + 2 Standard or HP sections
5TIR110331	Valve 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.

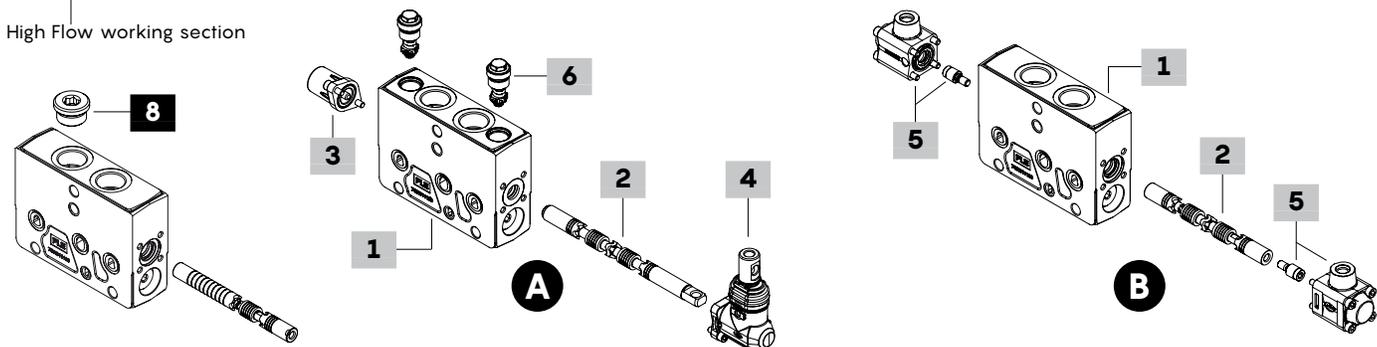
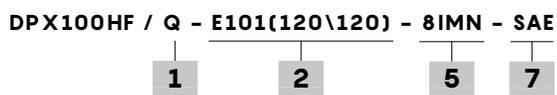
HF working section part ordering codes (mechanical and hydraulic)

**A Mechanical control configuration:**



High Flow working section

**B Prop. hydraulic control configuration:**



**1 High Flow working section \* page 104**

**For 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

**For proportional hydraulic control**  
TYPE: DPX100HF/Q - IM - SAE12 - FPM      CODE: 5EL1045F10AV  
DESCRIPTION: With port valve arrangement  
TYPE: DPX100HF/P - IM - SAE12 - 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**  
Double acting with A and B closed in neutral position  
**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

Double acting with A and B to tank in neutral position  
**201(120)**      3CU7125F01      120 l/min (32 US gpm) flow

Double acting with A and B partially to tank in neutral position  
**2H11(100)**      3CU7124F11      100 l/min (26 US gpm) flow  
**2H06(60)**      3CU7124F06      60 l/min (16 US gpm) flow

**For proportional hydraulic control**  
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) flow

Double acting with A and B to tank in neutral position  
**E201(80)**      3CU7725F01      Portata fino a 80 l/min

Double 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) flow

Double acting with A and B to tank in neutral position  
**E201(80)**      3CU7725F01      80 l/min (21 US gpm) flow

Single acting on A or B, other port plugged: SAE12 plug is required  
**E301-E401(120)**      3CU7731F01      120 l/min (32 US gpm) flow

**8 Plug for single acting spool \***

CODE      DESCRIPTION  
3XTAP832200      SAE12 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      As previous one  
**8K-12DC**      5V08707212      Solenoid detent in neutral position  
**8K-24DC**      5V08707224      As previous one  
**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 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

**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)

### A One-side electrohydraulic control configuration:

flow on A/B ports (l/min)

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

1    2    3 4    8    3

High Flow working section

### B One-side complete electrohydraulic control configuration:

Valve setting (bar)  
A port    B port

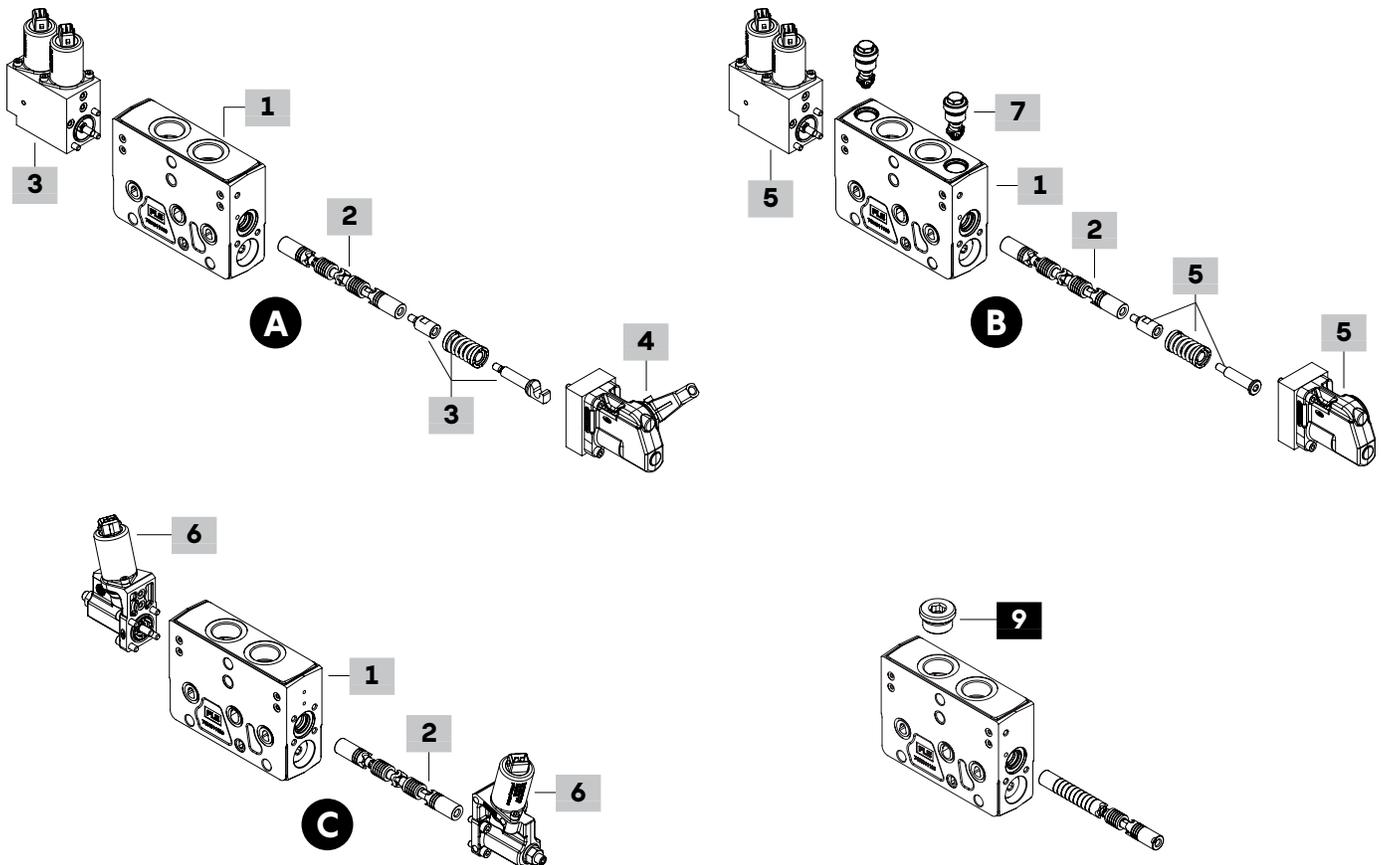
DPX100HF / PZ - E101(120\120) - 8EZ3SLCQ . U1(100) U2(120) - SAE - 12VDC

1    2    5    7    8    5

### C Two-side electrohydraulic control configuration:

DPX100HF / QE - E101(120\120) - 8EB3TF3 - SAE - 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-SAE12-FPM** CODE: 5EL1045F11V  
 DESCRIPTION: Without port valve arrangement  
 TYPE: **DPX100HF/PE-SAE12-FPM** CODE: 5EL1045F02V  
 DESCRIPTION: With port valve arrangement  
**For one-side electrohydraulic control**  
 TYPE: **DPX100HF/QZ-SAE12-FPM** CODE: 5EL1047F21V  
 DESCRIPTION: Without port valve arrangement  
 TYPE: **DPX100HF/PZ-SAE12-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) flow  
Double acting with A and B to tank in neutral position  
**E201(80)** 3CU7725F01 80 l/min (21 US gpm) flow  
Double 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) flow  
Single acting on A or B, other port plugged: SAE12 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 one  
With 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 must be coupled with "A" side controls**  
 TYPE CODE DESCRIPTION  
**LQ** 5LEV100705AV Lever box  
**LQF3** 5LEV100706AV Lever box with spool stroke limiter  
**LQSL** 5COP204101AV 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 one  
With spool position sensor  
 TYPE: **8EZ3SPSDSLCA-12VDC** CODE: 5IDR604317SV  
 DESCRIPTION: AMP connector and digital sensor  
 TYPE: **8EZ3SPSDSLCA-24VDC** CODE: 5IDR604318SV  
 DESCRIPTION: As previous one  
 TYPE: **8EZ34SPSDSLCA-12VDC** CODE: 5IDR604319SV  
 DESCRIPTION: Deutsch connector and digital sensor  
 TYPE: **8EZ34SPSDSLCA-24VDC** CODE: 5IDR604320SV  
 DESCRIPTION: As previous one  
 TYPE: **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 As previous one  
**8EB34T-12VDC** 5IDR904236V With Deutsch connector  
**8EB34T-24VDC** 5IDR904237V As previous one  
**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  
Without lever control, with spool position sensor  
**8EB34TSPSL-0.5(A)-4.5(B)-12VDC**  
 5IDR904268V Deutsch conn. and analog sensor  
**8EB3TSPSD-12VDC** 5IDR904233V AMP conn. and digital sensor  
**8EB3TSPSD-24VDC** 5IDR904226V As previous one  
With lever control  
**8EB3TLH-12VDC** 5IDR904215AV With AMP connector  
**8EB3TLH-24VDC** 5IDR904228AV As previous one  
**8EB34TLH-12VDC** 5IDR904219AV With Deutsch connector  
**8EB34TLH-24VDC** 5IDR904239AV As previous one  
**8EB3TLHF3-12VDC** 5IDR904311V AMP conn. and stroke limiter  
**8EB3TLHF3-24VDC** 5IDR904308AV As previous one  
**8EB34TLHF3-12VDC** 5IDR904240V Deutsch conn. and stroke limiter  
**8EB34TLHF3-24VDC** 5IDR904241AV As previous one  
With lever control and spool position sensor  
**8EB3TLHSPSD-12VDC** 5IDR904234AV AMP connector and digital sensor  
**8EB3TLHSPSD-24VDC** 5IDR904232AV As previous one  
**8EB3TLHF3SPSL-0.5(A)-4.5(B)-12VDC**  
 5IDR904259AV 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 \***

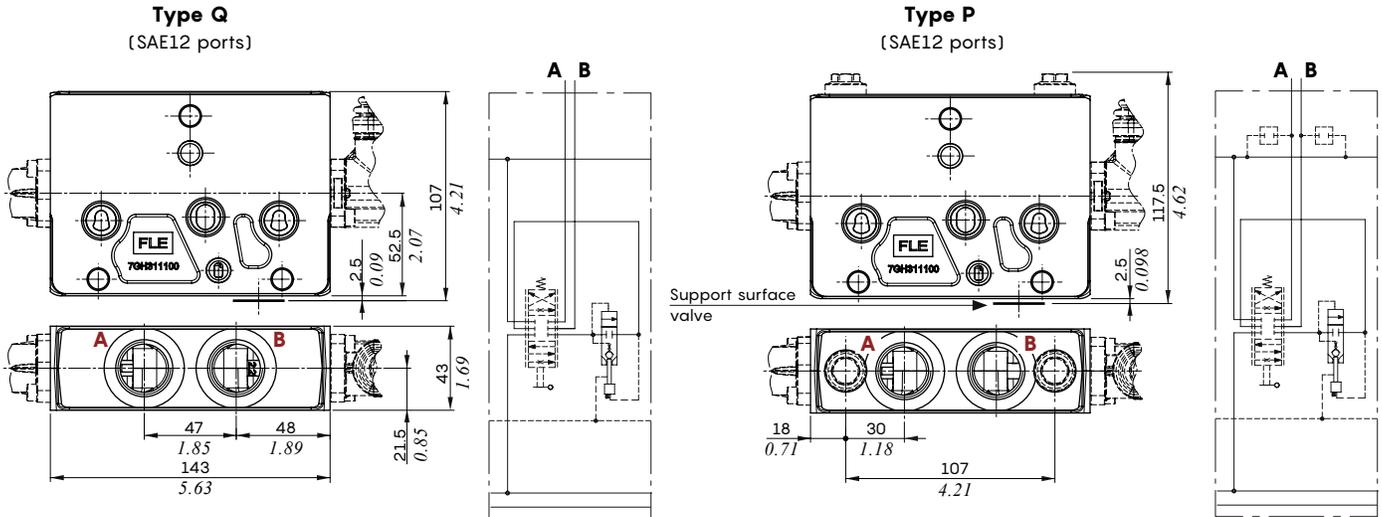
CODE DESCRIPTION  
**3XTAP832200** SAE12 plug

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

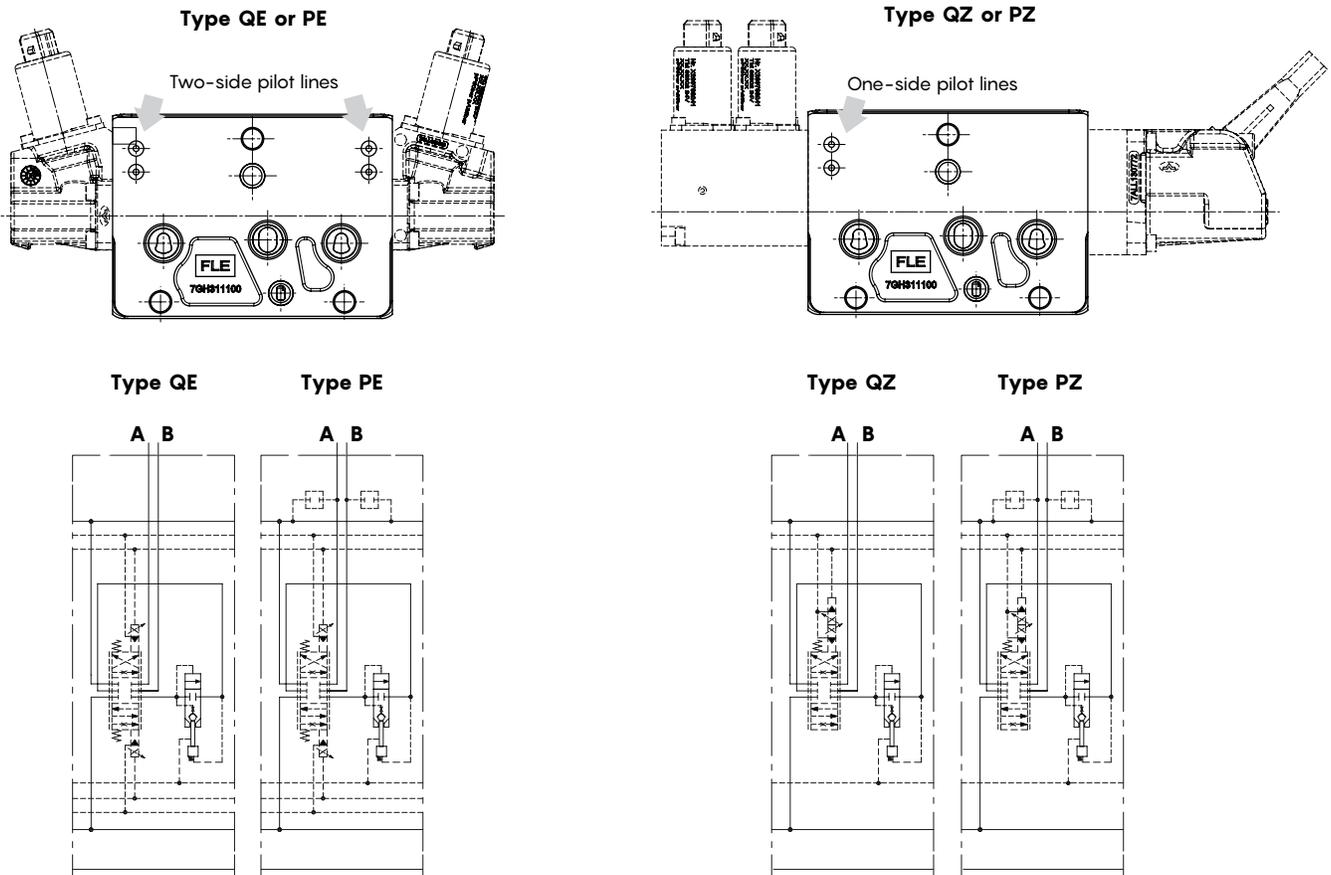
## HF working section

### Dimensions and hydraulic circuit

#### Section for mechanical and proportional hydraulic controls



#### Section for electrohydraulic control

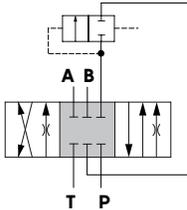


Spool

**Type 1 (1../E1..)**

A, B closed in neutral position

1 0 2



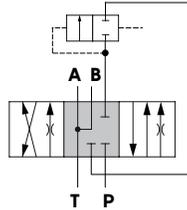
**Stroke**

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

1 0 2



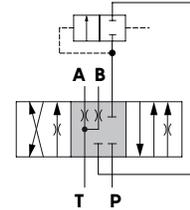
**Stroke**

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

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

A, B partially to tank in neutral pos.

1 0 2



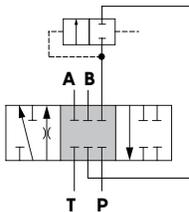
**Stroke**

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

**Type 3 (3../E3..)**

Single acting on A

1 0 2



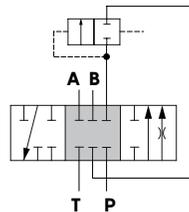
**Stroke**

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

**Type 4 (4../E4..)**

Single acting on B

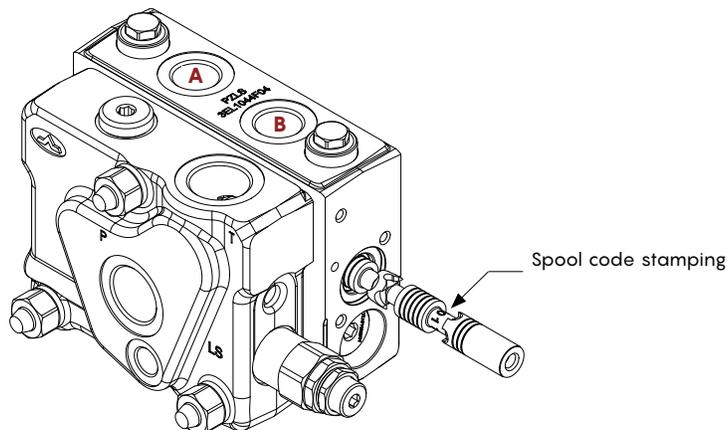
1 0 2



**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.

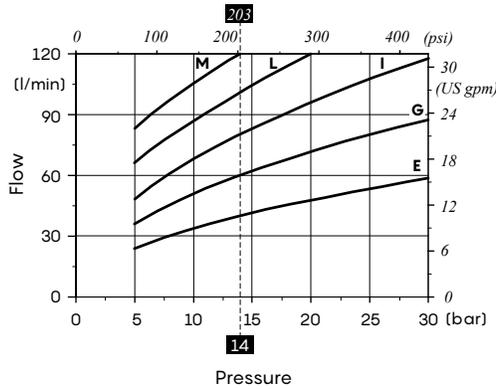


## HF working section

### Spool

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)**

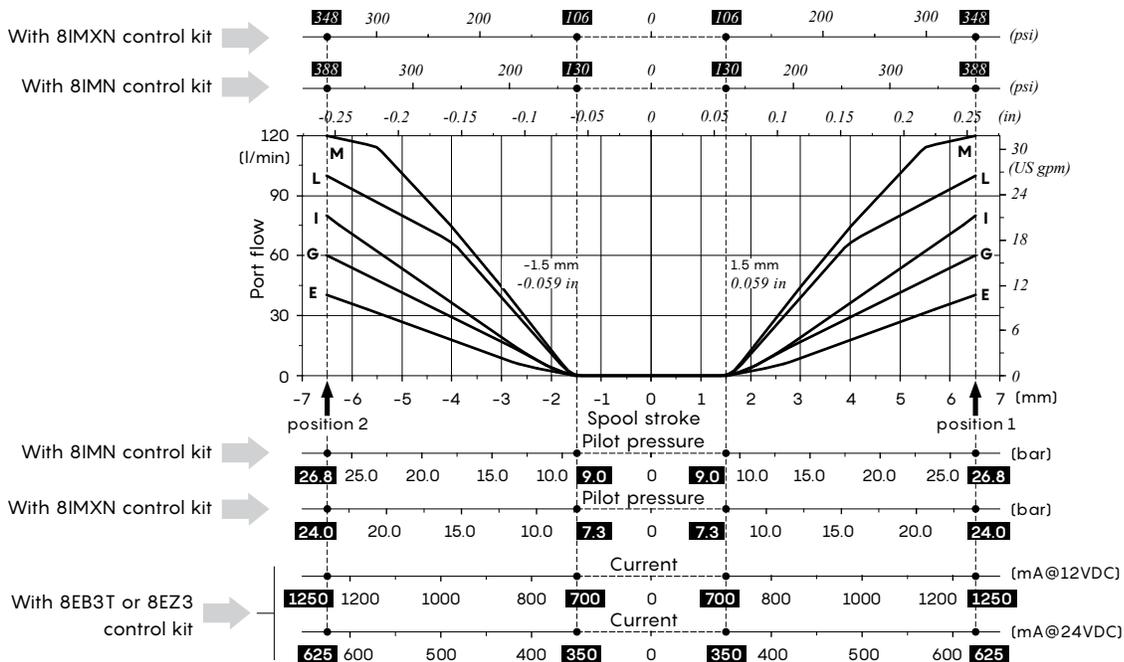


**Curves with spool nominal flow @ 14 bar (200 psi) stand-by (margin pressure)**

- E = 40 l/min (10.6 US gpm) ± 10%
- G = 60 l/min (16 US gpm) ± 10%
- I = 80 l/min (21 US gpm) ± 10%
- L = 100 l/min (26 US gpm) ± 10%
- M = 120 l/min (32 US gpm) ± 10%

**3 positions spool metering curve**

Q<sub>in</sub> = 120 l/min (32 US gpm) - Open center circuit

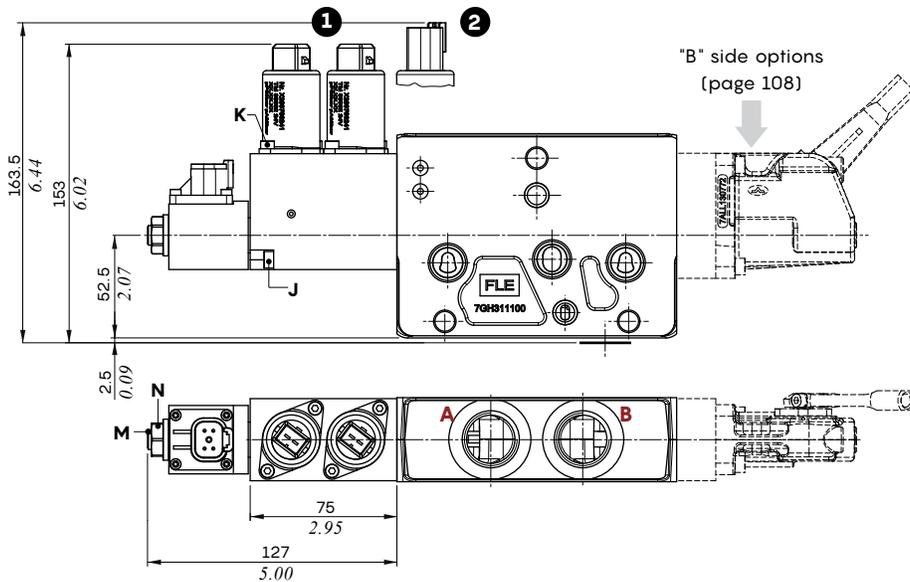
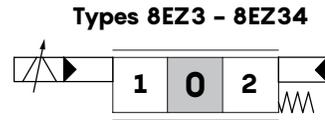
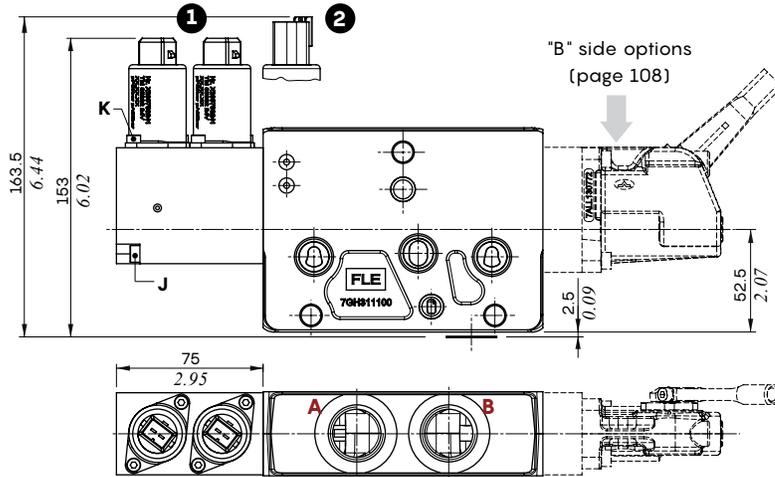


**One-side electrohydraulic control: "A" side**

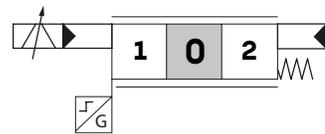
The technical features are the same as the one-side electrohydraulic control for the standard section: see page 85

**Control types**

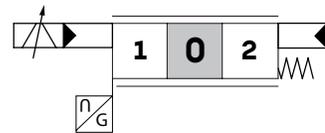
- 1: With AMP JPT connector - AMP JPT mating connector, code: 5CON003
- 2: With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



**Types 8EZ3SPSD - 8EZ34SPSD**  
Digital output sensor SPSP



**Type 8EZ34SPSL**  
Analog output sensor SPSL



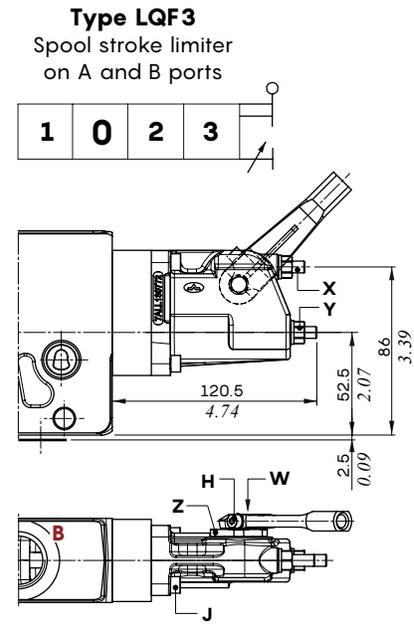
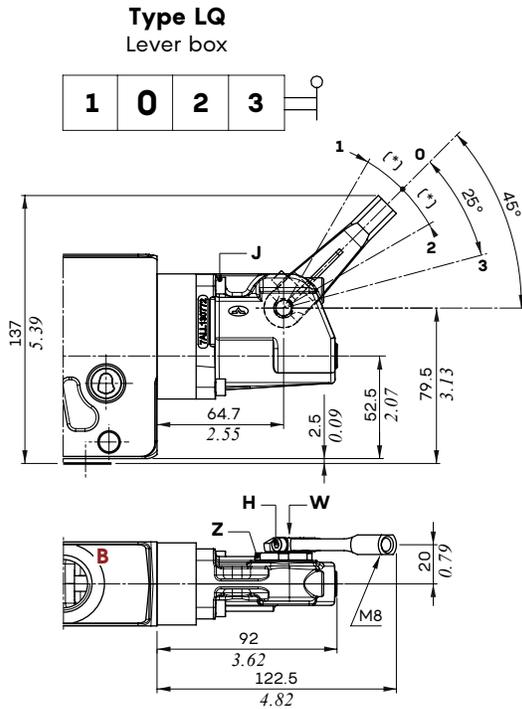
**Wrenches and tightening torques**

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

## HF working section

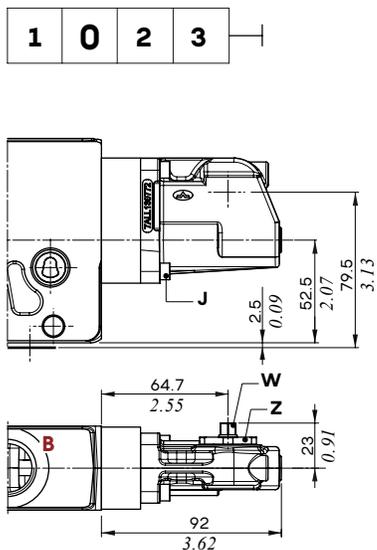
### One-side electrohydraulic control: "B" side option

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



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

**Type LQSL**  
Lever box, without lever



### Wrenches and tightening torques

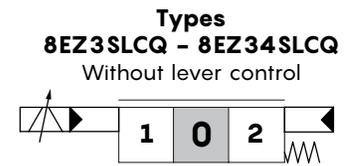
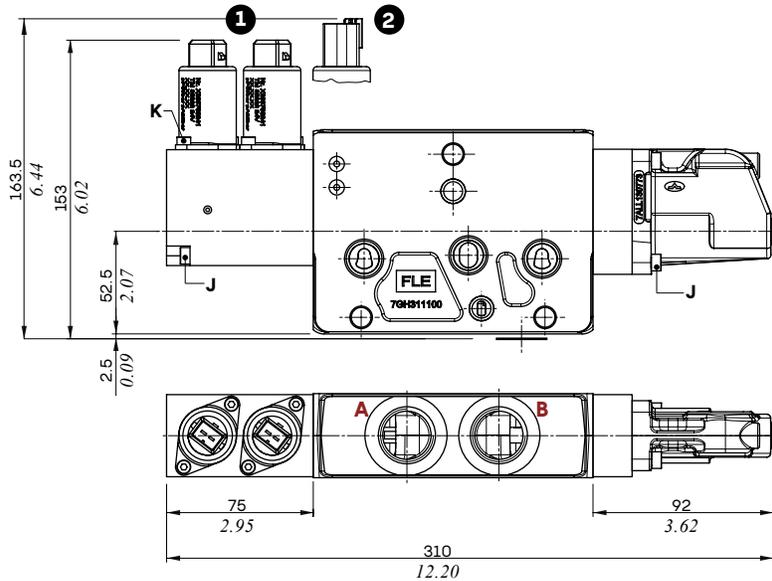
- H = allen wrench 3 - 6.6 Nm (4.9 lbft)
- J = allen wrench 4 - 6.6 Nm (4.9 lbft)
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbft)
- Z = wrench 29 - 24 Nm (17.7 lbft)
- W = wrench 8

**Complete one-side electrohydraulic control**

Controls already comprehensive of endcap on B side.

