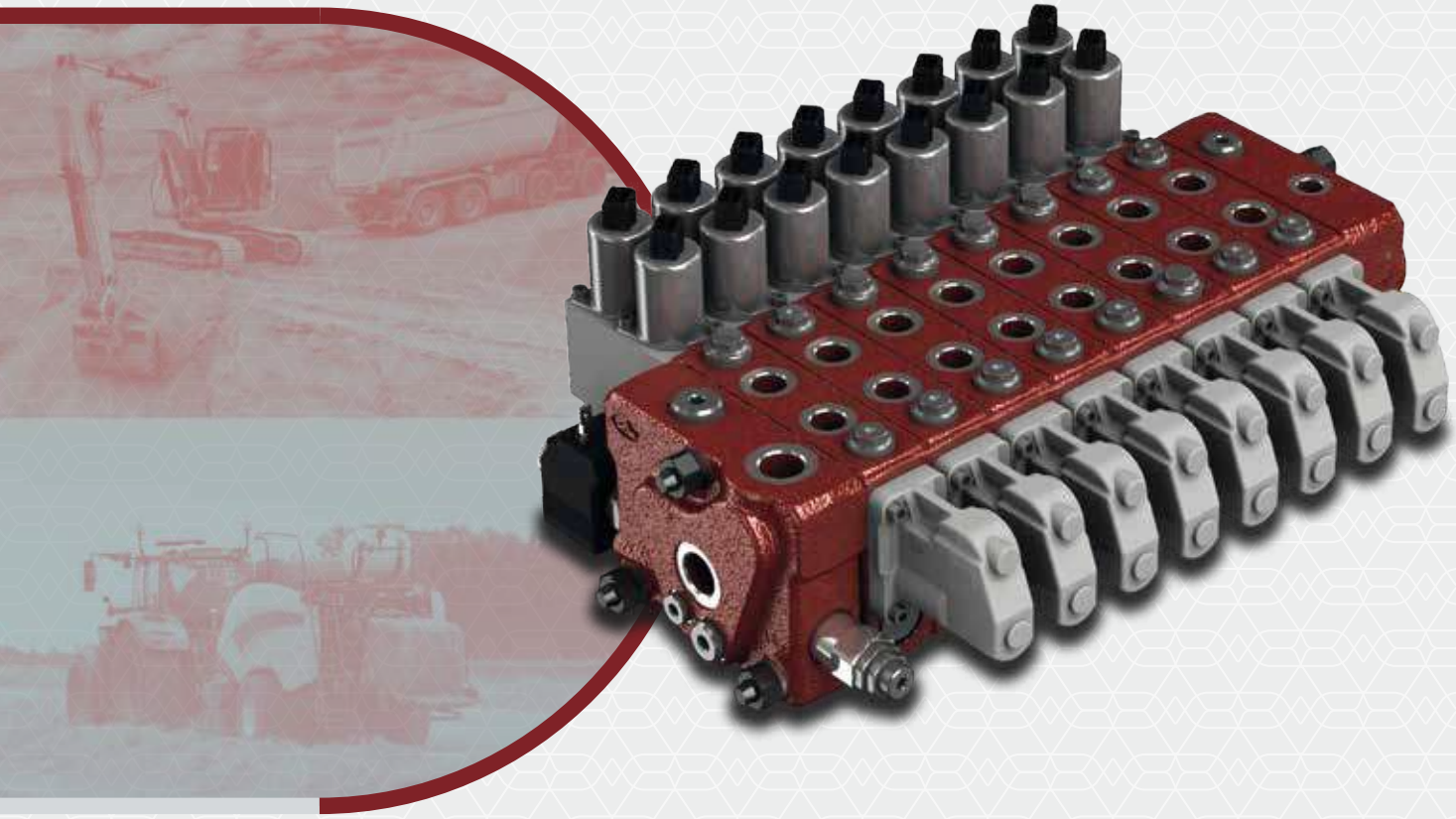
walvoil

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.

1st edition February 2026

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## The DPX series

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



**DPX050**



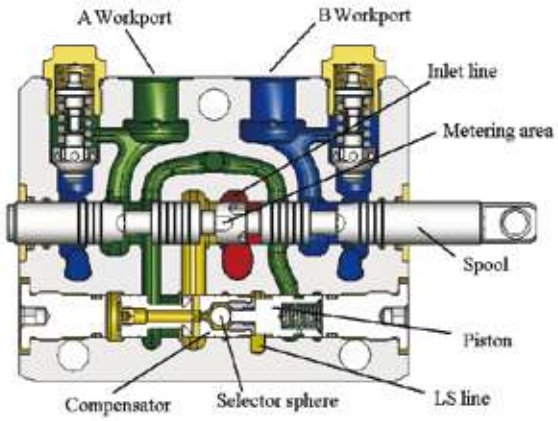
**DPX100**



**DPX160**

## The Flow Sharing technology

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




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

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

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

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

**Advantages and options**

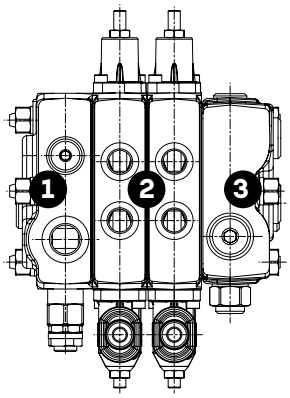
- Energy saving on closed center system, is produced only required flow and pressure by the actuators.
- The flow sharing technology permits multiple movements even with flow saturation.
- Flow passage design allows high P and T flow rate in a standard valve dimension.
- Inlet section with unidirectional 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.

## Guide to configuration

### Configuration with mechanical, hydraulic or electric controls

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



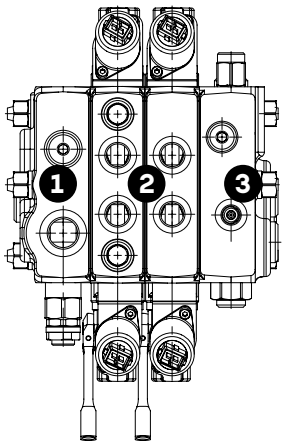

**DPX050**
**1**: AM or AN inlet sections
**2**: P or Q working sections
**3**: RP or RQ working sections with outlet

**DPX100**
**1**: AM or AN inlet sections
**2**: P or Q working sections
**3**: RF outlet sections

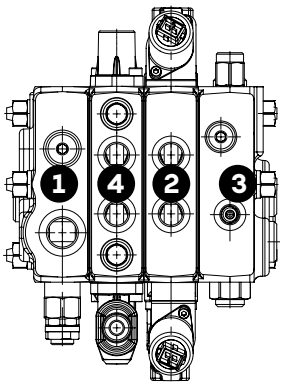
**DPX160**
**1**: AM or AN inlet sections
**2**: P or Q working sections
**3**: RC outlet sections

### Configuration with only electrohydraulic or mixed controls

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




(pic. 1)




(pic. 2)

**DPX050**
**1**: AM or AN inlet sections
**2**: PZ, QZ, PE or QE working sections
**3**: RPZ, RQZ, RPE or RQE working sections with outlet
**4**: P or Q working sections

**DPX100**
**1**: AM or AN inlet sections
**2**: PE, QE, PZ or QZ working sections
**3**: RDN or RDR outlet sections
**4**: P or Q working sections

**DPX160**
**1**: AM or AN inlet sections
**2**: PE or QE working sections
**3**: RCR or RCN outlet sections
**4**: P or Q working sections

## Working conditions

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

| | | DPX050 | DPX100 Std. | DPX100 HP | DPX100 HF | DPX160 Std. | DPX160 HP |
|---|---|---|---|---|---|---|---|
| Nominal flow rating | inlet port with compensator, with 14 bar - *200 psi* stand-by (margin pressure) | 80 l/min *21 US gpm* | 120 l/min *32 US gpm* | 120 l/min *32 US gpm* | >120 l/min *>32 US gpm* | 230 l/min *61 US gpm* | |
| | working ports, with 14 bar - *200 psi* stand-by (margin pressure) | 50 l/min *13 US gpm* | 90 l/min *24 US gpm* | 90 l/min *24 US gpm* | 120 l/min *32 US gpm* | 160 l/min *42 US gpm* | |
| Max. pressure | **P** inlet port | 300 bar *4350 psi* | 300 bar *4350 psi* | 380 bar[1] *5550 psi*[1] | 380 bar[1] *5550 psi*[1] | 300 bar | 380 bar [3] |
| | **A** and **B** working ports | 350 bar *5100 psi* | 300 bar *4350 psi* | 420 bar[1] *6000 psi*[1] | 420 bar[1] *6000 psi*[1] | 300 bar | 420 bar [3] |
| Back pressure (max.) on outlet **T** port | with mechanical devices | 10 bar - *145 psi* | | | | | |
| | with hydraulic/pneumatic devices | 30 bar - *435 psi* | | | | | |
| | with electric/electrohydraulic devices | see related pages | | | | | |
| Standard internal leakage A(B)⇒T | **On std.working section** | | | | | | |
| | Δp=100 bar - *1450 psi* | max. 6.5 cm³/min *max. 0.40 in³/min* | max. 9 cm³/min *max. 0.55 in³/min* | | | max. 12 cm³/min *max. 0.73 in³/min* | |
| | with port valves, Δp=100 bar - *1450 psi* | max. 11.5 cm³/min *max. 0.70 in³/min* | max. 14 cm³/min *max. 0.85 in³/min* | | | max. 17 cm³/min *max. 1.04 in³/min* | |
| | **On Low Leak section** | | | | | | |
| | Δp=180 bar | max. 3 cm³/min *max. 0.18 in³/min* | max. 3 cm³/min *max. 0.18 in³/min* | - | - | - | |
| | with port valves, Δp=180 bar - *2600 psi* | max. 4 cm³/min *max. 0.24 in³/min* | max. 4 cm³/min *max. 0.24 in³/min* | - | - | - | |
| Fluido | | Mineral oil | | | | | |
| Fluid temperature range | standard configuration | from -20°C to 100°C - *from -4°F to 212°F* | | | | | |
| Viscosity | operating range | from 15 to 75 mm²/s - *from 15 to 75 cSt* | | | | | |
| | min. | 12 mm²/s - *12 cSt* | | | | | |
| | max. | 400 mm²/s - *400 cSt* | | | | | |
| Contamination level | max | 19/18/15 - ISO 4406 - *NAS 1638 class 9* | | | | | |
| Environmental temperature for working conditions | with mechanical devices | from -40°C to 60°C - *from -40°F to 140°F* | | | | | |
| | with hydraulic/pneumatic devices | from -30°C to 60°C - *from -22°F to 140°F* | | | | | |
| | with electric/electrohydraulic devices | from -20°C to 50°C - *from -4°F to 122°F* | | | | | |

NOTES: (1) According to NFPA T 2.6.1., fatigue rating verified for 1 million cycles on 6 sample valves with test Pressure = 1.23 x Max. pressure indicated - (2) According to NFPA T 2.6.1., fatigue rating verified for 1 million cycles on 5 sample valves with test Pressure = 1.16 x Max. pressure indicated - (3) Fatigue rating verified for 1 million cycles on 6 sample valves with Test Pressure = 1.10 x Max. pressure indicated

## Standard threads

| REFERENCE STANDARD | | BSP | UN-UNF | METRIC[4] | METRIC ISO[4] | NPTF |
|---|---|---|---|---|---|---|
| THREAD ACCORDING TO | | ISO 228/1<br>BS 2779 | ISO 263<br>ANSI B1.1 unified | ISO 262 | ISO 262 | ANSI B1.20.3 |
| CAVITY DIMENSION ACCORDING TO | ISO | 1179 | 11926 | 9974-1 | 6149 | |
| | SAE | | J1926 | | J2244 | J476a |
| | DIN | 3852-2 shape X or Y | | 3852-1 shape X or Y | | |

NOTE [4]: Metric threading is available on request

| PORTS | DPX050 | | DPX100 | | DPX160 | |
|---|---|---|---|---|---|---|
| THREADING | BSP | UN-UNF | BSP | UN-UNF | BSP | UN-UNF |
| **P** inlet | G 1/2 | 3/4-16 (SAE 8) | G 1/2 - G 3/4[5] | 7/8-14 (SAE10)<br>1 1/16-12 (SAE12)[5] | G 3/4 | 1 1/16-12 (SAE12) |
| **A** and **B** ports | G 3/8 | 9/16-18 (SAE 6) | G 3/8<br>G 1/2[5] - G 3/4[6] | 3/4-16 (SAE8)<br>1 1/16-12 (SAE12)[6] | G 3/4 | 1 1/16-12 (SAE12) |
| **T** outlet | G 1/2 | 3/4-16 (SAE 8) | G 1/2 - G 3/4[5] | 7/8-14 (SAE10)<br>1 1/16-12 (SAE12)[5] | G 1 | 1 5/16-12 (SAE16) |
| **V** pilot | G 1/4 | 7/16-20 (SAE 4) | G 1/4 | 9/16-18 (SAE6) | G 1/4 | 9/16-18 (SAE6) |
| **L** drain | G 1/4 | 9/16-18 (SAE 6) | G 1/4 | 9/16-18 (SAE6) | G 1/4 | 9/16-18 (SAE6) |
| Hydraulic control ports | G 1/4 | 7/16-20 (SAE 4) | G 1/4 | 7/16-20 (SAE 4) | G 1/4 | 9/16-18 (SAE 6) |
| Pneumatic control ports | | | NPTF 1/8-27 | NPTF 1/8-27 | | |

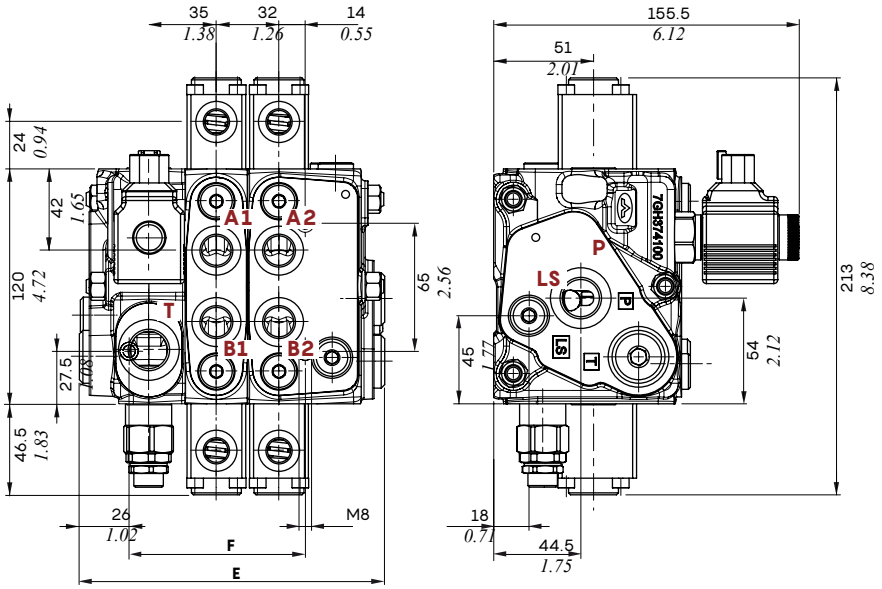
NOTE:
[5] - Optional threading / [6] - only for High Flow sections

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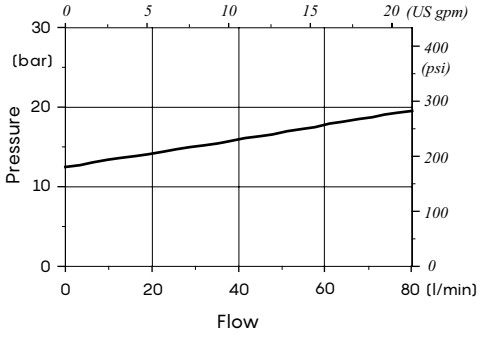
• **DPX050 Low leak**
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## Dimensional data and performance

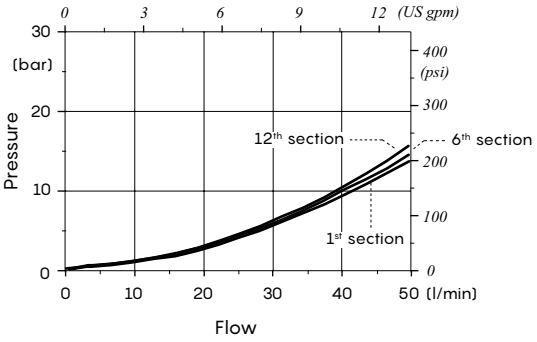



| Type | E | | F | |
|---|---|---|---|---|
| | mm | *in* | mm | *in* |
| **DPX050/1** | 119 | *4.69* | 57.5 | *2.26* |
| **DPX050/2** | 151 | *5.95* | 89.5 | *3.52* |
| **DPX050/3** | 183 | *7.20* | 121.5 | *4.78* |
| **DPX050/4** | 215 | *8.46* | 153.5 | *6.04* |
| **DPX050/5** | 247 | *9.72* | 185.5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

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

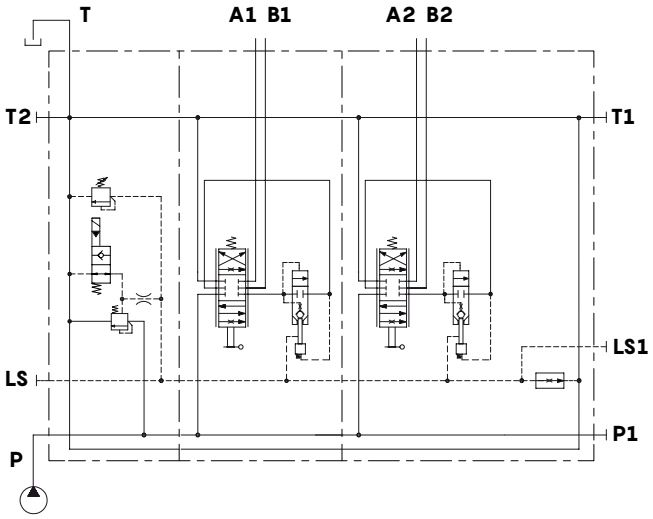



**A(B)⇒T pressure drop (standard spool @ max.stroke)**

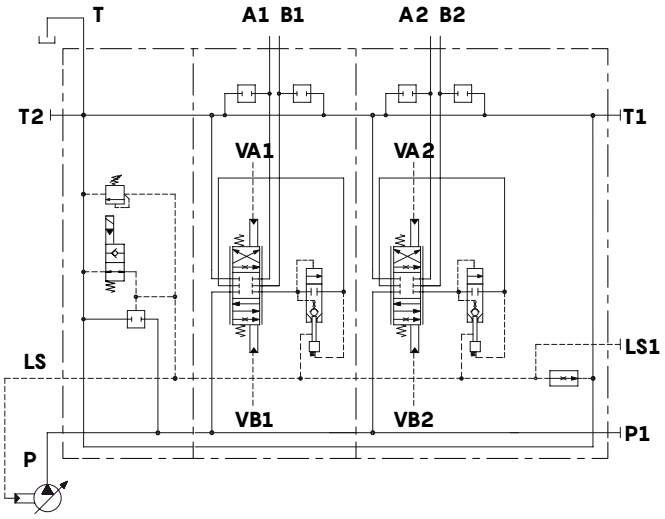


## Hydraulic cuircuit

### Configuration example with mechanical and hydraulic controls

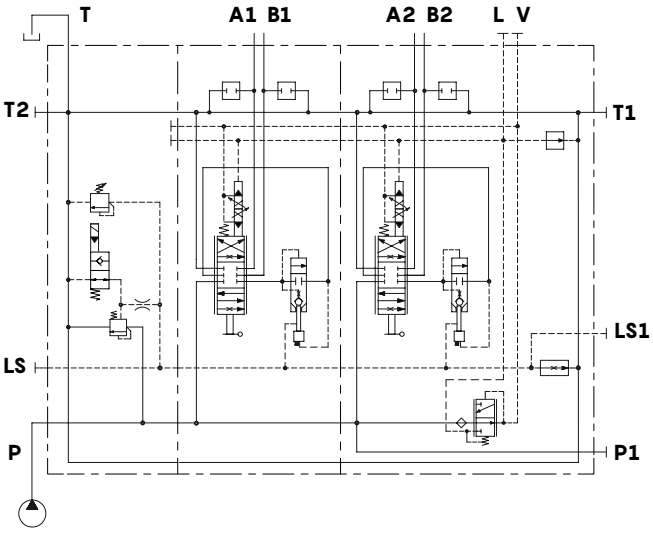



Open center circuit and lever control, with unloader valve, without port valve arrangement

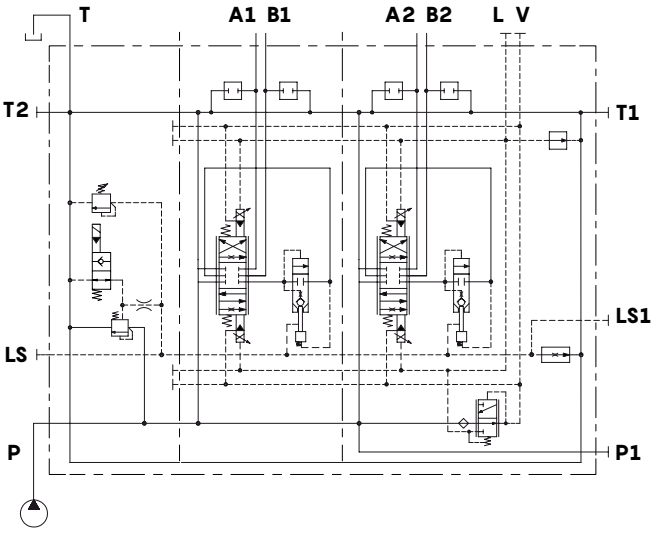



Closed center circuit and proportional hydraulic control, with unloader valve and port valve arrangement

### 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 confortable regulation, especially if they occur with high frequency.
The DPX Series directional valves, open and closed center ones, are available with inlet sections equipped with devices for L.S. signal peak reduction.