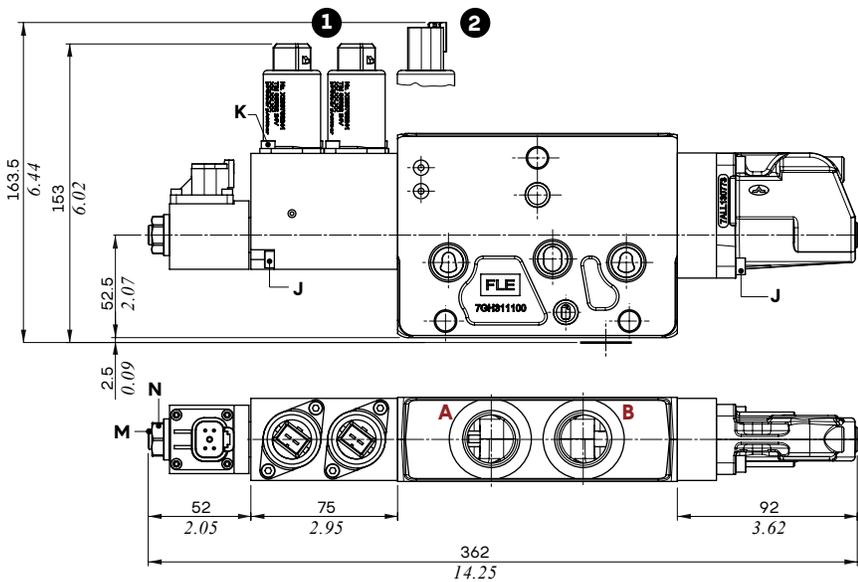
**Control types**

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

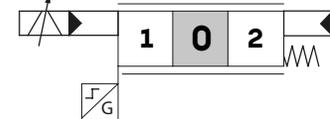


**Wrenches and tightening torques**

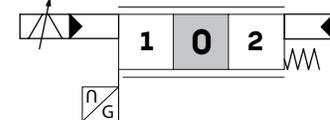
- J = allen wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)
- K = allen wrench 3 - 5 Nm (3.7 lbf<sub>t</sub>)
- M = allen wrench 4 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- N = wrench 17 - 9.8 Nm (7.2 lbf<sub>t</sub>)



**Types**  
**8EZ3SPDSLCA - 8EZ34SPDSLCA**  
 Digital output sensor SPSP



**Type 8EZ34SPSLSLCQ**  
 Analog output sensor SPSP



## LL configuration complete section ordering codes

### A Proportional hydraulic 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-SAE-12VDC

2A

2B

2C

3

4

5

### B Electrohydraulic 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)-SAE-12VDC

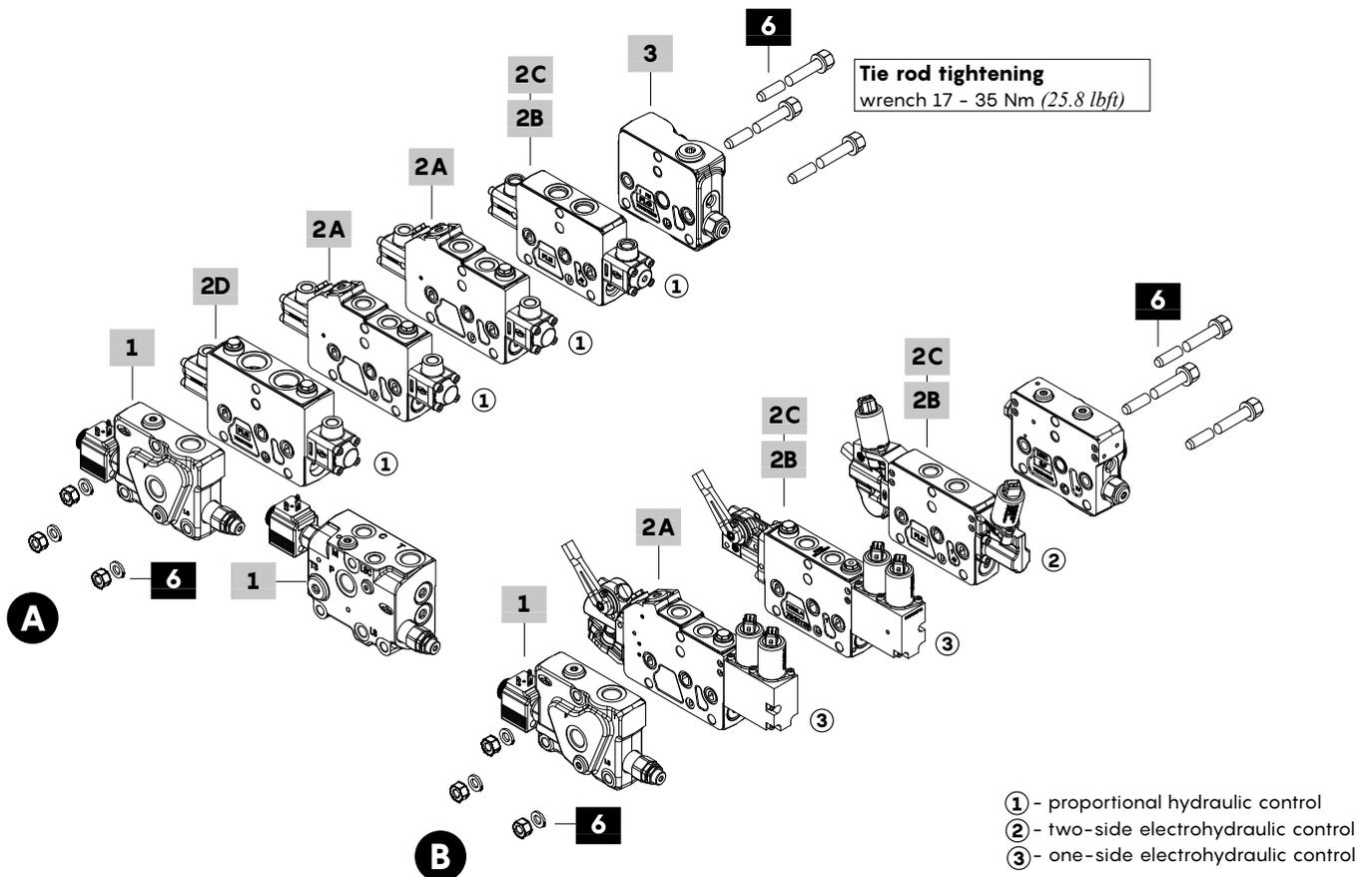
2B

2C

3

4

5



## LL 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: **DPX100HP/QZ-ED-E101(80\80)-8EZ3LQ-SAE-12VDC**

CODE: 640100114S

DESCRIPTION: With lever control, without port valves arrangement

TYPE: **DPX100HP/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 proportional 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**

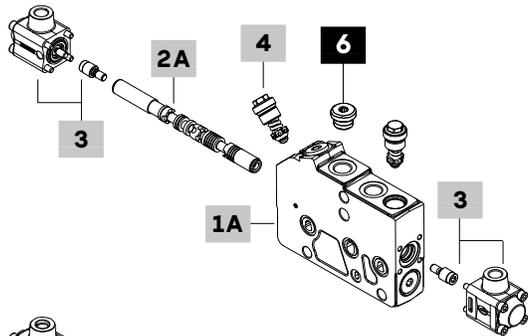
Specify the voltage of electric devices.

**6 Assembling kit**

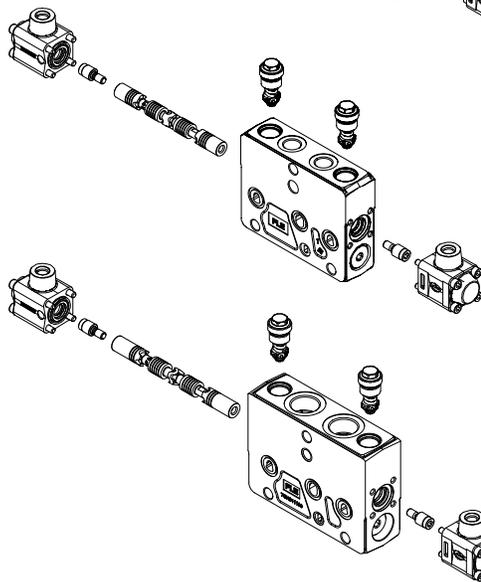
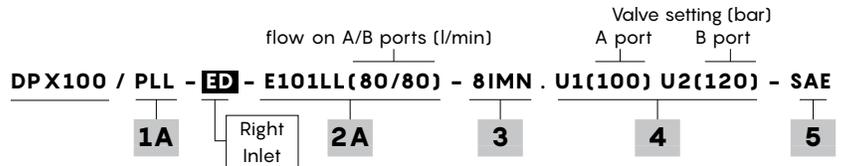
For tie rods list see page 57.

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

## LL 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)-SAE

Right Inlet

**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)-SAE

Right Inlet

### 1A Low Leak working section \* page 114

**For proportional hydraulic control**  
TYPE: DPX100/QLL-IM-SAE-FPM CODE: 5EL1045010ALV  
DESCRIPTION: Without port valves arrangement  
TYPE : DPX100/PLL-IM-SAE-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: SAE8 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 4<sup>th</sup> 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

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

TYPE	CODE	DESCRIPTION
8IMN-SAE	5IDR204304V	Range 8-27 bar (116-392 psi)
8IMF3N-SAE	5IDR204314V	As previous one, with spool stroke limiter
8IMXN-SAE	5IDR204303V	Range 7.5-24 bar (109-348 psi)
8IMXF3N-SAE	5IDR204313V	As previous one, with spool stroke limiter
<u>For floating circuit (spool I5)</u>		
13IMS-SAE	5IDR207350V	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

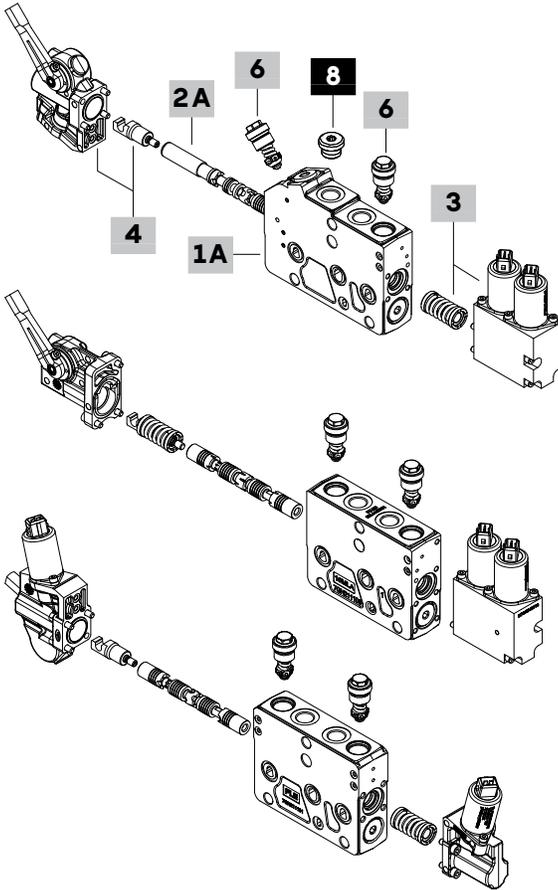
Only specify if it is different from BSP standard (see page 7).

### 6 Plug for single acting spool \*

CODE	DESCRIPTION
3XTAP822150	SAE8 plug

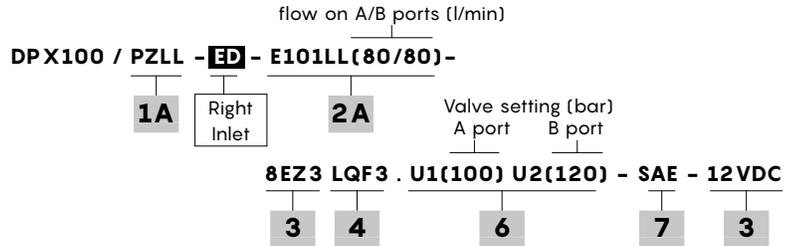
NOTE (\*): Codes are referred to UN-UNF thread.

LL 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)-SAE-12VDC



DPX100/PZ-**ED**-E101(80/80)-8EZLQ.U1(100)U2(120)-SAE-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>		
<b>E101LL(80)</b>	3CU7710101L	80 l/min (21 US gpm) flow
<b>E108LL(60)</b>	3CU7710108L	60 l/min (16 US gpm) flow
<b>E123LL(50)</b>	3CU7710123L	50 l/min (13.2 US gpm) flow
<b>E105LL(40)</b>	3CU7710105L	40 l/min (10.5 US gpm) flow
<b>E113LL(30)</b>	3CU7710113L	30 l/min (7.9 US gpm) flow
<b>E106LL(20)</b>	3CU7710106L	20 l/min (5.3 US gpm) flow
<b>E110LL(10)</b>	3CU7710110L	10 l/min (2.6 US gpm) flow
<b>E159LL(5)</b>	3CU7710159L	5 l/min (1.3 US gpm) flow
<u>Single acting on A or B, other port plugged: SAE8 plug is required</u>		
<b>E301-E401LL(80)</b>	3CU7710301L	80 l/min (21 US gpm) flow
<b>E305-E405LL(60)</b>	3CU7731305L	60 l/min (16 US gpm) flow
<b>E304-E404LL(40)</b>	3CU7731304L	40 l/min (10.5 US gpm) flow
<b>E303-E403LL(20)</b>	3CU7731303L	20 l/min (5.3 US gpm) flow
<u>Double acting with A and B closed in neutral pos., 4 positions, floating in 4<sup>th</sup> pos. with spool in: type 13IMS control is required</u>		
<b>E504LL(60)</b>	3CU7742504L	60 l/min (16 US gpm) flow
<b>E503LL(20)</b>	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
<b>8EZ3LL-12VDC</b>	5IDR604300LV	With AMP connector
<b>8EZ3LL-24VDC</b>	5IDR604301LV	As previous one
<b>8EZ34LL-12VDC</b>	5IDR604302LV	With Deutsch connector
<b>8EZ34LL-24VDC</b>	5IDR604303LV	As previous one
<u>For floating circuit (spool E6)</u>		
<b>13EZ3LL-12VDC</b>	5IDR614300LV	With AMP connector
<b>13EZ3LL-24VDC</b>	5IDR614301LV	As previous one
<b>13EZ34LL-12VDC</b>	5IDR614302LV	With Deutsch connector
<b>13EZ34LL-24VDC</b>	5IDR614303LV	As previous one

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

**These options must be coupled with "A" side controls**

TYPE	CODE	DESCRIPTION
<b>LQ</b>	5LEV100700ALV	Lever box
<b>LQF3</b>	5LEV100701LV	Lever box with spool stroke limiter
<b>LQSL</b>	5COP204100LV	Without lever with endcap

**6 Port valves page 94**

For complete valves list see page 65

TYPE	CODE	DESCRIPTION
<b>U025</b>	5KIT330025	Setting: 25 bar (360 psi)

**7 Section threading**

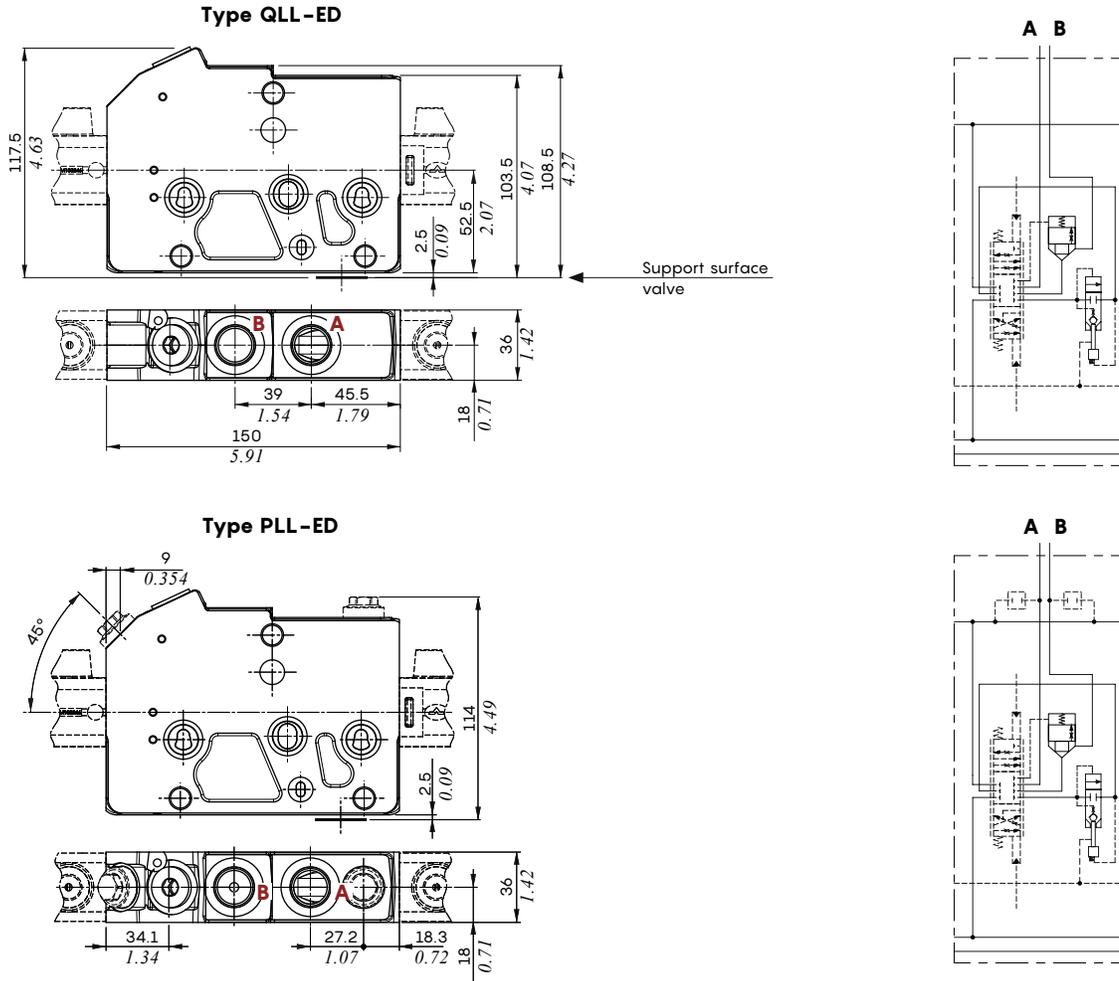
Only specify if it is different from **BSP** standard (see page 7).

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

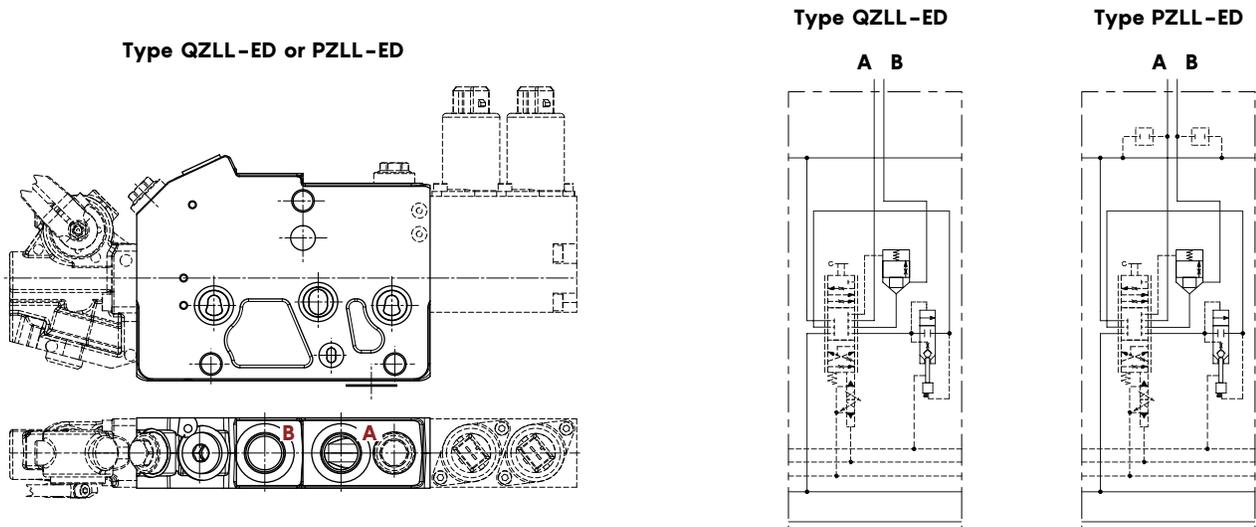
## LL working section

### Dimensions and hydraulic circuit: Low Leak section

#### Low Leak section for proportional hydraulic control, Right Inlet



#### Low Leak section for electrohydraulic control, Right Inlet

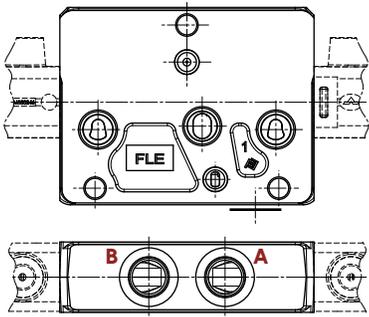


Dimensions and hydraulic circuit: section for Low Leak valve configuration

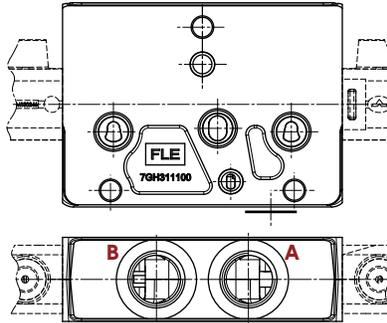
Section for proportional hydraulic control, Right Inlet

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

Standard section, type Q-ED  
(SAE10 ports)

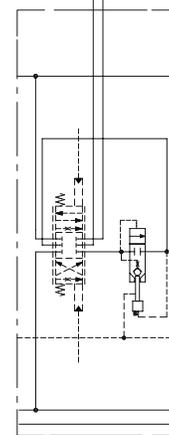


HF section, type Q-ED  
(SAE12 ports)



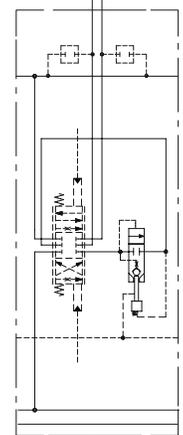
Type Q-ED

A B

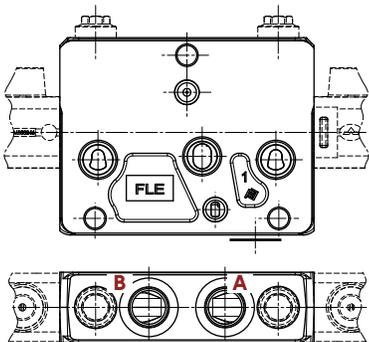


Type P-ED

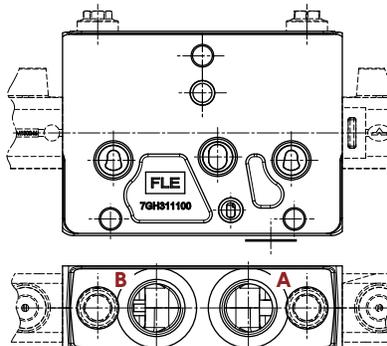
A B



Standard section, type P-ED  
(SAE10 ports)

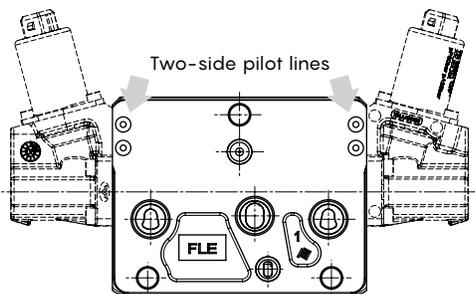


HF section, type P-ED  
(SAE12 ports)



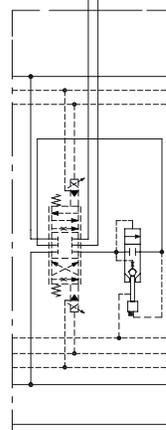
Section for electrohydraulic control, Right Inlet

Type QE-ED o PE-ED



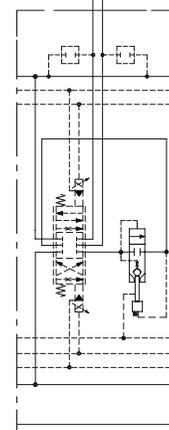
Type QE-ED

A B



Type PE-ED

A B



## LL working section

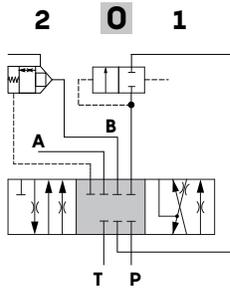
### Spool

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

### For Low Leak section

#### Type E1..

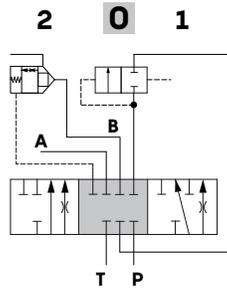
A, B closed in neutral position



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

#### Type E3..

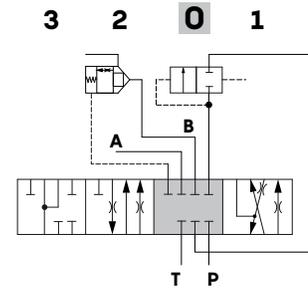
Single acting on A



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

#### Type E5..

Floating in 4<sup>th</sup> position (pos.3)

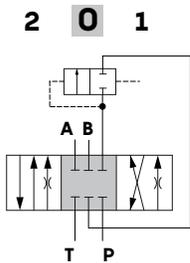


**Stroke**  
position 1: + 6 mm (+ 0.26 in)  
position 2: - 6 mm (- 0.26 in)  
position 3: - 10.5 mm (- 0.41 in)

### For Right Inlet standard section in Low Leak valve configuration

#### Type E1..

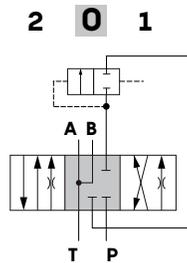
A, B closed in neutral position



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

#### Type E2..

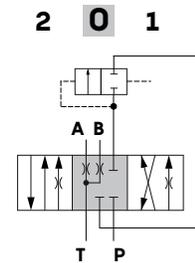
A, B to tank in neutral position



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

#### Type E2H..

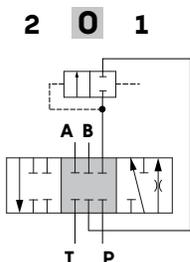
A, B partially to tank in neutral position



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

#### Type E3..

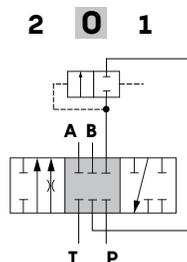
Single acting on A



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

#### Type E4..

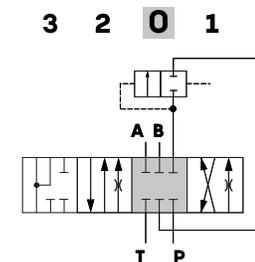
Single acting on B



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

#### Type E5../I5..

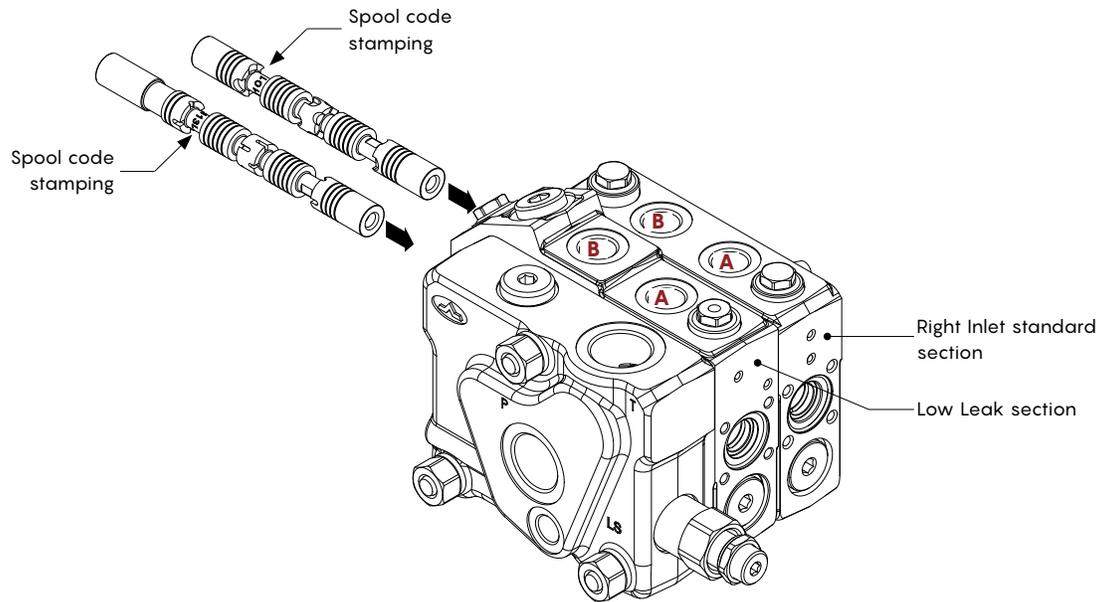
Floating in 4<sup>th</sup> position (pos.3)



**Stroke**  
position 1: + 6 mm (+ 0.26 in)  
position 2: - 6 mm (- 0.26 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.



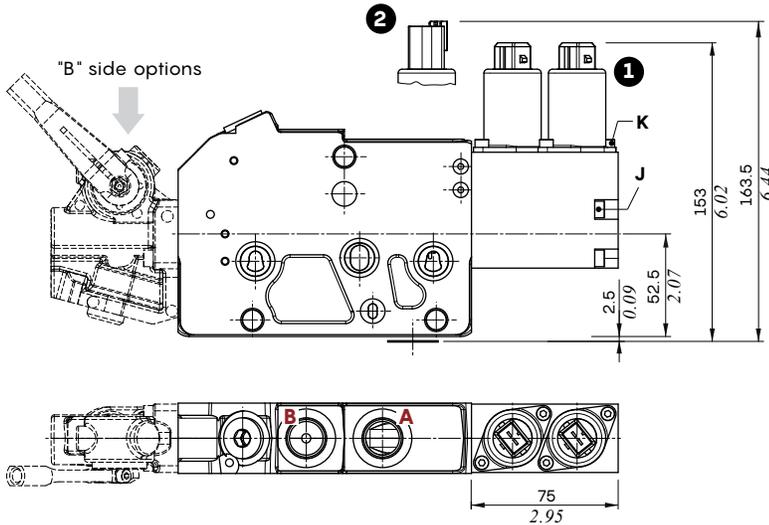
## LL working section

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

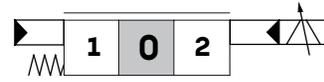
The technical features are the same as the one-side electrohydraulic control for the standard section: see page 85.