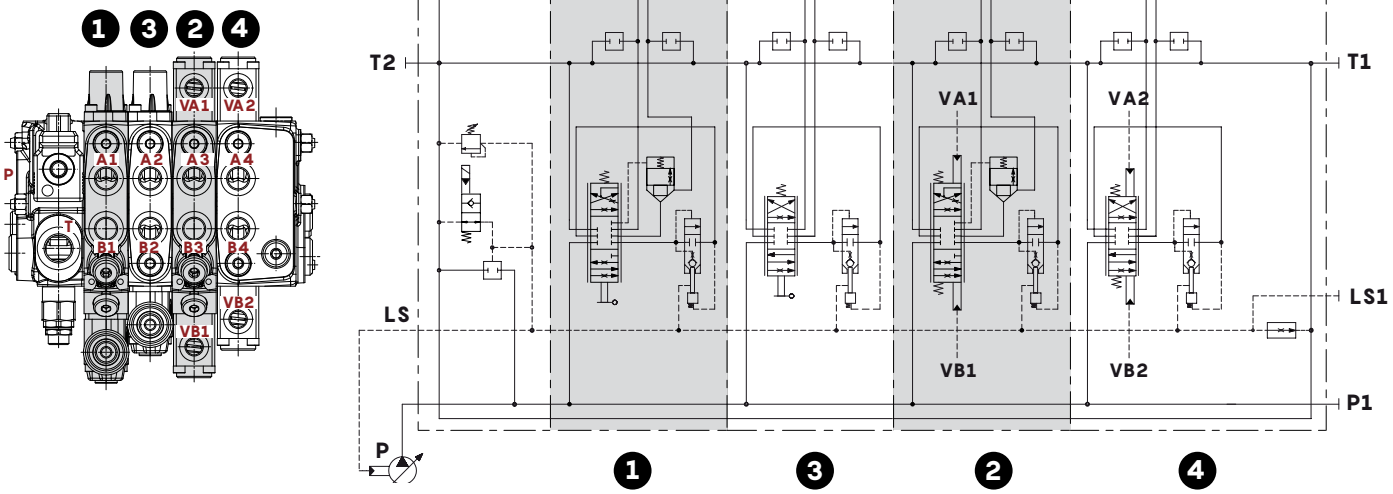
**Standard configuration**
Bidirectional restrictor on L.S. signal; it dampens the pressure peaks from L.S. line to inlet section compensator and vice versa.
**SU option**
Unidirectional restrictor on L.S. signal; it dampens the pressure peaks from L.S. line (and then from users) to inlet section compensator. 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 cointrols: 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 assembledin any point of the valve between the inlet section and the working and outlet section.




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

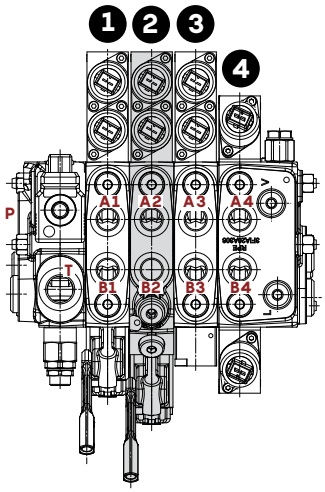
## Directional valve with Low Leak working sections

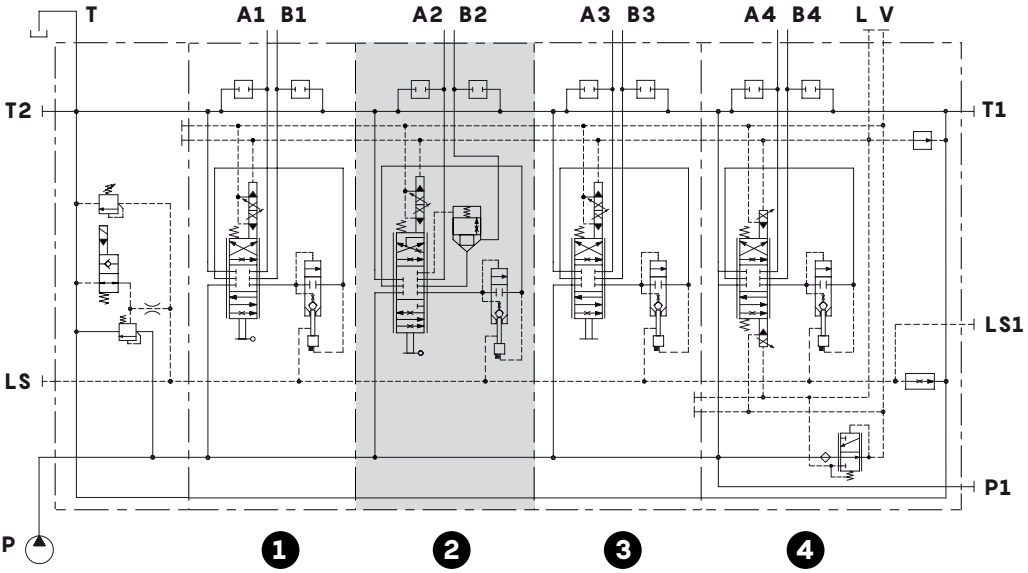
### Valve with electrohydraulic controls

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

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

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




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

## Complete section ordering codes

**A** **Mechanical or hydraulic controls configuration:**

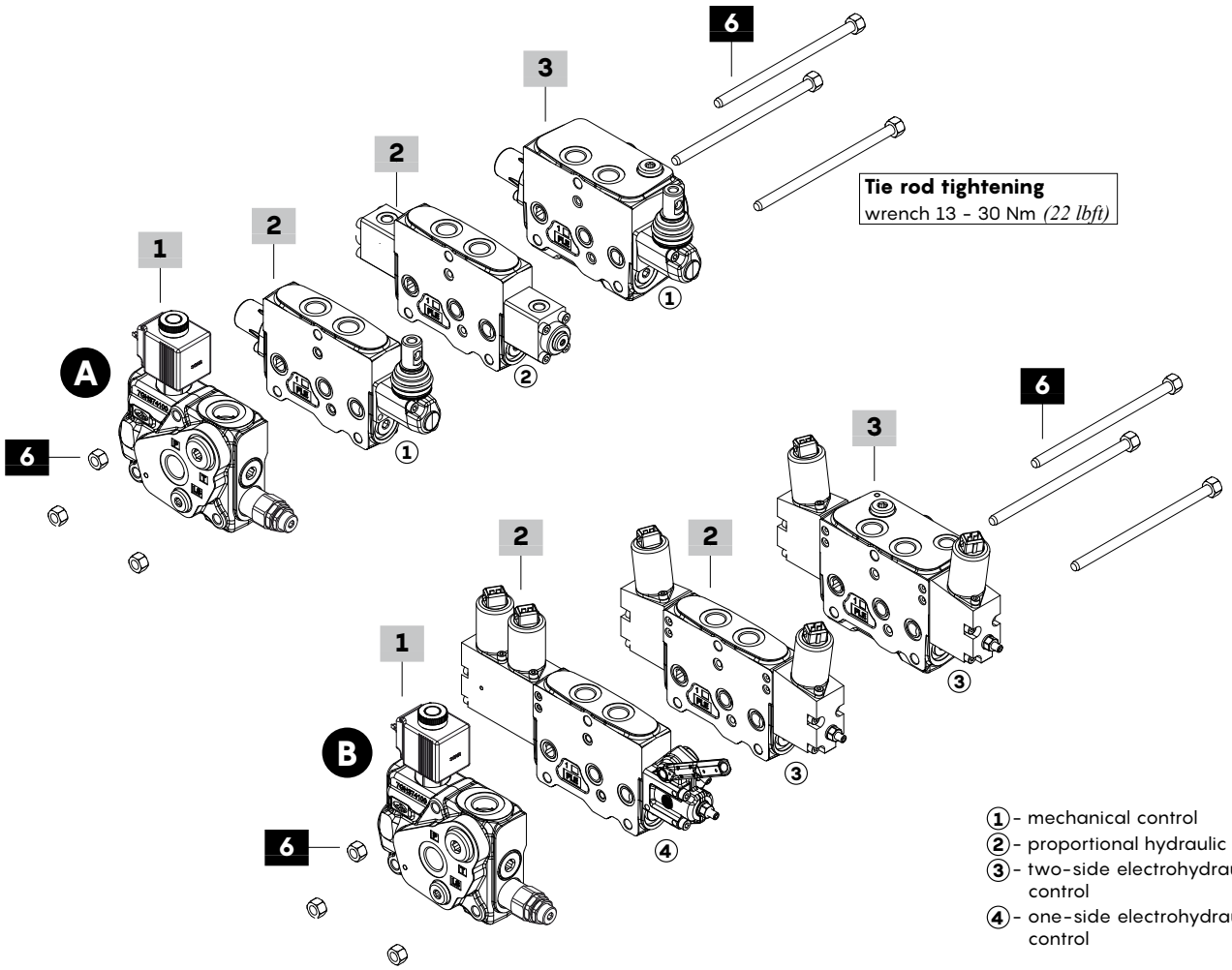
DPX050/3/AM2(TGW3-175\ELN)/Q-104(40\40)-8L/Q-I104(40\40)-8IM/RQ-104(40\40)-8L-.....-12VDC

No. of working sections: 1 | 2 | 2 | 3 | 4 | 5

**B** **Electrohydraulic controls configuration:**

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

1 | 2 | 2 | 3 | 4 | 5



## Complete section ordering codes

### 1 Complete inlet section *

**Open Center circuit**
TYPE: **DPX050/AM2(TGW3-175\ELN)-12VDC**
CODE: 660203001S
DESCRIPTION: With compensator, pressure relief valve and unloader valve, with P-T-T2-LS ports (T2-LS plugged)
TYPE: **DPX050/AM2(SO(FC0.5)\TGW4-250\ELT)-12VDC**
CODE: 660203017S
DESCRIPTION: As previous one with non-return flow limiter from inlet section to working section and by-pass valve
TYPE: **DPX050/AM2(SU\TGW3-175\LT)**
CODE: 660203036S
DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve, unloader valve arrangement plugged
**Closed Center circuit**
TYPE: **DPX050/AN2(TGW3-175\ELN)-12VDC**
CODE: 660203004S
DESCRIPTION: Without compensator, with pressure relief valve and unloader valve, with P-T-T2-LS ports (T2 plugged)
TYPE: **DPX050/AN2(SO\TGW4-250\LT)**
CODE: 660203003S
DESCRIPTION: As previous one with non-return flow limiter from inlet section to working section and by-pass valve, unloader valve arrangement plugged
TYPE: **DPX050/AN2(SU/TGW3-175/ELN)-12VDC**
CODE: 660203005S
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**
CODE: 660151001S
DESCRIPTION: Lever control without port valve arrangement
TYPE: **DPX050/P-104(40\40)-8L.U3T**
CODE: 660101004S
DESCRIPTION: As previous one with port valve arrangement
**Proportional hydraulic control**
TYPE: **DPX050/Q-I104(40\40)-8IM**
CODE: 660151002S
DESCRIPTION: Without port valve arrangement
TYPE: **DPX050/P-I104(40\40)-8IM.U3T**
CODE: 660101005S
DESCRIPTION: With port valve arrangement
**Two-side proportional electrohydraulic control**
TYPE: **DPX050/QE-I104(40\40)-8EB3F3-12VDC**
CODE: 660101008S
DESCRIPTION: With spool stroke limiter, without port valve arrangement
TYPE: **DPX050/PE-I104(40\40)-8EB3F3.U3T-12VDC**
CODE: 660101009S
DESCRIPTION: As previous one with port valve arrangement
**One-side proportional electrohydraulic control**
TYPE: **DPX050/QZ-I104(40/40)-8EZ3LQF3-12VDC**
CODE: 660101006S
DESCRIPTION: With lever and spool stroke limiter, without port valve arrangement
TYPE: **DPX050/PZ-I104(40\40)-8EZ3LQF3.U3T-12VDC**
CODE: 660101007S
DESCRIPTION: As previous one with port valve arrangement

### 3 Complete working section with outlet *

**Mechanical control**
TYPE: **DPX050/RQ-104(40\40)-8L**
CODE: 660303001S
DESCRIPTION: Lever control, with bleed valve and P1-T1-LS1 side ports (plugged), without port valves arrangement
TYPE: **DPX050/RP-104(40\40)-8L.U3T**
CODE: 660303003S
DESCRIPTION: As previous one with port valve arrangement
**Proportional hydraulic control**
TYPE: **DPX050/RQ-I104(40\40)-8IM**
CODE: 660303011S
DESCRIPTION: With bleed valve and P1-T1-LS1 side ports (plugged), without port valve arrangement
TYPE: **DPX050/RP-I104(40\40)-8IM.U3T**
CODE: 660303012S
DESCRIPTION: As previous one with port valve arrangement
**Two-side proportional electrohydraulic control**
TYPE: **DPX050/RQE-I104(40\40)-8EB3F3-12VDC**
CODE: 660303005S
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-12VDC**
CODE: 660303006S
DESCRIPTION: As previous one with port valve arrangement
**One-side proportional electrohydraulic control**
TYPE: **DPX050/RQZ-I104(40\40)-8EZ3LQF3-12VDC**
CODE: 660303002S
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-12VDC**
CODE: 660303004S
DESCRIPTION: As previous one with port valves 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 **BSP** thread.

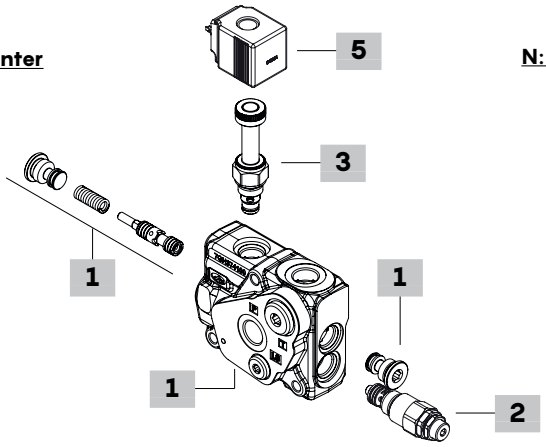
## Inlet section part ordering codes

Valve setting (bar)

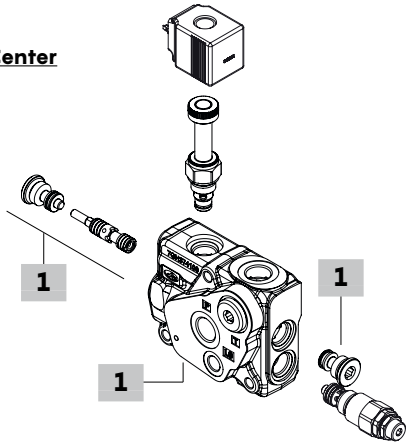
**DPX050 / A M2 (TGW3 - 175 \ ELN) - .... - 12VDC**

**1** **2** **3** **4** **5**

**M: Open Center**




**N: Closed Center**




### 1 Inlet section kit * page 17

**Open Center circuit**

TYPE: **DPX050/AM2/EL** CODE: 5FIA150340S
DESCRIPTION: With P-T-T2-LS ports (T2-LS plugged) arranged for unloader valve

TYPE: **DPX050/AM2(SU)/EL** CODE: 5FIA150330S
DESCRIPTION: As previous one with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX050/AM2(SO)/EL** CODE:5FIA150331S
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/EL** CODE: 5FIA150341S
DESCRIPTION: With P-T-T2-LS ports, arranged for unloader valve (T2 plugged)

TYPE: **DPX050/AN2(SU)/EL** CODE: 5FIA150332S
DESCRIPTION: As previous one with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX050/AN2(SO)/EL** CODE: 5FIA150333S
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 |
|---|---|---|
| **(TGW2-80)** | 0MC09002000 | Range 10-120 bar *(145-1750 psi)*<br>std setting 80 bar *(1160 psi)* |
| **(TGW3-175)** | 0MC09002001 | Range 40-220 bar *(580-3200 psi)*<br>std setting 175 bar *(2550 psi)* |
| **(TGW4-250)** | 0MC09002002 | Range 200-350 bar *(2900-5100 psi)*<br>std setting 250 bar *(3600 psi)* |
| **SV** | XTAP524340D | Relief valve blanking plug |

### 3 Solenoid operated unloading valve page 19

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **ELN** | 0EF08002000 | Without emergency override |
| **ELV** | 0EF08002003 | With screw type emergency override |
| **ELP** | 0EF08002002 | With push-button emergency override |
| **ELT** | 0EF08002004 | With "twist & push" emergency override |
| **LT** | XTAP510320 | Unloading valve blanking plug |

### 4 Section threading

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

### 5 Coil

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

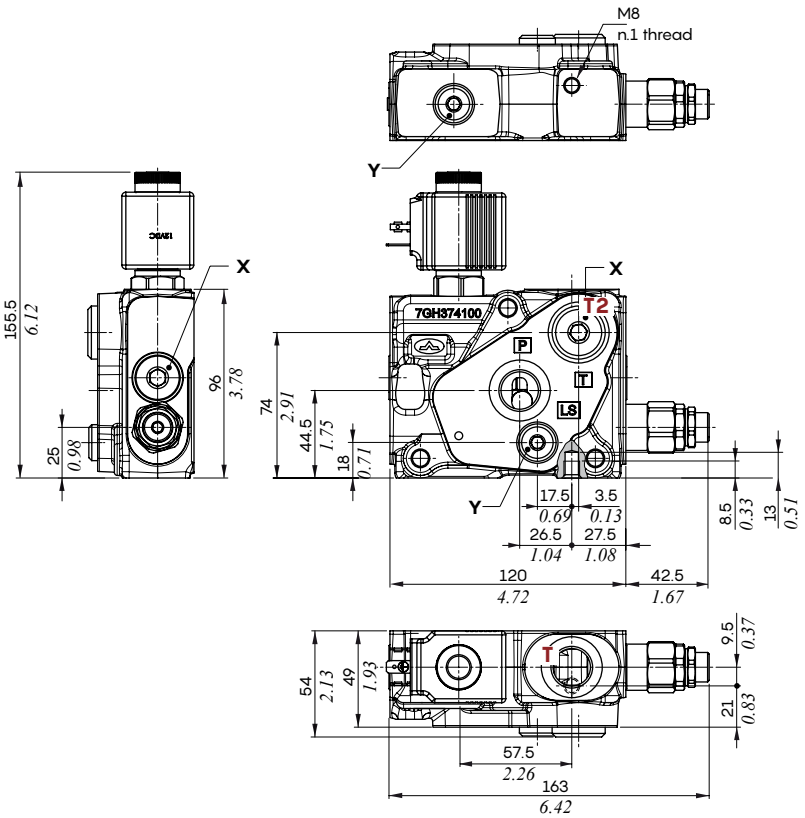
For complete available coil list see page 160.

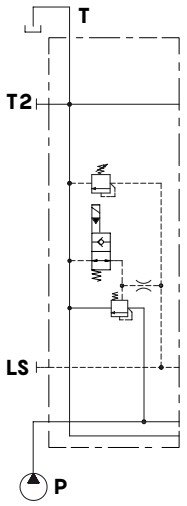
NOTE (*): Codes are referred to **BSP** thread.

## Dimensions and hydraulic circuit

### Example of M type Open Center section

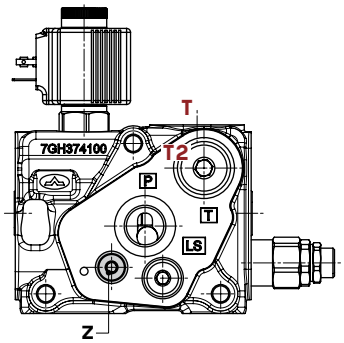
**Type AM2**



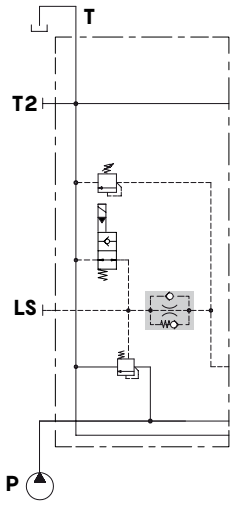




**Wrenches and tightening torques**
X = allen wrench 8 - 24 Nm *(17.7 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*
Z = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
NOTE: for valves wrench and torque see related pages

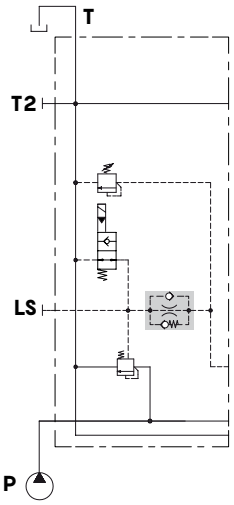
**Type AM2(SO) or AM2(SU)**




**Type AM2(SU)**




**Type AM2(SO)**

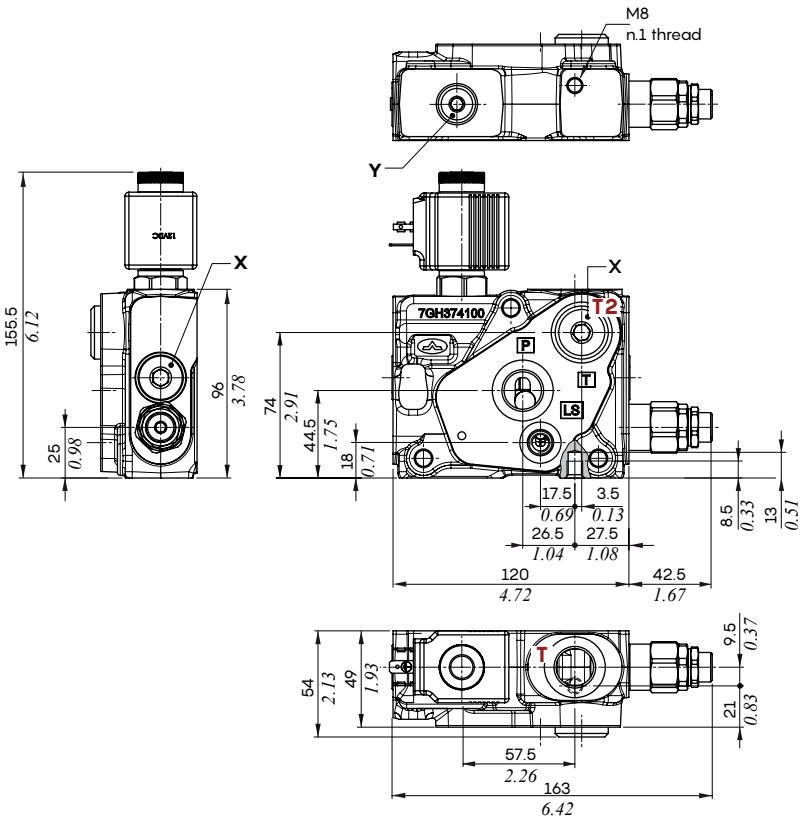


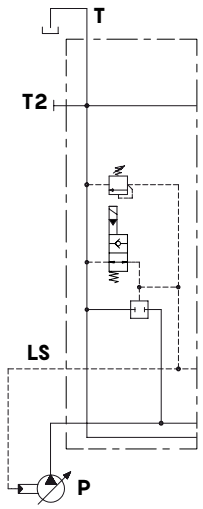
## Inlet section

### Dimensions and hydraulic circuit

**Example of N type Closed Center section**

**Type AN2**

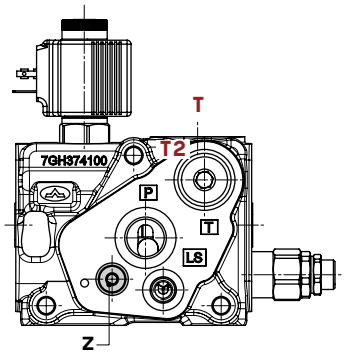


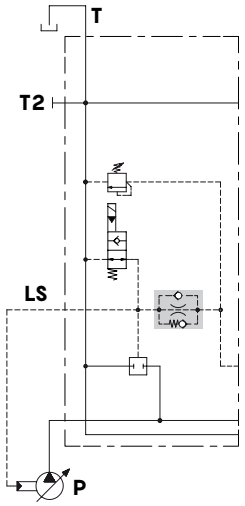

**Wrenches and tightening torques**

X = allen wrench 8 - 24 Nm *(17.7 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*
Z = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
NOTE: for valves wrench and torque see related pages

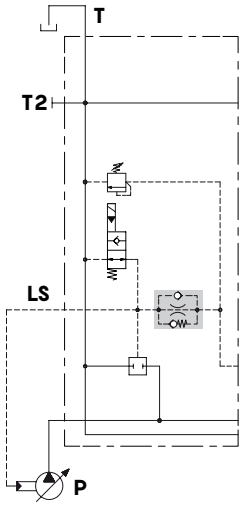
**Type AN2(SO) or AN2(SU)**




**Type AN2(SU)**

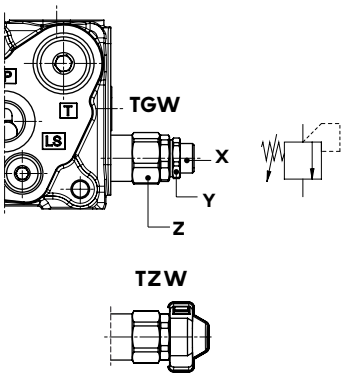



**Type AN2(SO)**

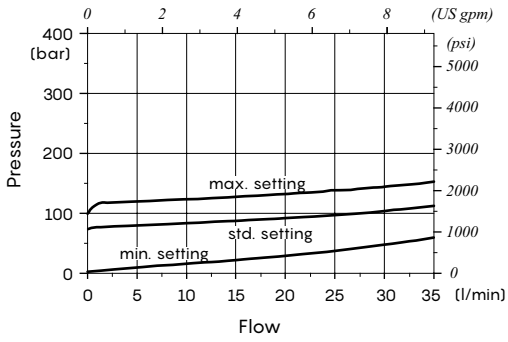


## Main pressure relief valve

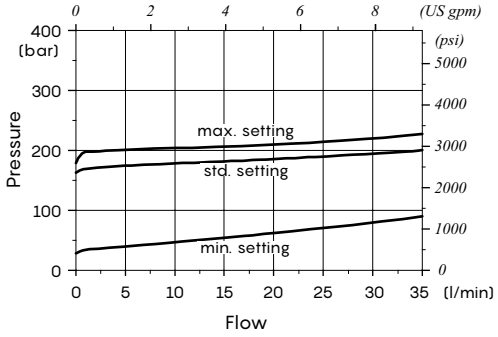
**Setting types**



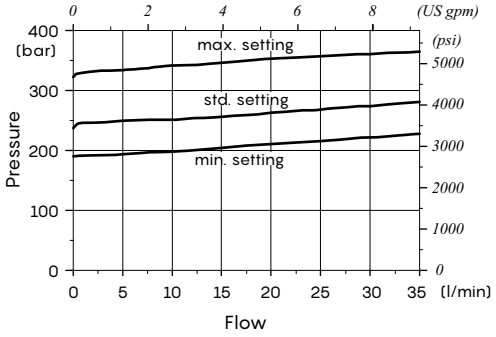

**Setting range: type TGW2**




**Setting range: type TGW3**




**Setting range: type TGW4**

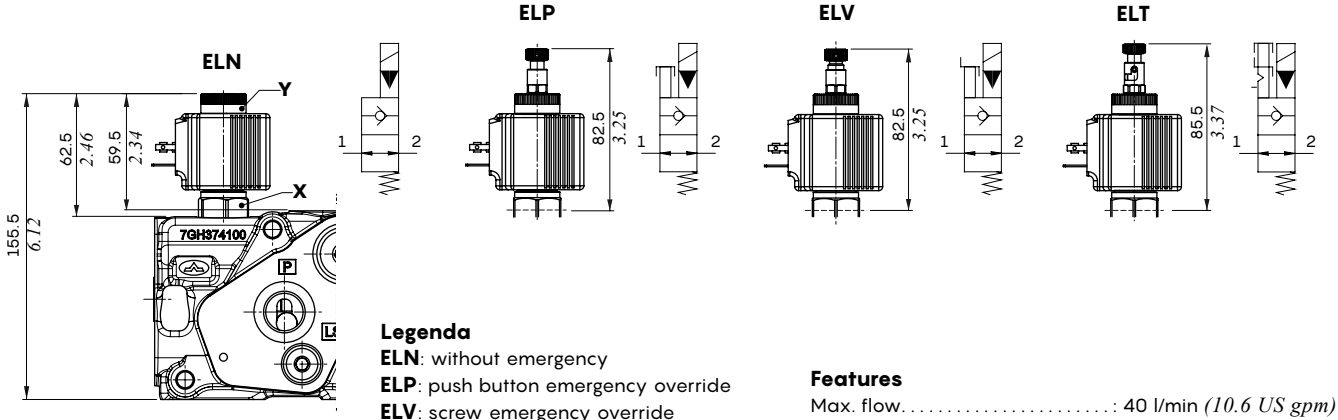



**Legenda**
**TGW**: free setting
**TZW**: valve set and locked
(cap code 4COP126301, n.2 pcs)
RAL3003 pigmented

**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 cm³/min @ 210 bar
*(0.015 in³/min @ 3050 psi)*

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

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

### A Mechanical control configuration (section):

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

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

1 3 4 5 7 8

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

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

1 3 6 8

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

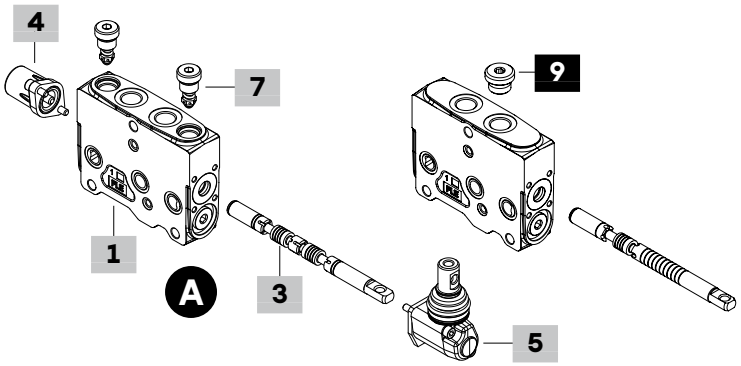
DPX050 / RP - 104(40\40) - 8 L . U3T- ....

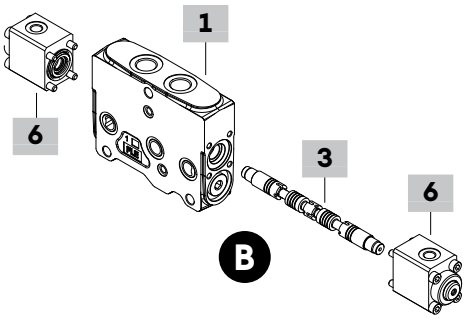
2 3 4 5 7 8

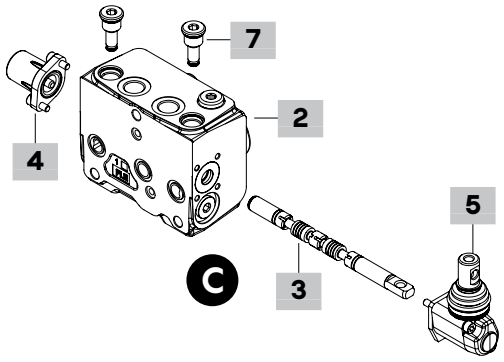
### D Prop. hydraulic control configuration (outlet section):

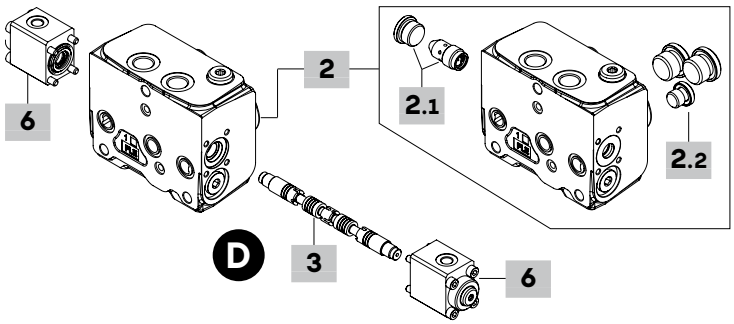
DPX050 / RQ - I104(40\40) - 8IM (VBT) - F1- ....

2 3 6 2.1 2.2 8




### 1 Working section kit * page 24

**For mechanical control**

TYPE: **DPX050/Q-FPM** CODE: 5EL10A3010V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX050/P-FPM** CODE: 5EL10A3000V
DESCRIPTION: With port valve arrangement

**For proportional hydraulic control**

TYPE: **DPX050/Q-IM-FPM** CODE: 5EL10A3010AV
DESCRIPTION: Without port valve arrangement
TYPE: **DPX050/P-IM-FPM** CODE: 5EL10A3000AV
DESCRIPTION: With port valve arrangement

### 2 Working section kit with outlet * page 25

**For mechanical control**

TYPE: **DPX050/RQ** CODE: 5FIA20A310S
DESCRIPTION: With bleed valve, with P1-T1-LS1 plugged port, without port valve arrangement
TYPE: **DPX050/RP** CODE: 5FIA20A300S
DESCRIPTION: As previous one with port valve arrangement

**For proportional hydraulic control**

TYPE: **DPX050/RQ-IM** CODE: 5FIA20A310AS
DESCRIPTION: With bleed valve, with P1-T1-LS1 plugged port, without port valve arrangement
TYPE: **DPX050/RP-IM** CODE: 5FIA20A300AS
DESCRIPTION: As previous one with port valve arrangement

NOTE (*): Codes are referred to **BSP** 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 |
|---|---|---|
| P1-T1-LS1 plugged ports | | |
| **-** | 3XTAP727180 | G1/2 plug, nr.2 |
| | 3XTAP719150 | G1/4 plug, nr.1 |
| P1-T1 plugged ports, LS1 open | | |
| **F1** | 3XTAP727180 | G1/2 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) | | |
| **105(50)** | 3CUA110005 | 50 l/min *(13 US gpm)* flow |
| **104(40)** | 3CUA110004 | 40 l/min *(10.5 US gpm)* flow |
| **103(30)** | 3CUA110003 | 30 l/min *(7.9 US gpm)* flow |
| **102(20)** | 3CUA110002 | 20 l/min *(5.3 US gpm)* flow |
| **101(10)** | 3CUA110001 | 10 l/min *(2.6 US gpm)* flow |
| **106(5)** | 3CUA110006 | 5 l/min *(1.3 US gpm)* flow |
| Double acting with A and B to tank in neutral position | | |
| **202(20)** | 3CUA123002 | 20 l/min *(5.3 US gpm)* flow |
| **201(10)** | 3CUA123001 | 10 l/min *(2.6 US gpm)* flow |
| Double acting with A and B partially to tank in neutral position | | |
| **2H05(50)** | 3CUA124005 | 50 l/min *(13 US gpm)* flow |
| **2H04(40)** | 3CUA124004 | 40 l/min *(10.5 US gpm)* flow |
| **2H03(30)** | 3CUA124003 | 30 l/min *(7.9 US gpm)* flow |
| **2H02(20)** | 3CUA124002 | 20 l/min *(5.3 US gpm)* flow |
| **2H01(10)** | 3CUA124001 | 10 l/min *(2.6 US gpm)* flow |
| **2H06(5)** | 3CUA124006 | 5 l/min *(1.3 US gpm)* flow |
| Single acting on A, B plugged: G3/8 plug is required | | |
| **305(50)** | 3CUA131005 | 50 l/min *(13 US gpm)* flow |
| **302(20)** | 3CUA131002 | 20 l/min *(5.3 US gpm)* flow |
| **For proportional hydraulic control** | | |
| Double acting with A and B closed in neutral position, floating circuit with 4 positions 13IMP type control | | |
| **I105(50)** | 3CUA310005 | 50 l/min *(13 US gpm)* flow |
| **I104(40)** | 3CUA310004 | 40 l/min *(10.5 US gpm)* flow |
| **I103(30)** | 3CUA310003 | 30 l/min *(7.9 US gpm)* flow |
| **I102(20)** | 3CUA310002 | 20 l/min *(5.3 US gpm)* flow |
| **I101(10)** | 3CUA310001 | 10 l/min *(2.6 US gpm)* flow |
| **I106(5)** | 3CUA310006 | 5 l/min *(1.3 US gpm)* flow |
| Double acting with A and B to tank in neutral position | | |
| **I204(40)** | 3CUA325004 | 40 l/min *(10.5 US gpm)* flow |
| **I203(30)** | 3CUA325003 | 30 l/min *(7.9 US gpm)* flow |
| **I202(20)** | 3CUA325002 | 20 l/min *(5.3 US gpm)* flow |
| **I201(10)** | 3CUA325001 | 10 l/min *(2.6 US gpm)* flow |
| **I206(5)** | 3CUA325006 | 5 l/min *(1.3 US gpm)* flow |
| Double acting with A and B partially to tank in neutral position | | |
| **I2H05(50)** | 3CUA324005 | 50 l/min *(13 US gpm)* flow |
| **I2H04(40)** | 3CUA324004 | 40 l/min *(10.5 US gpm)* flow |
| **I2H08(30)** | 3CUA324008 | 30 l/min *(7.9 US gpm)* flow |
| **I2H07(20)** | 3CUA324007 | 20 l/min *(5.3 US gpm)* flow |
| **I2H01(10)** | 3CUA324001 | 10 l/min *(2.6 US gpm)* flow |
| **I2H06(5)** | 3CUA324006 | 5 l/min *(1.3 US gpm)* flow |
| Single acting on A or B, other port plugged: G3/8 plug is required | | |
| **I305-I405(50)** | 3CUA331005 | 50 l/min *(13 US gpm)* flow |
| **I302-I402(20)** | 3CUA331002 | 20 l/min *(5.3 US gpm)* flow |

## 4 "A" side spool positioners page 29

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **7FT** | 5V0710A001 | With friction and neutral position notch |
| **8** | 5V08102000 | 3 pos. with spring return to neutral position |
| **8F2** | 5V0810A001 | Spool stroke limiter on B port |
| **8D** | 5V08102200 | External pin with M6 female thread |
| **8D2** | 5V08102220 | External pin with M8 male thread |
| **9BZ** | 5V09202010 | Detent in position 1 |
| **10BZ** | 5V10202010 | Detent in position 2 |
| **11BZ** | 5V11202010 | Detent in positions 1 and 2 |
| **12** | 5V12102000 | 2 positions, detent in pos. 1 and 2 |
| For floating circuit (standard spool) | | |
| **13RZ** | 5V13306020 | 4 pos., detent in 4th position with spool in, spring return to neutral position |

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

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

## 6 Proportional hydraulic control * page 32

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **8IM** | 5IDR20A300AV | Range 8-27 bar *(116-392 psi)* |
| **8IMX** | 5IDR20A301AV | Range 3.5-20 bar *(51-290 psi)* |
| **8IMF3** | 5IDR20A302AV | Range 8-27 bar *(116-392 psi)*, with spool stroke limiter on A and B ports |
| **8IMXF3** | 5IDR20A303AV | Range 3.5-20 bar *(51-290 psi)*, with spool stroke limiter on A and B ports |
| For floating circuit (standard spool) | | |
| **13IMP** | 5IDR20A310AV | Range 4-16.5-28 bar *(58-239-406 psi)* |

## 7 Port valves page 40

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **UT** | XTAP518370V | Valve blanking plug |
| **C** | 5KIT411000 | Anticavitation valve |

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

TYPE: **U 100** (100 = setting (bar))

CODE: 5KIT308 100 (100 = setting (bar))

SETTING:

| | | |
|---|---|---|
| 40 bar *(580 psi)* | 50 bar *(725 psi)* | 63 bar *(870 psi)* |
| 80 bar *(1150 psi)* | 100 bar *(1450 psi)* | 120 bar *(1750 psi)* |
| 130 bar *(1900 psi)* | 140 bar *(2050 psi)* | 150 bar *(2150 psi)* |
| 165 bar *(2400 psi)* | 175 bar *(2550 psi)* | 185 bar *(2700 psi)* |
| 200 bar *(2900 psi)* | 210 bar *(3050 psi)* | 220 bar *(3200 psi)* |
| 235 bar *(3400 psi)* | 250 bar *(3600 psi)* | 270 bar *(3900 psi)* |
| 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 |
|---|---|
| 3XTAP722160 | G3/8 plug |

NOTE (*): Codes are referred to **BSP** 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) - .... - 12VDC

1 3 4 5 7 8 4

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

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

1 3 6 8 6

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

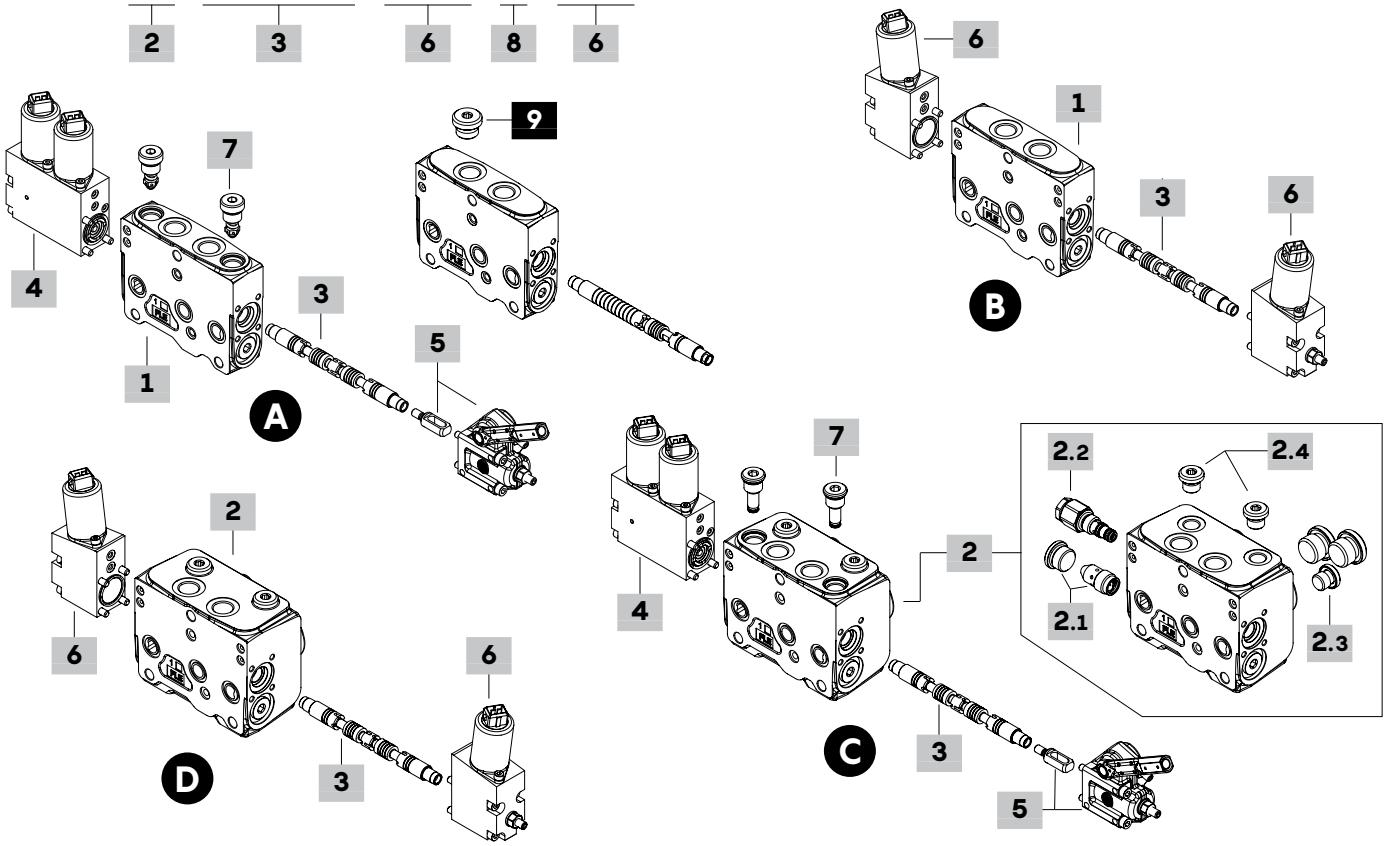
DPX050 / RQZ - I104(40\40) - 8EZ3 LQF3 . U3T - (VBT \ RT) - F1 - NOTAP(VL) - .... - 12VDC