#### 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

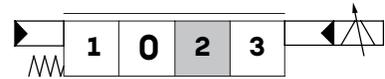


#### Types 8EZ3LL - 8EZ34LL



#### Types 13EZ3LL - 13EZ34LL

For floating circuit



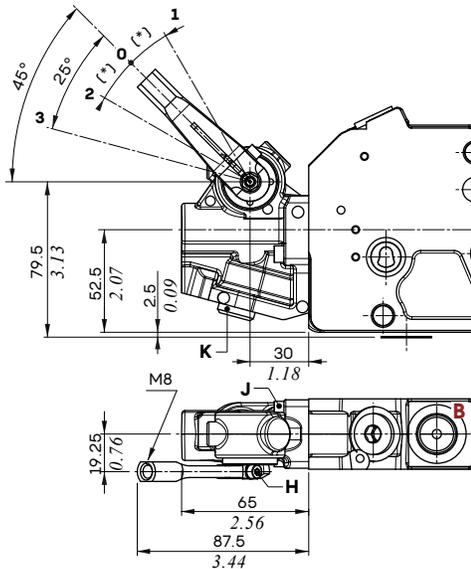
#### Wrenches and tightening torques

- J = allen wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)
- K = allen wrench 3 - 5 Nm (3.7 lbf<sub>t</sub>)

### One-side electrohydraulic control: "B" side option

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

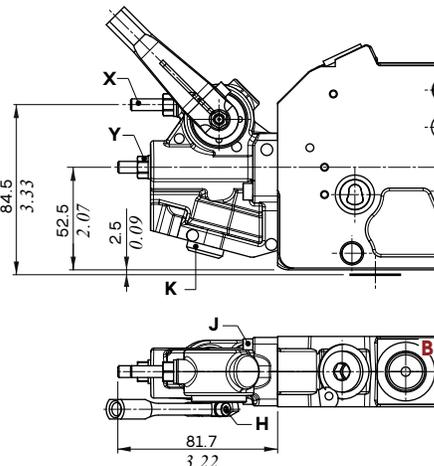
#### Type LQ



- Angle [\*]  
 15° with 8EZ3.. type controls  
 14° with 13EZ3.. type controls

#### Type LQF3

Spool stroke limiter on A and B ports

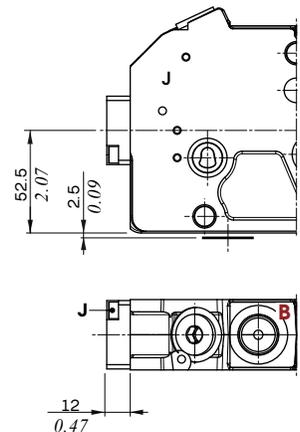


#### Wrenches and tightening torques

- H = wrench 3 - 6.6 Nm (4.9 lbf<sub>t</sub>)
- J = allen wrench 4 - 6.6 Nm (4.9 lbf<sub>t</sub>)
- K = allen wrench 6 - 24 Nm (7.7 lbf<sub>t</sub>)
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbf<sub>t</sub>)

#### Type LQSL

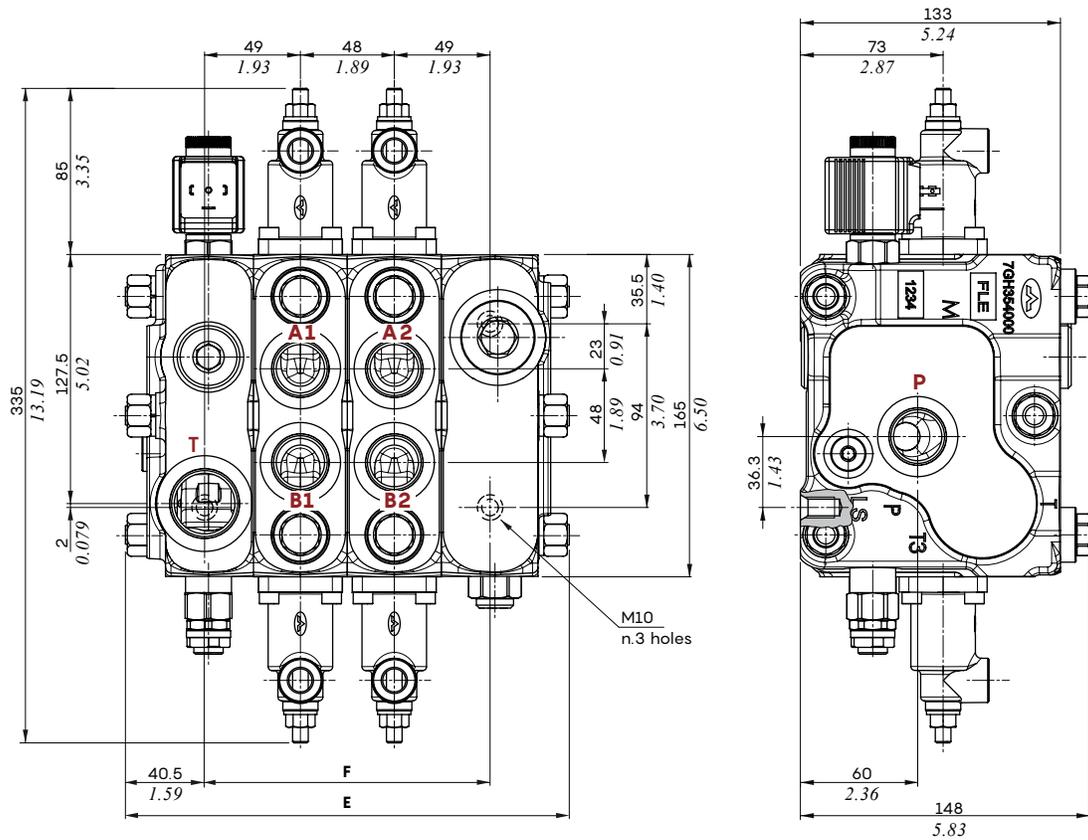
With endcap



## Content

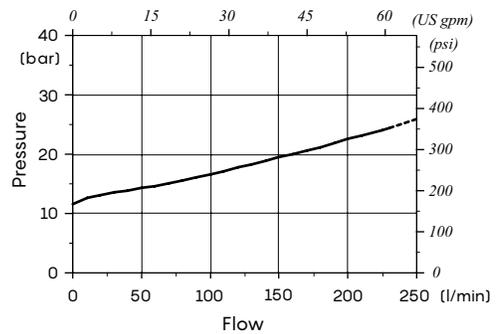
Dimensional data and performance .....	page 120
<u>Hydraulic circuit</u>	
Configuration example with mechanical and hydraulic controls .....	page 121
Configuration example with electrohydraulic controls .....	121
<u>Guide to configuration</u>	
Pressure peak reduction .....	page 122
High Pressure (HP) valve configuration .....	122
Directional valve with Low Leak working sections .....	123
<u>Inlet section</u>	
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
<u>Working section</u>	
Parts ordering code .....	page 133
Dimensional data and hydraulic circuit .....	137
Spool .....	138
"A" side spool positioner .....	140
"B" side spool control kit .....	141
Proportional hydraulic control .....	143
Electrohydraulic controls	
Performane data .....	page 145
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
<u>Outlet section</u>	
Parts ordering code .....	page 154
Dimensional data and hydraulic circuit .....	155

Dimensional data and performance

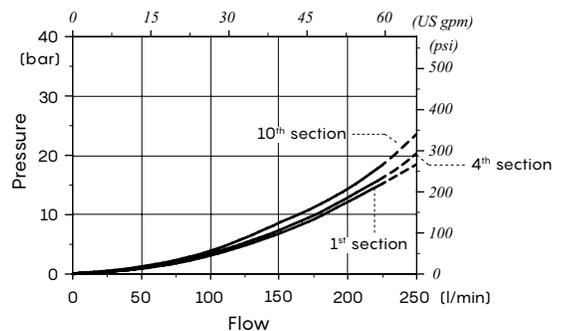


TYPE	E		F	
	mm	in	mm	in
DPX160/1	179	7.05	98	3.86
DPX160/2	227	8.94	146	5.75
DPX160/3	275	10.83	194	7.64
DPX160/4	323	12.72	242	9.53
DPX160/5	371	14.61	290	11.42
DPX160/6	419	16.50	338	13.31
DPX160/7	467	18.39	386	15.20
DPX160/8	515	20.28	434	17.09
DPX160/9	563	22.17	482	18.98
DPX160/10	611	24.06	530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

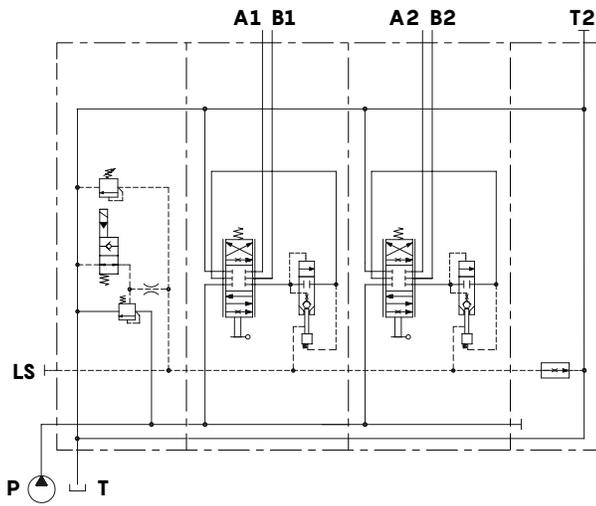
P→T Pressure drop inlet compensator (margin pressure)



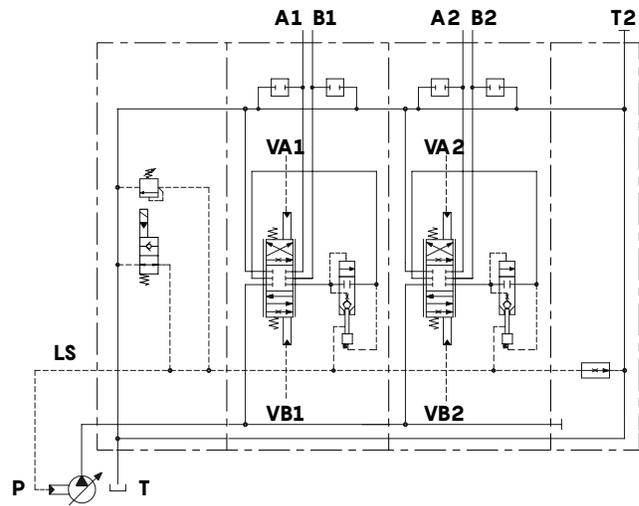
A(B)→T pressure drop (standard spool @ max. stroke)



Configuration example with mechanical and hydraulic controls

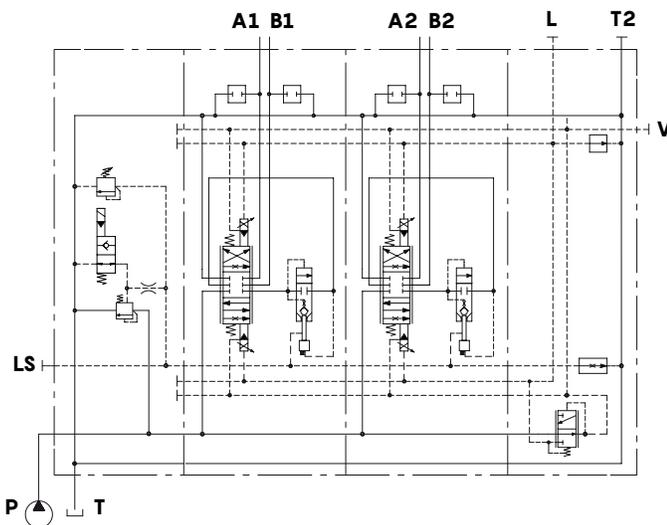


Open center circuit and lever control, with unloader valve, without port valve arrangement

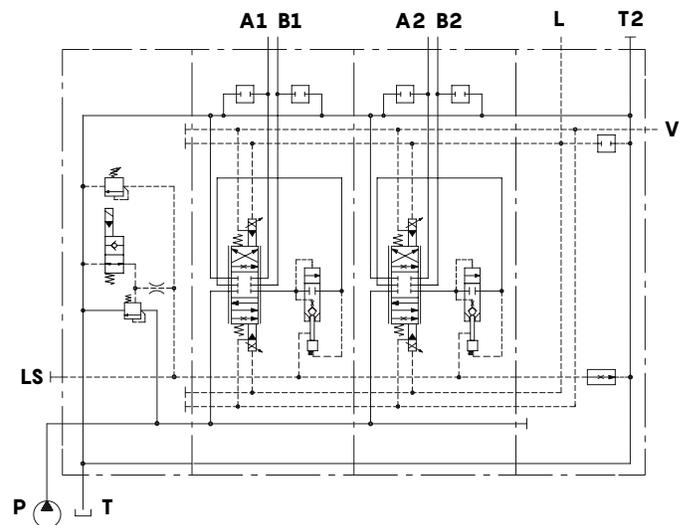


Closed center circuit and proportional hydraulic control, with unloader valve and port valve arrangement

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-SAE-12VDC



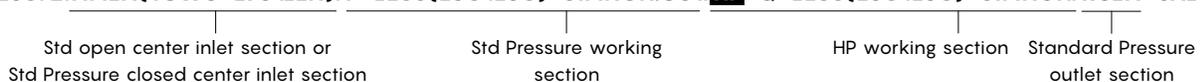
**Example of entirely High Pressure (HP) valve configuration**

DPX160<sup>HP</sup>/2/AM1A(TGW5-300\ELN)/P-E108(150\150)-8IMNOH.U3T/Q-E108(150\150)-8IMNOH/RC1A-SAE-12VDC



**Example of mixed - Standard/HP - valve configuration**

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



Complete section ordering codes

**A Mechanical-hydraulic controls configuration:**

Nr. of working sections

DPX160/2/AN1A(TGW3-175/ELN)/P-108(150/150)-8SLP.U3T/Q-E108(150/150)-8IMOHF3N/RC1A-SAE-12VDC

1A 1B

2A 2B

3

4

5

DPX160: Standard pressure valve

DPX160HP: High Pressure valve

For working conditions and guide configuration see page 5, 6, 122

**B Electrohydraulic controls configuration:**

DPX160/2/AN1A(TGW3-175/ELN)/PZ-E108(150/150)-8EZ3LQ.U3T/PE-E108(150/150)-8EB3F3.U3T/RCR3A-SAE-12VDC

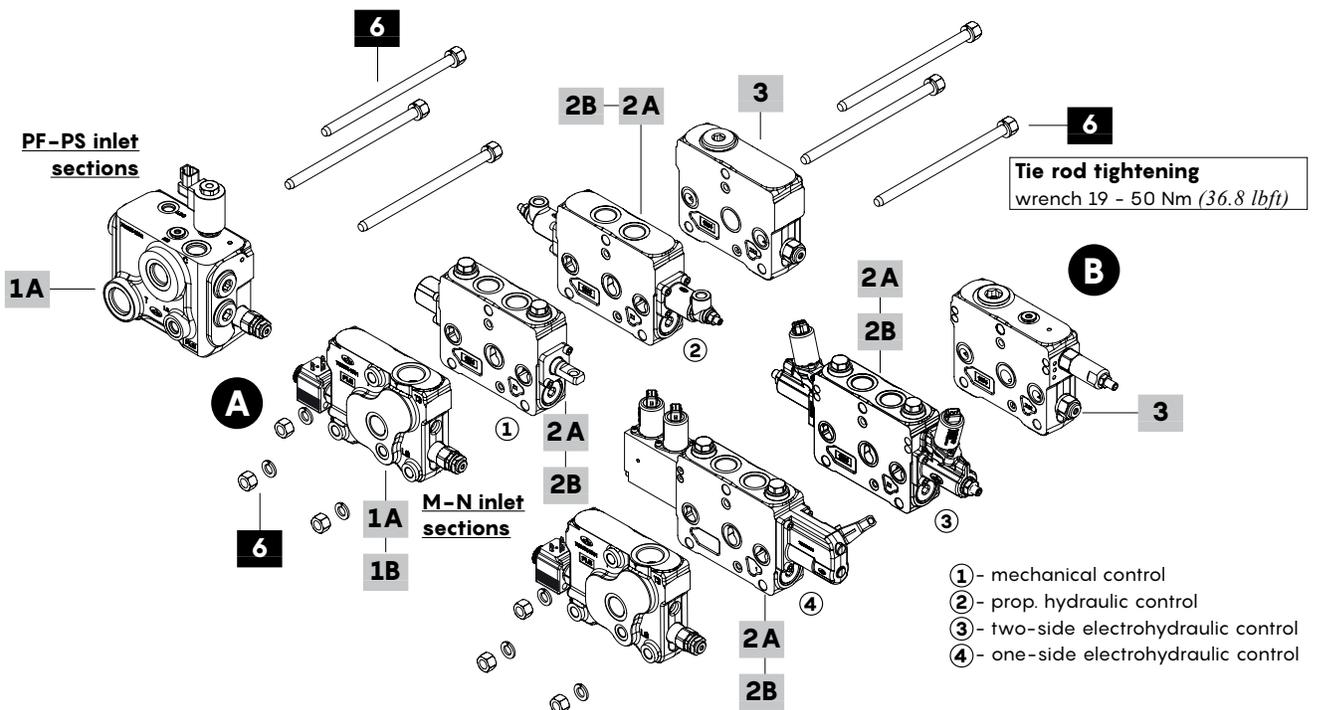
1A 1B

2A 2B

3

4

5



**1A Std pressure inlet section \***

**Open Center circuit**

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

CODE: 650205017S

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

TYPE: DPX160/M3B(SU/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/ELN)-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

**1A Std pressure inlet section \***

**Closed Center circuit**

TYPE: DPX160/N1A(TGW3-175/ELN)-12VDC

CODE: 650205013

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

TYPE: DPX160/N1A(SO/TGW3-175/ELN)-12VDC

CODE: 650205015S

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

TYPE: DPX160/N1A(SU/TGW3-175/ELN)-SAE-12VDC

CODE: 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\ES032N-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

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

Complete section ordering codes

**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)

**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 valve arrangement

**Proportional hydraulic control**

TYPE: **DPX160/Q-E108(150/150)-8IMOHF3N-SAE**  
 CODE: 650100008S

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

TYPE: **DPX160/P-E108(150/150)-8IMOHF3N.UL3T-SAE**  
 CODE: 650100006S

DESCRIPTION: As previous one with port pressure relief valves arrang.

TYPE: **DPX160/P-E108(150/150)-8IMOHF3N.US3T-SAE**  
 CODE: 650100007S

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 valves 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 valves arrang.

TYPE: **DPX160/PZ-E108(150/150)-8EZ3LQF3.UL3T-SAE-12VDC-FPM**  
 CODE: 650105037V

DESCRIPTION: As previous one with port pressure relief valves arrang.

TYPE: **DPX160/PZ-E108(150/150)-8EZ3LQF3.US3T-SAE-12VDC-FPM**  
 CODE: 650105038V

DESCRIPTION: With port antishock valve arrangement

**2B High pressure working section \***

**Mechanical control**

TYPE: **DPX160HP/Q-108(150/150)-8SLP-SAE**  
 CODE: 650115007S

DESCRIPTION: With dust-proof plate, without port valve arrangement

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)-8IMOHF3N-SAE**  
 CODE: 650115008S

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

TYPE: **DPX160HP/P-E108(150/150)-8IMOHF3N.US3T-SAE**  
 CODE: 650105033S

DESCRIPTION: As previous one with port antishock valve arrangement

**2B High pressure working section \***

**Two-side proportional electrohydraulic control**

TYPE: **DPX160HP/QE-E108(150/150)-8EB3F3-SAE-12VDC**  
 CODE: 650115009S

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

TYPE: **DPX160HP/PE-E108(150/150)-8EB3F3.US3T-SAE-12VDC**  
 CODE: 650105034S

DESCRIPTION: As previous one with port antishock valve arrangement

**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 proportional 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, 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).

**6 Voltage**

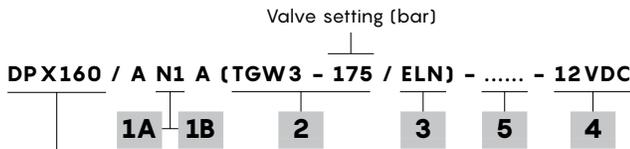
Specify the voltage of electric devices.

**Assembling kit**

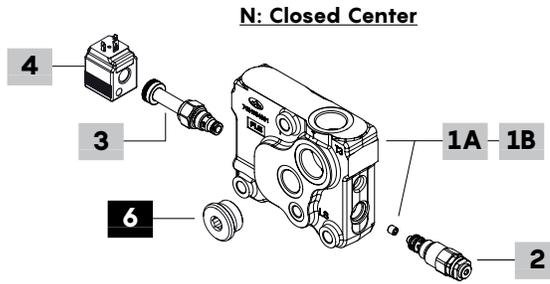
CODE	DESCRIPTION	CODE	DESCRIPTION
<b>Standard tie rods: for M and N inlet sections</b>			
5TIR112179	for 1 work.section	5TIR112419	for 6 work.sections
5TIR112227	for 2 work.sections	5TIR112467	for 7 work.sections
5TIR112275	for 3 work.sections	5TIR112515	for 8 work.sections
5TIR112323	for 4 work.sections	5TIR112563	for 9 work.sections
5TIR112371	for 5 work.sections	5TIR112611	for 10 work.sections
<b>Special tie rods: for PF and PS inlet sections</b>			
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.

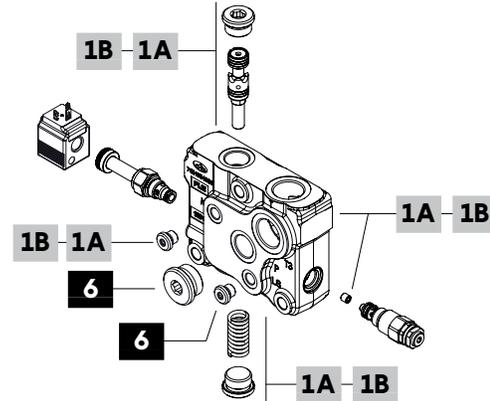
Inlet section part ordering codes



DPX160: Standard pressure section  
 DPX160HP: High Pressure section



**M: Open Center**



**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 one with non return flow limiter from working section to inlet section and by-pass valve  
 TYPE: **DPX160/N1(SO)-SAE-EL** CODE: YFIA105728S  
 DESCRIPTION: With non return flow limiter from inlet section to working section and by-pass valve  
 TYPE: **DPX160/N2-SAE-EL** CODE: YFIA105715S  
 DESCRIPTION: As N1 type, 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**

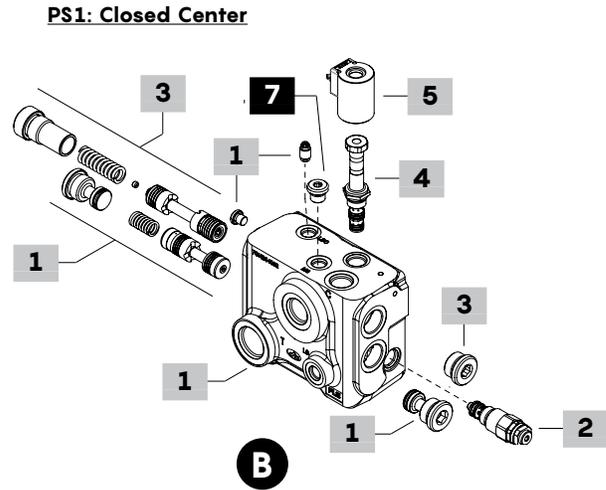
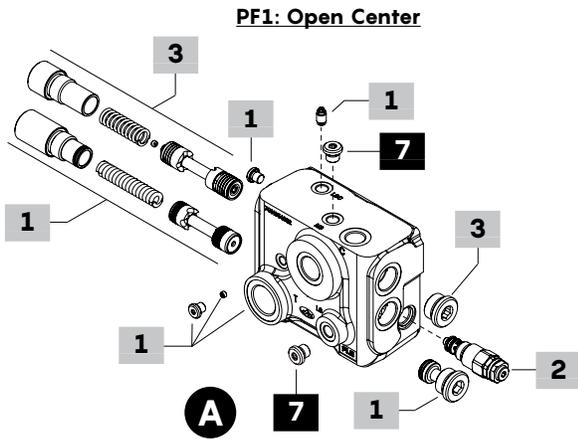
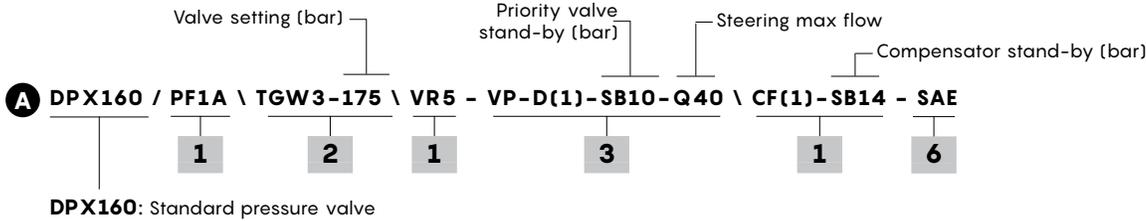
Only specify if it is different from **BSP** standard (see page 7).

**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



**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
<b>Regulated flow = 40 l/min (10.5 US gpm)</b>		
<b>D(1)-SB10-Q40</b>	5CAS322100AV	Stand-by (margin pressure) 10 bar (145 psi)
<b>D(1)-SB07-Q40</b>	5CAS322100BV	Stand-by (margin pressure) 7 bar (100 psi)
<b>D(1)-SB04-Q40</b>	5CAS322100CV	Stand-by (margin pressure) 4 bar (58 psi)
<b>Regulated flow = 20 l/min (5.3 US gpm)</b>		
<b>D(1)-SB10-Q20</b>	5CAS323099AV	Stand-by (margin pressure) 10 bar (145 psi)
<b>D(1)-SB07-Q20</b>	5CAS323099BV	Stand-by (margin pressure) 7 bar (100 psi)
<b>D(1)-SB04-Q20</b>	5CAS323099CV	Stand-by (margin pressure) 4 bar (58 psi)

**4 Solenoid operated shut-off valve** page 132

TYPE	CODE	DESCRIPTION
<b>ESO32A</b>	OEJ08002035	Without emergency override
<b>ESO32V</b>	OEJ08002042	With screw type emergency override
<b>EST</b>	XTAP324540V	Valve blanking plug, only for PST inlet section

**5 Coil**

TYPE	CODE	DESCRIPTION
<b>12VDC</b>	4SL3000120	<b>BT</b> 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 \***

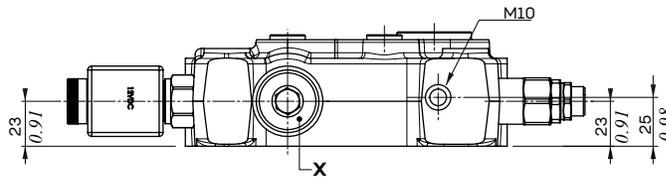
CODE	DESCRIPTION
3XTAP817130	SAE6 plug, nr.1 for PS section, nr.2 for PF section

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

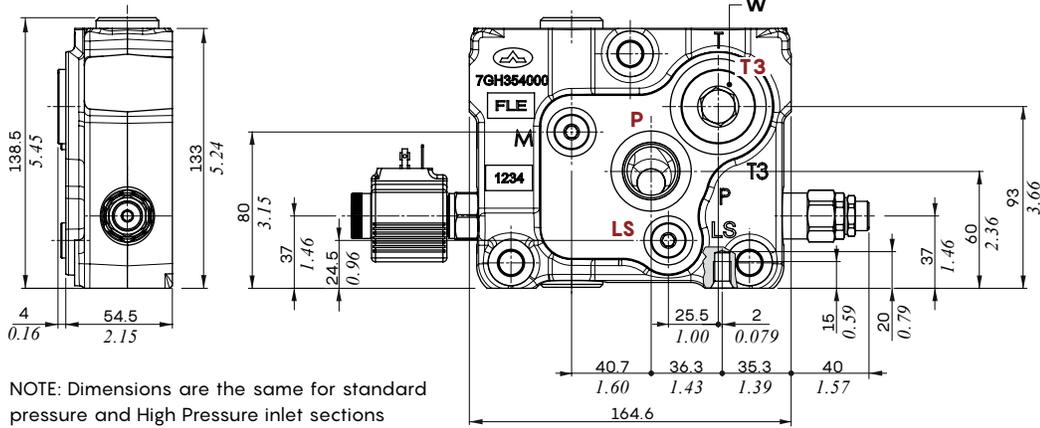
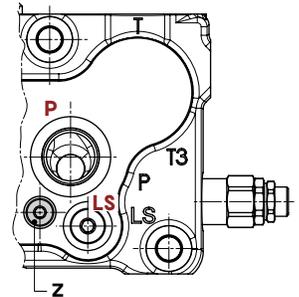
Dimensions and hydraulic circuit

Example of M Open Center section

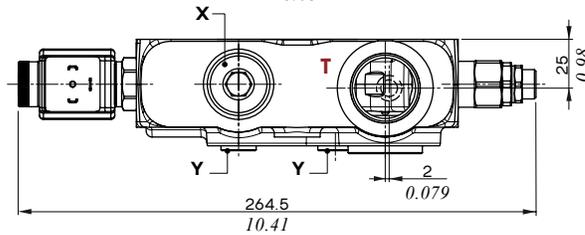
Type M4



Type M3(SO) or M3(SU)



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



Wrenches and tightening torques

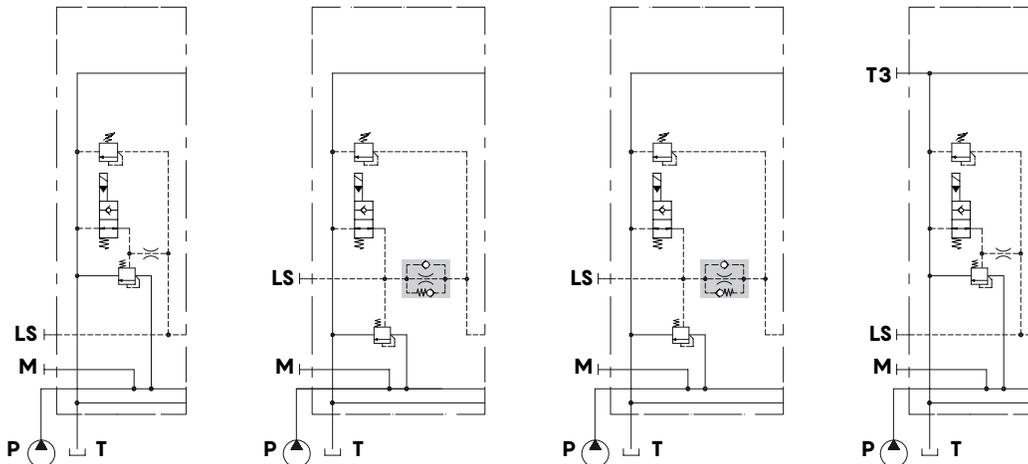
- X = allen wrench 12 - 42 Nm (31 lbft)
- Y = allen wrench 6 - 24 Nm (17.7 lbft)
- Z = allen wrench 6 - 24 Nm (17.7 lbft)
- W = allen wrench 17 - 42 Nm (31 lbft)
- NOTE: for valves wrench and torque see related pages

Type M3

Type M3(SU)

Type M3(SO)