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 - .... - 12VDC

2 3 6 8 6




| 1 Working section kit * | page 24 |
|---|---|

**For two-side electrohydraulic control**

TYPE: **DPX050/QE-FPM** CODE: 5EL10A3012V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX050/PE-FPM** CODE: 5EL10A3002V
DESCRIPTION: With port valve arrangement

| 1 Working section kit * | page 24 |
|---|---|

**For one-side electrohydraulic control**

TYPE: **DPX050/QZ-FPM** CODE: 5EL10A3210V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX050/PZ-FPM** CODE: 5EL10A3200V
DESCRIPTION: With port valve arrangement

NOTE (*): Codes are referred to **BSP** 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** CODE: 5FIA20A313S
DESCRIPTION: With bleed valve, with P1-T1-LS1 plugged port, without port valve arrangement
TYPE: **DPX050/RPE** CODE: 5FIA20A301S
DESCRIPTION: As previous one with port valve arrangement
**For one-side electrohydraulic control**
TYPE: **DPX050/RQZ** CODE: 5FIA20A326S
DESCRIPTION: With bleed valve, with P1-T1-LS1 plugged port, without port valve arrangement
TYPE: **DPX050/RPZ** CODE: 5FIA20A325S
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 regerred 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 |
|---|---|---|
| P1-T1-LS1 plugged ports | | |
| **-** | 3XTAP727180 | G1/2 plug, nr.2 |
| | 3XTAP719150 | G1/4 plug, nr.1 |
| P1-T1 plugged ports, LS1 open | | |
| **F1** | 3XTAP727180 | G1/2 plug, nr.2 |

## 2.4 Pilot and drain *

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

## 3 Spool page 27

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| Double acting with A and B closed in neutral position, floating circuit with 4 positions controls (13.. type) | | |
| **I105(50)** | 3CUA310005 | 50 l/min *(13 US gpm)* flow |
| **I104(40)** | 3CUA310004 | 40 l/min *(10.5 US gpm)* flow |
| **I103(30)** | 3CUA310003 | 30 l/min *(7.9 US gpm)* flow |
| **I102(20)** | 3CUA310002 | 20 l/min *(5.3 US gpm)* flow |
| **I101(10)** | 3CUA310001 | 10 l/min *(2.6 US gpm)* flow |
| **I106(5)** | 3CUA310006 | 5 l/min *(1.3 US gpm)* flow |
| Double acting with A and B to tank in neutral position | | |
| **I204(40)** | 3CUA325004 | 40 l/min *(10.5 US gpm)* flow |
| **I203(30)** | 3CUA325003 | 30 l/min *(7.9 US gpm)* flow |
| **I202(20)** | 3CUA325002 | 20 l/min *(5.3 US gpm)* flow |
| **I201(10)** | 3CUA325001 | 10 l/min *(2.6 US gpm)* flow |
| **I206(5)** | 3CUA325006 | 5 l/min *(1.3 US gpm)* flow |
| Double acting with A and B partially to tank in neutral position | | |
| **I2H05(50)** | 3CUA324005 | 50 l/min *(13 US gpm)* flow |
| **I2H04(40)** | 3CUA324004 | 40 l/min *(10.5 US gpm)* flow |
| **I2H08(30)** | 3CUA324008 | 30 l/min *(7.9 US gpm)* flow |
| **I2H07(20)** | 3CUA324007 | 20 l/min *(5.3 US gpm)* flow |
| **I2H01(10)** | 3CUA324001 | 10 l/min *(2.6 US gpm)* flow |
| **I2H06(5)** | 3CUA324006 | 5 l/min *(1.3 US gpm)* flow |
| Single acting on A or B, other port plugged: G3/8 plug is required | | |
| **I305-I405(50)** | 3CUA331005 | 50 l/min *(13 US gpm)* flow |
| **I302-I402(20)** | 3CUA331002 | 20 l/min *(5.3 US gpm)* flow |

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

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

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

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

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

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

## 6 Two-side electrohydraulic control page 37

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **8EB3-12VDC** | 5IDR90A200V | AMP connector |
| **8EB3-24VDC** | 5IDR90A201V | As previous one |
| **8EB34-12VDC** | 5IDR90A202V | Deutsch connector |
| **8EB34-24VDC** | 5IDR90A203V | As previous one |
| **8EB3F3-12VDC** | 5IDR90A204V | AMP connector, spool stroke limiter on A and B ports |
| **8EB3F3-24VDC** | 5IDR90A205V | As previous one |
| **8EB34F3-12VDC** | 5IDR90A206V | Deutsch onnector, spool stroke limiter on A and B ports |
| **8EB34F3-24VDC** | 5IDR90A207V | As previous one |
| For floating circuit (standard spool) | | |
| **13EB3P-12VDC** | 5IDR91A208V | With Step, AMP connector |
| **13EB3P-24VDC** | 5IDR91A209V | As previous one |
| **13EB34P-12VDC** | 5IDR91A210V | With Step, Deutsch connector |
| **13EB34P-24VDC** | 5IDR91A211V | As previous one |

## 7 Port valves page 40

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

For complete list see previous pages.

## 8 Section threading

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

## 9 Plug for single acting spool *

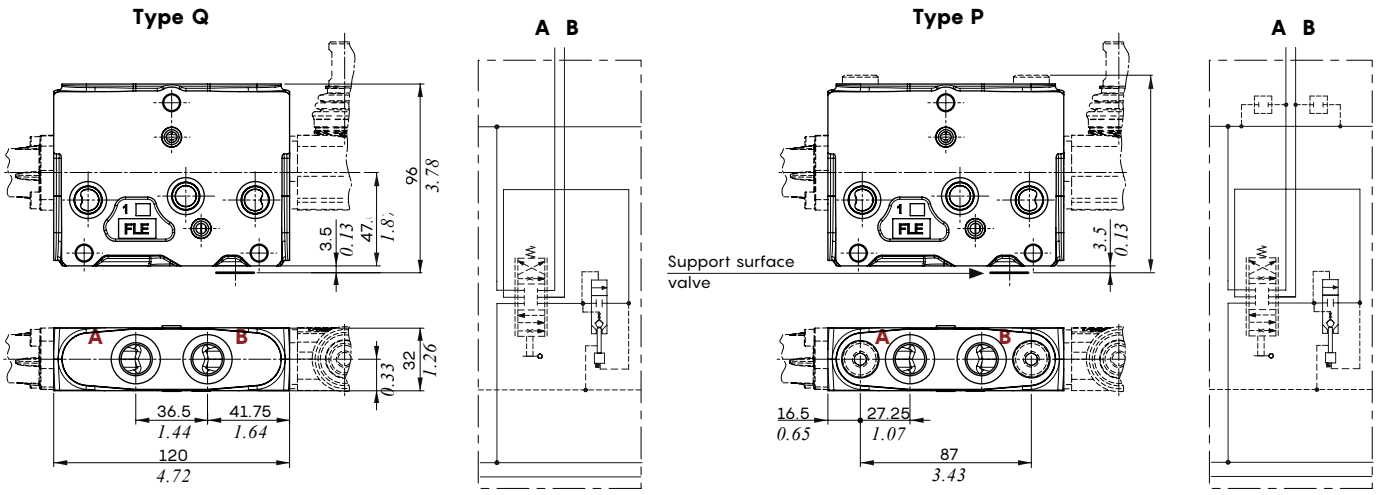
| CODE | DESCRIPTION |
|---|---|
| 3XTAP722160 | G3/8 plug |

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

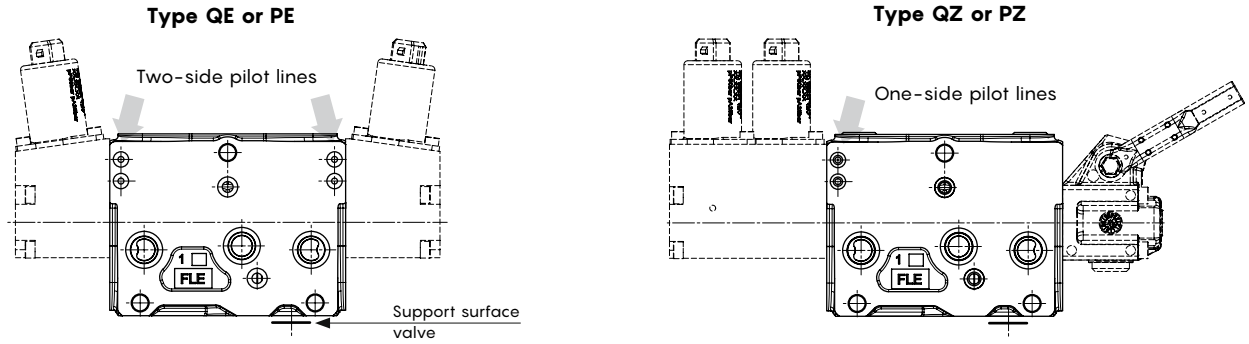
## Working and outlet section

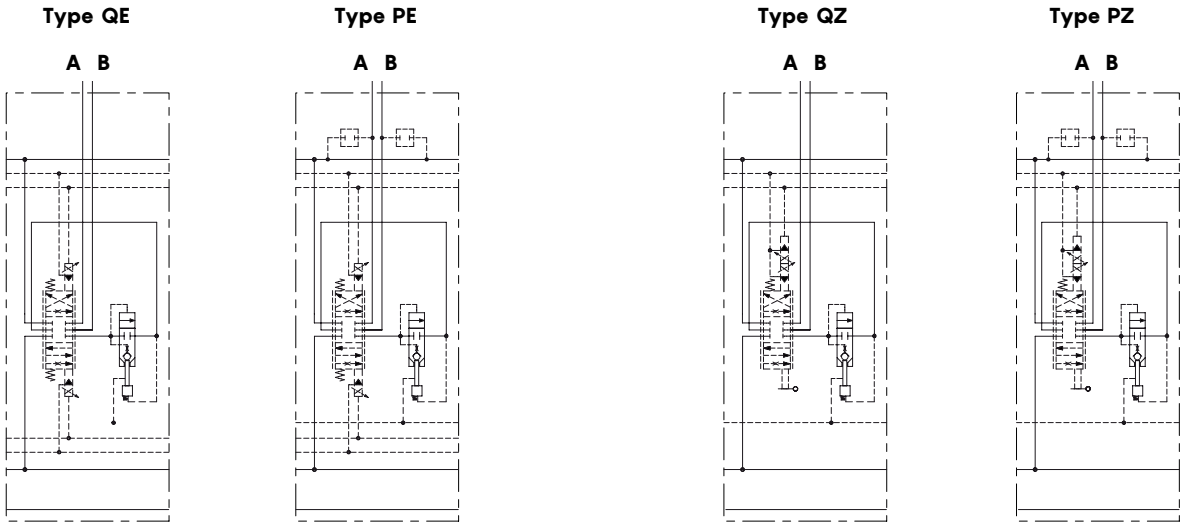
### Dimensions and hydraulic circuit

#### Section for mechanical and hydraulic controls




#### Section for electrohydraulic controls

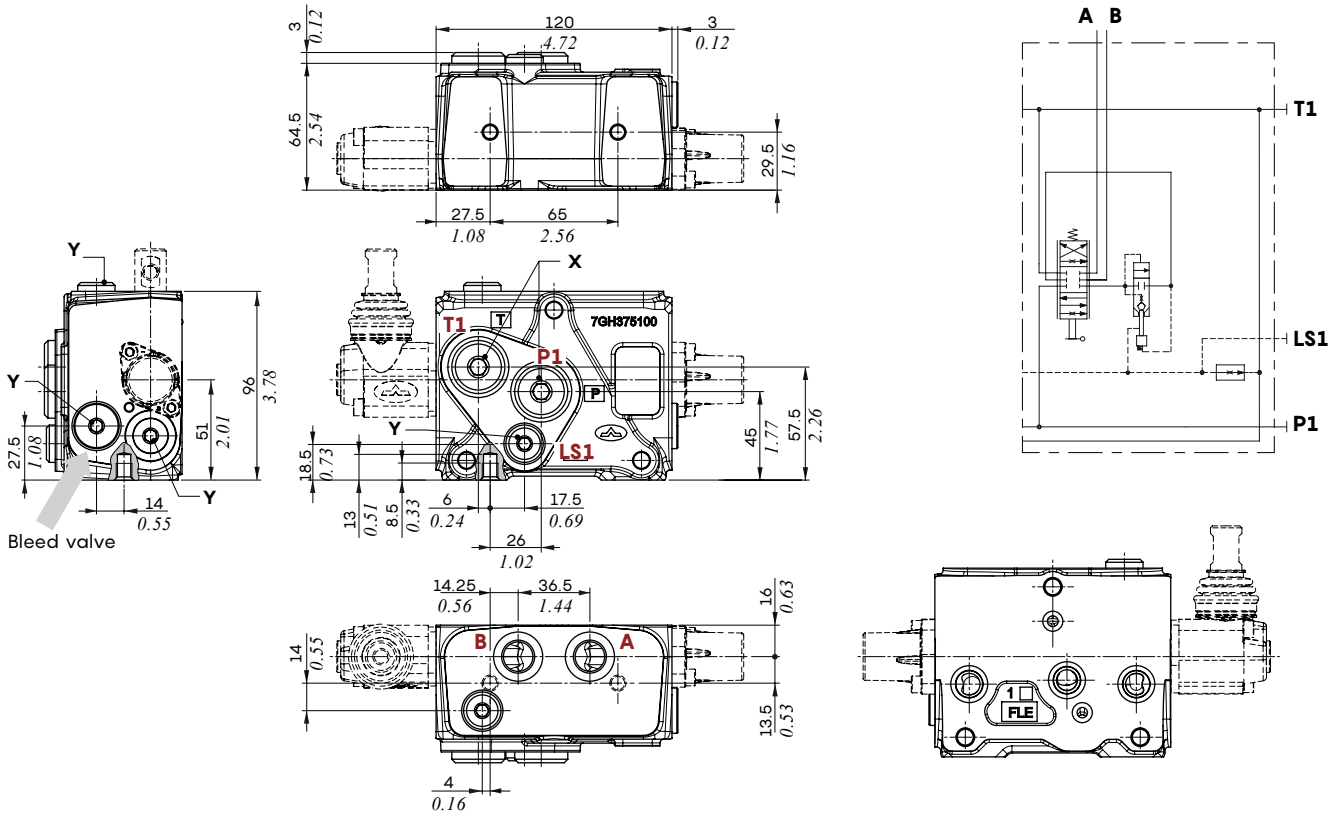


## Dimensions and hydraulic circuit

### Section with outlet for mechanical and hydraulic controls

**Type RQ**

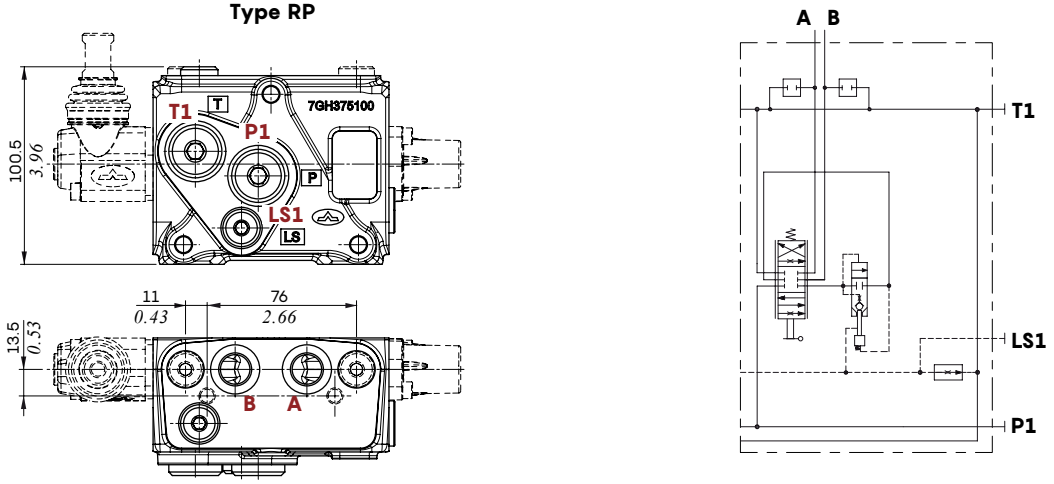



**Wrenches and tightening torques**

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

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

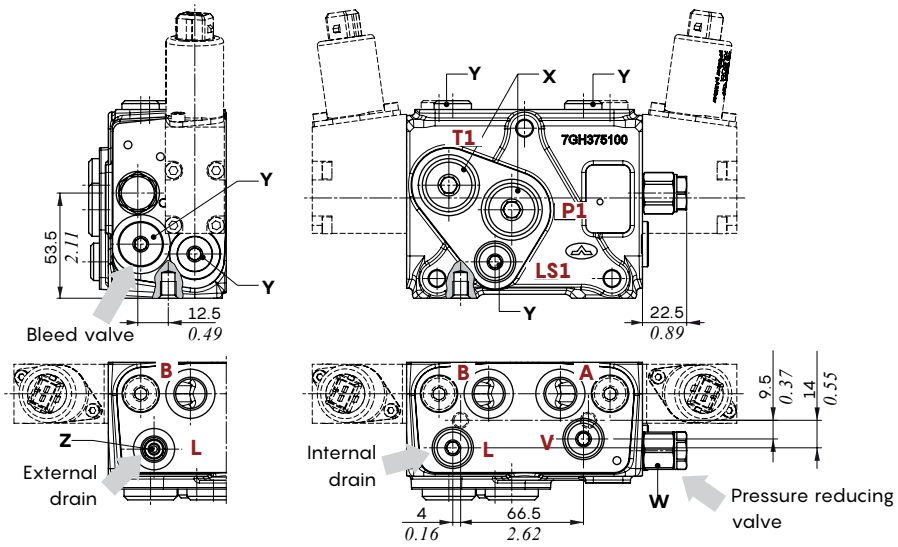
**Type RP**



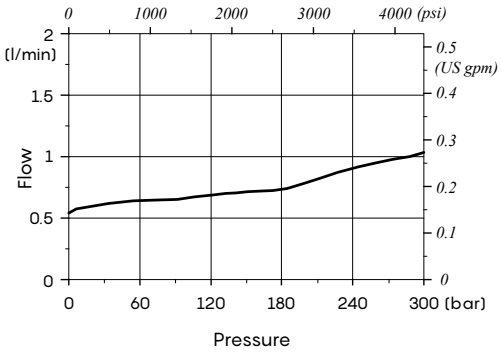
## Working and outlet section

### Dimensions and hydraulic circuit

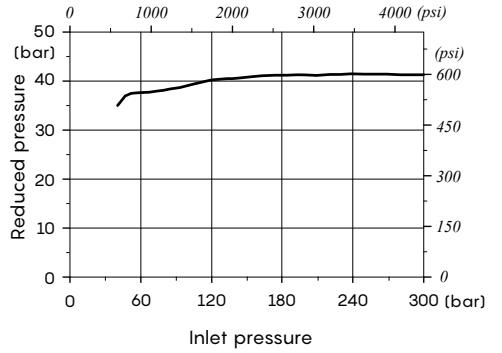
#### Section with outlet for electrohydraulic controls




**Bleed valve diagram**
**Flow vs. Pressure**




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

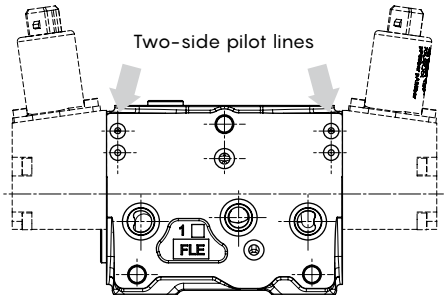



**Wrenches and tightening torques**
X = allen wrench 8 - 24 Nm *(17.7 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*
Z = allen wrench 5 - 9.8 Nm *(7.2 lbft)*
W = wrench 19 - 24 Nm *(17.7 lbft)*

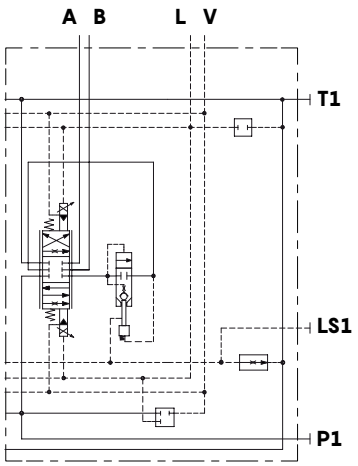
**Bleed valve features**
Max. inlet pressure . . . : 300 bar *(4350 psi)*
Max. back pressure. . . : 25 bar *(363 psi)*

**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)*

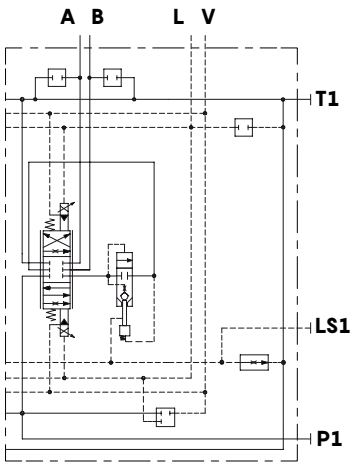
**Type RQE or RPE**




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

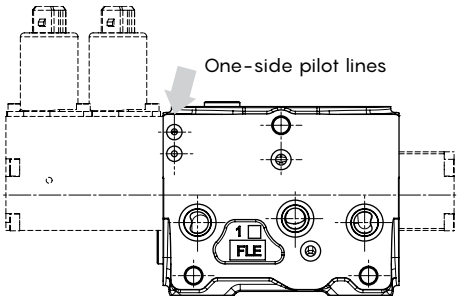



**Type RPE**
(**RT** configuration; without pressure reducing valve, seat plugged)

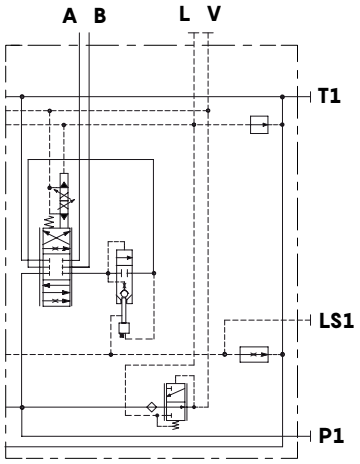


## Dimensions and hydraulic circuit

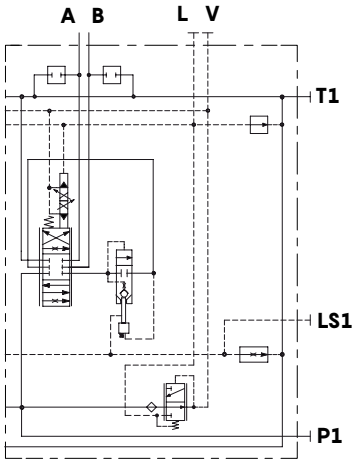
**Type RQZ or RPZ**




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

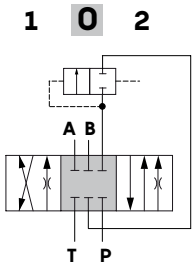



**Type RPZ**
(With pressure reducing valve)



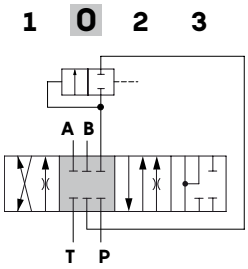

## Spool

**Type 1 (1../I1..)**
A, B closed in neutral position
with 3 position control



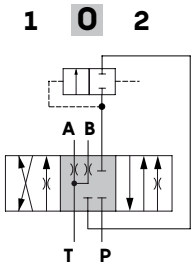

**Stroke**
position 1: + 5.5 mm *(+ 0.22 in)*
position 2: - 5.5 mm *(- 0.22 in)*

**Type 1 (1../I1..)**
A, B closed in neutral position
with 4 position control



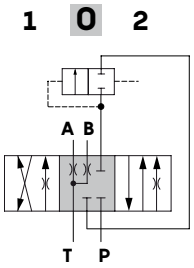

**Stroke**
position 1: + 5.5 mm *(+ 0.22 in)*
position 2: - 5.5 mm *(- 0.22 in)*
position 3: - 10 mm *(- 0.39 in)*

**Type 2(2../I2..)**
A, B to tank
in neutral position



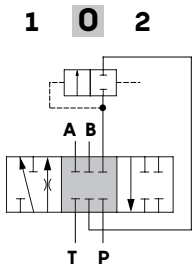

**Stroke**
position 1: + 5.5 mm *(+ 0.22 in)*
position 2: - 5.5 mm *(- 0.22 in)*

**Type 2H(2H../I2H..)**
A, B partially to tank
in neutral position



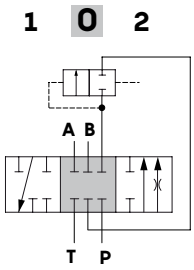

**Stroke**
position 1: + 5.5 mm *(+ 0.22 in)*
position 2: - 5.5 mm *(- 0.22 in)*

**Type 3 (3../I3..)**
Single acting on A

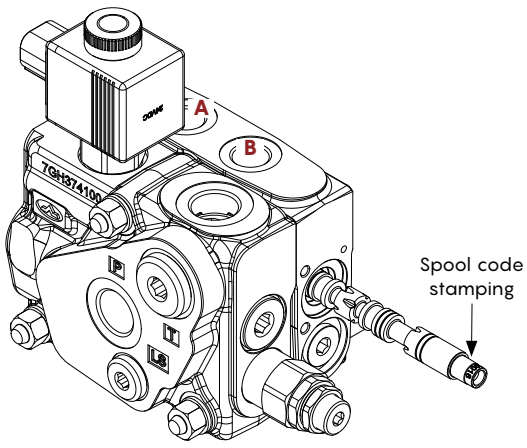



**Stroke**
position 1: + 5.5 mm *(+ 0.22 in)*
position 2: - 5.5 mm *(- 0.22 in)*

**Type 4 (4../I4..)**
Single acting on B




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



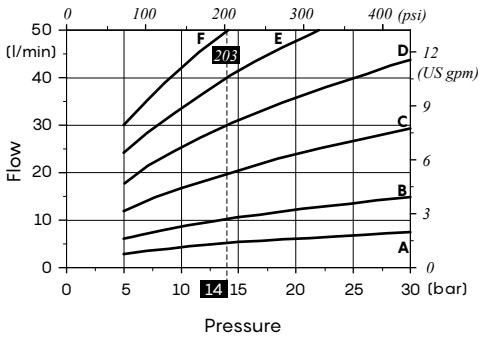

In case of spool replacement the code stamping must be oriented toward B port.

## Working and outlet section

### Spool

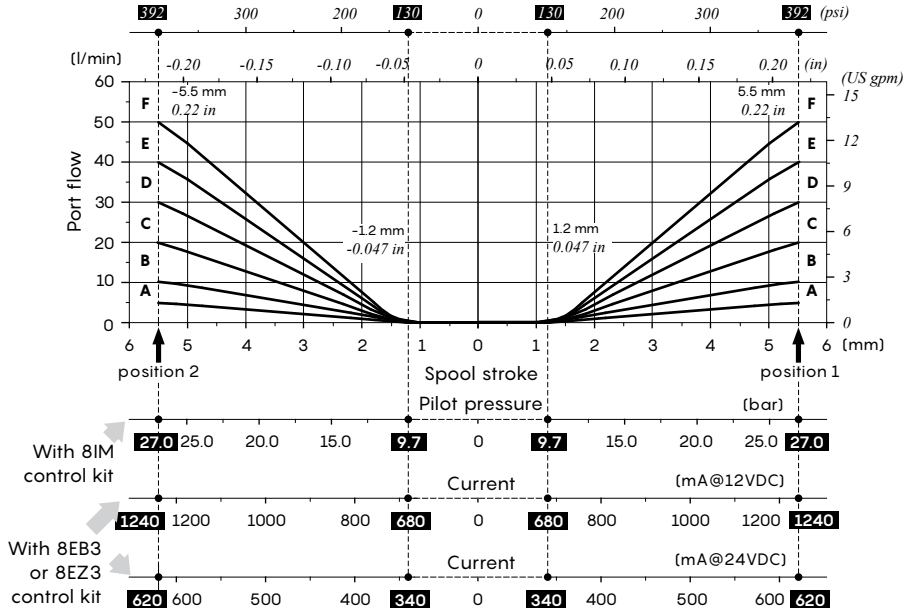
Following curves are detected with standard spools, connecting P⇒A⇒B⇒T and P⇒B⇒A⇒T ports without flow multiplication.
Customized spools with backpressure or flow multiplication may require different force, pressure and pilot current for operation.

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

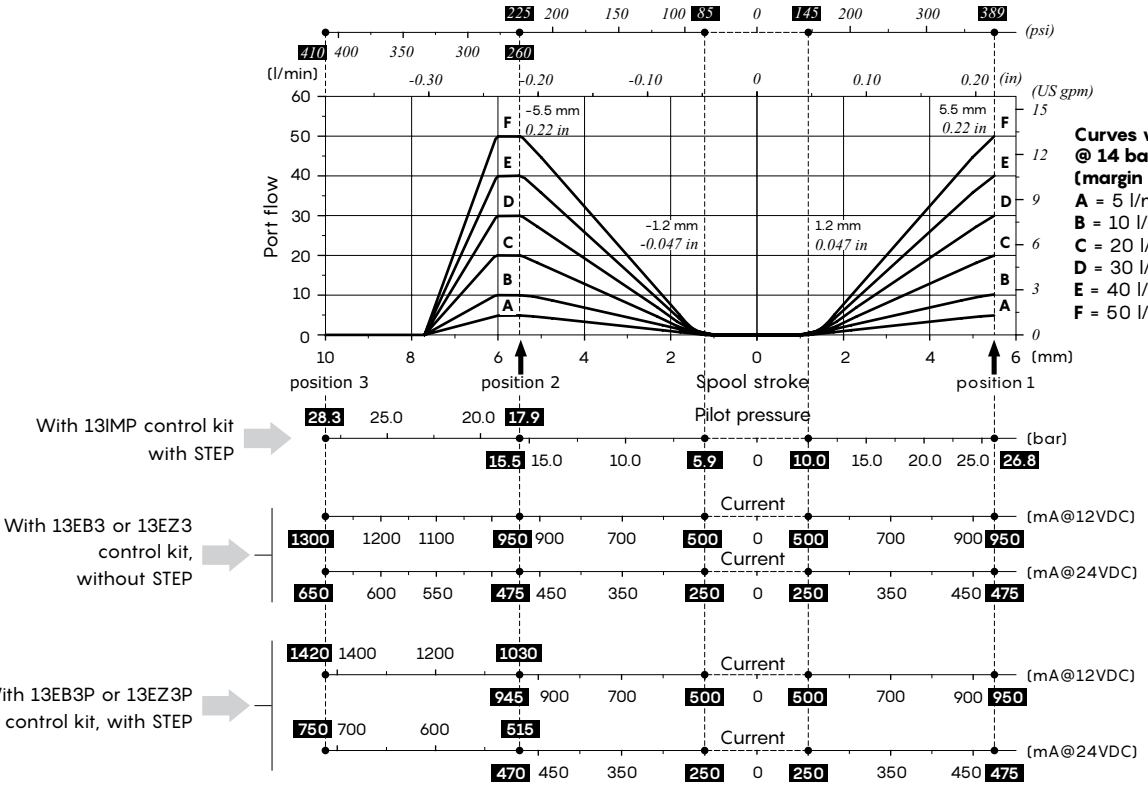



**Curves with spool nominal flow @ 14 bar** *(200 psi)* **stand-by (margin pressure)**
**A** = 5 l/min *(1.3 US gpm)* ± 10%
**B** = 10 l/min *(2.6 US gpm)* ± 10%
**C** = 20 l/min *(5.3 US gpm)* ± 10%
**D** = 30 l/min *(7.9 US gpm)* ± 10%
**E** = 40 l/min *(10.6 US gpm)* ± 10%
**F** = 50 l/min *(12.2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

**3 positions spools metering curve**
Qin = 50 l/min *(13.2 US gpm)* - Open center circuit




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



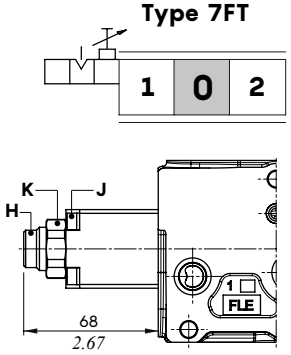

**Curves with spool nominal flow @ 14 bar** *(200 psi)* **stand-by (margin pressure)**
**A** = 5 l/min *(1.3 US gpm)*
**B** = 10 l/min *(2.6 US gpm)*
**C** = 20 l/min *(5.3 US gpm)*
**D** = 30 l/min *(7.9 US gpm)*
**E** = 40 l/min *(10.6 US gpm)*
**F** = 50 l/min *(12.2 US gpm)*

## Working and outlet section

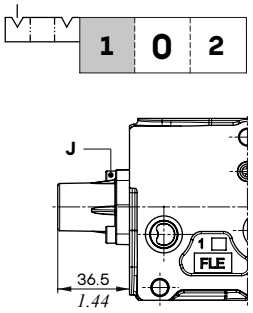
### "A" side spool positioners

**With friction and neutral position notch** — **2 positions, with detent in position 1 and 2**

**Type 7FT**




**Type 12**

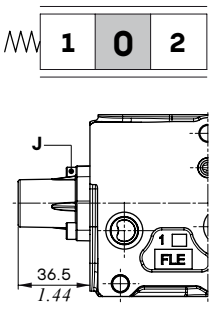



Release force 230 N ± 10 N
*(51.7 lbf ± 2.2 lbf)*

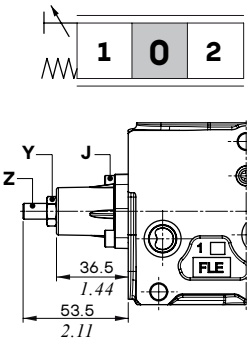
**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
H = allen wrench 4
K = wrench 28 - manual tightening

**With spring return to neutral position**

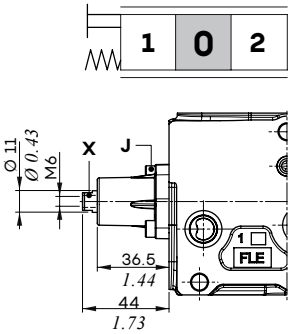
**Type 8**




**Type 8F2**
Spool stroke limiter on B port

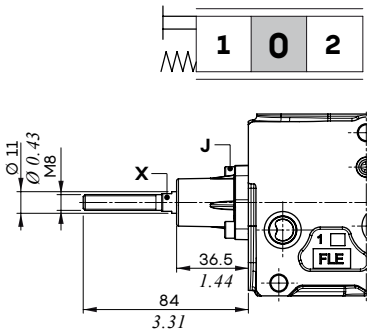



**Type 8D**
External pin with M6 female thread

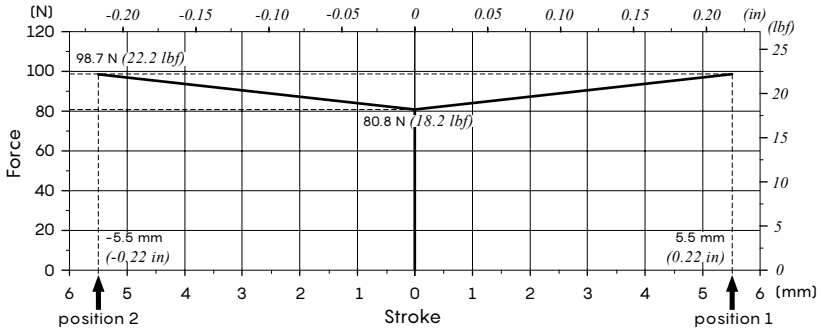



**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = wrench 9
Y = wrench 13 - 24 Nm *(17.7 lbft)*
Z = allen wrench 4

**Type 8D2**
External pin with M8 male thread




**Force vs. Stroke diagram**

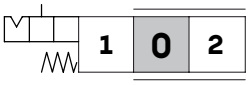


## Working and outlet section

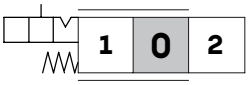
### "A" side spool positioners

#### With detent and spring return to neutral position

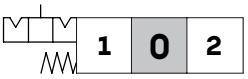
**Type 9BZ**
Detent in position 1
(see A curve)

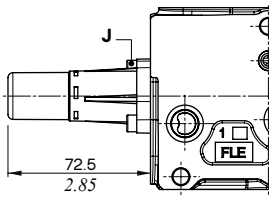



**Type 10BZ**
Detent in position 2
(see B curve)

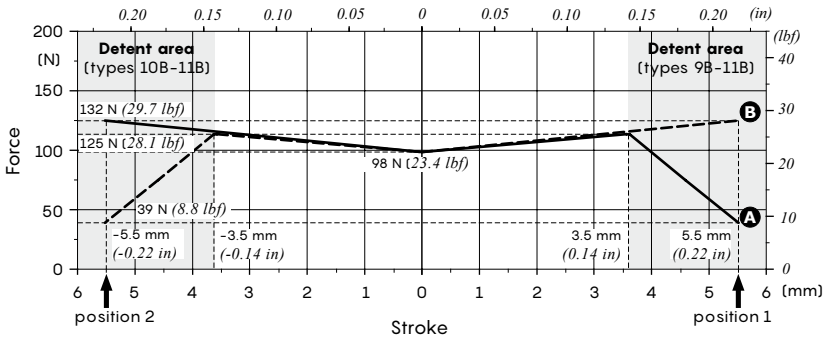



**Type 11BZ**
Detent in positions 1
(A curve) and 2 (B curve)




**Force vs. Stroke diagram**

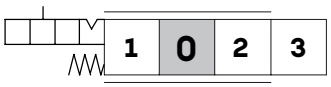


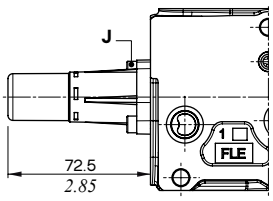

Release force 230 N ± 10% *(51.7 lbf ± 10%)*

**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

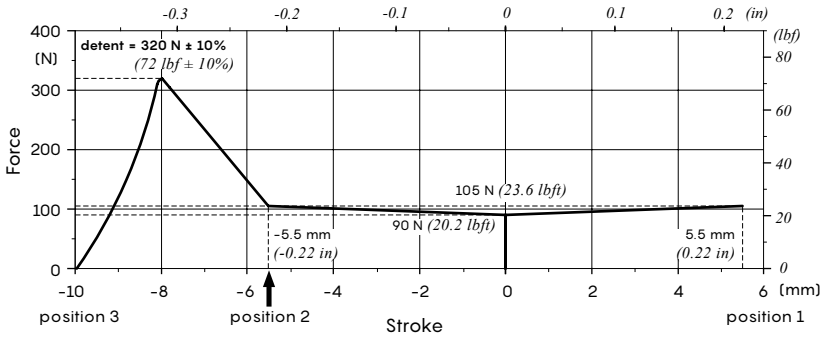
#### With detent and spring return to neutral position, for floating circuit

**Type 13RZ**




**Force vs. Stroke diagram**




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

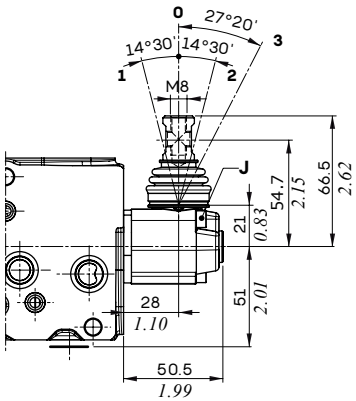
**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

## "B" side spool control kit

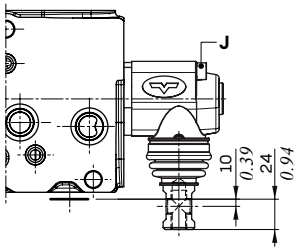
### Lever box

**Type L**

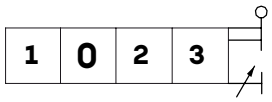


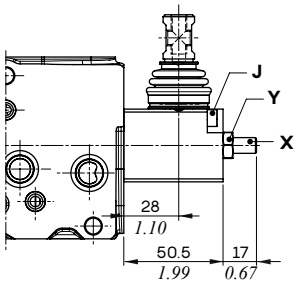




L180 configuration




**Type LF1**
Spool stroke limiter on A port

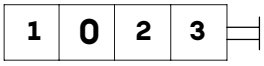


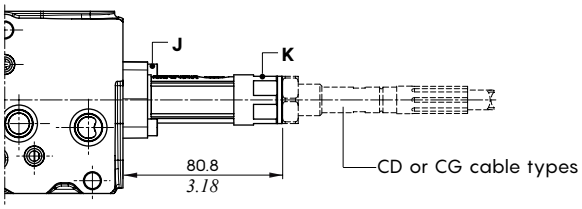




**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = allen wrench 4
Y = wrench 13 - 24 Nm *(17.7 lbft)*

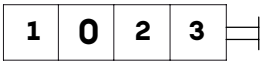
### Without lever box

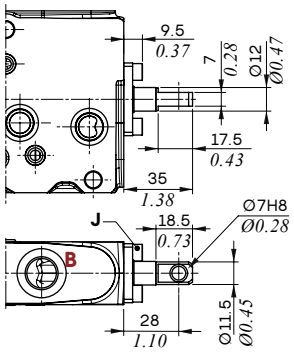
**Type TQ**
Flexible cable connection




**Type SLP**
Dust-proof plate



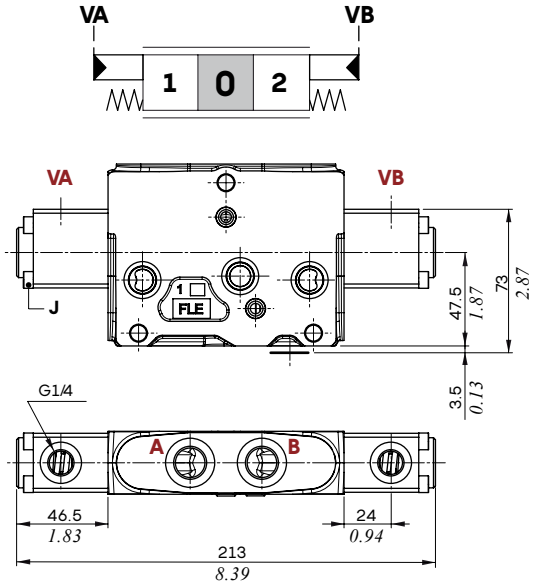




**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
K = wrench 24 *(17.7 lbft)*

## Working and outlet section

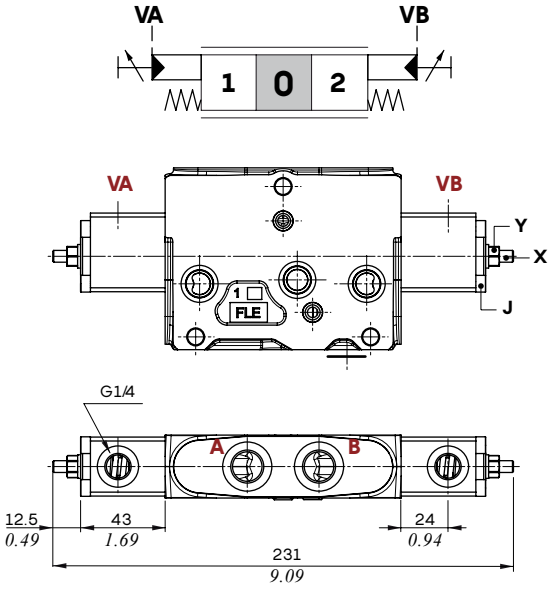
### Proportional hydraulic control

**Types 8IM - 8IMX**




**Types 8IMF3 - 8IMXF3**

With spool stroke limiter on A and B ports




**Features (all types)**

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

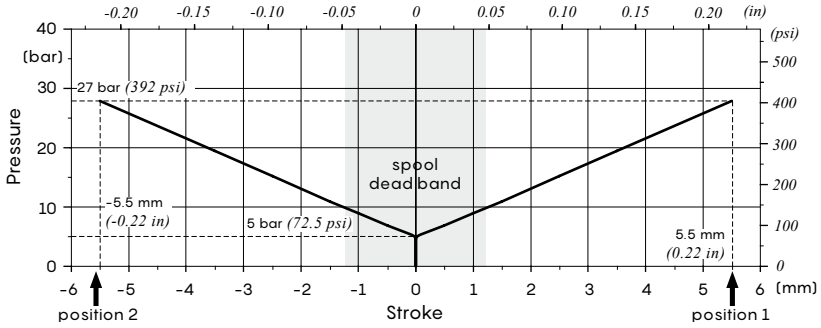
**Wrenches and tightening torques**

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

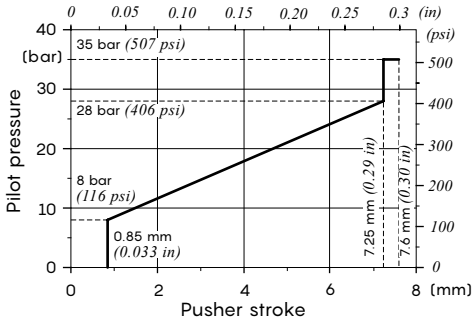
X = allen wrench 3

Y = wrench 10 - 9.8 Nm *(7.2 lbft)*

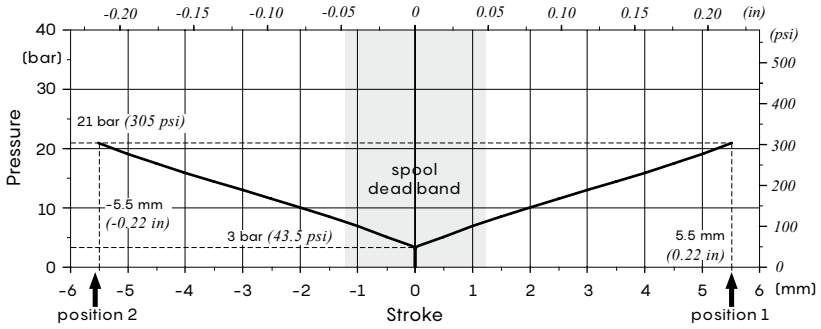
**Types 8IM-8IMF3: Stroke vs. Pressure diagram**