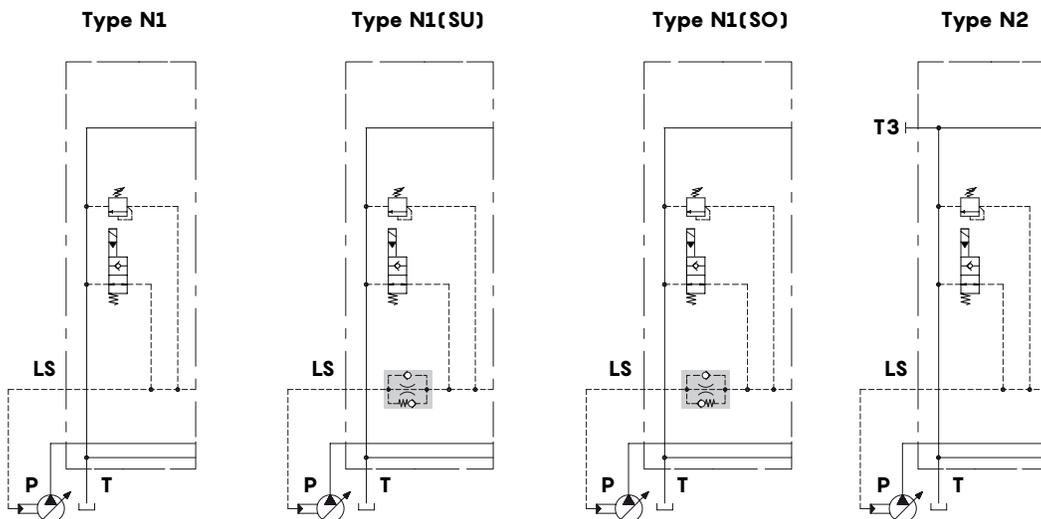
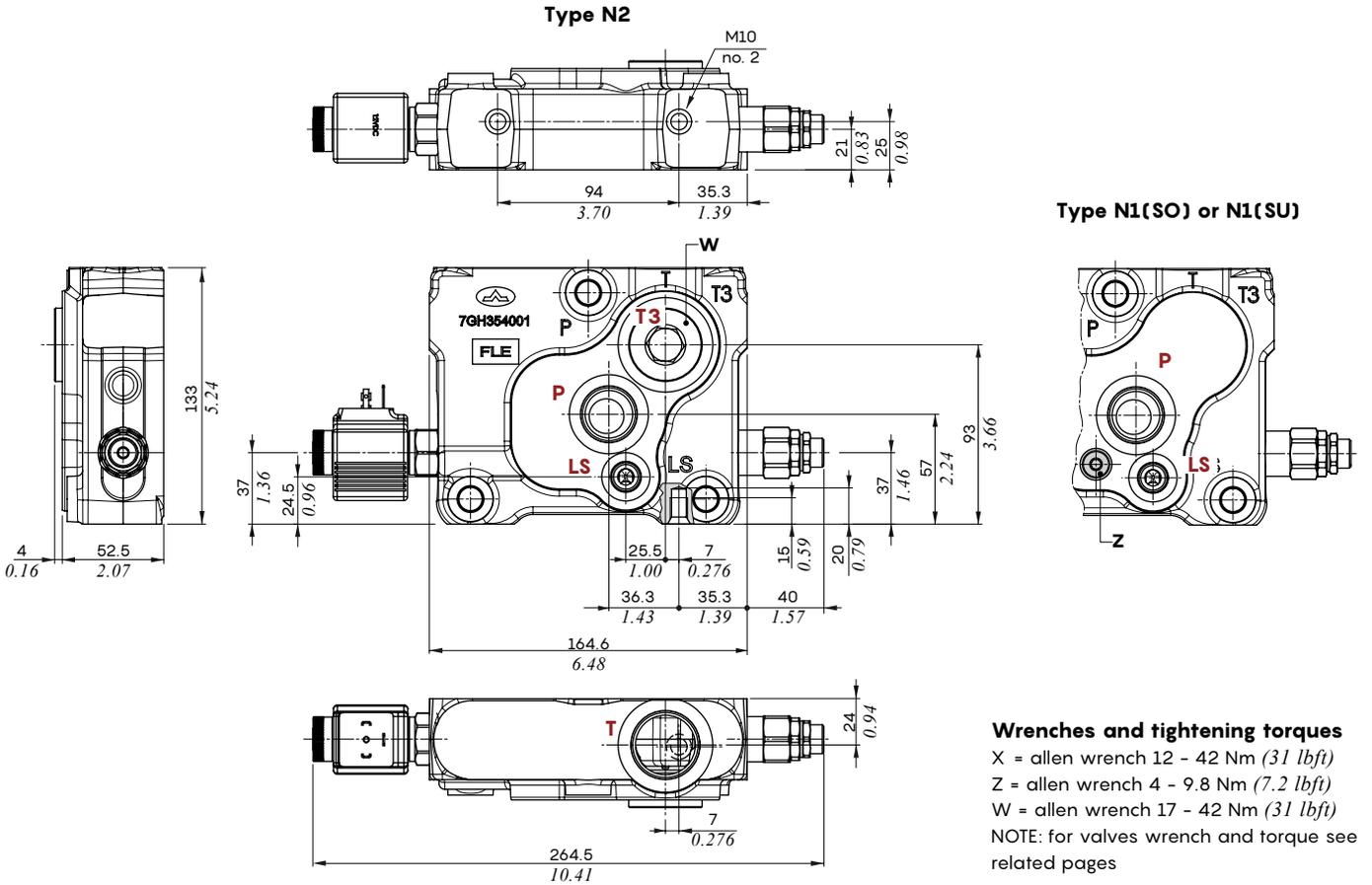
Type M4



Inlet section

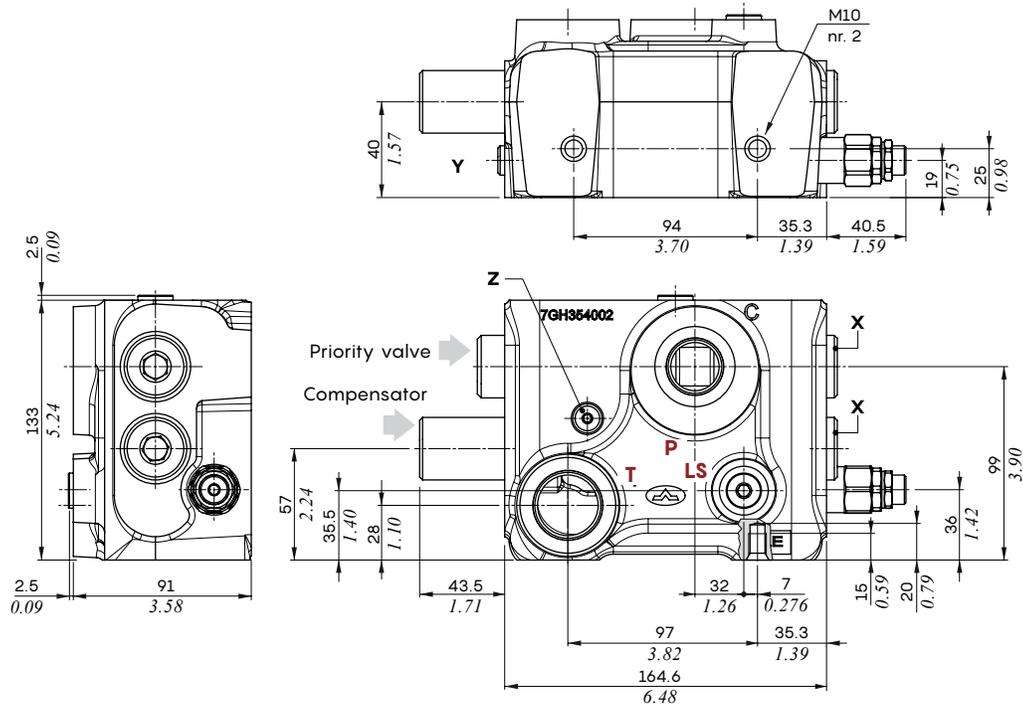
Dimensions and hydraulic circuit

Example of N Closed Center section



Dimensions and hydraulic circuit

PF1 Open Center section with priority valve



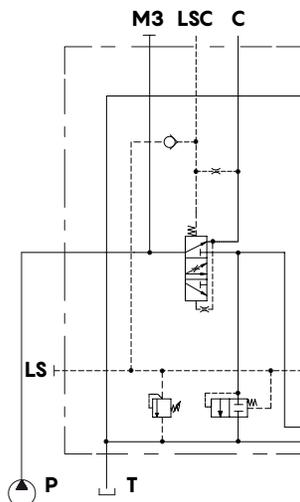
Wrenches and tightening torques

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)

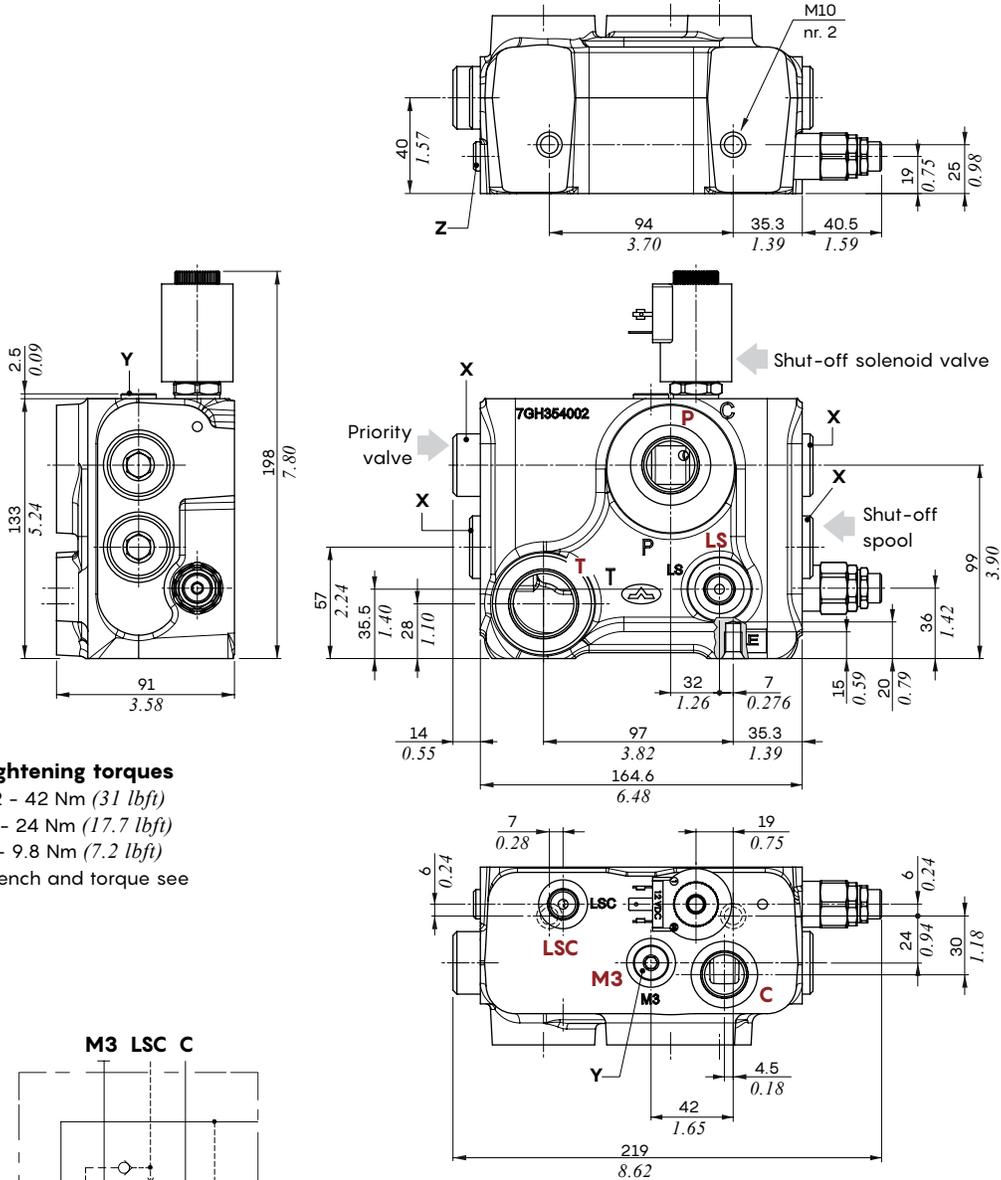
NOTE: for valves wrench and torque see related pages



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)

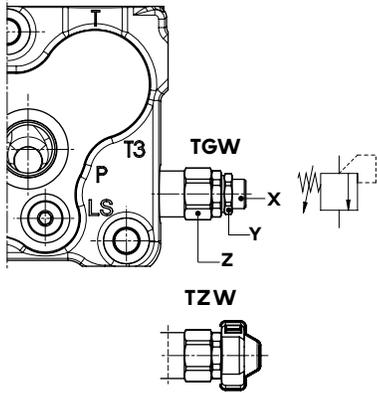
Y = allen wrench 6 - 24 Nm (17.7 lbft)

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

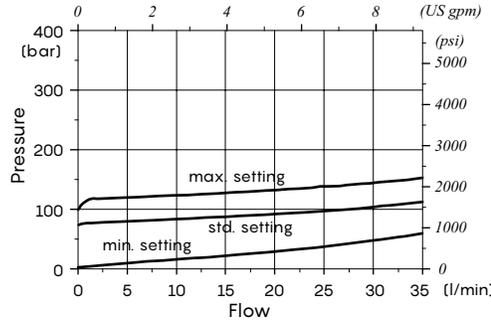
NOTE: for valves wrench and torque see related pages

Main pressure relief valve

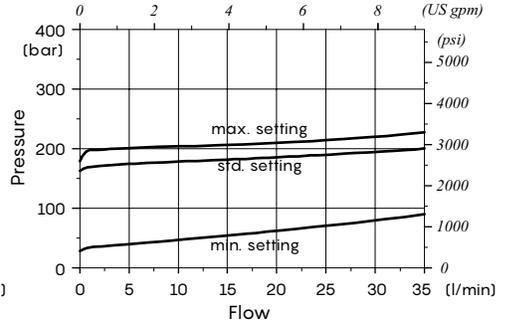
Setting types



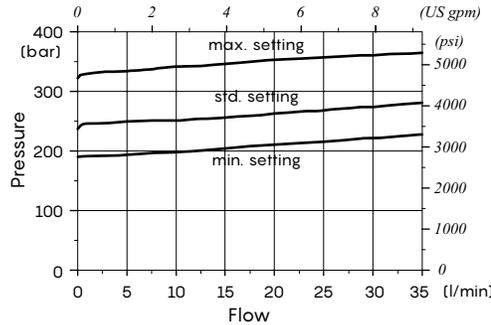
Setting range: type TGW2



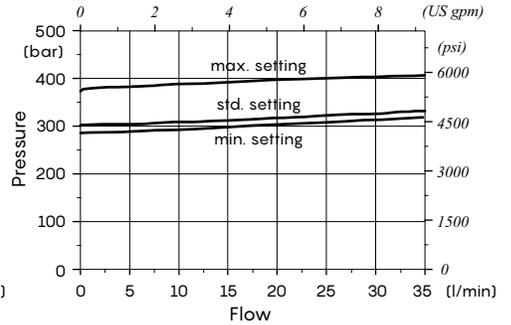
Setting range: type TGW3



Setting range: type TGW4



Setting range: type TGW5

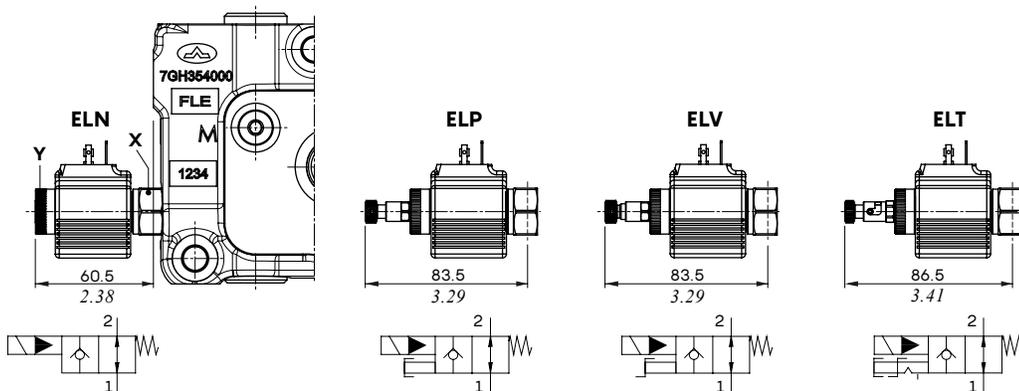


Legenda

- 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 lbft)
  - Z = wrench 24 - 42 Nm (31 lbft)

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 lbft)
  - Y = manual tightening

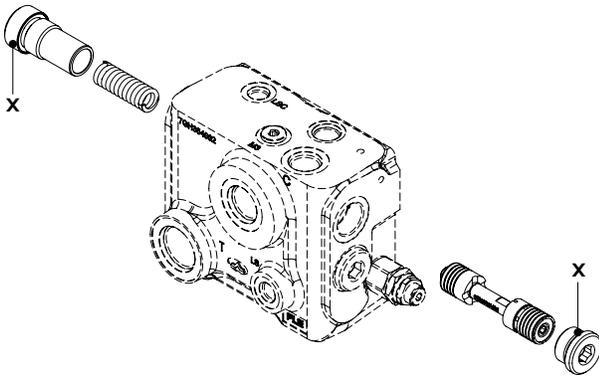
Features

- Max. flow: 40 l/min (10.6 US gpm)
- Max. pressure: 380 bar (5500 psi)
- Internal leakage: 0.25 cm<sup>3</sup>/min @ 210 bar (0.015 in<sup>3</sup>/min @ 3050 psi)

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

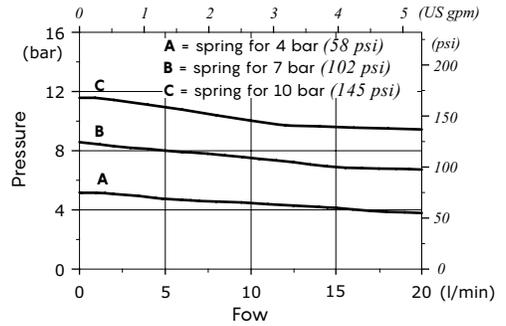
Inlet section

Priority valve kit

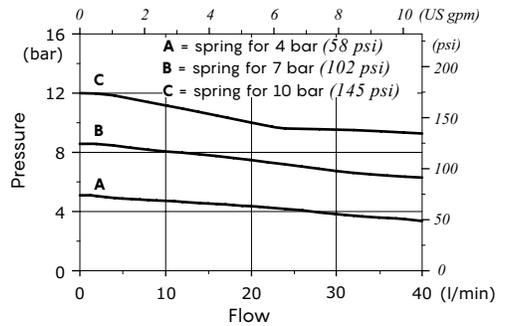


**Wrenches and tightening torques**  
 X = allen wrench 12 - 42 Nm (31 lbft)

**Stand-by (margin pressure) vs. regulated flow**  
 Regulated flow = 20 l/min (5.3 US gpm)

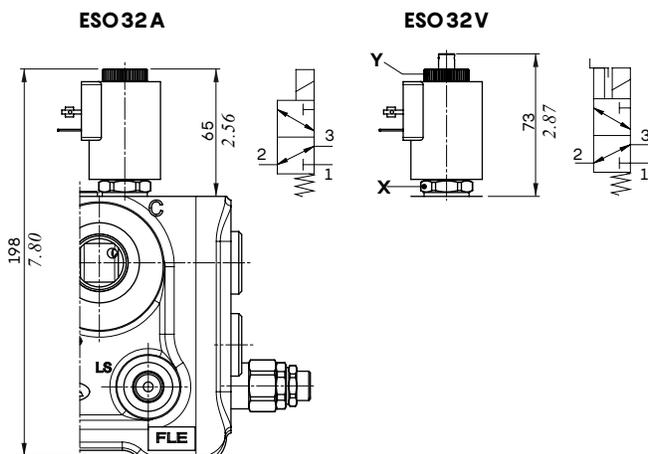


**Stand-by (margin pressure) vs. regulated flow**  
 Regulated flow = 40 l/min (10.6 US gpm)



Shut-off solenoid valve

Manual emergency types



**Legenda**

**ESO32A:** without emergency

**ESO32V:** screw emergency override

**Wrenches and tightening torques**

X = wrench 24 - 30 Nm (22 lbft)

Y = manual tightening

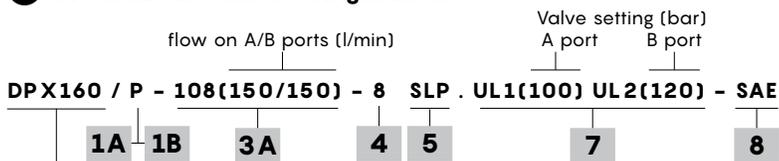
**Features**

- Max. flow ..... 3 l/min (0.796 US gpm)
- Max. pressure ..... 350 bar (5100 psi)
- Internal leakage ..... 10 cm<sup>3</sup>/min @ 210 bar (0.61 in<sup>3</sup>/min @ 3050 psi)

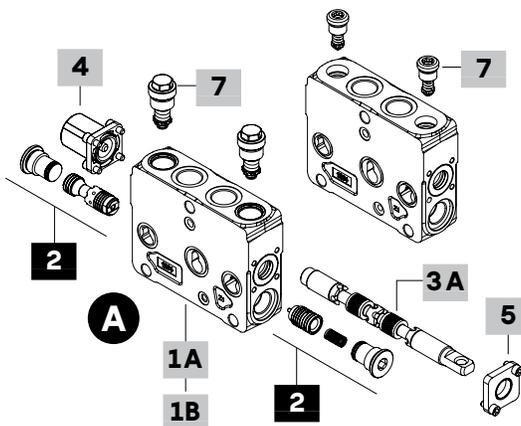
For coil features and options see **BT** type coil at page 160.

Working section parts ordering codes (mechanical, hydraulic)

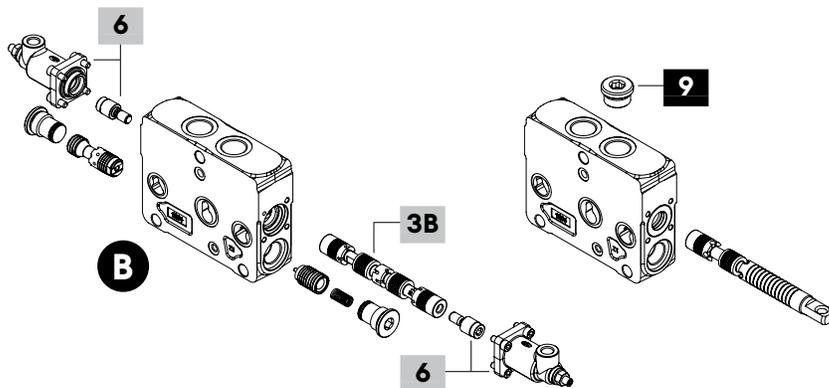
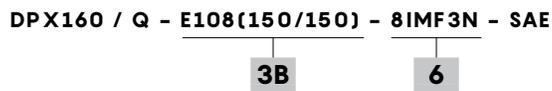
**A Mechanical control configuration:**



DPX160: Standard pressure section  
 DPX160HP: High Pressure section



**B Proportional hydraulic control configuration:**



**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 proportional 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: **DPX160HP/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 proportional hydraulic control**

TYPE: **DPX160HP/Q-IM-SAE-FPM** CODE: 5EL1057014AV  
 DESCRIPTION: Without port valve arrangement  
 TYPE: **DPX160HP/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 valve arrangement

**NOTE (\*):** Max pressure = 380 bar (4350 psi)

**2 Compensator kit**

TYPE	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)

TYPE	CODE	DESCRIPTION
<u>Double acting with A and B closed in neutral position</u>		
<b>108(150)</b>	3CU8110108	150 l/min (39.5 US gpm) flow
<b>107(130)</b>	3CU8110107	130 l/min (34.3 US gpm) flow
<b>106(110)</b>	3CU8110106	110 l/min (29 US gpm) flow
<b>105(90)</b>	3CU8110105	90 l/min (23.8 US gpm) flow
<b>104(70)</b>	3CU8110104	70 l/min (18.5 US gpm) flow
<b>103(50)</b>	3CU8110103	50 l/min (13.2 US gpm) flow
<b>102(30)</b>	3CU8110102	30 l/min (7.9 US gpm) flow
<b>109(20)</b>	3CU8110109	20 l/min (5.3 US gpm) flow
<b>101(10)</b>	3CU8110101	10 l/min (2.6 US gpm) flow

Double acting with A and B to tank in neutral position

**208(150)** 3CU8110208 150 l/min (39.5 US gpm) flow

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

<b>2H08(150)</b>	3CU8110209	150 l/min (39.5 US gpm) flow
<b>2H07(130)</b>	3CU8110223	130 l/min (34.3 US gpm) flow
<b>2H06(110)</b>	3CU8110222	110 l/min (29 US gpm) flow
<b>2H05(90)</b>	3CU8110224	90 l/min (23.8 US gpm) flow
<b>2H04(70)</b>	3CU8110221	70 l/min (18.5 US gpm) flow
<b>2H03(50)</b>	3CU8110220	50 l/min (13.2 US gpm) flow
<b>2H02(30)</b>	3CU8110219	30 l/min (7.9 US gpm) flow
<b>2H09(20)</b>	3CU8110218	20 l/min (5.3 US gpm) flow
<b>2H01(10)</b>	3CU8110217	10 l/min (2.6 US gpm) flow

Single acting on A, B plugged: SAE12 plug is required

<b>308(150)</b>	3CU8110308	150 l/min (39.5 US gpm) flow
<b>306(110)</b>	3CU8110306	110 l/min (29 US gpm) flow
<b>303(50)</b>	3CU8110303	50 l/min (13.2 US gpm) flow
<b>309(20)</b>	3CU8110309	20 l/min (5.3 US gpm) flow

Single acting on B, A plugged: SAE12 plug is required

<b>408(150)</b>	3CU8110408	150 l/min (39.5 US gpm) flow
<b>406(110)</b>	3CU8110406	110 l/min (29 US gpm) flow
<b>403(50)</b>	3CU8110403	50 l/min (13.2 US gpm) flow
<b>409(20)</b>	3CU8110409	20 l/min (5.3 US gpm) flow

Double acting with A and B closed in neutral pos., 4 positions, floating in 4<sup>th</sup> position with spool in: 13 type positioner is required

<b>508(150)</b>	3CU8110508	150 l/min (39.5 US gpm) flow
<b>504(70)</b>	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
<u>Double acting with A and B closed in neutral position</u>		
<b>E108(150)</b>	3CU871E108	150 l/min (39.5 US gpm) flow
<b>E107(130)</b>	3CU871E107	130 l/min (34.3 US gpm) flow
<b>E106(110)</b>	3CU871E106	110 l/min (29 US gpm) flow
<b>E105(90)</b>	3CU871E105	90 l/min (23.8 US gpm) flow
<b>E104(70)</b>	3CU871E104	70 l/min (18.5 US gpm) flow
<b>E103(50)</b>	3CU871E103	50 l/min (13.2 US gpm) flow
<b>E102(30)</b>	3CU871E102	30 l/min (7.9 US gpm) flow
<b>E113(20)</b>	3CU871E113	20 l/min (5.3 US gpm) flow
<b>E101(10)</b>	3CU871E101	10 l/min (2.6 US gpm) flow

Double acting with A and B to tank in neutral position

<b>E208(150)</b>	3CU871E208	150 l/min (39.5 US gpm) flow
<b>E213(100)</b>	3CU871E213	100 l/min (26.4 US gpm) flow
<b>E212(80)</b>	3CU871E212	80 l/min (21 US gpm) flow
<b>E203(50)</b>	3CU871E203	50 l/min (13.2 US gpm) flow

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

<b>E2H08(150)</b>	3CU871E209	150 l/min (39.5 US gpm) flow
<b>E2H07(130)</b>	3CU871E223	130 l/min (34.3 US gpm) flow
<b>E2H06(110)</b>	3CU871E222	110 l/min (29 US gpm) flow
<b>E2H05(90)</b>	3CU871E215	90 l/min (23.8 US gpm) flow
<b>E2H04(70)</b>	3CU871E221	70 l/min (18.5 US gpm) flow
<b>E2H03(50)</b>	3CU871E220	50 l/min (13.2 US gpm) flow
<b>E2H02(30)</b>	3CU871E219	30 l/min (7.9 US gpm) flow
<b>E2H13(20)</b>	3CU871E218	20 l/min (5.3 US gpm) flow
<b>E2H01(10)</b>	3CU871E217	10 l/min (2.6 US gpm) flow

Single acting on A or B, other port plugged: SAE12 plug is required

<b>E308-E408(150)</b>	3CU871E308	150 l/min (39.5 US gpm) flow
<b>E306-E406(110)</b>	3CU871E306	110 l/min (29 US gpm) flow
<b>E303-E403(50)</b>	3CU871E303	50 l/min (13.2 US gpm) flow
<b>E313-E413(20)</b>	3CU871E313	20 l/min (5.3 US gpm) flow

Double acting with A and B closed in neutral pos., 4 positions, floating

in 4<sup>th</sup> pos. with spool in: 131M type control is required

<b>I508(150)</b>	YCU871E508	150 l/min (39.5 US gpm) flow
<b>I507(130)</b>	YCU871E507	130 l/min (34.3 US gpm) flow
<b>I504(70)</b>	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
<b>7FTNA</b>	5V07210101	With friction and neutral pos. notch
<b>8MD</b>	5V08109000	3 positions with spring return to neutral position

For floating circuit (spool 5)

<b>13</b>	5V13109000	4 positions, detent in 4 <sup>th</sup> position with spring return to neutral position
-----------	------------	--

**5 "B" side spool control kit page 141**

TYPE	CODE	DESCRIPTION
<b>L</b>	5LEV110000	Standard lever box
<b>LFG</b>	5LEV110700	Lever box with spool stroke limiter on both ports
<b>SLP</b>	5COP110000	Without lever with dust-proof plate
<b>TQ</b>	5TEL110110	Flexible cable connection
<b>LCB</b>	5CLO216100	Joystick for 2 section operation

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

**6 Proportional hydraulic control \* page 143**

TYPE	CODE	DESCRIPTION
<b>8IMNOH-SAE</b>	5IDR209704V-H	Range 8-28 bar (116-406 psi)
<b>8IMNOHF3-SAE</b>	5IDR209705V-H	As previous with spool stroke limiter for floating circuit (spool 15)
<b>13IM-SAE</b>	5IDR209703V	Range 3.1-25.6 / 0-30 bar (45-371 / 0-435 psi)
<b>13IMP-SAE</b>	5IDR209714V	Range 2-17 / 2-30 bar (29-247 / 29-435 psi)

**7 Port valves page 153**

TYPE	CODE	DESCRIPTION
------	------	-------------

**"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).

<b>UST</b>	XTAP221340V	Valve blanking plug
<b>CS</b>	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: <b>US (100)</b>	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**

<b>ULT</b>	XTAP528520V	Valve blanking plug
<b>CL</b>	5KIT409000	Anticavitation valve (for UL cavity)

Fixed setting pressure relief valves: setting is referred to 5 l/min (1.3 US gpm)

TYPE: <b>UL (100)</b>	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	SAE12 plug



Working section part ordering codes (electrohydraulic)

**3 Spool page 138**

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

TYPE	CODE	DESCRIPTION
<u>Double acting with A and B closed in neutral position</u>		
<b>E108(150)</b>	3CU871E108	150 l/min (39.5 US gpm) flow
<b>E107(130)</b>	3CU871E107	130 l/min (34.3 US gpm) flow
<b>E106(110)</b>	3CU871E106	110 l/min (29 US gpm) flow
<b>E105(90)</b>	3CU871E105	90 l/min (23.8 US gpm) flow
<b>E104(70)</b>	3CU871E104	70 l/min (18.5 US gpm) flow
<b>E103(50)</b>	3CU871E103	50 l/min (13.2 US gpm) flow
<b>E102(30)</b>	3CU871E102	30 l/min (7.9 US gpm) flow
<b>E113(20)</b>	3CU871E113	20 l/min (5.3 US gpm) flow
<b>E101(10)</b>	3CU871E101	10 l/min (2.6 US gpm) flow
<u>Double acting with A and B to tank in neutral position</u>		
<b>E208(150)</b>	3CU871E208	150 l/min (39.5 US gpm) flow
<b>E213(100)</b>	3CU871E213	100 l/min (26.4 US gpm) flow
<b>E212(80)</b>	3CU871E212	80 l/min (21 US gpm) flow
<b>E203(50)</b>	3CU871E203	50 l/min (13.2 US gpm) flow
<u>Double acting with A and B partially to tank in neutral position</u>		
<b>E2H08(150)</b>	3CU871E209	150 l/min (39.5 US gpm) flow
<b>E2H07(130)</b>	3CU871E223	130 l/min (34.3 US gpm) flow
<b>E2H06(110)</b>	3CU871E222	110 l/min (29 US gpm) flow
<b>E2H05(90)</b>	3CU871E215	90 l/min (23.8 US gpm) flow
<b>E2H04(70)</b>	3CU871E221	70 l/min (18.5 US gpm) flow
<b>E2H03(50)</b>	3CU871E220	50 l/min (13.2 US gpm) flow
<b>E2H02(30)</b>	3CU871E219	30 l/min (7.9 US gpm) flow
<b>E2H13(20)</b>	3CU871E218	20 l/min (5.3 US gpm) flow
<b>E2H01(10)</b>	3CU871E217	10 l/min (2.6 US gpm) flow
<u>Single acting on A or B, other port plugged: SAE12 plug is required</u>		
<b>E308-E408(150)</b>	3CU871E308	150 l/min (39.5 US gpm) flow
<b>E306-E406(110)</b>	3CU871E306	110 l/min (29 US gpm) flow
<b>E303-E403(50)</b>	3CU871E303	50 l/min (13.2 US gpm) flow
<b>E313-E413(20)</b>	3CU871E313	20 l/min (5.3 US gpm) flow
<u>Double acting with A and B closed in neutral pos., 4 positions, floating in 4<sup>th</sup> pos. with spool in: needs control kit type 13EB3...13EZ3...</u>		
<b>E508(150)</b>	3CU871E508	150 l/min (39.5 US gpm) flow
<b>E507(130)</b>	3CU871E507	130 l/min (34.3 US gpm) flow
<b>E504(70)</b>	3CU871E504	70 l/min (18.5 US gpm) flow