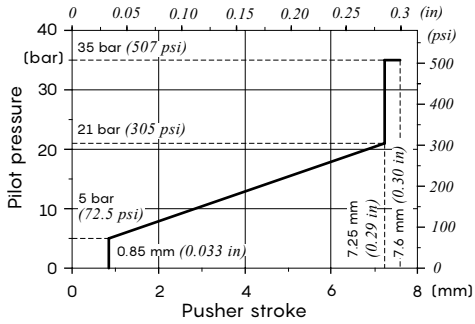

**Suggested pressure control curve: type 089**




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



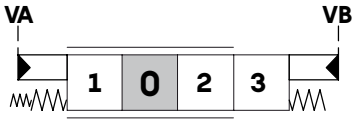

**Suggested pressure control curve: type 028**

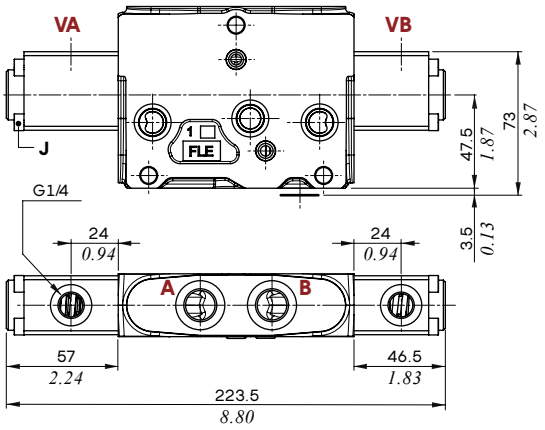


## Proportional hydraulic control

### Type 13IMP

For floating circuit



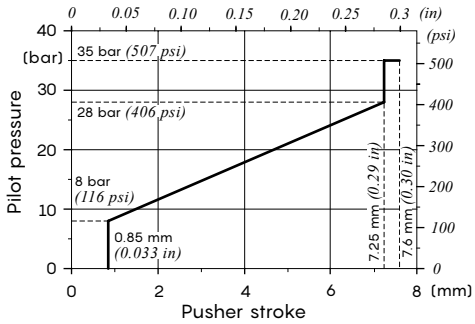

**Wrenches and tightening torques**

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

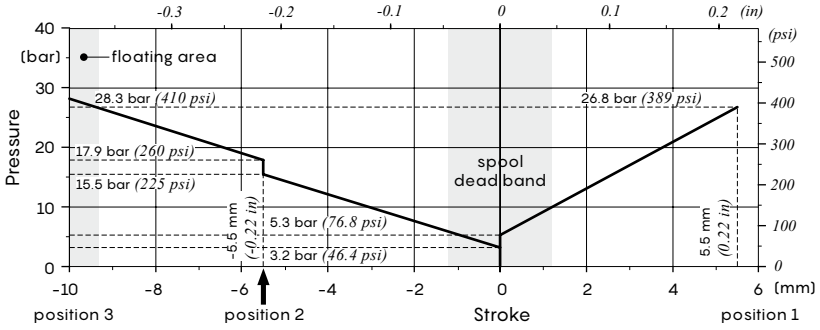
**Features**

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

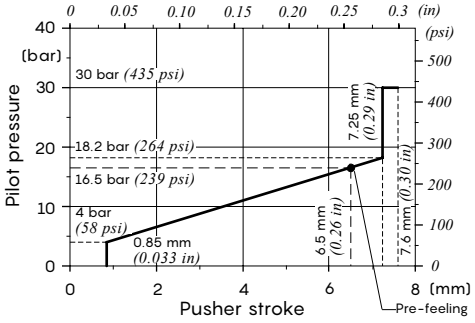
**Suggested pressure control curve on VA port: type 089**




**Stroke vs. Pressure diagram**




**Suggested pressure control curve on VB port: type 086**



## Working and outlet section

### Electrohydraulic control performace data

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

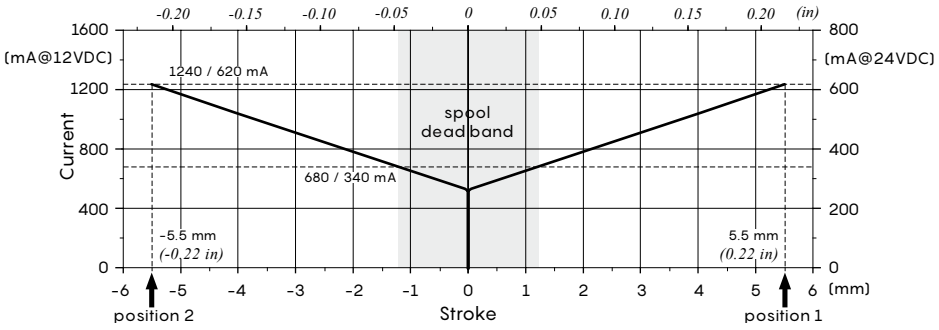
Following electrohydraulic controls need CED400W electronic unit; for information please contact Sales Department.

| Specifications | | Spool control type | | | |
|---|---|---|---|---|---|
| | | 8EB3 | 13EB3P | 8EZ3 | 13EZ3P |
| **Electric specifications** | | | | | |
| Coil impedance | 12 VDC | 4.72 Ω | 4.72 Ω | 4.72 Ω | 4.72 Ω |
| | 24 VDC | 20.8 Ω | 20.8 Ω | 20.8 Ω | 20.8 Ω |
| Max. operating current | 12 VDC | 1.5 A | 1.5 A | 1.5 A | 1.5 A |
| | 24 VDC | 0.75 A | 0.75 A | 0.75 A | 0.75 A |
| No load current consumption | | 0 | 0 | 0 | 0 |
| | | | | With lever box configured controls | |
| Hysteresis max. (1) | external drain | 4% | 4% | 6% | 6% |
| | internal drain | 5% | 5% | 7% | 7% |
| Time response | from 0 ⇒ 100% and from 100% ⇒ 0 of stroke | < 60 ms | < 85 ms | < 75 ms | < 85 ms |
| Min. flow control signal | 12 VDC | 680 mA | 500 mA | 680 mA | 500 mA |
| | 24 VDC | 340 mA | 250 mA | 340 mA | 250 mA |
| Max. flow control signal | 12 VDC | 1240 mA | P⇒A: 950 mA<br>P⇒B: 945 mA<br>1030 mA | 1240 mA | P⇒A: 950 mA<br>P⇒B: 945 mA<br>1030 mA |
| | 24 VDC | 620 mA | P⇒A: 475 mA<br>P⇒B: 470 mA<br>515 mA | 620 mA | P⇒A: 475 mA<br>P⇒B: 470 mA<br>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 insulance | | Class H (180°C - *356°F*) | | Class H (180°C - *356°F*) | |
| Connector type | | AMP JPT - Deutsch DT | | AMP JPT - Deutsch DT | |
| Weather protection (connector) | | IP65 (JPT type) - IP69K (DT type) | | IP65 (JPT type) - IP69K (DT type) | |
| **Hydraulic specifications** | | | | | |
| Max. pressure | | 40 bar *(580 psi)* | | 50 bar *(725 psi)* | |
| Max. back pressure | | 10 bar *(145 psi)* | | 10 bar *(145 psi)* | |

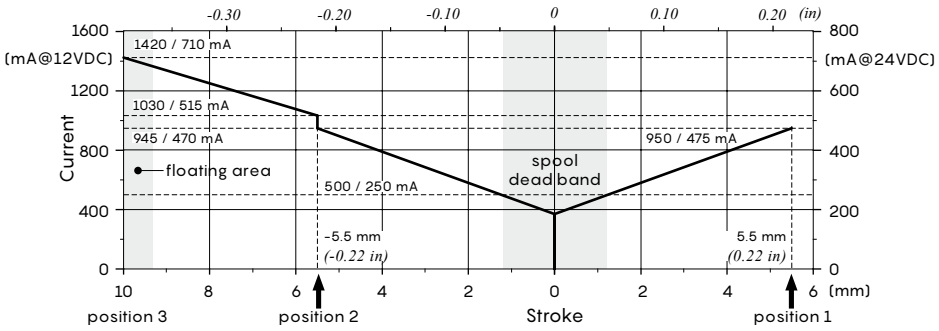
Note (1) hysteresis is indicated at nominal supply voltage and f = 0.008 Hz for one cycle (one cycle = neutral ⇒ full A ⇒ neutral ⇒ full B ⇒ neutral).
For the calculation rules see "Appendix A" on page 170.

## Electrohydraulic control performace data

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




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



## Working and outlet section

### Electrohydraulic controls: spool position sensor

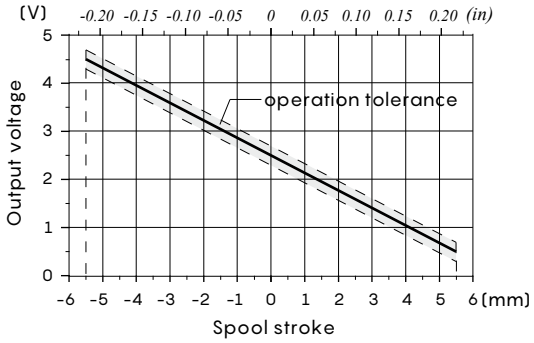
The sensor can be ordered exclusively through the EB and EZ type electrohydraulic controls; see page 23 for available control list.

#### SPSL sensor

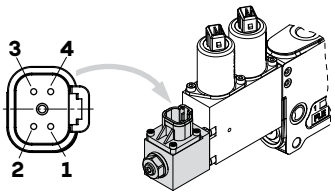
The SPSL position sensor converts the spool movements into a voltage linear signal.

| Working conditions | | |
|---|---|---|
| Voltage supply | | 5 VDC |
| Current absorption | | < 10 mA (no load) |
| Mechanical life | | 3x10⁶ |
| 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 |



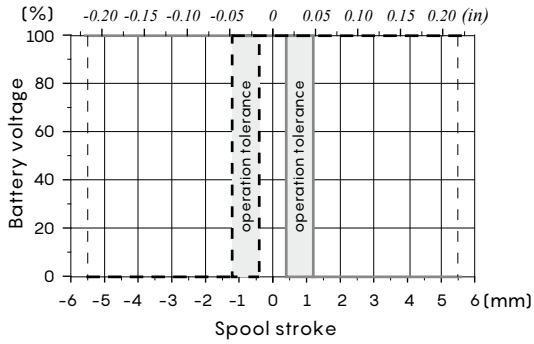

Deutsch DT06-4S mating connector, code 5CON140072

#### SPSD sensor

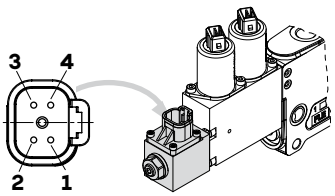
The SPSD position sensor converts the spool movements into an electric digital signal.

| Working conditions | | |
|---|---|---|
| Voltage supply | | from 9 to 32 VDC |
| Current absorption | | < 10 mA (no load) |
| Mechanical life | | 3x10⁶ |
| 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 |

**SPSD 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

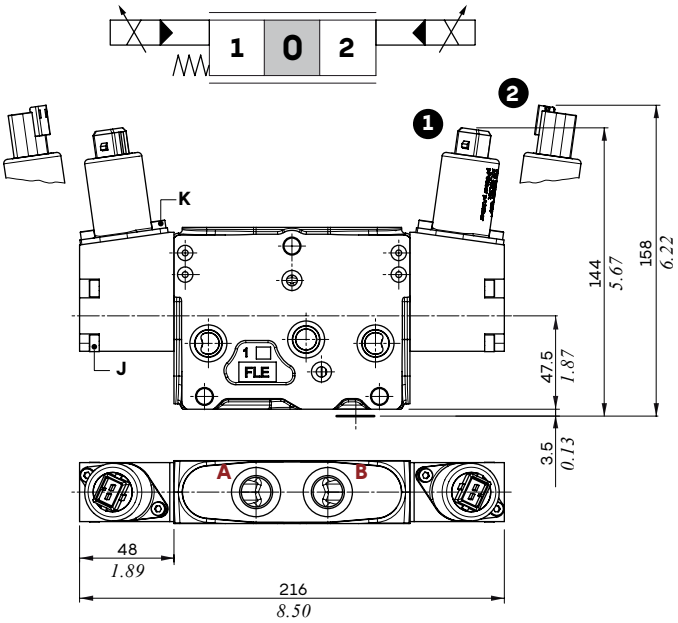
## Two-side electrohydraulic control

**Control types**

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

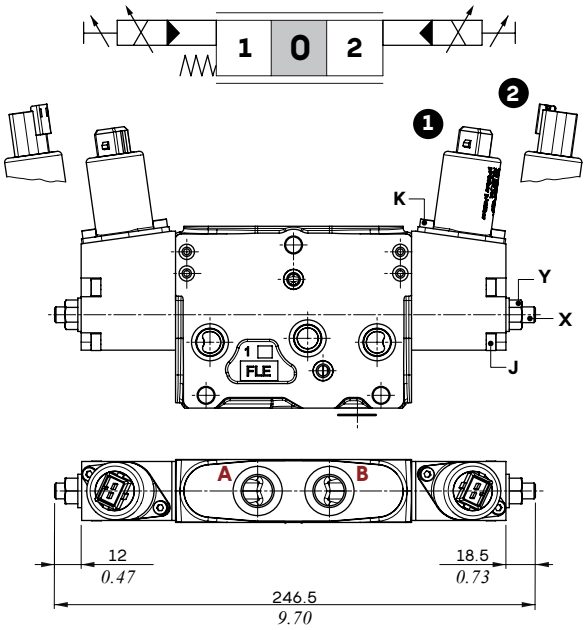
2: With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

### Types 8EB3 - 8EB34



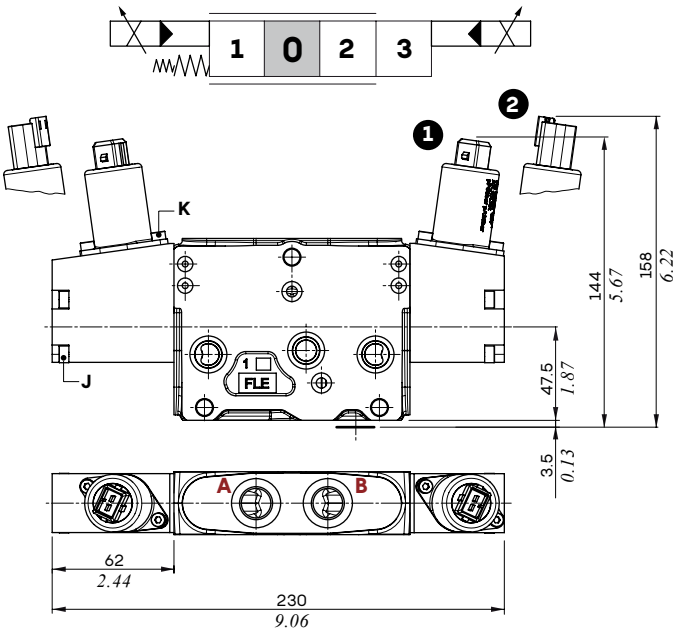

### Types 8EB3F3 - 8EB34F3

With spool stroke limiter




### Types 13EB3P - 13EB34P

For floating circuit




**Wrenches and tightening torques**

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

K = allen wrench 3 - 5 Nm *(3.7 lbft)*

X = allen wrench 4

Y = wrench 13 - 24 Nm *(17.7 lbft)*

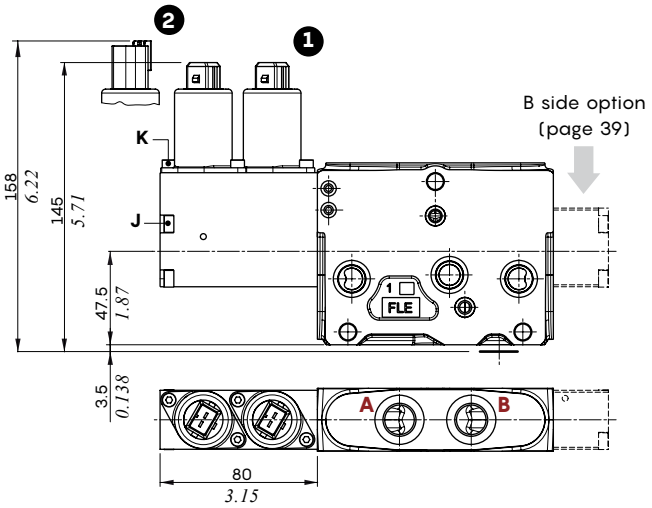
## Working and outlet section

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

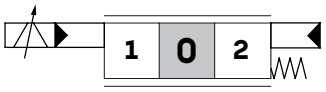
**Control types**

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

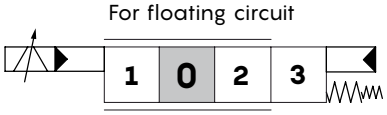
2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

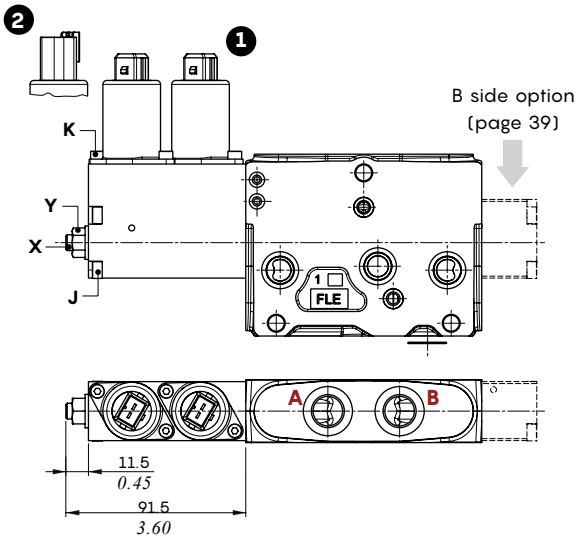



**Types 8EZ3 - 8EZ34**

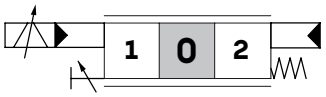



**Types 13EZ3P - 13EZ34P**
For floating circuit



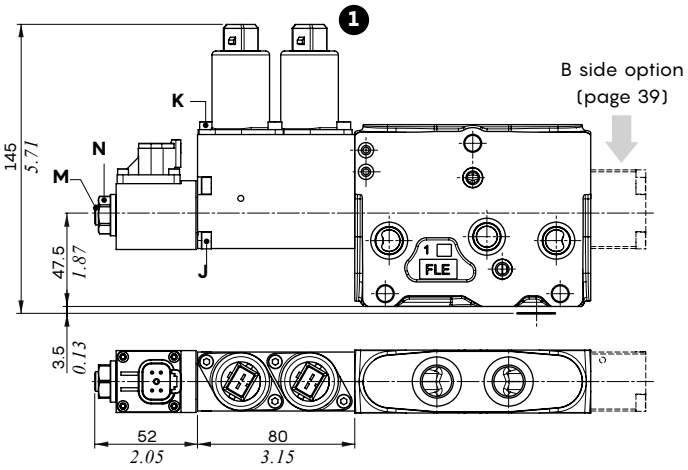




**Types 8EZ3F2 - 8EZ34F2**
With spool stroke limiter

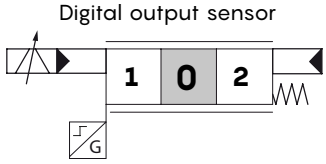



**Wrenches and tightening torques**

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)*




**Type 8EZ3SPSD**
Digital output sensor

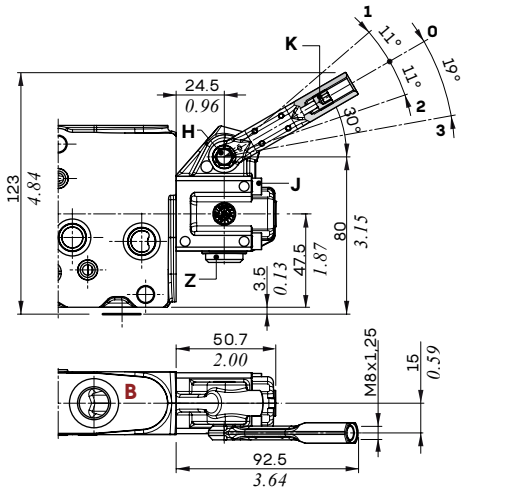


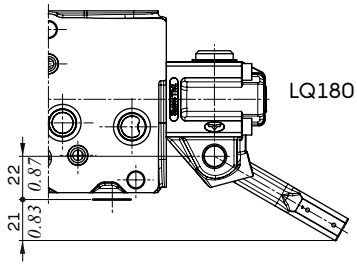
## One-side electrohydraulic control: "B" side option

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

### Types LQ - LQ180

| 1 | 0 | 2 | 3 |
|---|---|---|---|



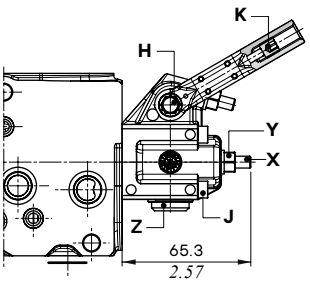



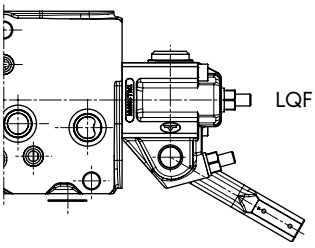

LQ180 configuration

### Types LQF3 - LQF3180

With stroke limiters on A and B ports

| 1 | 0 | 2 | 3 |
|---|---|---|---|



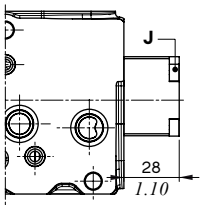



LQF3180 configuration

### Type SLC

With endcap

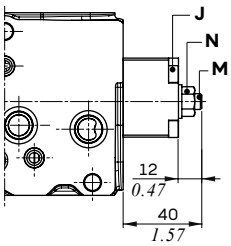
| 1 | 0 | 2 | 3 |
|---|---|---|---|




### Type SLCF1

Spool stroke limiter on A port

| 1 | 0 | 2 | 3 |
|---|---|---|---|



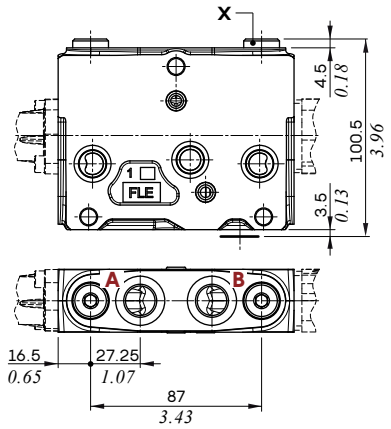

**Wrenches andtightening torques**

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)*

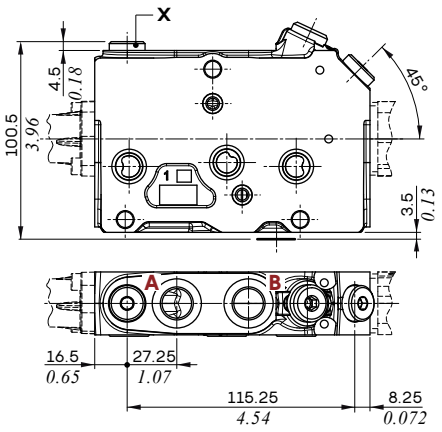
## Working and outlet section

### Port valves

**On standard section**




**On Low Leak section**




**Type U valve: antishock valves with prefill**



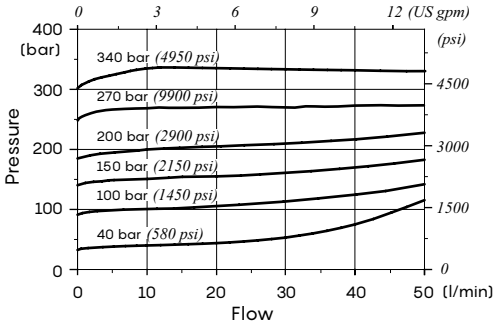
**Type C valve: anticavitation**



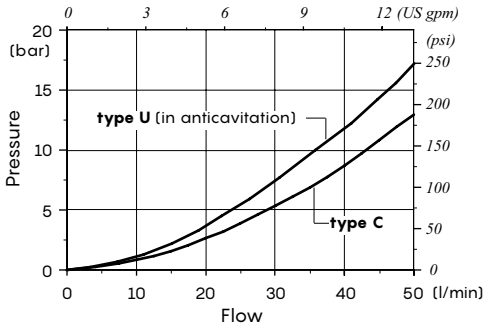
**Wrenches and tightening torques**

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

**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-.....-12VDC**

1 — 2A — 2B — 3 — 4 — 5

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

### B Electrohydraulic controls configuration:

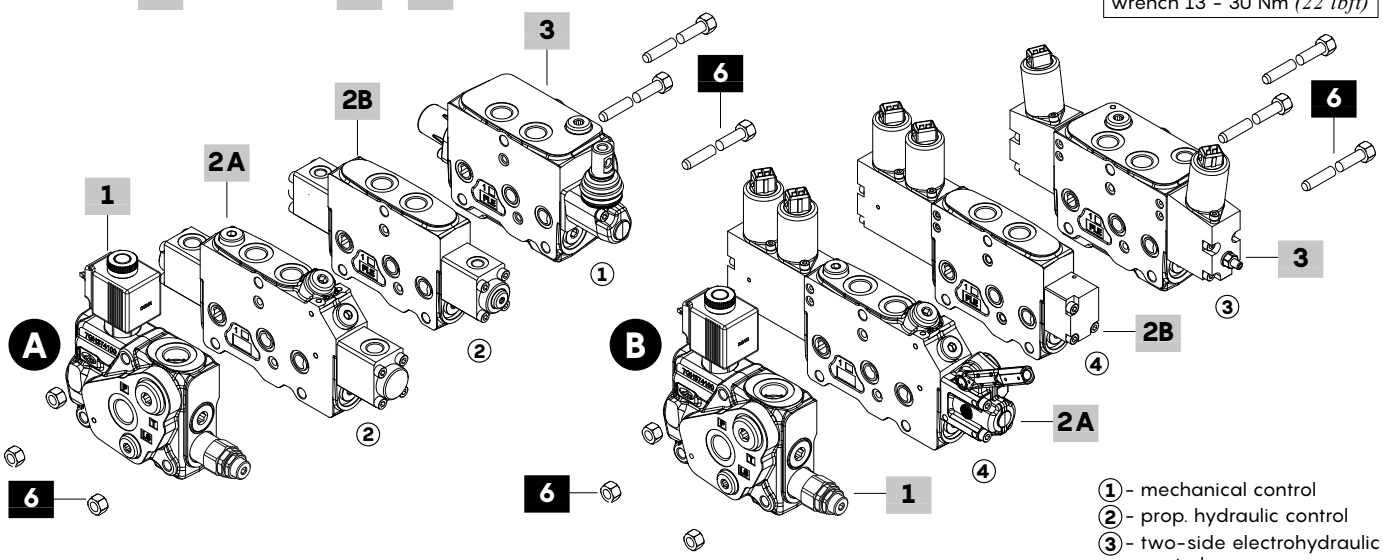
**DPX050/4/AM2(TGW3-175\ELN)/PZLL-I104LL(40\40)-8EZ3LQ.U3T/QZ-I104(40\40)-8EZ3SLC/**

1 — 2A — 2B

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

3 — 4 — 5

**Tie rod tightening**
wrench 13 - 30 Nm *(22 lbft)*




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-104LL(40\40)-8L**
CODE: 660100001S
DESCRIPTION: Lever control without port valve arrangement
TYPE: **DPX050/PLL-104LL(40\40)-8L.U3T**
CODE: 660100002S
DESCRIPTION: As previous with port valve arrangement
**Proportional hydraulic control**
TYPE: **DPX050/QLL-I104LL(40\40)-8IM**
CODE: 660100003S
DESCRIPTION: Without port valve arrangement
TYPE: **DPX050/PLL-I104LL(40\40)-8IM.U3T**
CODE: 660100004S
DESCRIPTION: With port valve arrangement
**One-side proportional electrohydraulic control**
TYPE: **DPX050/QZLL-I104LL(40\40)-8EZ3LQF3-12VDC**
CODE: 660100005S
DESCRIPTION: With lever and spool stroke limiter, without port valve arrangement
TYPE: **DPX050/PZLL-I104(40\40)-8EZ3LQF3.U3T-12VDC**
CODE: 660100006S
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 **BSP** thread.

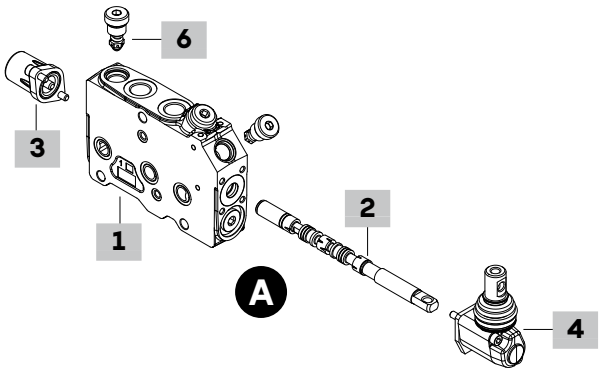
## LL working section part ordering codes (mechanical and hydraulic)

### A Mechanical control configuration:

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

DPX050 / PLL - 104LL(40\40) - 8 L . U1(100) U2(120) - ....

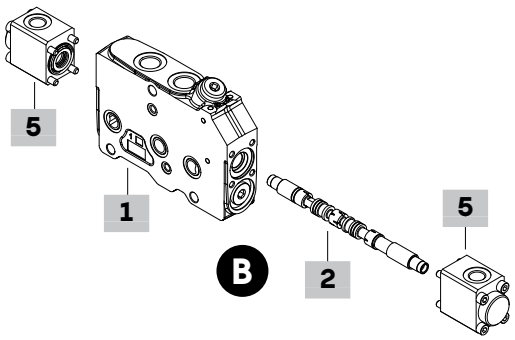
1 2 3 4 6 7




### B Prop. hydraulic control configuration:

DPX050 / QLL - I104LL(40\40) - 8IM - ....

1 2 5 7




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

**For mechanical control**

TYPE: **DPX050/QLL-FPM** CODE: 5EL10A3021LV
DESCRIPTION: Without port valve arrangement
TYPE: **DPX050/PLL-FPM** CODE: 5EL10A3020LV
DESCRIPTION: With port valve arrangement

**For proportional hydraulic control**

TYPE: **DPX050/QLL-IM-FPM** CODE: 5EL10A3021ALV
DESCRIPTION: Without port valve arrangementrie
TYPE: **DPX050/PLL-IM-FPM** CODE: 5EL10A3004V
DESCRIPTION: With port valve arrangemente

### 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 control | | |
| **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 4th 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** | 5IDR20A300AV | Range 8-27 bar *(116-392 psi)* |
| **8IMX** | 5IDR20A301AV | Range 3.5-20 bar *(51-290 psi)* |
| **8IMF3** | 5IDR20A302AV | Range 8-27 bar *(116-392 psi)*, with spool stroke limiter on A and B ports |
| **8IMXF3** | 5IDR20A303AV | Range 3.5-20 bar *(51-290 psi)*, with spool stroke limiter on A and B ports |
| For floating circuit (standard spool) | | |
| **13IMP** | 5IDR20A310AV | 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 **BSP** thread.

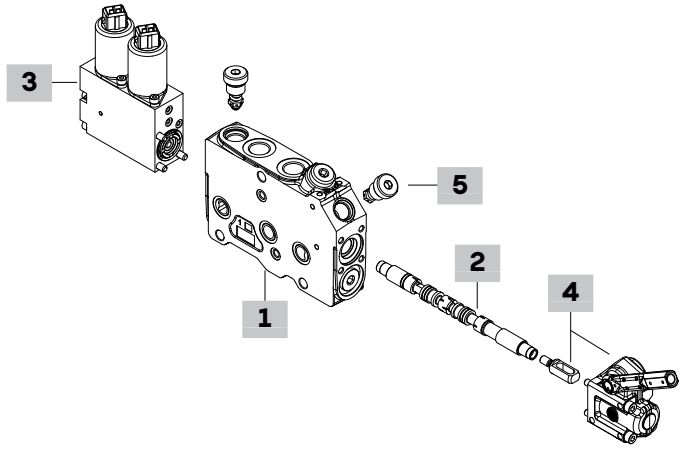
## LL working section part ordering codes (electrohydraulic)

### One-side electrohydraulic control configuration:

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

**DPX050 / PZLL - I104LL(40\40) - 8EZ3 LQF3 . U1(100) U2(120) - .... - 12VDC**

1 2 3 4 5 6 3




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

**For one-side electrohydraulic control**

TYPE: **DPX050/QZLL-FPM** CODE: 5EL10A3216V
DESCRIPITION: Without port valve arrangement
TYPE: **DPX050/PZLL-FPM** CODE: 5EL10A3006V
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). | | |
| **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 |

### 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 |
|---|---|---|
| **8EZ3-12VDC** | 5V0810A780V | AMP connector |
| **8EZ3-24VDC** | 5V0810A785V | As previous one |
| **8EZ3F2-12VDC** | 5V0810A781V | AMP connector, with spool stroke limiter |
| **8EZ3F2-24VDC** | 5V0810A782V | As previous one |
| **8EZ34-12VDC** | 5V0810A786V | Deutsch connector |
| **8EZ34-24VDC** | 5V0810A787V | As previous one |
| **8EZ34F2-12VDC** | 5V0810A783V | Deutsch connector, with spool stroke limiter |
| **8EZ34F2-24VDC** | 5V0810A784V | As previous one |
| For floating circuit (standard spool) | | |
| **13EZ3P-12VDC** | 5V1310A788V | With Step, with AMP connector |
| **13EZ3P-24VDC** | 5V1310A790V | As previous one |
| **13EZ34P-12VDC** | 5V1310A789V | With Step, with Deutsch connector |
| **13EZ34P-24VDC** | 5V1310A791V | As previous one |
| With spool position sensor | | |
| **8EZ3SPSD-12VDC** | 5V0810A790V | AMP connector and digital sensor |
| **8EZ3SPSD-24VDC** | 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 |
|---|---|---|
| **LQ** | 5LEV10A005V | Lever control |
| **LQ180** | 5LEV10A006V | As previous one, turned of 180° |
| **LQF3** | 5LEV10A004V | As LQ, spool stroke limiter on A, B ports |
| **LQF3180** | 5LEV10A003V | As previous one, turned of 180° |
| **SLC** | 5COP150010V | Endcap |
| **SLCF1** | 5COP150011V | Endcap with spool stroke limiter |

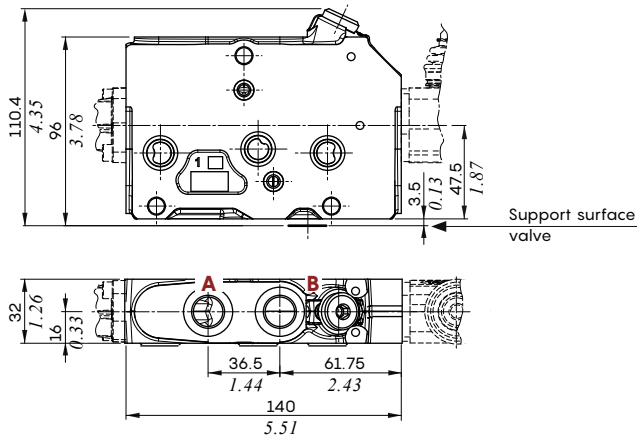
NOTE (*): Codes are referred to **BSP** thread.

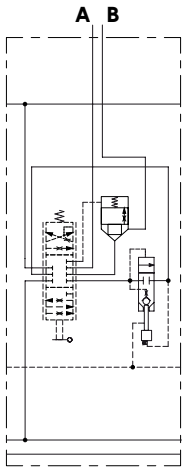
## LL working section

### Dimensions and hydraulic circuit

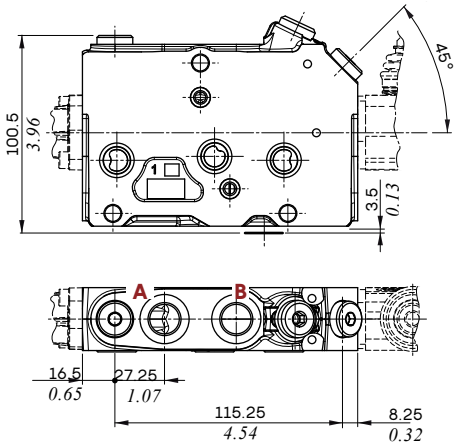
#### Section for mechanical and hydraulic controls

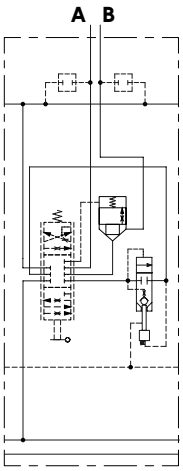
**Type QLL**



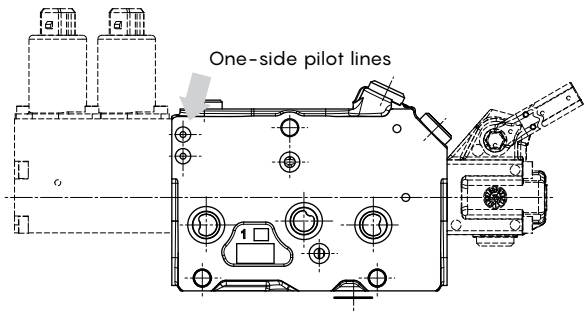

**Type PLL**



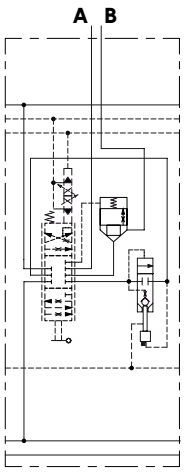




#### Section for electrohydraulic controls

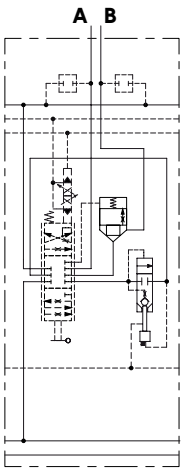
**Type QZLL or PZLL**




**Type QZLL**




**Type PZLL**

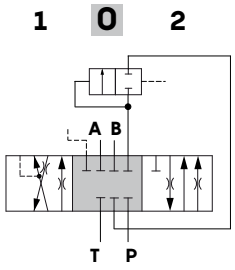


## Spool

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

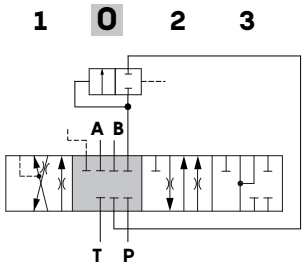
**Type 1LL (1LL../1LL..)**
A, B closed in neutral position

with 3 position control

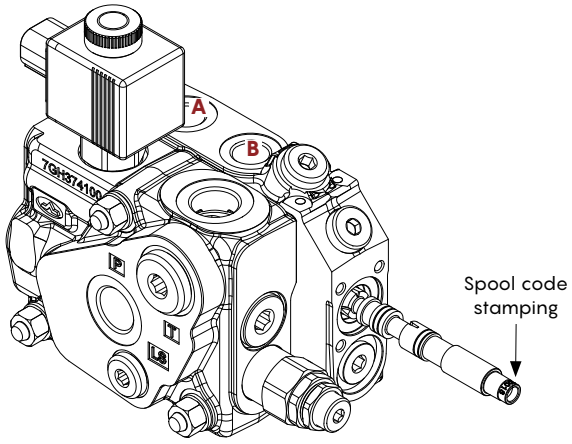



**Stroke**
position 1: + 5.5 mm *(+ 0.22 in)*
position 2: - 5.5 mm *(- 0.22 in)*

with 4 position control

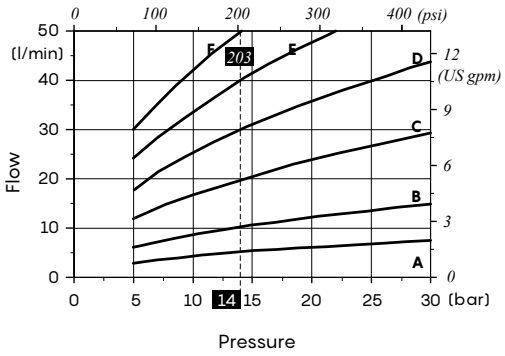



**Stroke**
position 1: + 5.5 mm *(+ 0.22 in)*
position 2: - 5.5 mm *(- 0.22 in)*
position 3: - 10 mm *(- 0.39 in)*




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

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



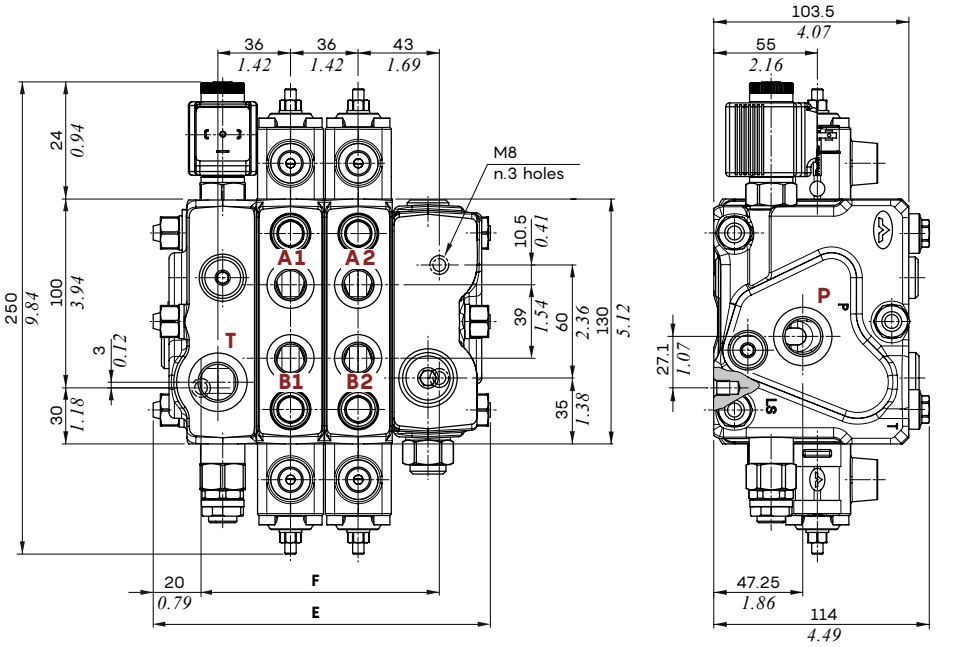

**Curves with spool nominal flow**
**@ 14 bar** *(200 psi)* **stand-by (margin pressure)**

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

## Content

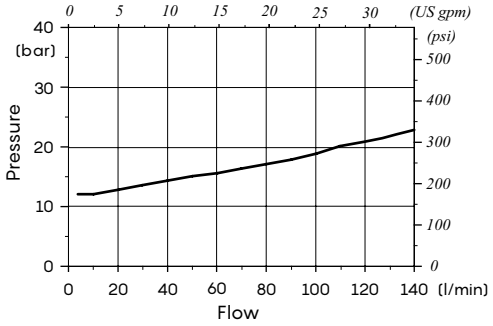

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  - Hydraulic circuit
    - Configuration example with mechanical and hydraulic controls ..... page 49
    - Configuration example with electrohydraulic controls ..... 49
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## Dimensional data and performance