**7 Port valves page 153**

TYPE	CODE	DESCRIPTION
<u>Pressure relief valves</u>		
<b>UL(50)</b>	5KIT340050L	Setting 50 bar (725 psi)
<u>Antishock valves</u>		
<b>US(25)</b>	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	SAE12 plug

**4 Two-side electrohydr. control page 148**

TYPE	CODE	DESCRIPTION
<u>Without lever control</u>		
<b>8EB3-12VDC</b>	5IDR909312V	With AMP connector
<b>8EB3-24VDC</b>	5IDR909324V	As previous one
<b>8EB34-12VDC</b>	5IDR909329V	With Deutsch connector
<b>8EB34-24VDC</b>	5IDR909330V	As previous one
<b>8EB3F3-12VDC</b>	5IDR909313V	With AMP connector with spool stroke limiter
<b>8EB3F3-24VDC</b>	5IDR909317V	As previous one
<b>8EB34F3-12VDC</b>	5IDR909314V	With Deutsch connector with spool stroke limiter
<b>8EB34F3-24VDC</b>	5IDR909331V	As previous one
<u>Without lever control: for floating circuit (E5 spool)</u>		
<b>13EB3-12VDC</b>	5IDR919312V	With AMP connector
<b>13EB3-24VDC</b>	5IDR919324V	As previous one
<b>13EB34-12VDC</b>	5IDR919317V	With Deutsch connector
<b>13EB34-24VDC</b>	5IDR919318V	As previous one
<u>With lever control</u>		
<b>8EB3LH-12VDC</b>	5IDR909315AV	With AMP connector
<b>8EB3LH-24VDC</b>	5IDR909326AV	As previous one
<b>8EB34LH-12VDC</b>	5IDR909332AV	With Deutsch connector
<b>8EB34LH-24VDC</b>	5IDR909333AV	As previous one
<b>8EB3LHF3-12VDC</b>	5IDR909355V	With AMP connector with spool stroke limiter
<b>8EB3LHF3-24VDC</b>	5IDR909354V	As previous one
<b>8EB34LHF3-12VDC</b>	5IDR909334AV	With Deutsch connector with spool stroke limiter
<b>8EB34LHF3-24VDC</b>	5IDR909335AV	As previous one
<u>With lever control and spool position sensor</u>		
<b>8EB3LHSPSD-12VDC</b>	5IDR909341V	AMP conn. and digital sensor
<b>8EB3LHSPSD-24VDC</b>	5IDR909338AV	As previous one
<b>8EB3LHF3SPSD-12VDC</b>	5IDR909339V	AMP conn., digital sensor and spool stroke limiter
<b>8EB3LHF3SPSD-24VDC</b>	5IDR909336AV	As previous one
<u>With lever control: for floating circuit (E5 spool)</u>		
<b>13EB3LH-12VDC</b>	5IDR919313AV	With AMP connector
<b>13EB3LH-24VDC</b>	5IDR919325AV	As previous one
<b>13EB34LH-12VDC</b>	5IDR919319V	With Deutsch connector
<b>13EB34LH-24VDC</b>	5IDR919320V	As previous one
<b>13EB3LHF3-12VDC</b>	5IDR919314V	With AMP connector with spool stroke limiter
<b>13EB3LHF3-24VDC</b>	5IDR919326AV	As previous one
<b>13EB34LHF3-12VDC</b>	5IDR919321AV	With Deutsch connector with spool stroke limiter
<b>13EB34LHF3-24VDC</b>	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
<b>8EZ3-12VDC</b>	5IDR609315V	With AMP connector
<b>8EZ3-24VDC</b>	5IDR609316V	As previous one
<b>8EZ34-12VDC</b>	5IDR609317V	With Deutsch connector
<b>8EZ34-24VDC</b>	5IDR609318V	As previous one
<u>With spool position sensor</u>		
<b>8EZ34SPSL-0.5(A)-4.5(B)-12VDC</b>	5IDR609313V	Deutsch conn. and analog sensor
<u>With lever control: for floating circuit (spool E5)</u>		
<b>13EZ3-12VDC</b>	5IDR619300V	With AMP connector
<b>13EZ3-24VDC</b>	5IDR619302V	As previous one
<b>13EZ34-12VDC</b>	5IDR619301V	With Deutsch connector
<b>13EZ34-24VDC</b>	5IDR619303V	As previous one

**6 One-side electrohydr. option; "B" side" page 152**

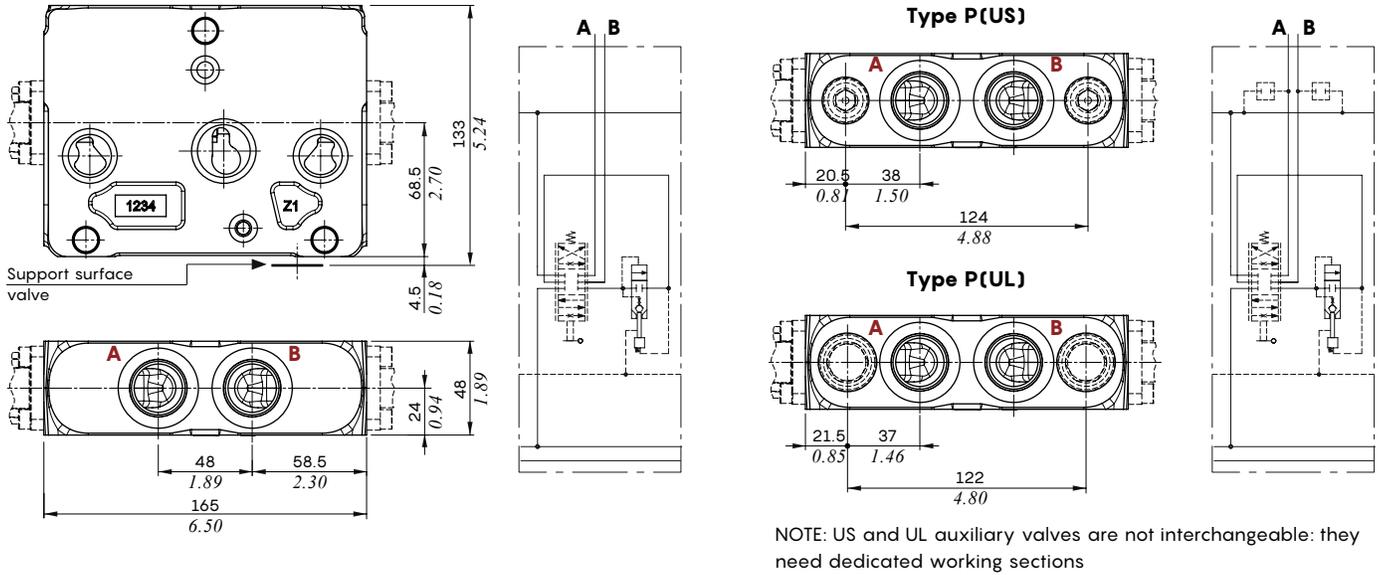
**These options must be coupled with "A" side controls**

TYPE	CODE	DESCRIPTION
<b>LQ</b>	5LEV160700AV	Lever box
<b>LQF3</b>	5LEV160701AV	Lever box with spool stroke limiter
<b>SLCQ</b>	5COP260000V	Without lever with endcap

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

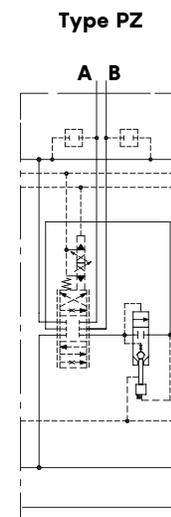
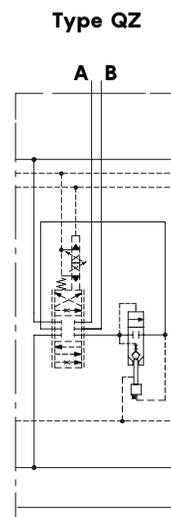
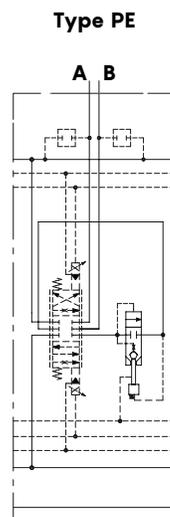
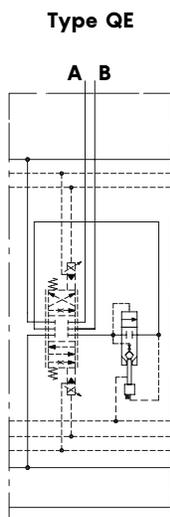
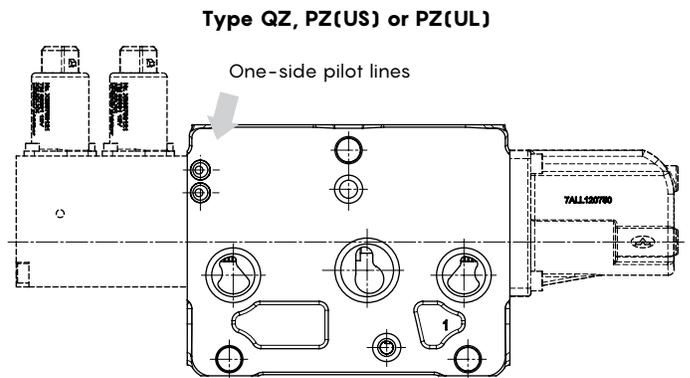
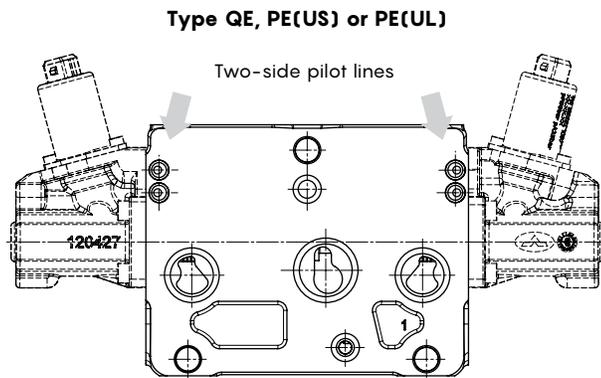
Dimensions and hydraulic circuit

Section for mechanical and proportional hydraulic controls



Section for two-side electrohydraulic control

Section for one-side electrohydraulic control

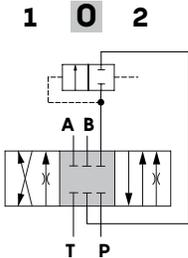


Working section

Spool

**Type 1 (1../E1..)**

A, B closed in neutral position

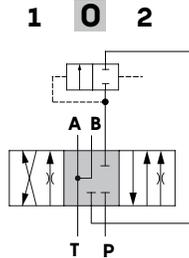


**Stroke**

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

**Type 2 (2../E2..)**

A, B to tank in neutral position

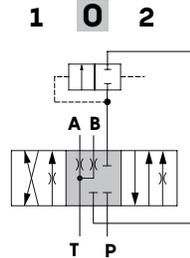


**Stroke**

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

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

A, B partially to tank in neutral position

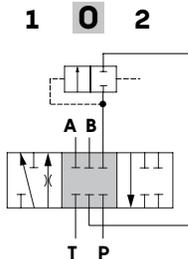


**Stroke**

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

**Type 3 (3../E3..)**

Single acting on A

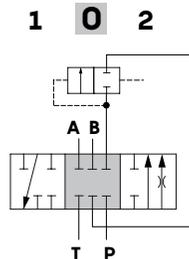


**Stroke**

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

**Type 4 (4../E4..)**

Single acting on B

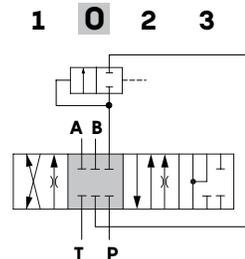


**Stroke**

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

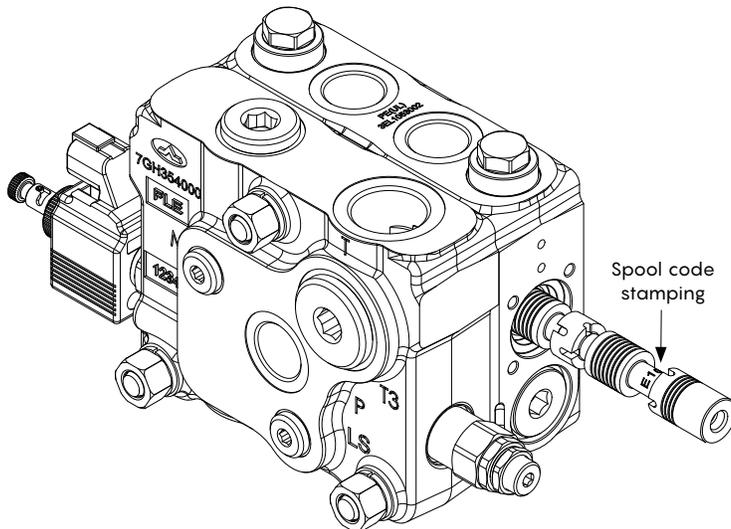
**Type 5 (5../E5../I5..)**

Floating in 4<sup>th</sup> position (pos.3)



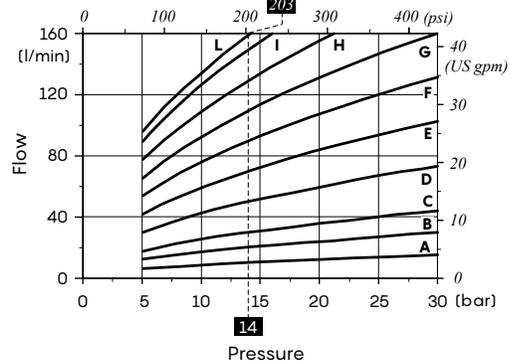
**Stroke**

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)**

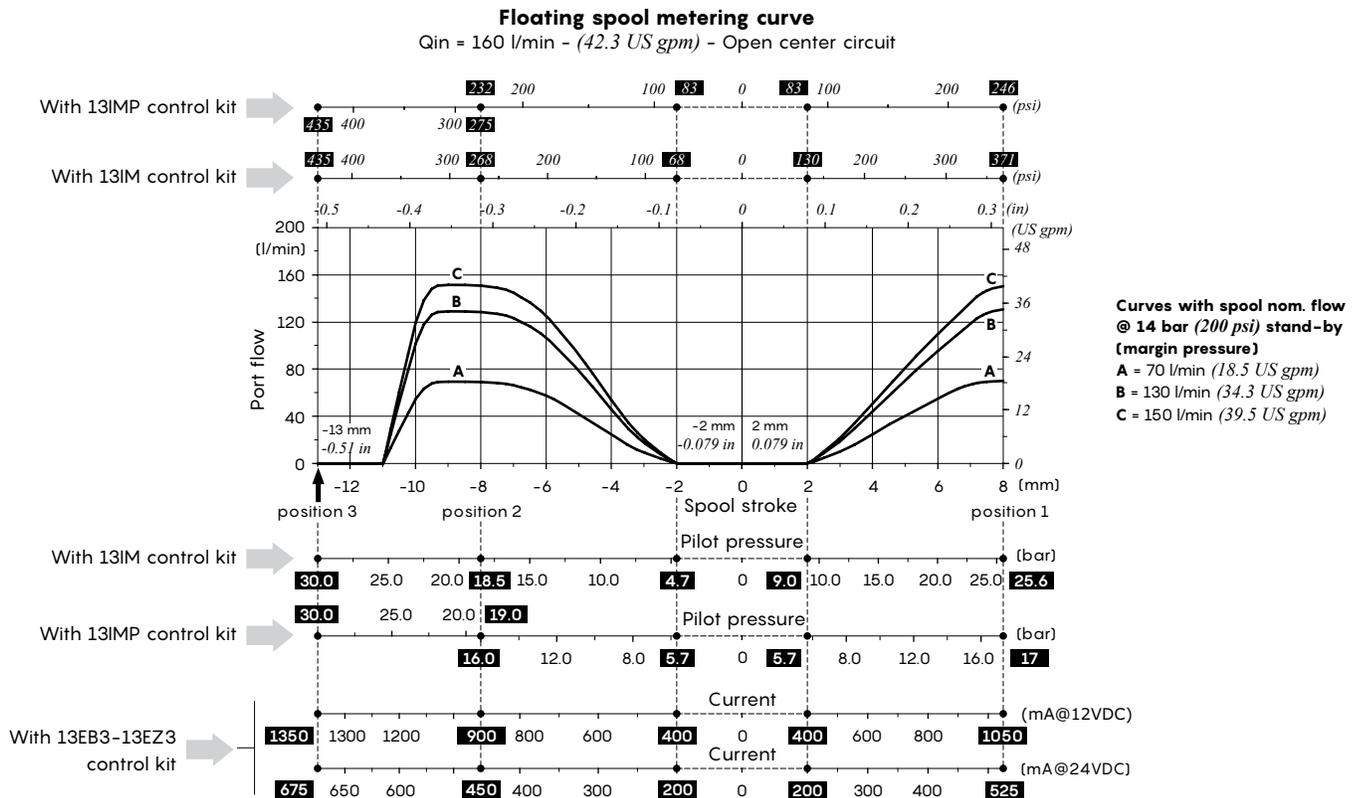
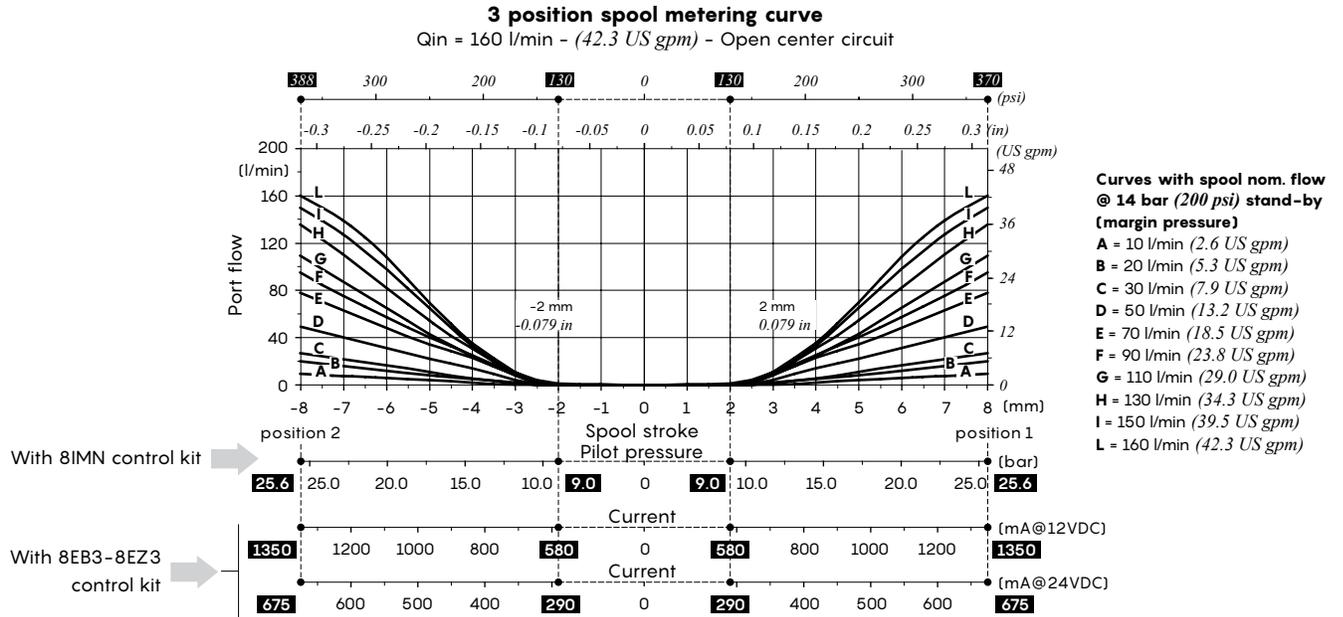


**Curves with spool nominal flow @ 14 bar (200 psi) stand-by (margin pressure)**

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

Spool

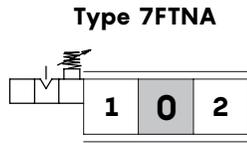
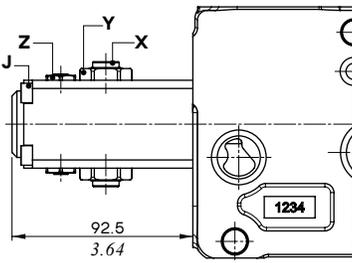
Following curves are detected with standard spools, connecting P→A→B→T and P→B→A→T ports without flow multiplication. Customized spools with backpressure or flow multiplication may require different force, pressure and pilot current for operation.



Working section

"A" side spool positioners

With friction and neutral position notch



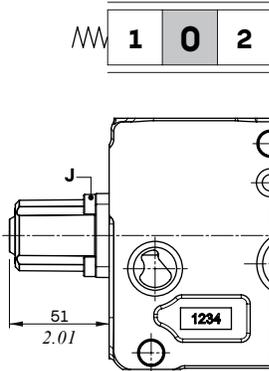
Wrenches and tightening torques

- J = allen wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- X = allen wrench 4
- Y = wrench 24 - manual tightening
- Z = wrench 15 - 42 Nm (31 lbf<sub>t</sub>)

With spring return to neutral position

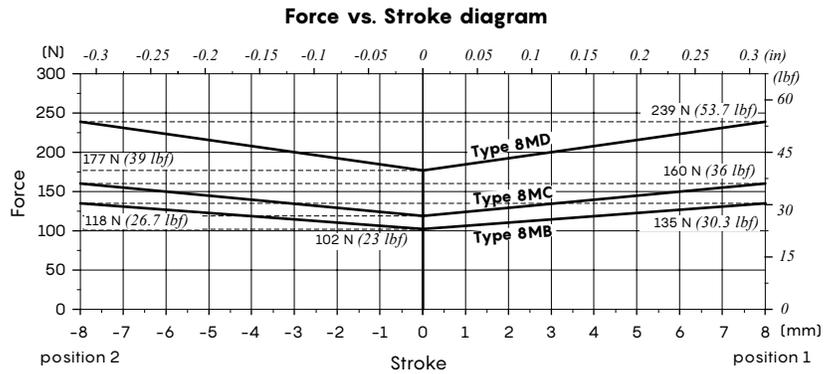
It's configured with spring type D, as standard (see diagram); it's also available with lighter type C springs (8MC code: 5V08109002) or extra-lighter type B (8MB code 5V08109003).

Types 8MD/8MC/8MB  
Standard/lighter/extra-lighter springs



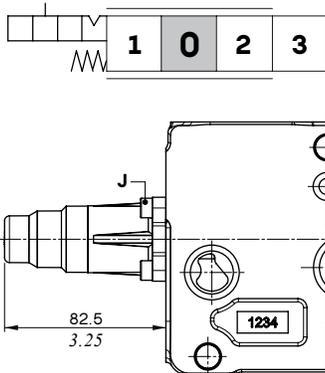
Wrenches and tightening torques

- J = allen wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)



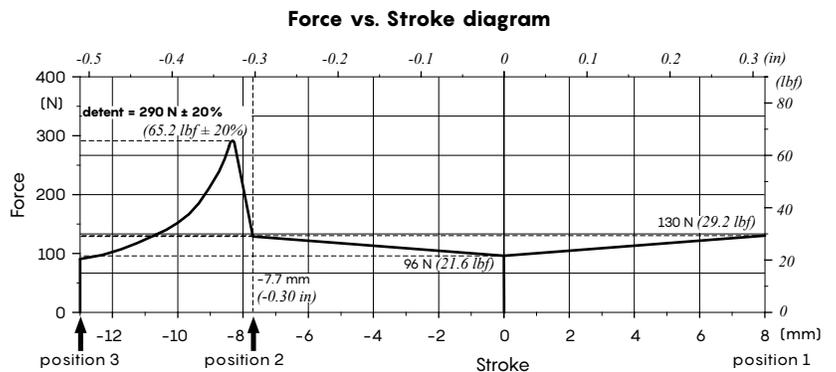
With spring return to neutral position, for floating circuit

Type 13



Wrenches and tightening torques

- J = allen wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)

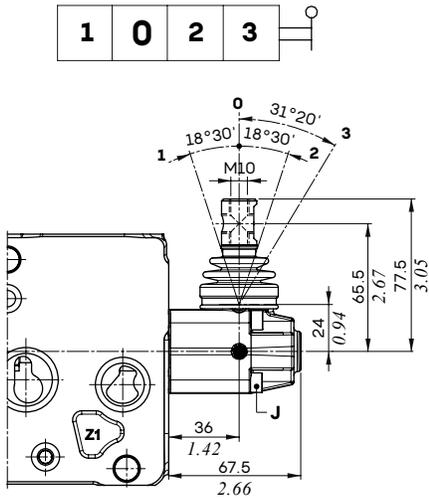


Release force from pos.3: 260 N ± 20% (58.5 lbf ± 20%)

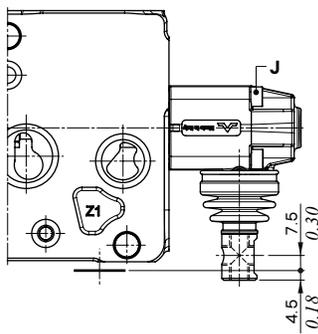
"B" side spool control kit

Lever box

Type L

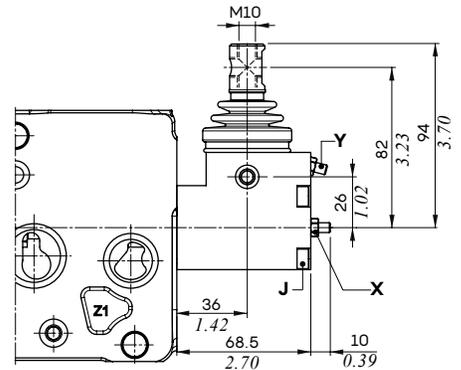
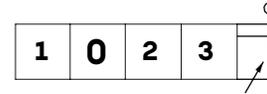


L180 configuration



Type LFG

Spool stroke limiter on A and B ports

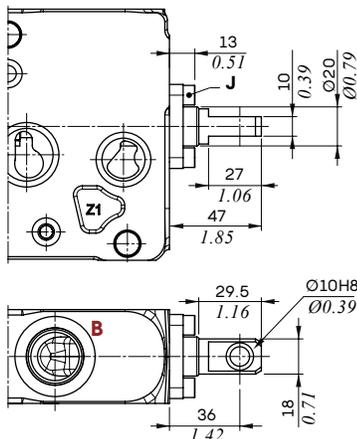


**Wrenches and tightening torques**

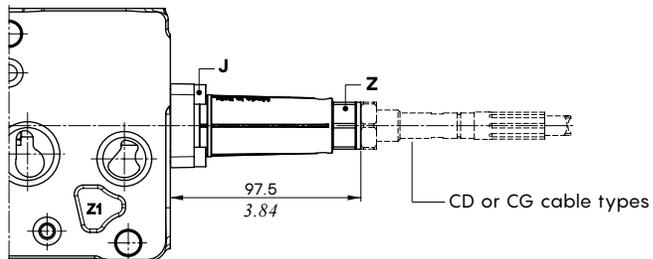
- J = allen wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- X = allen wrench 2.5
- Y = wrench 8 - 6.6 Nm (4.9 lbf<sub>t</sub>)

Without lever box

Type SLP  
With dust-proof plate



Type TQ  
Flexible cable connection



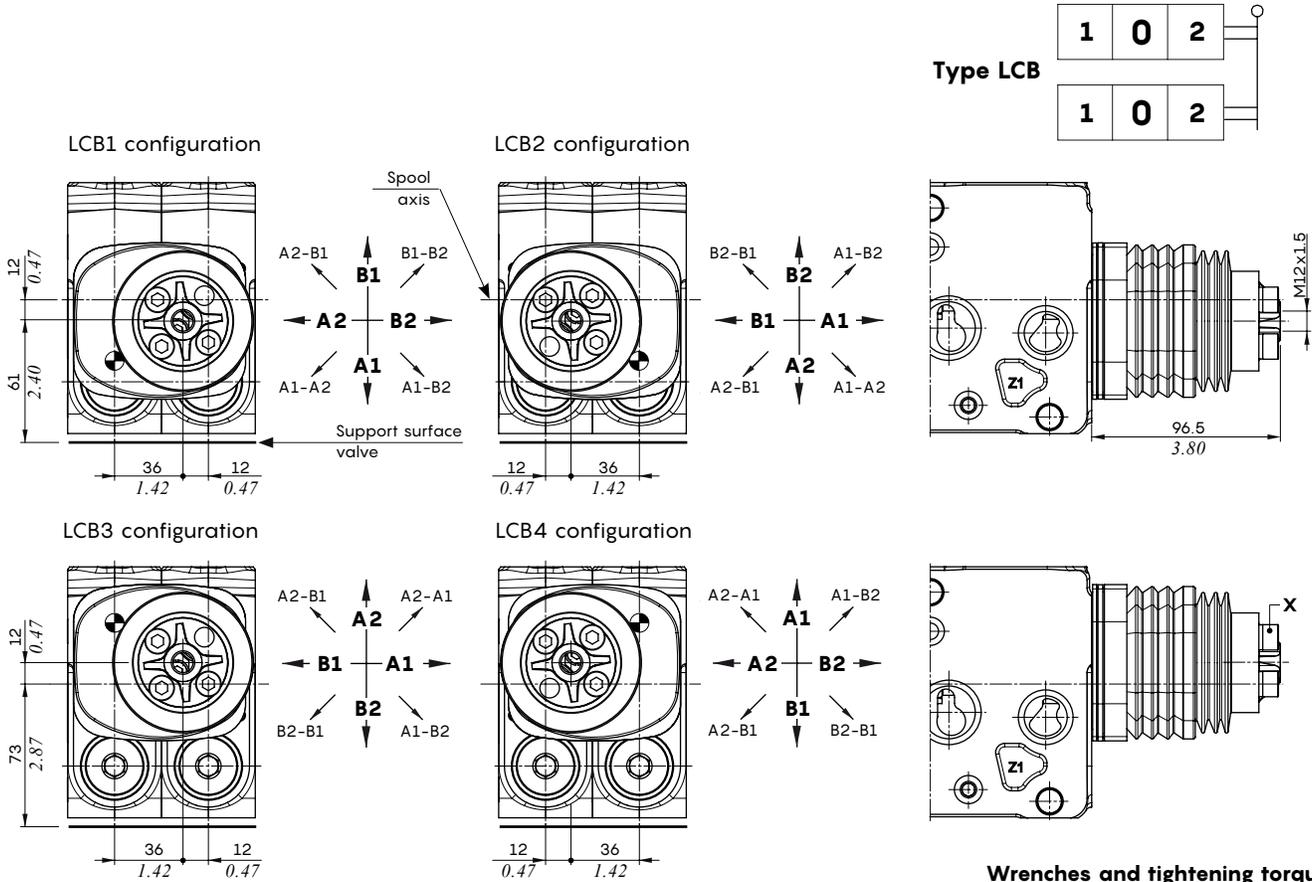
**Wrenches and tightening torques**

- J = allen wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- Z = wrench 24

Working section

"B" side spool control kit

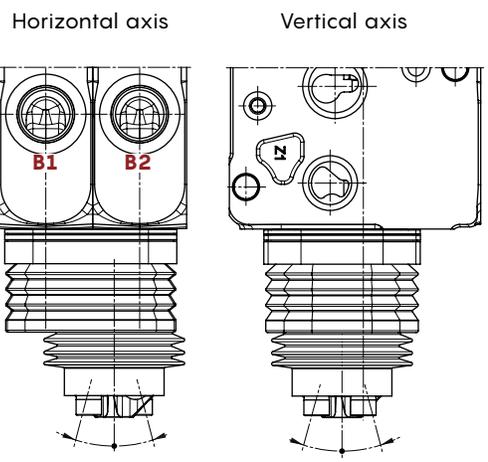
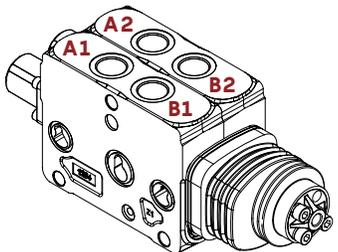
Joysticks for two section operation



**Wrenches and tightening torques**  
 X = allen wrench 6 - 24 Nm (17.7 lbf)

Working angles

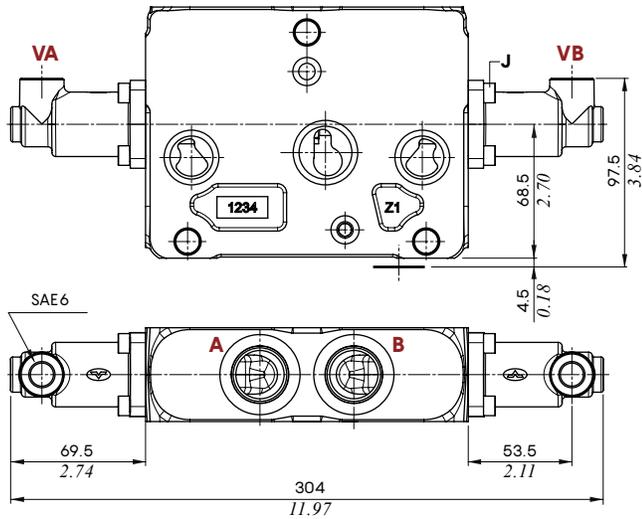
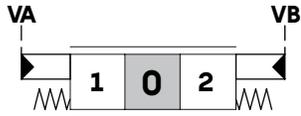
LCB1 configuration example



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

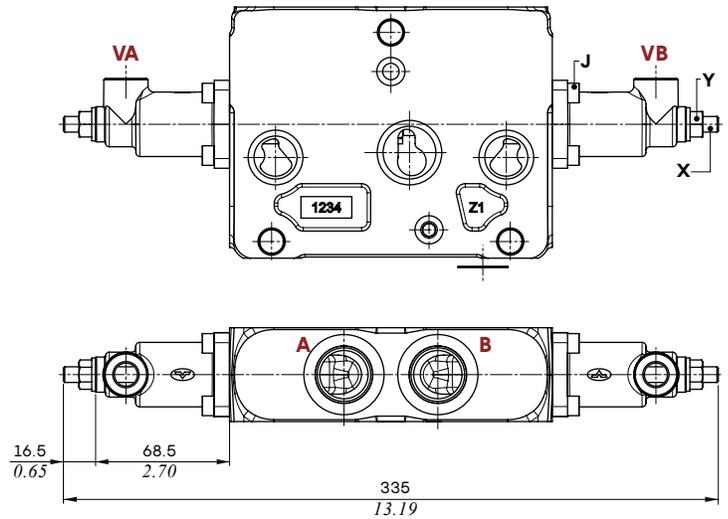
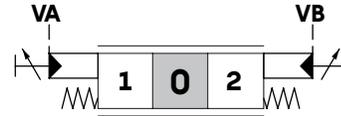
Proportional hydraulic control

Type 81MNOH



Type 81MNOHF3

With spool stroke limiter on ports A and B



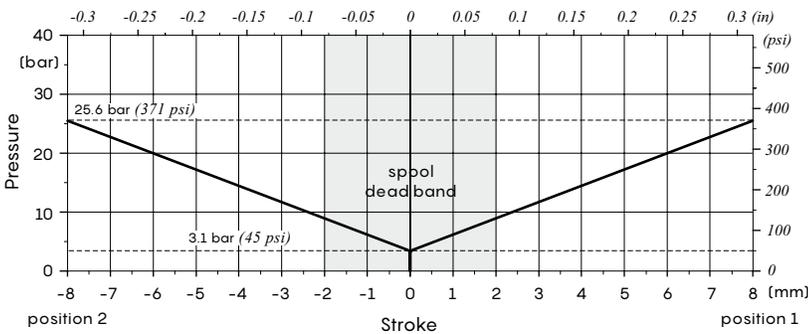
Features (all types)

Max. pressure .....: 50 bar (725 psi)

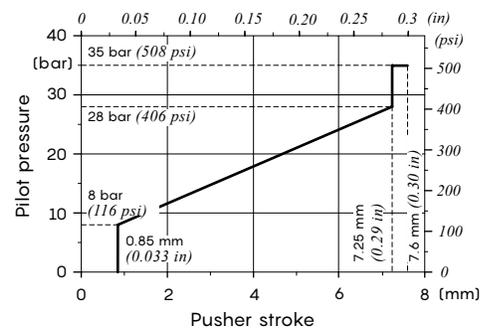
Wrenches and tightening torques

- 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: type 089

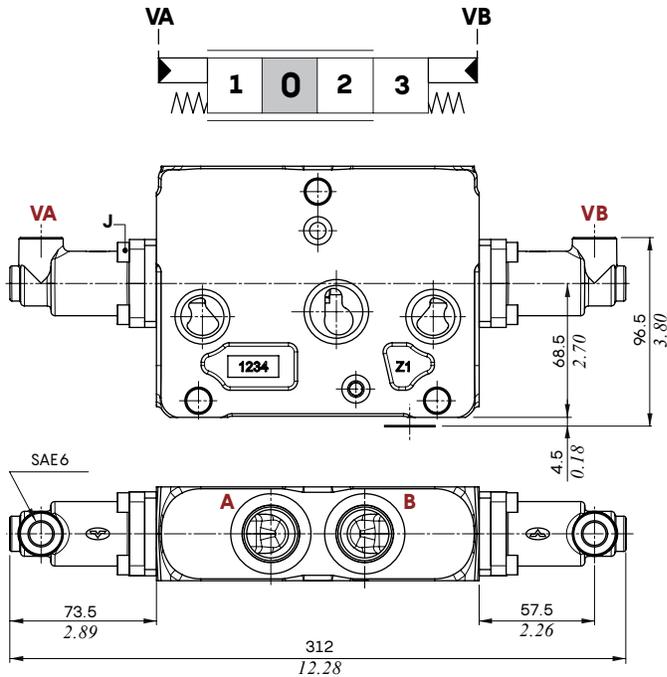


Working section

Proportional hydraulic control

Type 13IM - 13IMP

For floating circuit



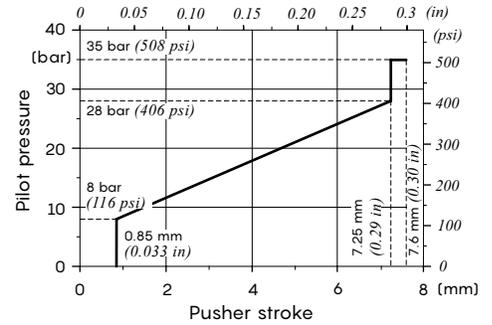
Features

Max. pressure .....: 50 bar (725 psi)

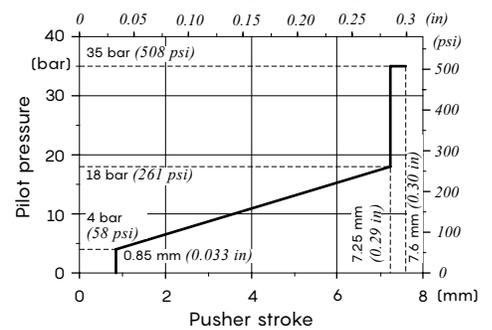
Wrenches and tightening torques

J = allen wrench 5 - 9.8 Nm (7.2 lbf ft)

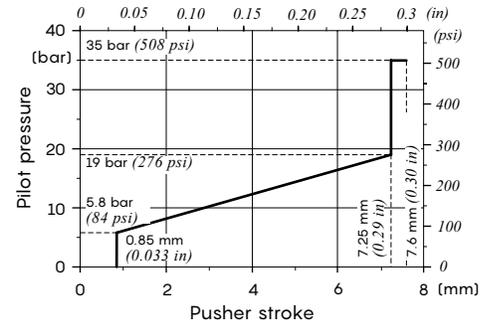
Type 13IM - suggested pressure control curve on port VA: type 089



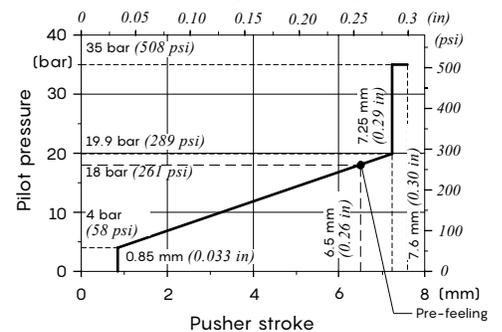
Type 13IMP - suggested pressure control curve on port VA: type 073



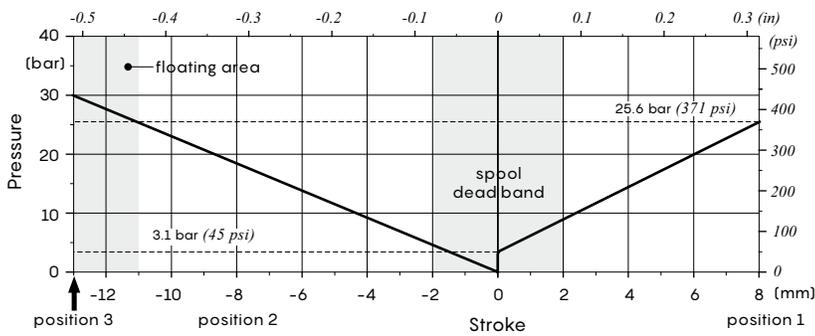
Type 13IM - suggested pressure control curve on port VB: type 033



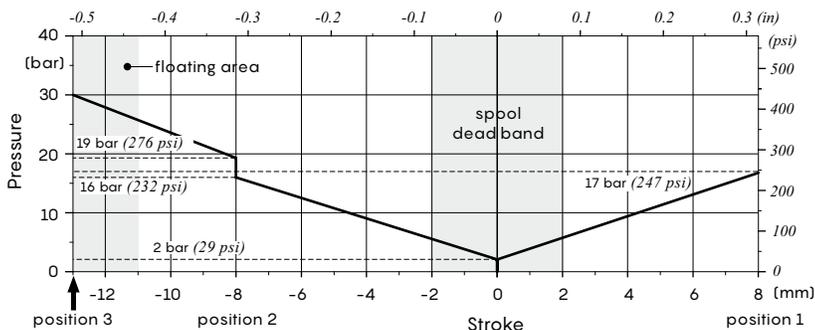
Type 13IMP - suggested pressure control curve on port VB: type E073



Type 13IM: Stroke vs. Pressure diagram



Type 13IMP: Stroke vs. Pressure diagram



**Electrohydraulic control performance data**

Following specifications are measured with:

- mineral oil of 46 mm<sup>2</sup>/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.

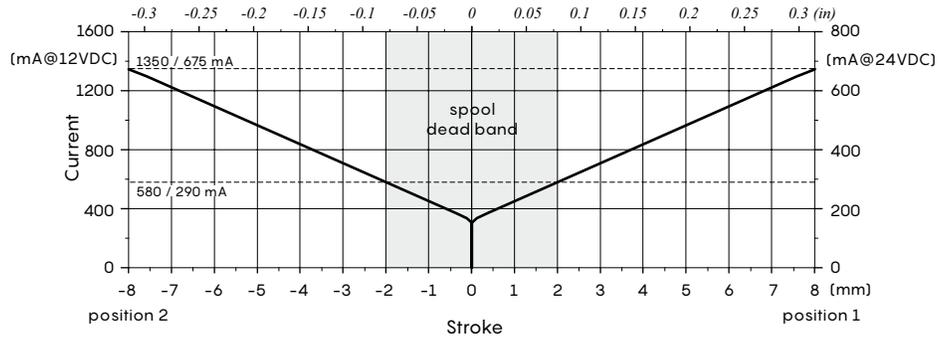
Specifications		Spool control type			
		8EB3	13EB3	8EZ3	13EZ3
<b>Electric specifications</b>					
Coil impedance	12 VDC	4,72 Ω	4,72 Ω	4,72 Ω	4,72 Ω
	24 VDC	20,8 Ω	20,8 Ω	20,8 Ω	20,8 Ω
Max. operating current	12 VDC	1,5 A	1,5 A	1,5 A	1,5 A
	24 VDC	0,75 A	0,75 A	0,75 A	0,75 A
No load current consumption		0	0	0	0
<u>With lever box configured controls</u>					
Hysteresis max. <sup>(1)</sup>	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)	
<b>Hydraulic specifications</b>					
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.

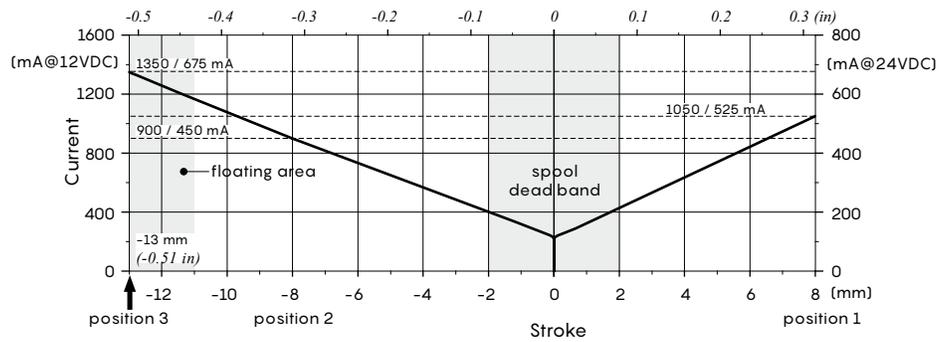
Working section

Electrohydraulic control performance data

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



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



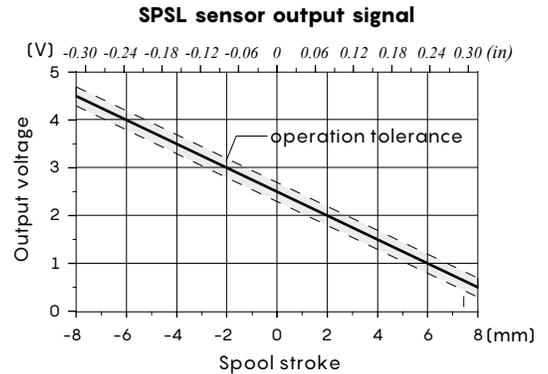
**Electrohydraulic controls: spool position sensor**

The sensor can be ordered exclusively through the EB and EZ type electrohydraulic controls; see page 136 for available control list.

**SPSL sensor**

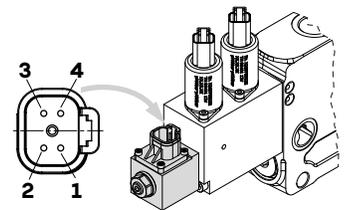
The SPSL position sensor converts the spool movements into a voltage linear signal.

Working conditions		
Voltage supply		5 VDC
Current absorption		< 10 mA (no load)
Mechanical life		3x10 <sup>6</sup>
Connector type		DT04-4P Deusch
Weather protection		IP67 / IP69K
Working temperature		from -40°C to 105°C <i>(from -40°F to 221°F)</i>
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

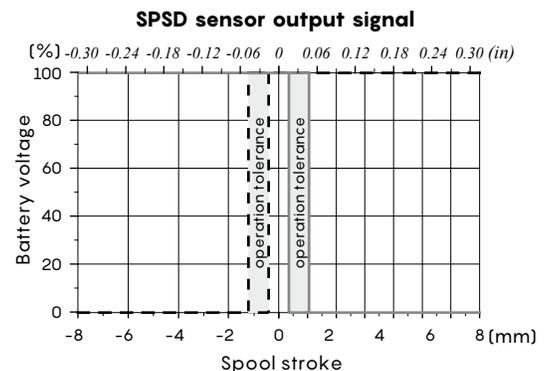


Deutsch DT06-4S mating connector, code 5CON140072

**SPSD sensor**

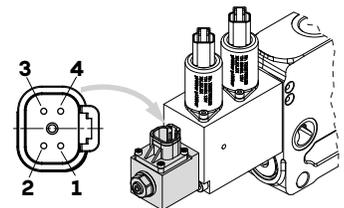
The SPSSD position sensor converts the spool movements into an electric digital signal.

Working conditions		
Voltage supply		from 9 to 32 VDC
Current absorption		< 10 mA (no load)
Mechanical life		3x10 <sup>6</sup>
Connector type		DT04-4P Deusch
Weather protection		IP67 / IP69K
Working temperature		from -40°C to 105°C <i>(from -40°F to 221°F)</i>
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



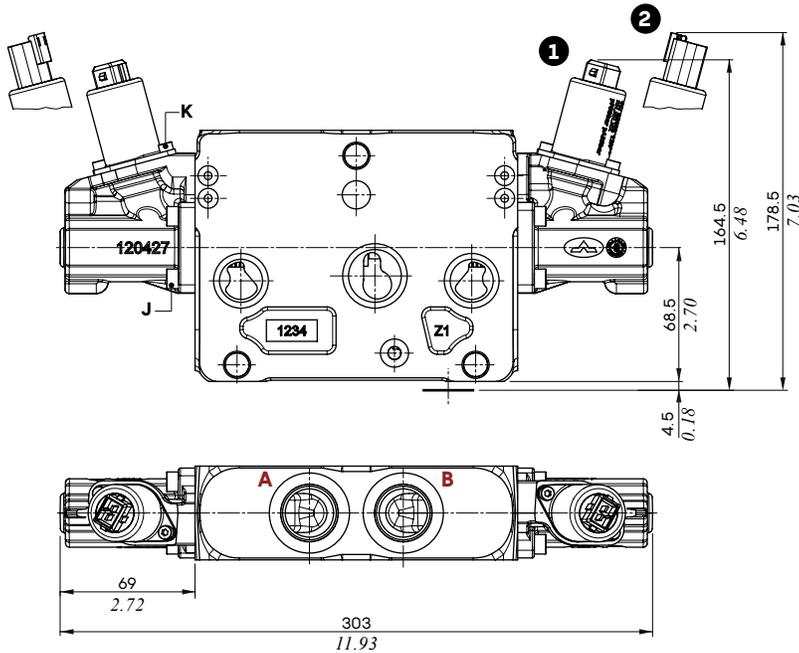
Deutsch DT06-4S mating connector, code 5CON140072

## Working section

### Two-side electrohydraulic control

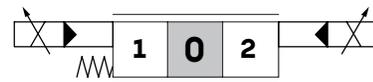
#### Control types

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



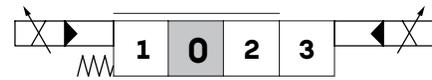
#### Types 8EB3 - 8EB34

Without lever control



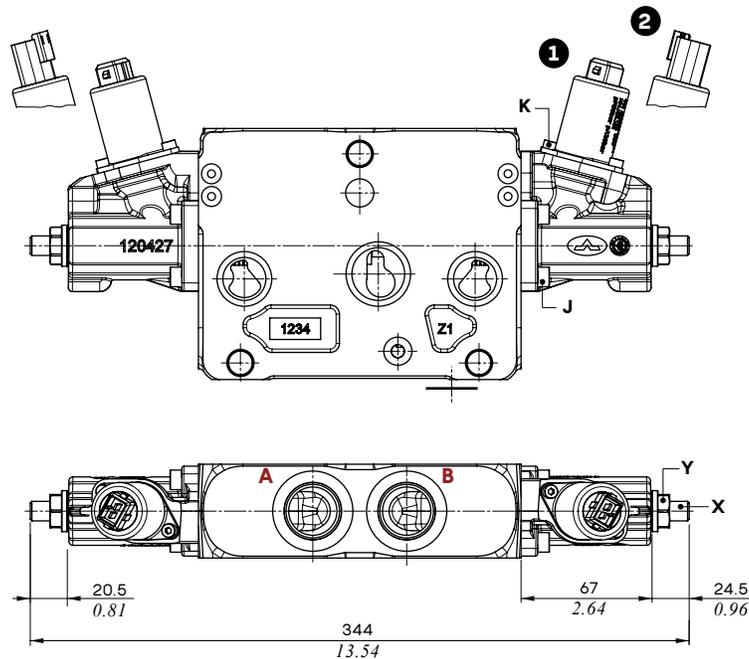
#### Types 13EB3 - 13EB34

For floating circuit



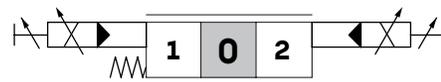
#### Wrenches and tightening torques

- J = allen wrench 5 - 9.8 Nm (7.2 lbft)
- K = allen wrench 3 - 5 Nm (3.7 lbft)
- X = allen wrench 5
- Y = wrench 17 - 24 Nm (17.7 lbft)



#### Types 8EB3F3 - 8EB34F3

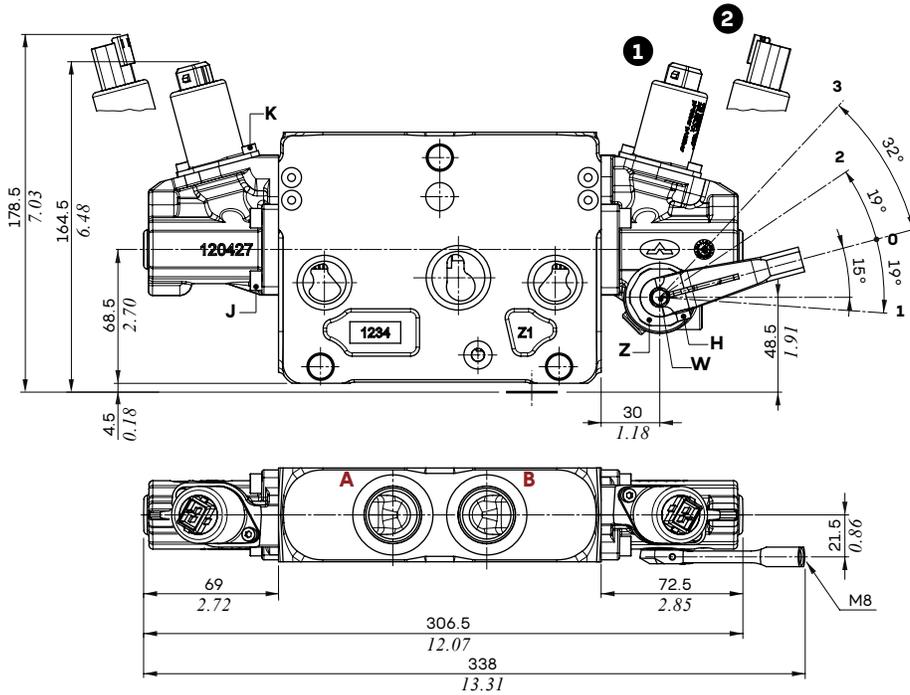
With spool stroke limiter



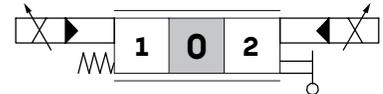
Two-side electrohydraulic control

Control types

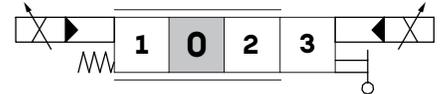
- 1: With AMP JPT connector - AMP JPT mating connector, code: 5CON003
- 2: With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



**Types 8EB3LH - 8EB34LH**  
Lever control

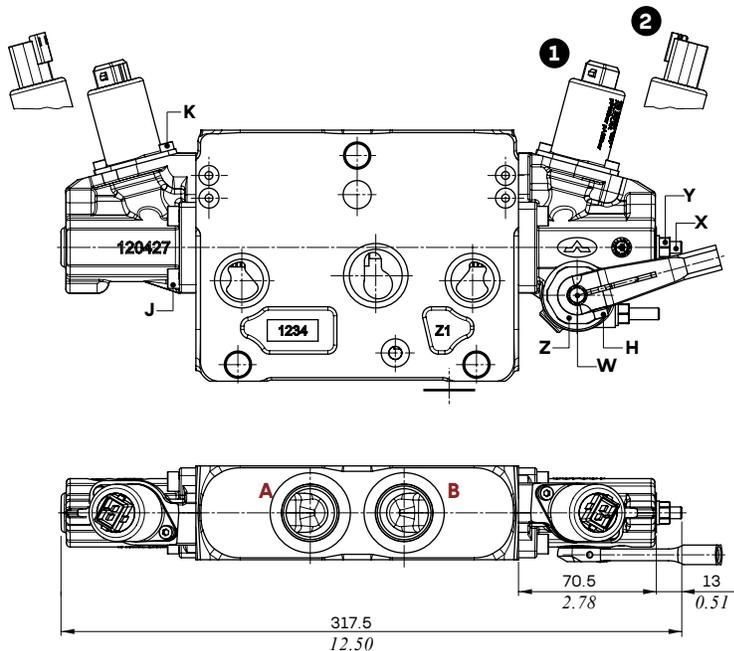


**Types 13EB3LH - 13EB34LH**  
For floating circuit

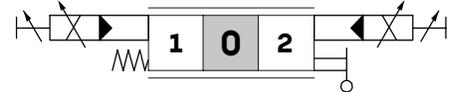


**Wrenches and tightening torques**

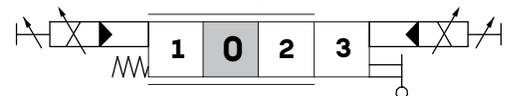
- H = allen wrench 3 - 6.6 Nm (4.9 lbf<sub>t</sub>)
- J = allen wrench 5 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- K = allen wrench 3 - 5 Nm (3.7 lbf<sub>t</sub>)
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbf<sub>t</sub>)
- Z = wrench 29 - 24 Nm (17.7 lbf<sub>t</sub>)
- W = wrench 8



**Types 8EB3LHF3 - 8EB34LHF3**  
Lever control with spool stroke limiter



**Types 13EB3LHF3 - 13EB34LHF3**  
For floating circuit



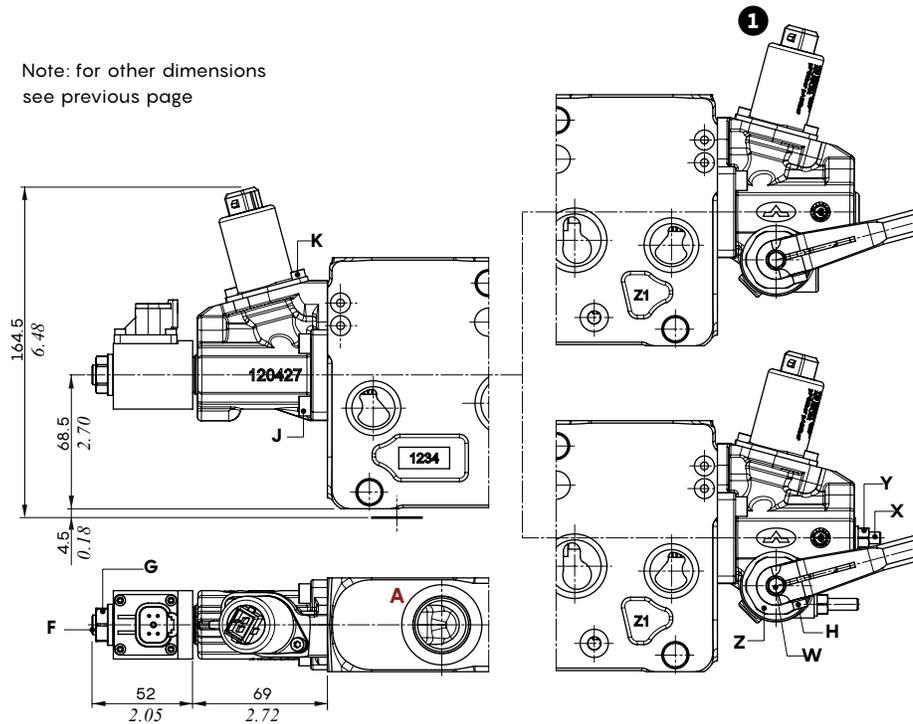
## Working section

### Two-side electrohydraulic control

#### Control type

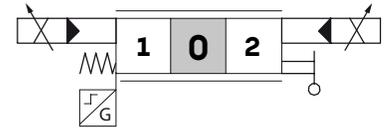
① : With AMP JPT connector – AMP JPT mating connector, code: 5CON003

Note: for other dimensions see previous page



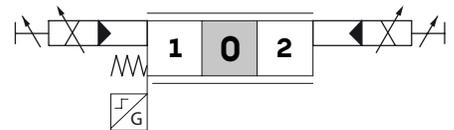
#### Type 8EB3LHSPSD

Lever control and digital output sensor SPSD



#### Type 8EB3LHF3SPSD

Digital output sensor SPSD and spool stroke limiter



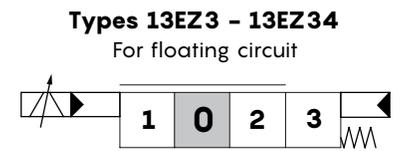
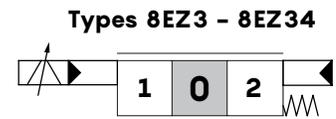
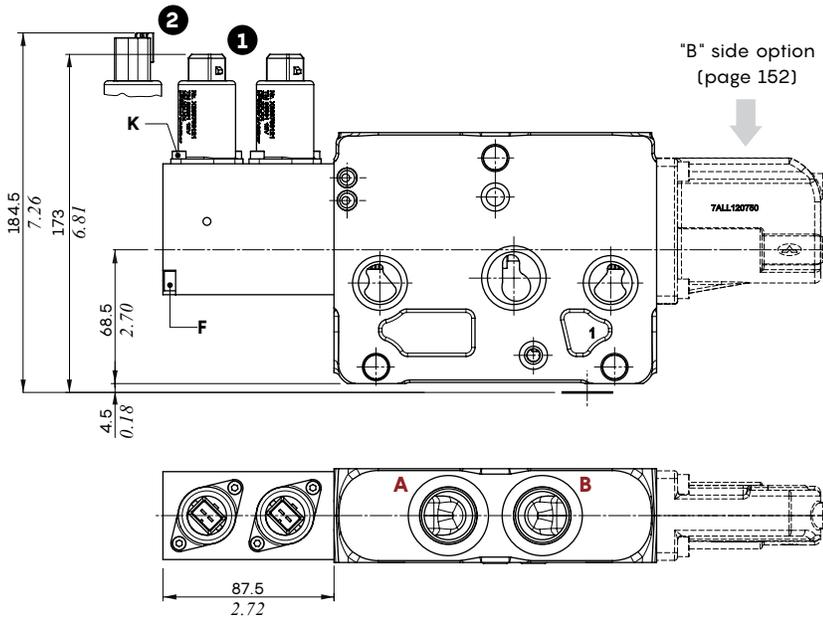
#### Wrenches and tightening torques

- 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

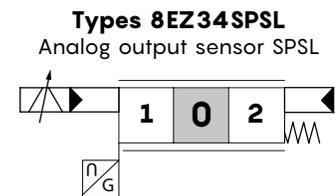
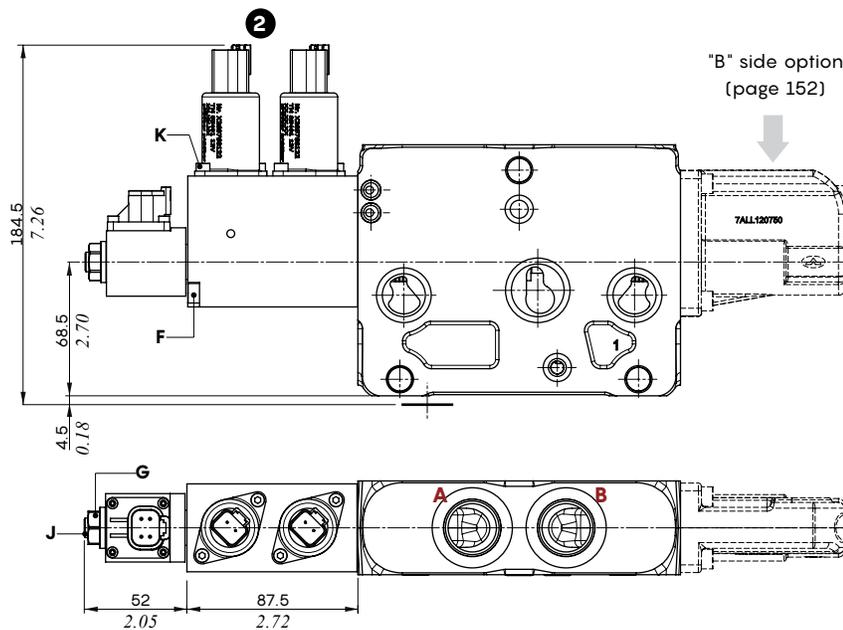
Control types

- 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)

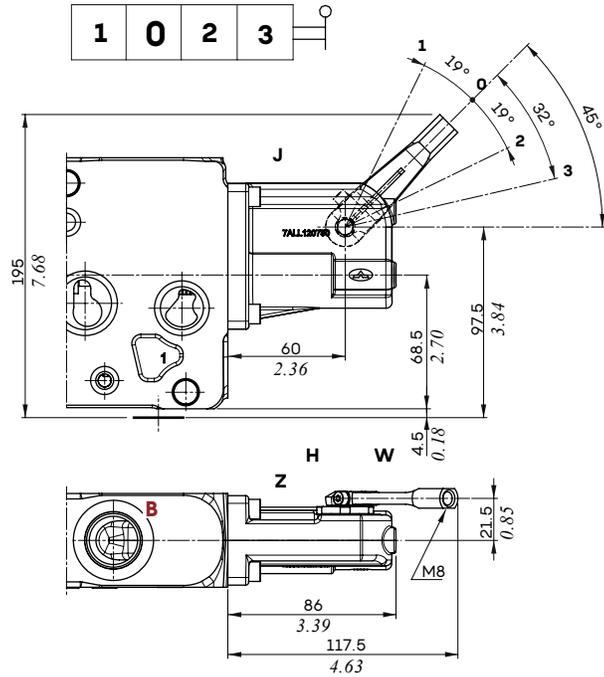


Working section

One-side electrohydraulic control: "B" side option

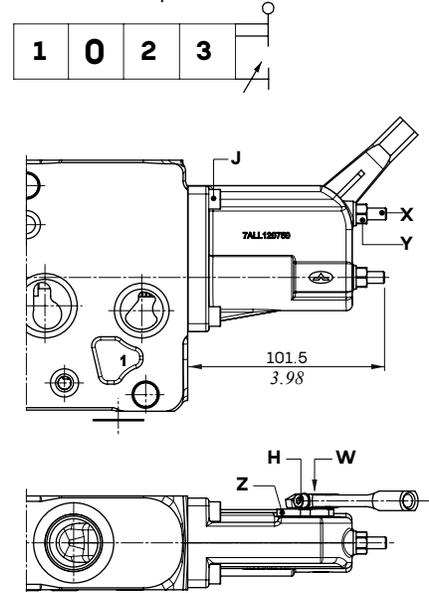
These options are available for one-side electrohydraulic controls only.

Type LQ



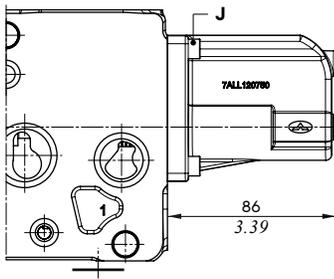
Type LQF3

Spool stroke limiter on A and B ports



Type SLCQ

With endcap

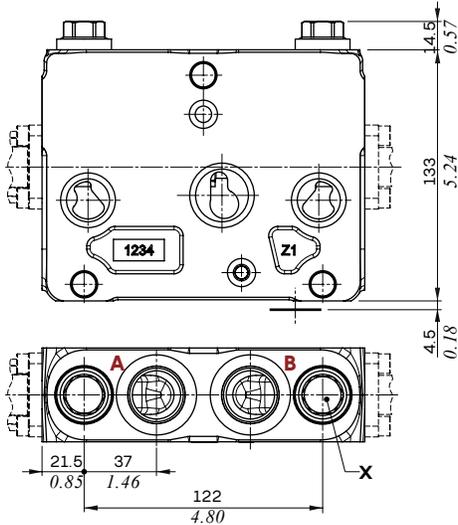


Wrenches and tightening torques

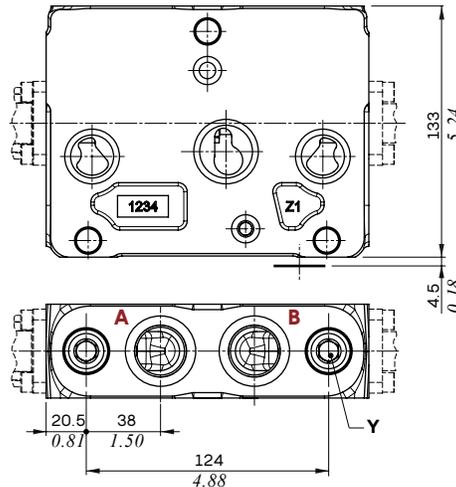
- H = allen wrench 3 - 6.6 Nm (4.9 lbft)
- J = allen wrench 5 - 9.8 Nm (7.2 lbft)
- X = allen wrench 3
- Y = wrench 10 - 9.8 Nm (7.2 lbft)
- Z = wrench 29 - 24 Nm (17.7 lbft)
- W = wrench 8

Port valves

Pressure relief valves, type UL  
Anticavitation valve, type CL



Antishock valves, type US  
Anticavitation valve, type CS



Types UL-US valve:



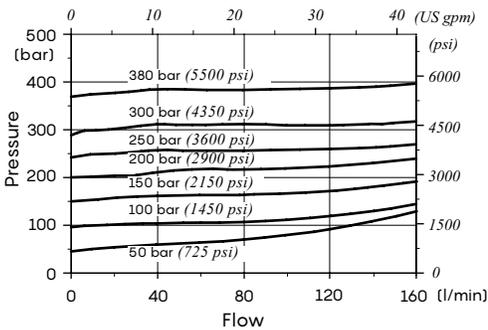
Types CL-CS valve:  
anticavitation



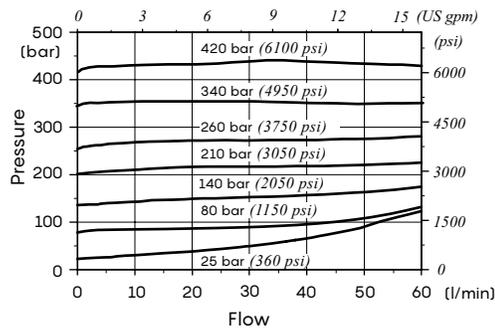
Wrenches and tightening torques

- X = wrench 19 - 42 Nm (31 lbft) - (plug and valves)
- Y = allen wrench 6 - 24 Nm (17.7 lbft) - (plug)
- wrench 10 - 24 Nm (17.7 lbft) (valves)

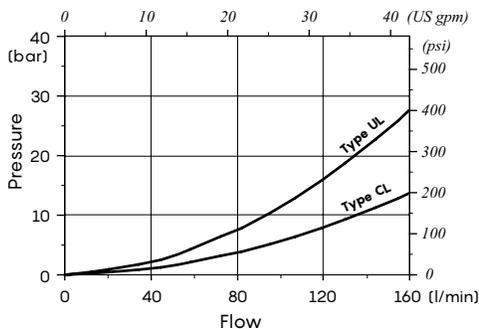
Type UL, setting example  
(5 l/min - 1.3 Us gpm)



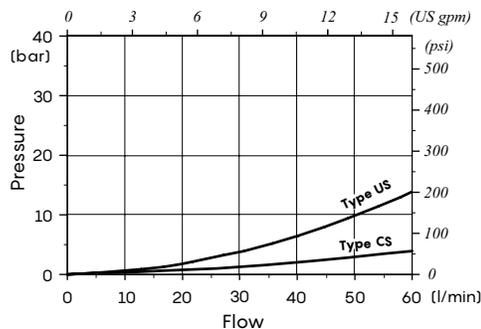
Type US, setting example  
(10 l/min - 2.6 Us gpm)



Types UL-CL, pressure drop  
(in anticavitation)



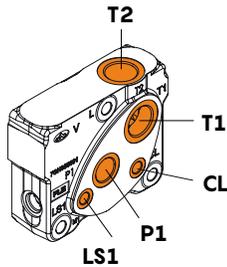
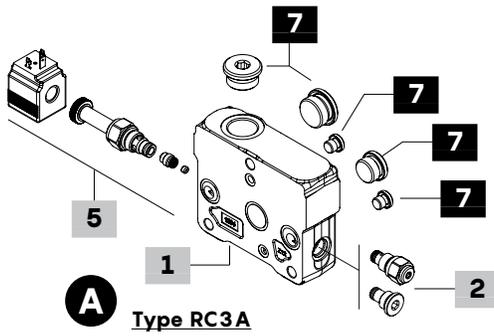
Types US-CS, pressure drop  
(in anticavitation)



Outlet section part ordering codes

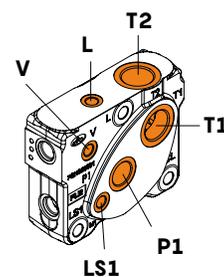
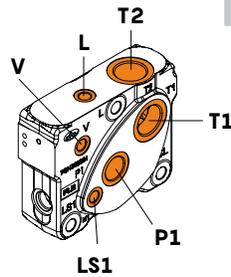
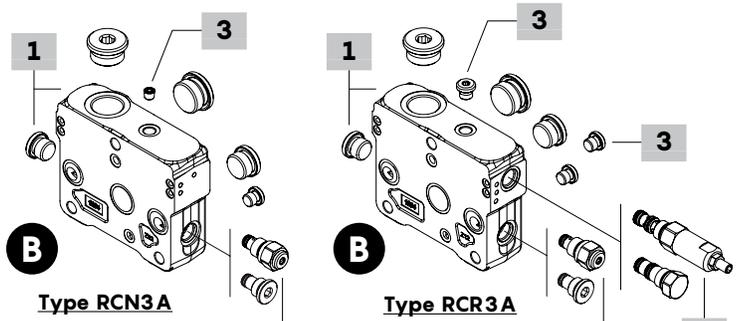
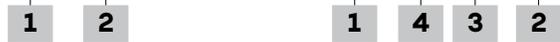
**A** For mechanical and proportional hydraulic controls configuration:

DPX160/RC3A-CLVR3 - ... -12VDC



**B** For electrohydraulic control configuration:

DPX160/RCN3A(VBT)- ... DPX160/RCR3A(RT)(VLT)(VBT)-...



**1** Outlet section kit \* page 155

Outlet section is the same type for standard and High Pressure valve  
**For mechanical and proportional hydraulic controls**  
 TYPE: **DPX160/RC1-SAE** CODE: YFIA205700S  
 DESCRIPTION: With T2 upper port  
 TYPE: **DPX160/RC3-SAE** CODE: YFIA205702S  
 DESCRIPTION: With T2 upper port and P1, T1, LS1 side ports  
 TYPE: **DPX160/RC3-CL-SAE** CODE: YFIA205714S  
 DESCRIPTION: As previous one with clamps release arrang. and CL port  
**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, L upper and V side ports, T2 upper 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 = nr. 2
3XTAP832200	SAE12 plug, for RC1/RCN1/RCR1 = nr. 0 for RC3/RCN3/RCR3 = nr. 1
3XTAP817130	SAE6 plug, for RC1/RCN1/RCR1 = nr. 0 for RC3/RCN3/RCR3 = nr. 1 for RC3-CL/RCN3-CL/RCR3-CL = nr. 2

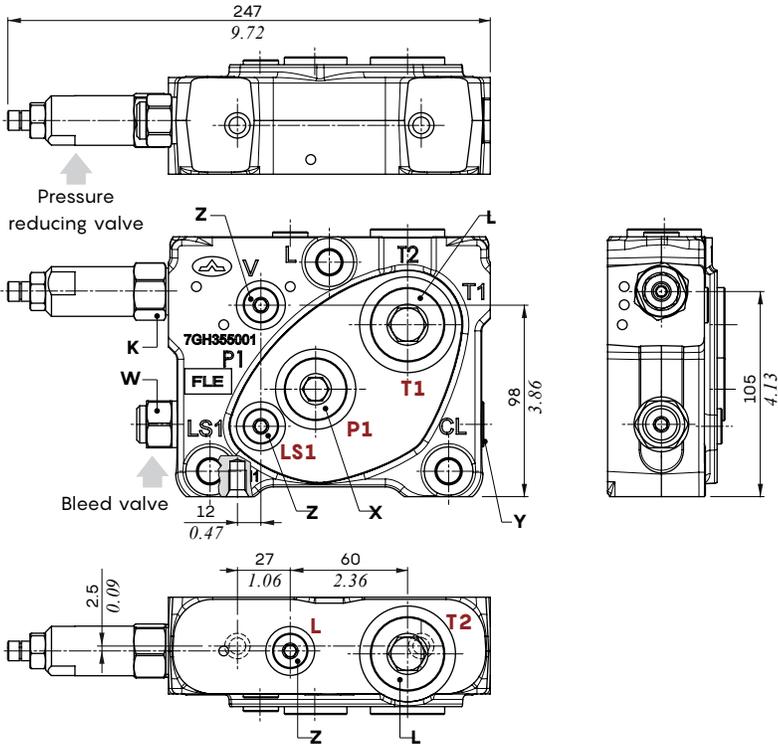
NOTE (\*): Codes are referred to **UN-UNF** thread.  
 NOTE (-): "TYPE" omitted in outlet section description



Outlet section

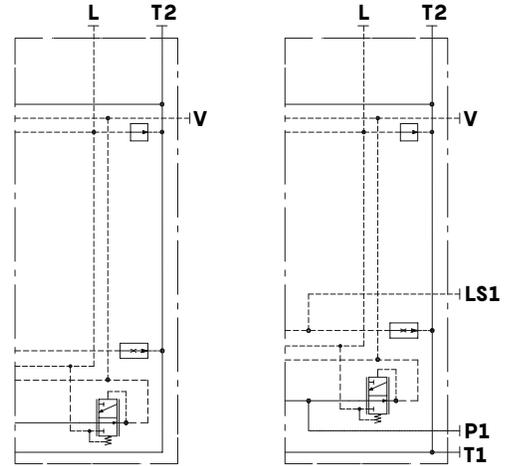
Dimensions and hydraulic circuit

Example of RCR3A outlet section

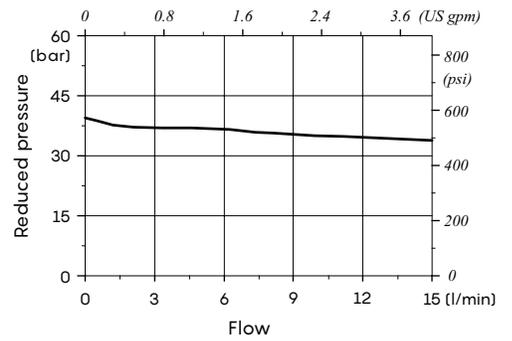


Type RCR1A

Type RCR3A



Pressure reducing valve diagram  
Reduced pressure vs. Flow



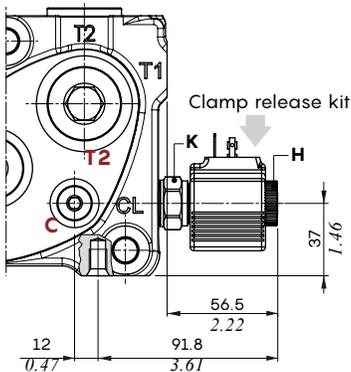
Wrenches and tightening torques

- H = manual tightening
- K = wrench 24 - 30 Nm (22 lbft)
- X = allen wrench 12 - 42 Nm (31 lbft)
- L = allen wrench 17 - 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)

Pressure reducing valve features

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

Outlet sections with clamp release kit



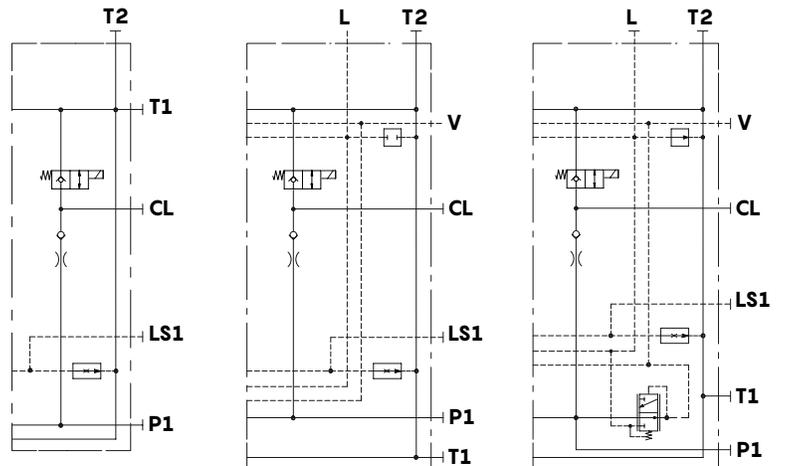
Features

- Max. flow .....: 45 l/min (12 US gpm)
  - Max. pressure .....: 315 bar (4600 psi)
  - Internal leakage .....: max. 3 cm<sup>3</sup>/min @ 100 bar (max. 0.018 in<sup>3</sup>/min @ 1450 psi)
- For coil features and options see BER type coil at page 160.

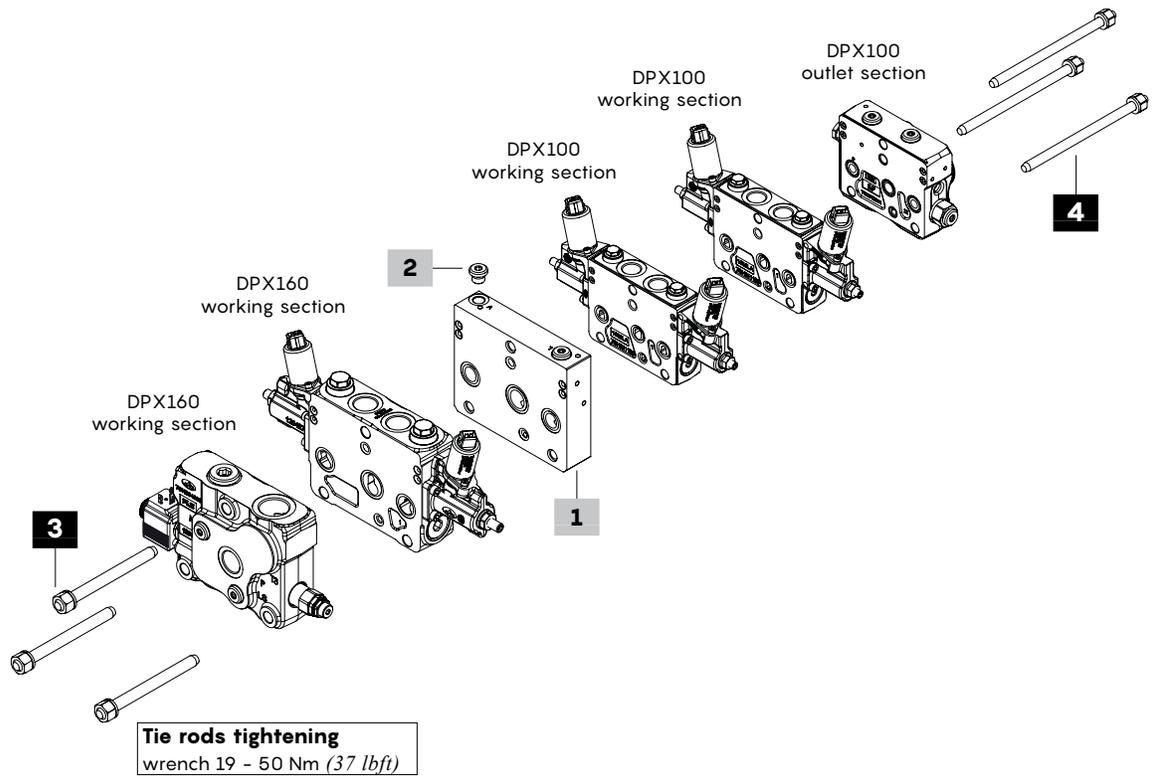
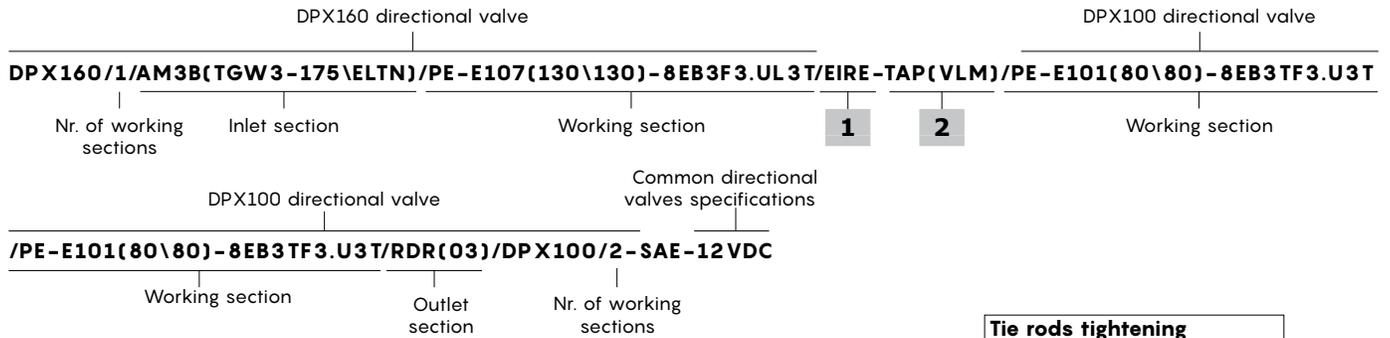
Type RC3A-CL

Type RCN3A-CL

Type RCR3A-CL



Intermediate section



1 Intermediate section <span style="float: right;">page 158</span>		
TYPE	CODE	DESCRIPTION
<b>EIR</b>	3EL4053004*	For valves with hydraulic or mechanical controls, with M1 pressure gauge port
	5GUA160V	FPM o-ring seal kit
<b>EIRE</b>	650425002V#	For valves with two-side electrohydraulic control; with pilot V, drain L, M1 pressure gauge ports
<b>EIRZS</b>	650425004V#	As previous one, for valves with one-side electrohydraulic control

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

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

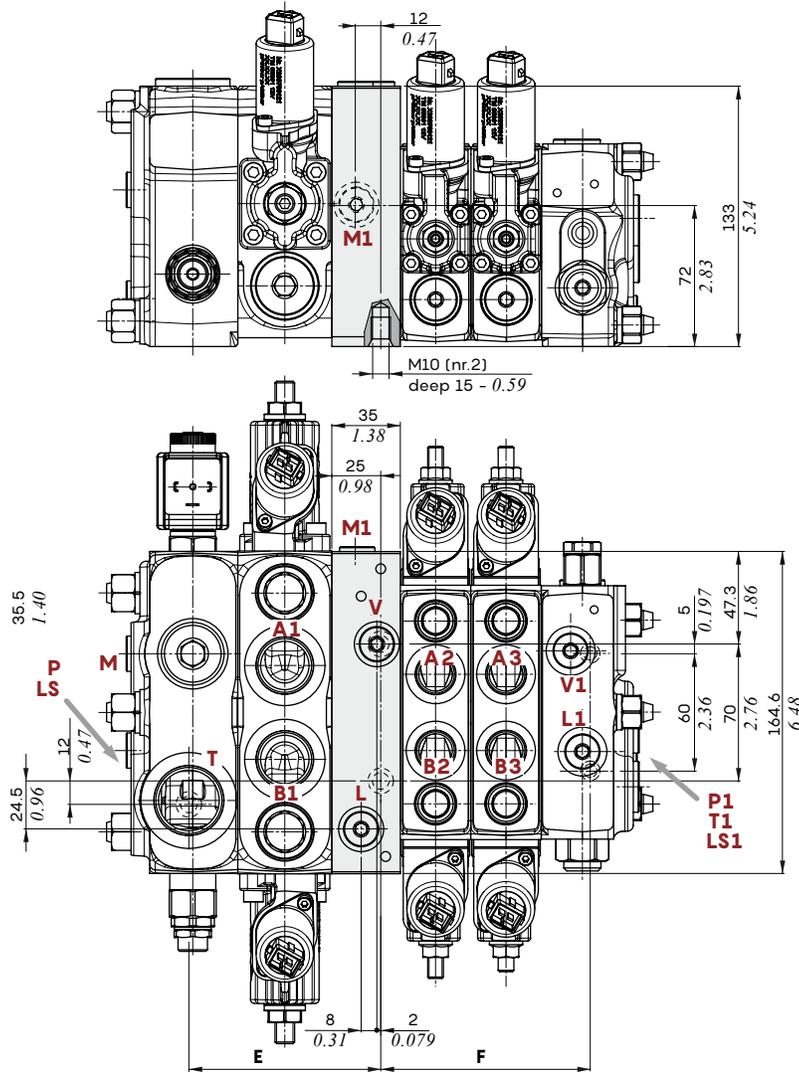
4 DPX100 side assembling kit	
CODE	DESCRIPTION
5TIR110142	For 2 working section valve
5TIR110178	For 3 working section valve
5TIR110216	For 4 working section valve
5TIR110253	For 5 working section valve
5TIR110286L	For 6 working section valve
5TIR110322	For 7 working section valve

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

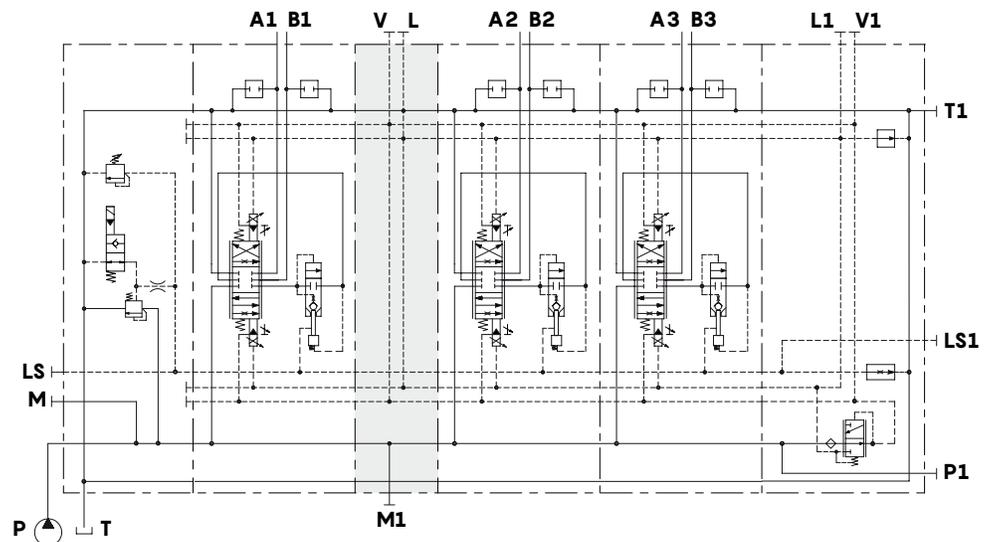
## Intermediate section

### EIRE intermediate section

For DPX valves with two-side electrohydraulic controls.



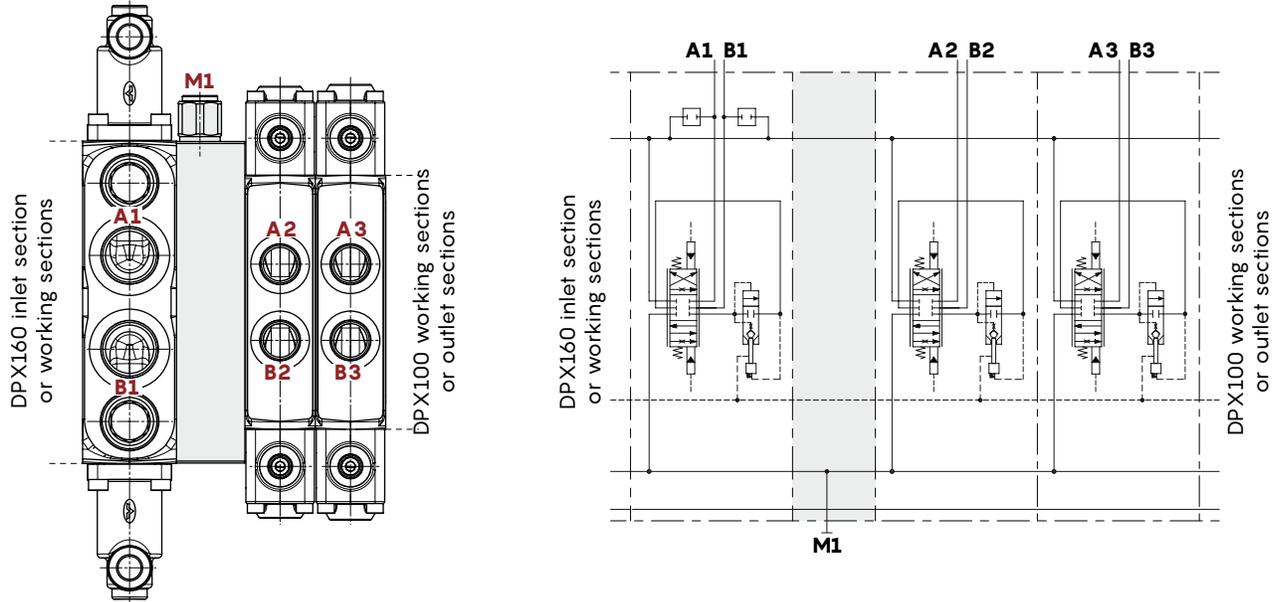
Nr. of working sections	E		F	
	with M or N inlet sections		with standard or HP sections	
	mm		mm	
1	98	3.86	-	-
2	146	5.75	107	4.21
3	194	7.64	143	5.63
4	242	9.53	179	7.05
5	290	11.42	215	8.46
6	338	13.31	251	9.88
7	-	-	287	11.30



Intermediate section

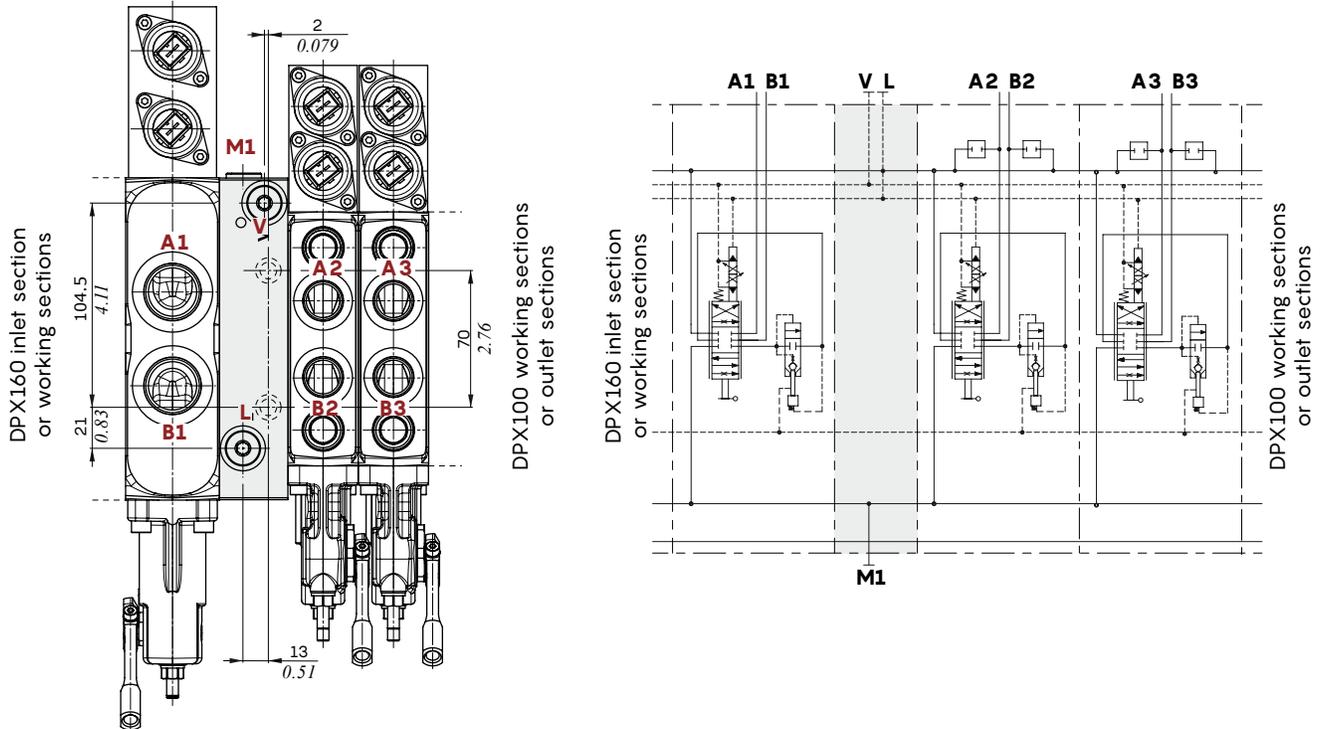
**EIR intermediate section**

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	4SLE001201A <sup>(5)</sup>	4SLE001203A <sup>(5)</sup>	4SLE001210A <sup>(2)</sup>	4SLE001214A <sup>(2)</sup>	4SLE001207A
		4SLE001217A <sup>(3)</sup>	4SLE001209A <sup>(3-5)</sup>	4SLE001202A <sup>(6)</sup>	4SLE001211A <sup>(3-5)</sup>	-	-
	14 VDC	-	4SLE001400A <sup>(6)</sup>	4SLE001403A <sup>(3-5)</sup>	-	-	-
		-	4SLE001401A <sup>(3-6)</sup>	4SLE001402A <sup>(3-5)</sup>	-	-	-
	24 VDC	4SLE002400A	4SLE002401A <sup>(5)</sup>	4SLE002403A <sup>(5)</sup>	-	-	4SLE002404A
		4SLE002408A <sup>(3)</sup>	4SLE002407A <sup>(3-5)</sup>	-	-	-	-
	28 VDC	-	4SLE002802A <sup>(6)</sup>	4SLE002800A <sup>(5)</sup>	-	-	-
-		4SLE002402A <sup>(6)</sup>	-	-	-	-	
48 VDC	4SLE004800A	-	-	-	-	-	
110VDC	4SLE011000A	-	-	-	-	-	
	4SLE311000A <sup>(1)</sup>	-	-	-	-	-	
220 VDC	4SLE022000A	-	-	-	-	-	
	4SLE322000A <sup>(1)</sup>	-	-	-	-	-	
BE	12 VDC	4SL1000120	4SL1000123 <sup>(6)</sup>	-	-	-	4SL1000122
		4SL1000240	4SL1000140 <sup>(3-6)</sup>	-	-	-	-
	4SL1030240 <sup>(1)</sup>	4SL1000124 <sup>(2)</sup>	-	-	-	-	
	48 VDC	4SL1010480	4SL1002401 <sup>(6)</sup>	-	-	-	-
	110 VDC	4SL1011100	-	-	-	-	-
220 VDC	4SL1022200	-	-	-	-	-	
	4SL1032200 <sup>(1)</sup>	-	-	-	-	-	
BT	10 VDC	4SL3000100	-	-	-	-	-
	12 VDC	4SL3000120	4SL3000130 <sup>(6)</sup>	4SL3000122 <sup>(5)</sup>	4SL3000124 <sup>(2)</sup>	4SL3000127 <sup>(2)</sup>	4SL300012C
		4SL3000126 <sup>(4)</sup>	4SL3000134 <sup>(3-6)</sup>	4SL3001200 <sup>(3-5)</sup>	-	-	-
	24 VDC	4SL3000240	4SL3000128 <sup>(2)</sup>	4SL3000248 <sup>(5)</sup>	-	-	4SL3000246
		4SL3030240 <sup>(1)</sup>	4SL3000249 <sup>(6)</sup>	-	-	-	-
	26 VDC	4SL3000260	4SL300024C <sup>(3-6)</sup>	-	-	-	-
		4SL3000480	-	-	-	-	-
48 VDC	4SL3030480 <sup>(1)</sup>	-	-	-	-	-	
110 VDC	4SL3001100	-	-	-	-	-	
	4SL3031100 <sup>(1)</sup>	-	-	-	-	-	
220 VDC	4SL3002200	-	-	-	-	-	
	4SL3032200 <sup>(1)</sup>	-	-	-	-	-	
BPV	12 VDC	4SLA001200	-	-	-	-	
	24 VDC	4SLA002400	-	-	-	-	
D12	10,5 VDC	4SOL412011	4SOL412111 <sup>(2)</sup>	-	-	-	
	12 VDC	4SOL412012	4SOL412013 <sup>(6)</sup>	-	-	4SOL412017 <sup>(3)</sup>	
		4SOL412016 <sup>(3)</sup>	4SOL412112 <sup>(2)</sup>	-	-	-	
24 VDC	-	4SOL412015 <sup>(3-6)</sup>	4SOL412113 <sup>(2-3)</sup>	-	-	-	
	-	4SOL412024	4SOL412025 <sup>(6)</sup>	4SOL412224 <sup>(2)</sup>	-	-	
-	-	4SOL412124 <sup>(2)</sup>	-	-	-		
-	-	4SOL412027 <sup>(3-6)</sup>	-	-	-		
<b>Mating connectors</b> (For connector with rectifier see following table)		4CN1009995	5CON140031	5CON003	5CON001	5CON017	-

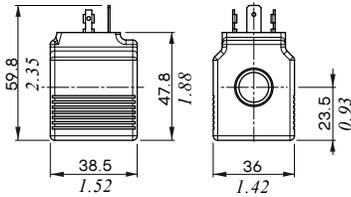
Notes: (1) supply with AC and use only with rectifier connector - (2) with flying leads - (3) with bidirectional diode - (5) with unidirectional diode (6) integrated perpendicular type - (7) integrated parallel type

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

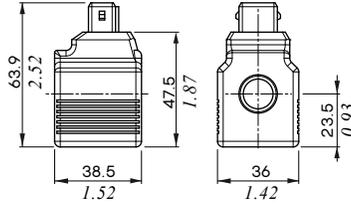
Coils and connectors

Type BER

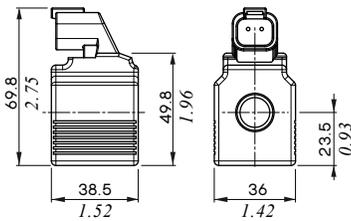
ISO4400 connector



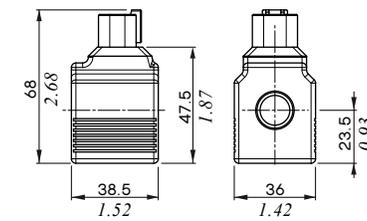
AMP JPT connector



DEUTSCH DT04 connector  
(parallel type)



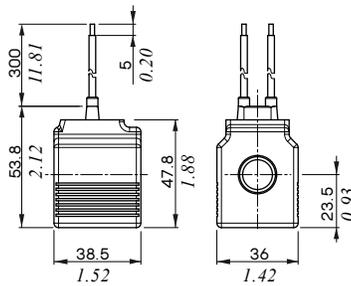
DEUTSCH DT04 connector  
(perpendicular type)



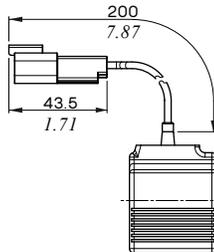
Features

- 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%

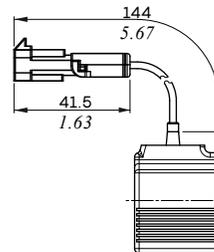
Flying leads



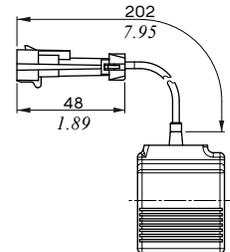
Flying leads with DEUTSCH DT04 connector



Flying leads with PACKARD WEATHER-PACK connector

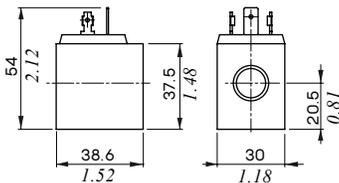


Flying leads with PACKARD METRI-PACK connector

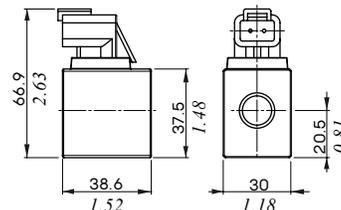


Type BE

ISO4400 connector



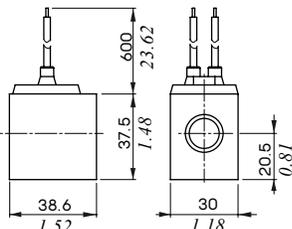
DEUTSCH DT04 connector



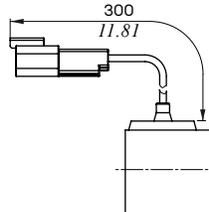
Features

- 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%

Flying leads



Flying leads with DEUTSCH DT04 connector





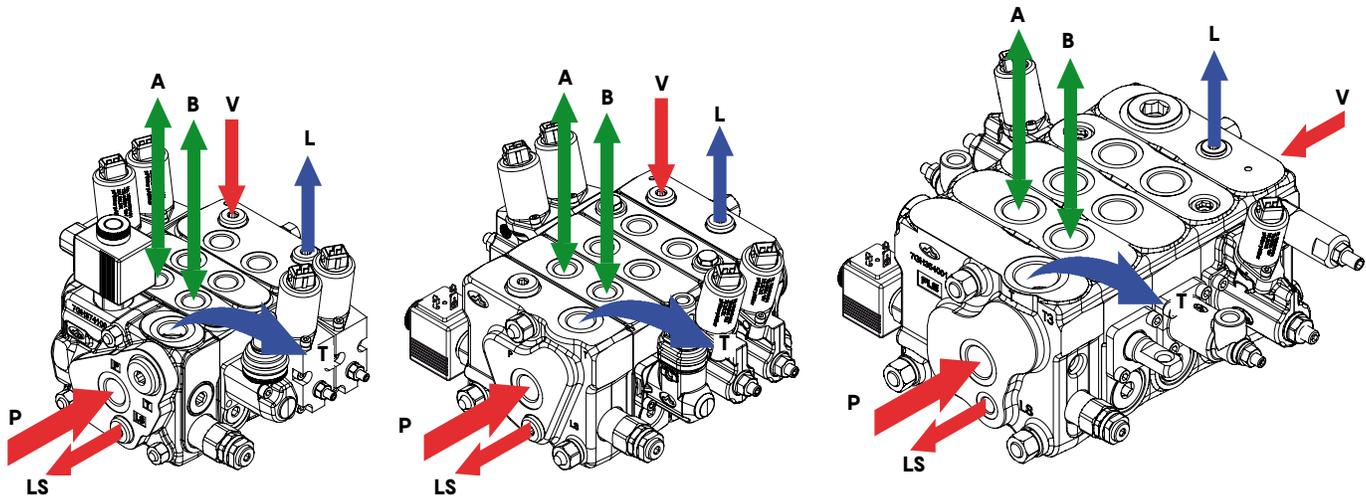


### Main rules

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	
<b>DPX050</b>	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	
<b>DPX100</b>	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	
<b>DPX160</b>	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.

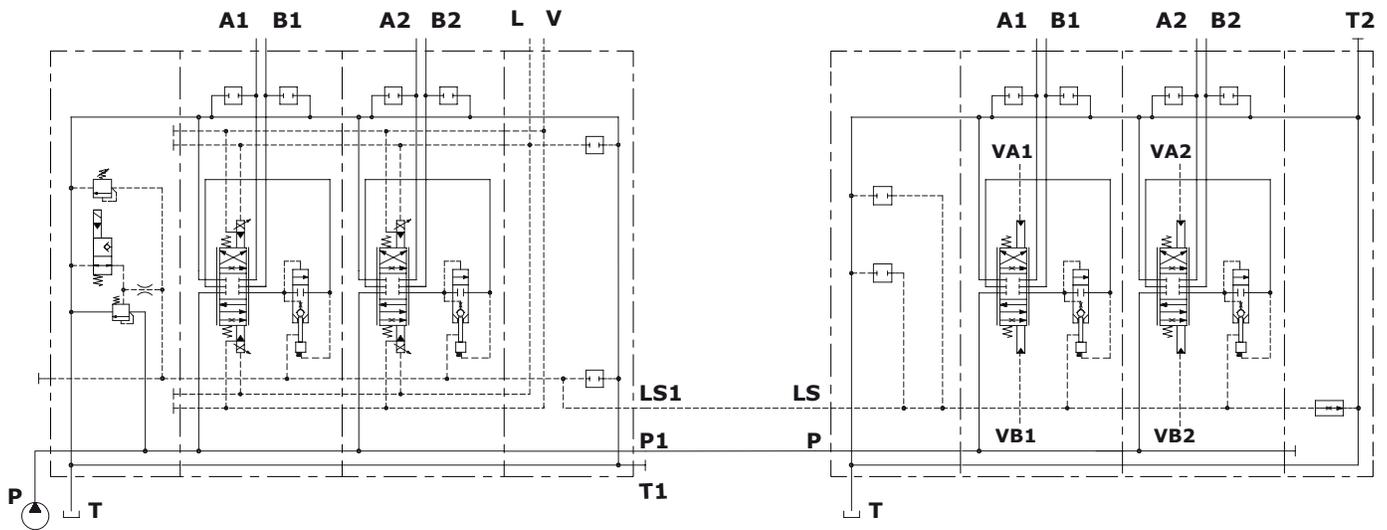
Connection between two directional valves

All the examples shown allow contemporary workports operations.

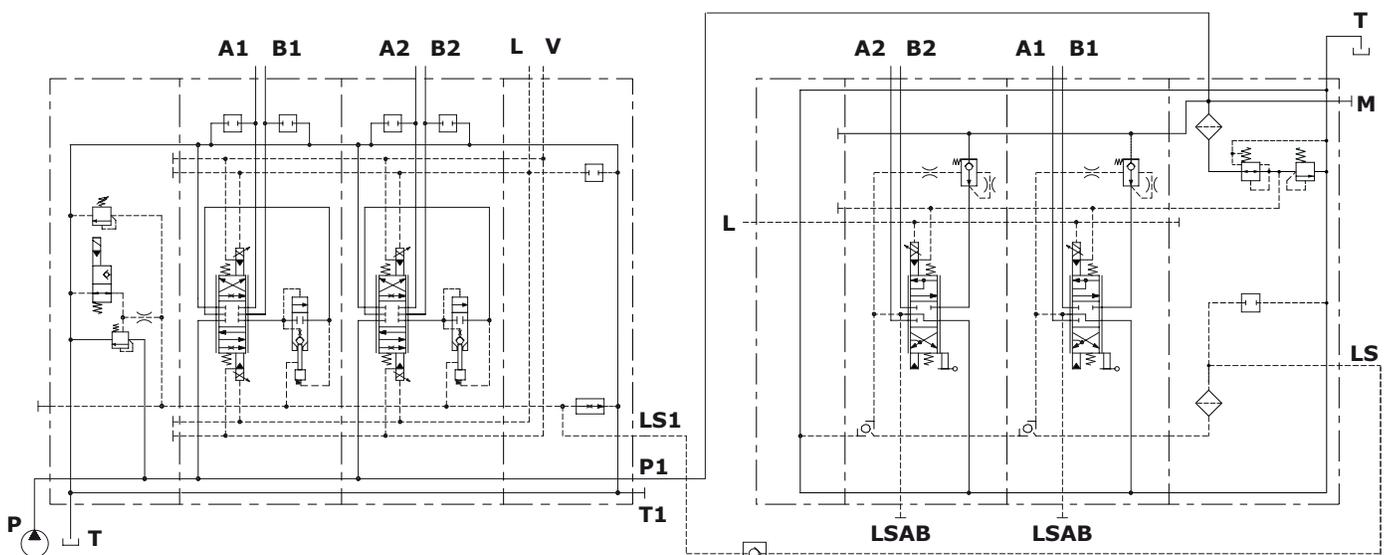
With two or more DPX Series valves connected as shown, only one bleed valve is needed, on the last DPX valve and it is necessary to blank plugs on the others valves.

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

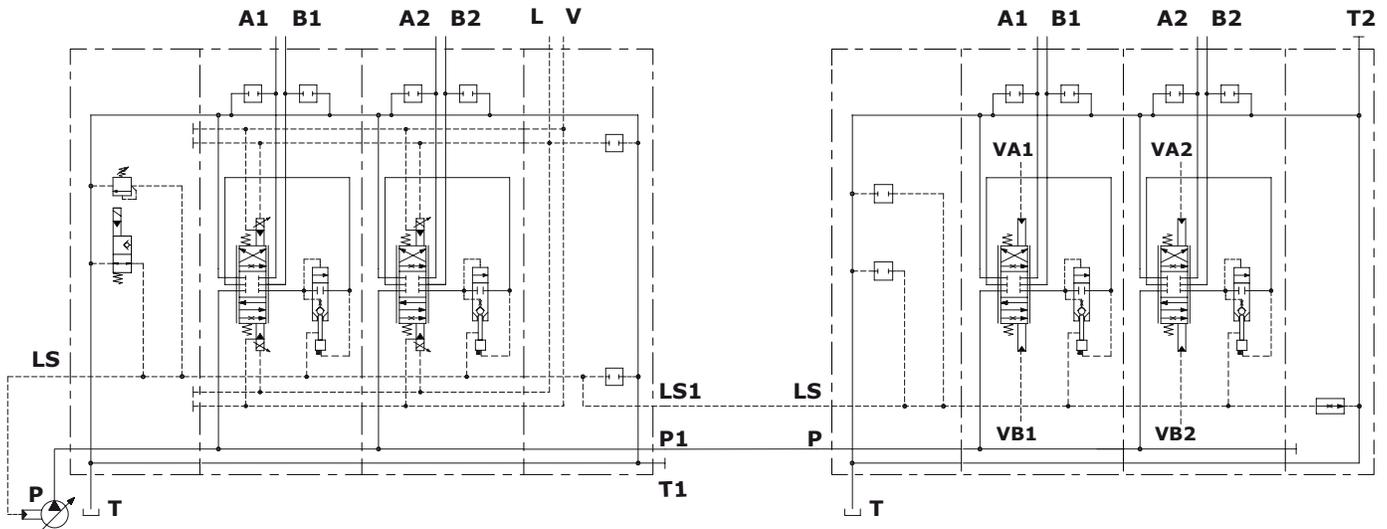


Check valve on L.S. line

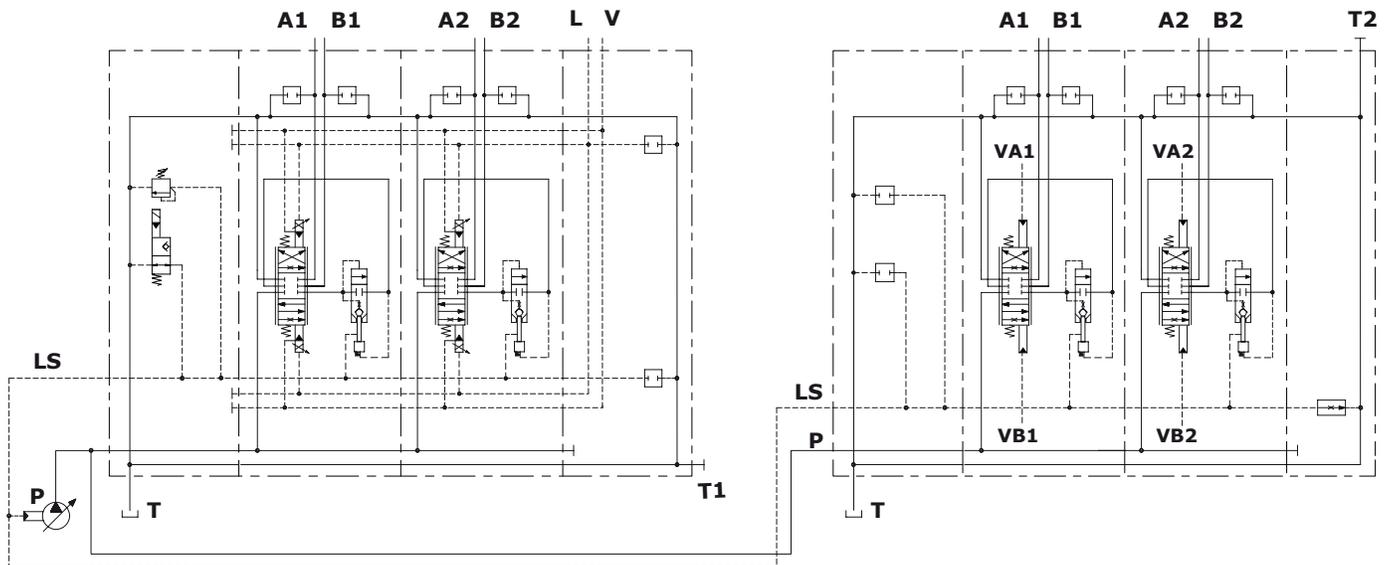
Connection between two directional valves

**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.

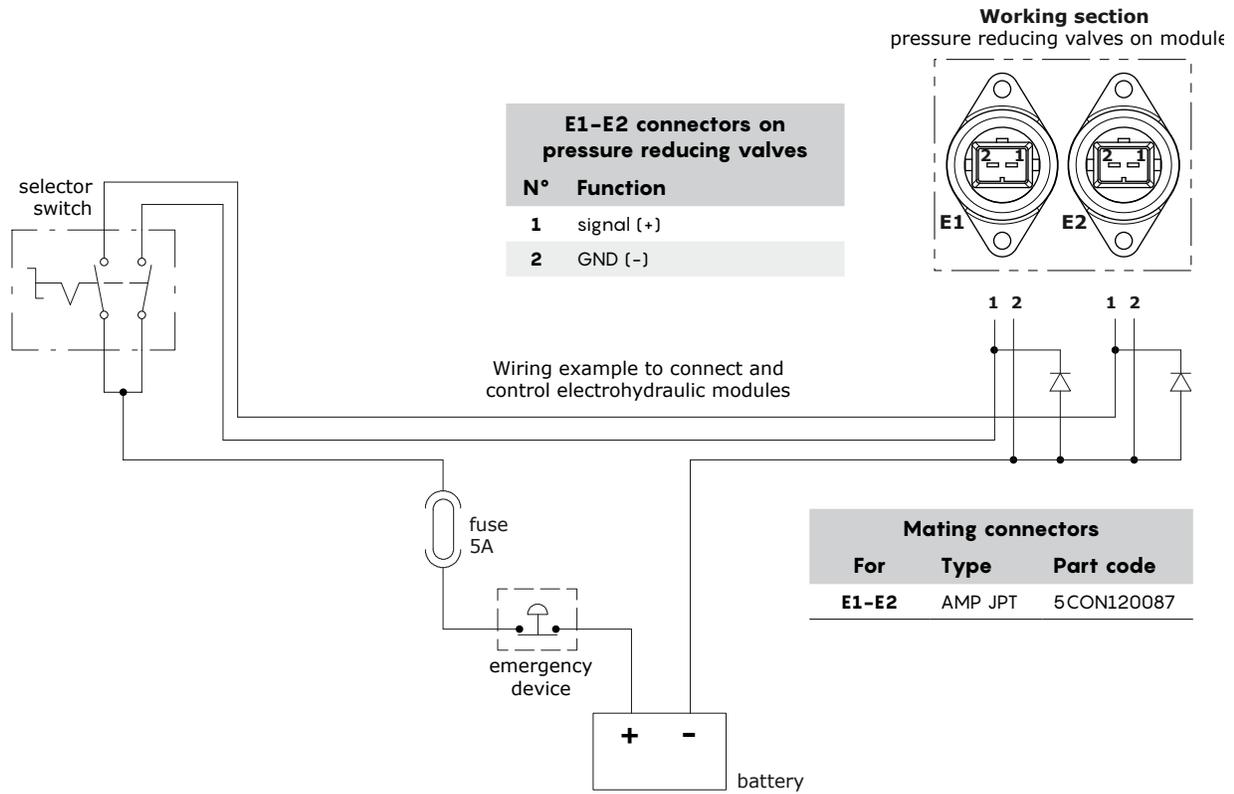




Electrohydraulic control connection

On/off electrohydraulic control

See below an example of on/off control for a working section.

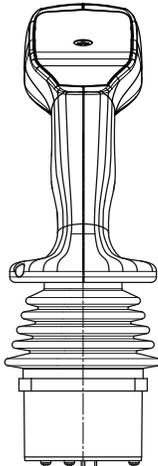


Electrohydraulic control connection

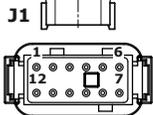
Proportional electrohydraulic control

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.

Handle type P  
up to 3 proportional axes



Joystick AJW  
analog,  
two prop. axes



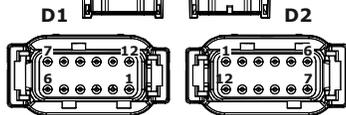
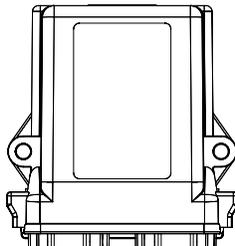
E1-E4 connectors on pressure reducing valves	
Nr	Function
1	signal (+)
2	GND (-)

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	/

D1 control unit connector			
Nr	Function	Nr	Function
1	Vbb (+)	7	/
2	/	8	/
3	/	9	/
4	operator pres.	10	X axis
5	/	11	Y axis
6	/	12	GND (-)

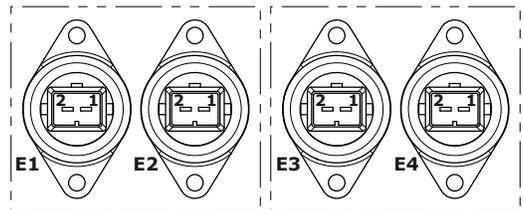
D2 control unit connector			
Nr	Function	Nr	Function
1	/	7	/
2	valve E2 (+)	8	valves E3/E4 (-)
3	valve E4 (+)	9	valves E1/E2 (-)
4	valve E3 (+)	10	/
5	/	11	valve E1 (+)
6	/	12	/

CED400W control unit  
up to 4 working sections

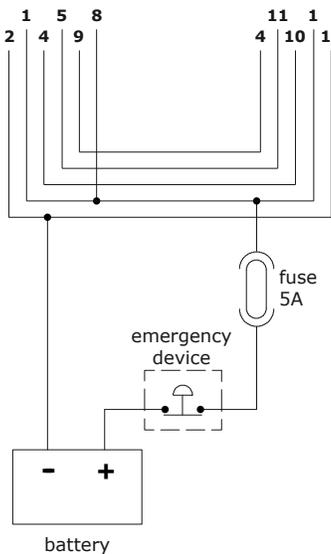


1st working section  
pressure reducing valves  
on module

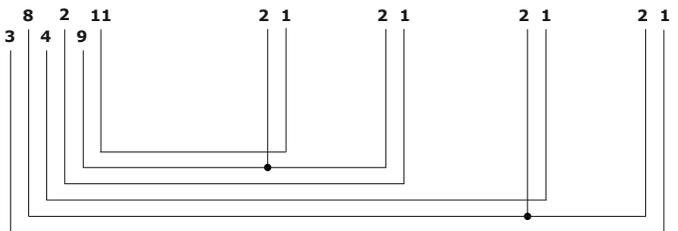
2nd working section  
pressure reducing valves  
on module



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

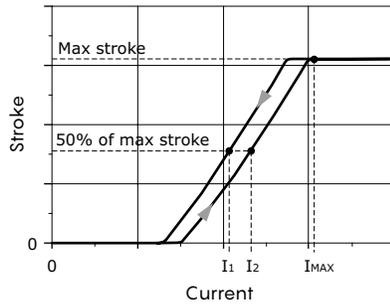
## Appendix A

### 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



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



## WALVOIL NEL MONDO | WALVOIL WORLDWIDE

### WALVOIL S.P.A.

#### DIREZIONE E COORDINAMENTO INTERPUMP GROUP S.P.A.

Sede principale, Filiali e Uffici di rappresentanza  
Headquarters, Subsidiaries and Representative Offices

#### WALVOIL S.P.A. SEDE PRINCIPALE | HEADQUARTERS

Via Adige, 13/D . 42124 Reggio Emilia . Italy  
TEL. +39 0522 932411  
info@walvoil.com | www.walvoil.com

### AUSTRALASIA | AUSTRALASIA

#### WALVOIL FLUID POWER AUSTRALASIA PTY LTD

6 Leonard Avenue . Toukley NSW 2263 . Sydney . Australia  
TEL. +61 413 739 938  
australasia@walvoil.com

### BRASILE | BRAZIL

#### INTERPUMPHYDRAULICS BRASIL LTDA | WALVOIL DIVISION

Rua Gilberto de Zorzi, 525 . Bairro Forqueta 95115-730  
Caxias do Sul (RS)  
TEL. +55 54 3289 7000  
info@brasil@walvoil.com

### CANADA | CANADA

#### WALVOIL CANADA INC.

3100, Rue Jacob Jordan . Terrebonne . Qc J6X 4J6 . Canada  
TEL. +1 450 477 1076 Ext:225  
info@walvoilcanada.com | www.walvoilcanada.com

### CINA | CHINA

#### WALVOIL FLUID POWER (DONGGUAN) CO. LTD

1st Floor, the Third Factory Area, Sijia, Shijie Town, Dongguan City  
Guangdong province. China.  
TEL. +86 769 81816189-8020  
info@walvoil.com.cn | www.walvoil.com.cn

### COREA DEL SUD | SOUTH KOREA

#### WALVOIL FLUID POWER KOREA LTD.

(17818)80-15, Oseongsandan 1Ro, Oseong-myun,  
Pyeongtaek-si Gyeonggi-do  
Republic of Korea 451-872  
TEL. +82 31 682 6030  
info@walvoil.co.kr | www.walvoil.co.kr

### FRANCIA | FRANCE

#### WALVOIL FLUID POWER FRANCE

362 rue de La Jaunais . Vritz . 44540 Vallons-de-l'Erdre  
TEL. +33 2 41 94 41 06  
france@walvoil.com

### INDIA | INDIA

#### WALVOIL FLUID POWER (INDIA) PVT. LTD.

No. 1, 2<sup>nd</sup> Cross, 2<sup>nd</sup> Main, KIADB Industrial Area, Attibele, Anekal Taluk  
Bangalore - 562107 .  
TEL. +91 80 0614 24000  
info@walvoil.co.in | www.walvoil.co.in

### MESSICO | MEXICO

#### WALVOIL FLUID POWER MEXICO S.A. DE C.V.

Calle Julian Sepulveda Davila #109  
CP. 66640 . Apodaca  
Nuevo León . Mexico

### U.S.A. | U.S.A.

#### WALVOIL FLUID POWER CORP. | HEADQUARTERS

4111 North Garnett Tulsa, OK 74116, USA  
TEL. +1 918 858 7100  
info@walvoilusa.com | www.walvoilusa.com

#### WALVOIL FLUID POWER CORP

1109, Technology Drive . Red Wing . MN 55066 . U.S.A.  
TEL. +1 651 212 6400  
info@walvoilusa.com | www.walvoilusa.com



D2WWED02A  
1<sup>st</sup> edition February 2026