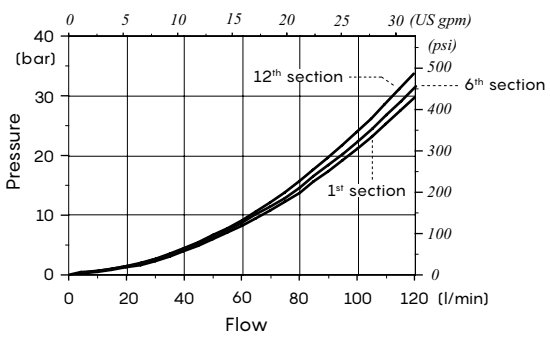



| TYPE | E | | F | |
|---|---|---|---|---|
| | mm | *in* | mm | *in* |
| **DPX100/1** | 144 | *5.67* | 90.5 | *3.56* |
| **DPX100/2** | 180 | *7.09* | 126.5 | *4.98* |
| **DPX100/3** | 216 | *8.50* | 162.5 | *6.40* |
| **DPX100/4** | 252 | *9.92* | 198.5 | *7.81* |
| **DPX100/5** | 288 | *11.34* | 234.5 | *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)**

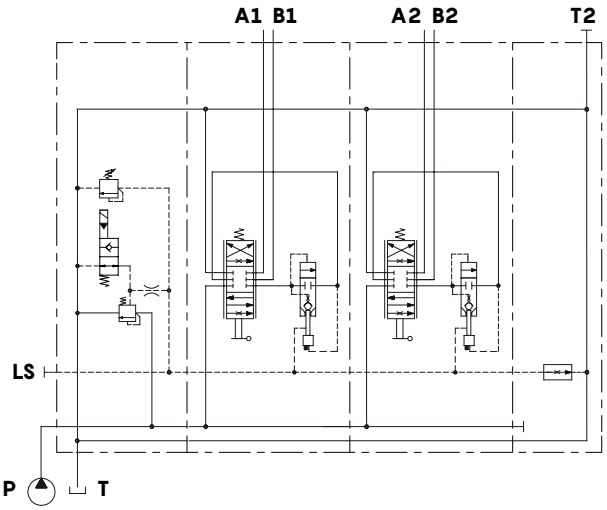



**A(B)⇒T pressure drop (standard spool @ max.stroke)**

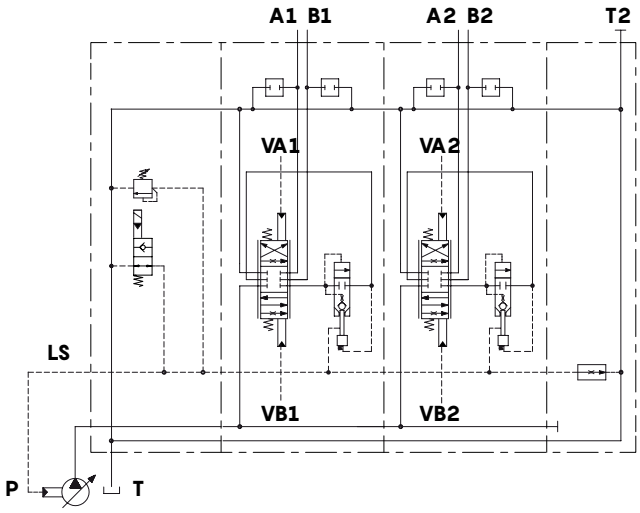


## Hydraulic cuircuit

### Configuration example with mechanical and hydraulic controls

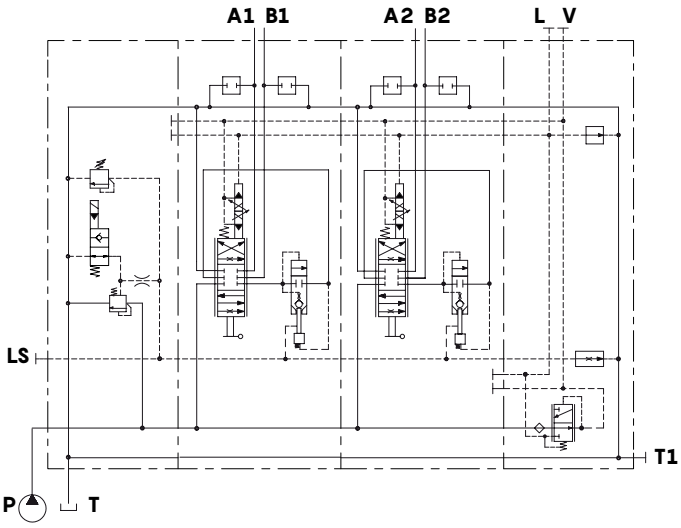



Open center circuit and lever control, with unloader valve, without port valve arrangement

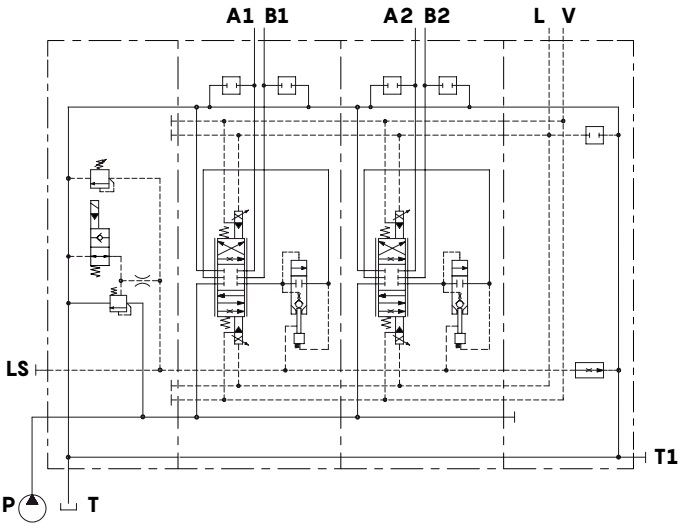



Closed center circuit and proportional hydraulic control, with unloader valve and port valve arrangement

### 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 confortable regulation, especially if they occur with high frequency.
The DPX Series directional valves, open and closed center ones, are available with inlet sections equipped with devices for L.S. signal peak reduction.

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

## High Pressure (HP) valve configuration

DPX100 Flow Sharing valves are available both for Standard and High pressure (HP) configuration.
The main difference between the two configurations is the max. reachable pressure.
In details:

**DPX100**

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

**DPX100HP**

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

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

Closed center type inlet section: one single solution for Standard and HP pressures.
Open center type inlet section: separate solutions for Standard and HP pressures.
Priority inlet secton: configuration available only for Standard pressure.
Working sections: separate solutions for Standard and HP pressures.
Outlet section: one single solution for Standard and HP pressures.

### Example of entirely Standard Pressure valve configuration

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

- Std Pressure open center or Std pressure closed center inlet sections
- Std Pressure working sections
- Standard Pressure outlet section

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

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

- HP open center inlet section or Std Pressure closed center inlet section
- HP working sections
- Standard Pressure outlet section

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

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

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

## Guide to configuration

### High Flow (HF) valve configuration

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

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

**DPX100HF/4/AM1(TGW5-300\ELN)/P-E101(120\120)-8IMNF3.U3(100)/P-E101(120\120)-8IMNF3.U3(100)/**

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

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

HF working sections — Standard Pressure outlet section

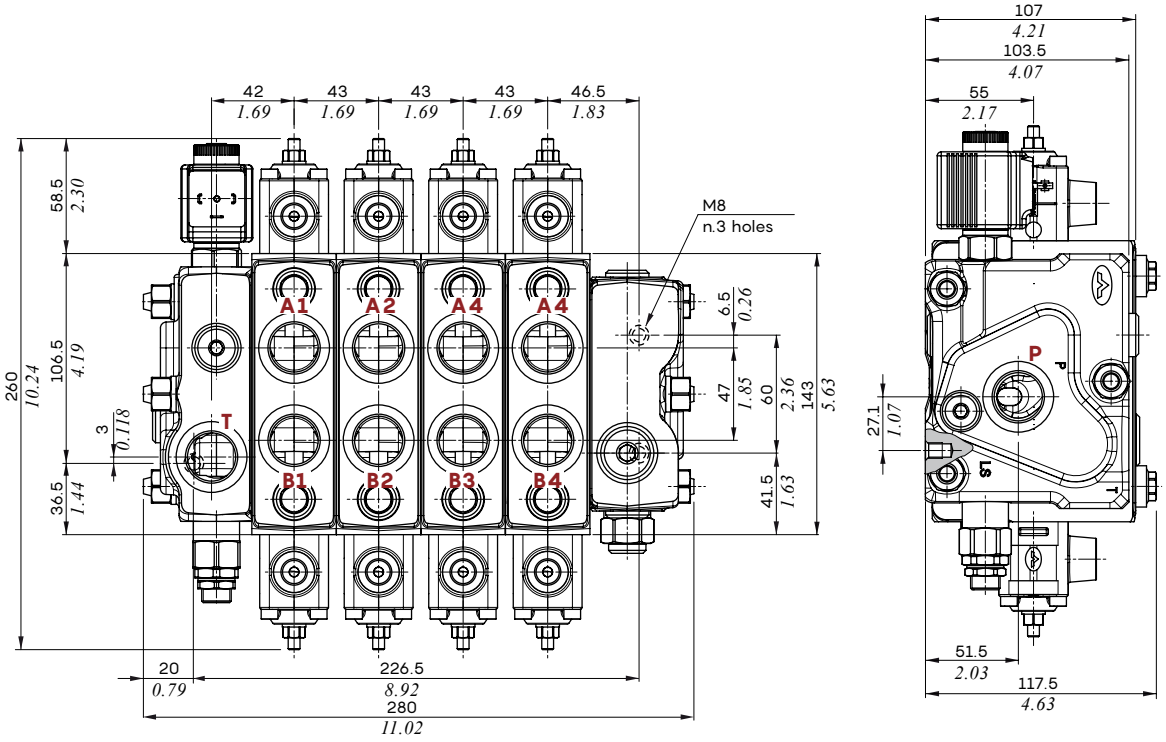
**Example of entirely High Flow (HF) valve configuration, for High Pressure (HP)**

**DPX100HP/4/AM1(TGW5-300\ELN)/HF-P-E101(120\120)-8IMNF3.U3(320)/HF-P-E101(120\120)-8IMNF3.U3(320)**

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

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

HF working sections — Standard Pressure outlet section



## High Flow (HF) valve configuration

### Example of mixed - Standard/HF - valve configuration

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

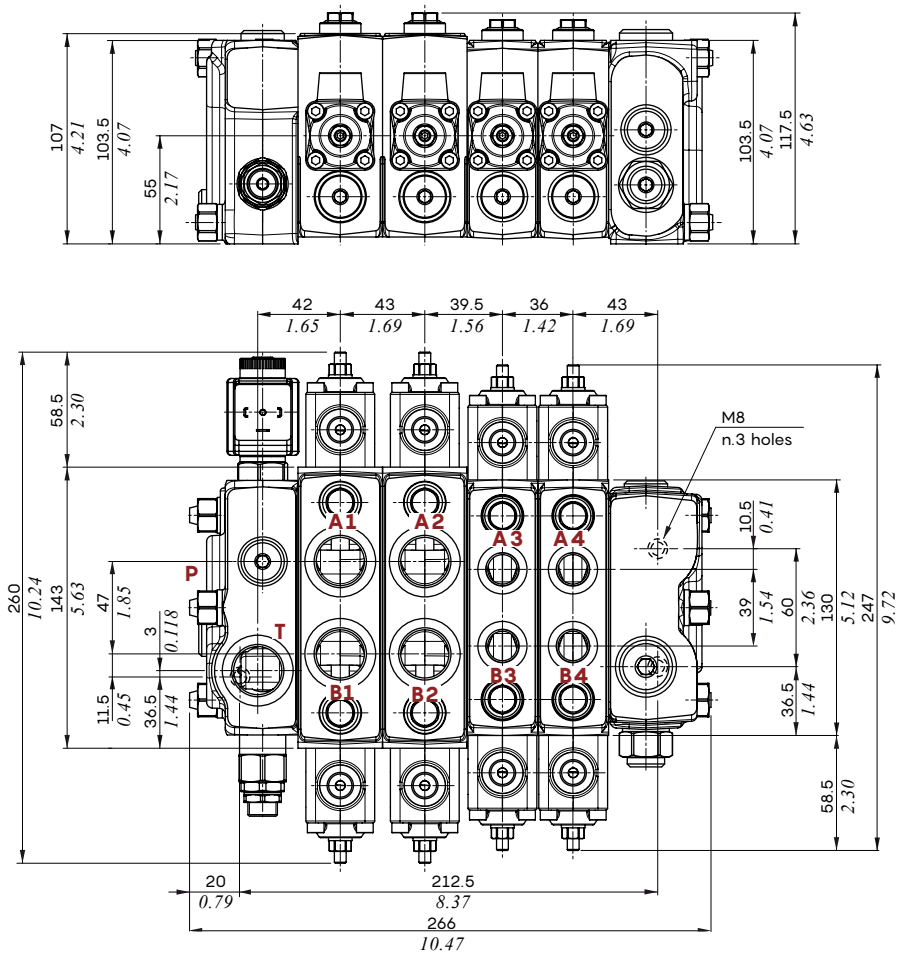
Std Pressure open center or Std pressure closed center inlet section, with G3/4 P port

HF working sections

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

Standard setting working sections

Standard Pressure outlet section



## Guide to configuration

### Directional valve with Low Leak working sections

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

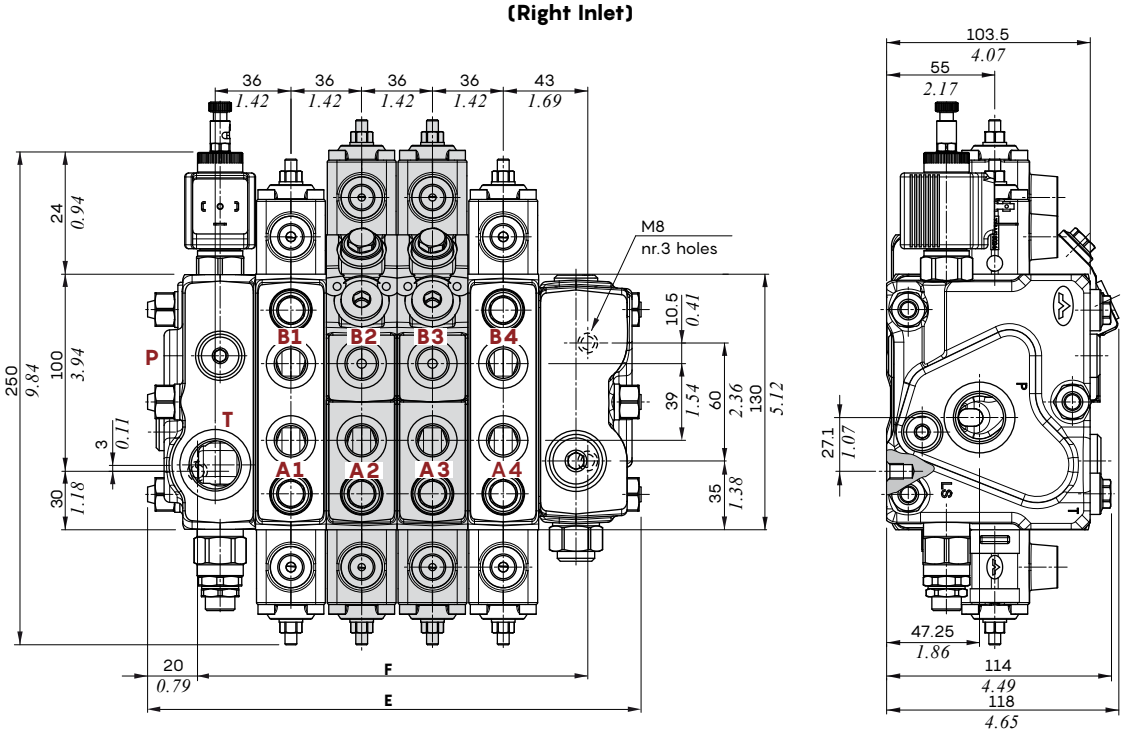
The working sections have the following features:

- 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.

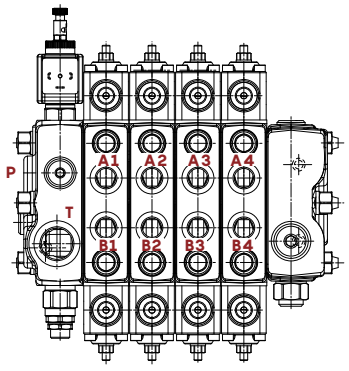
Low Leak sections ca be assembled with Standard, HP or HF working sections

In a DPX100 valve with Low Leak sections, all working sections are configured as Righ 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)**



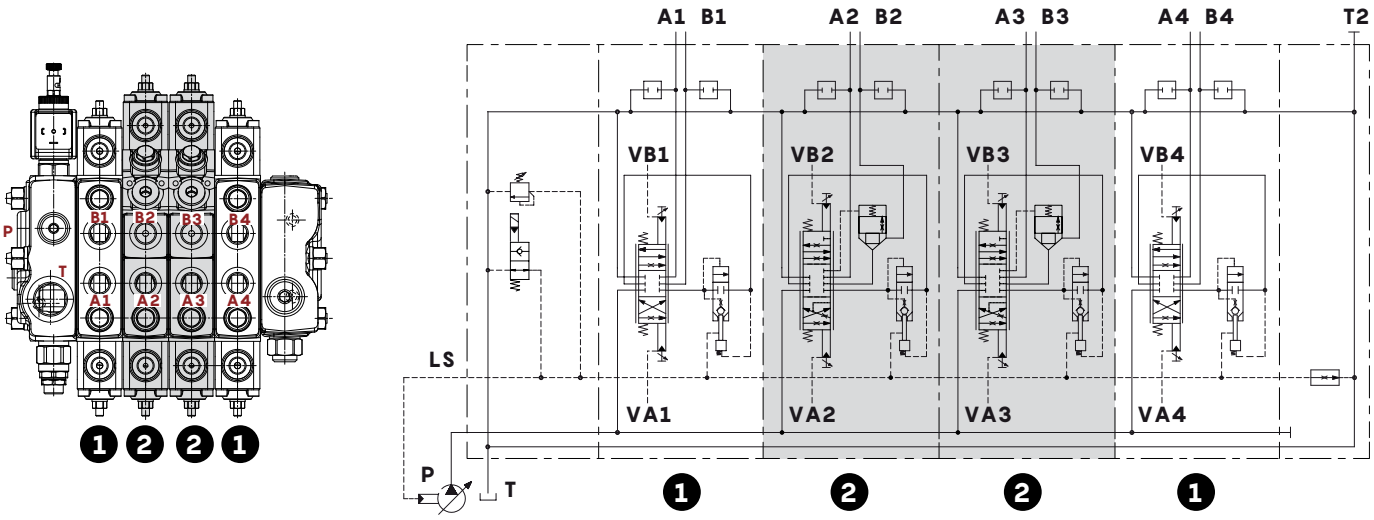

| TYPE | E | | F | |
|---|---|---|---|---|
| | mm | *in* | mm | *in* |
| **DPX100/1** | 144 | *5.67* | 90.5 | *3.56* |
| **DPX100/2** | 180 | *7.09* | 126.5 | *4.98* |
| **DPX100/3** | 216 | *8.50* | 162.5 | *6.40* |
| **DPX100/4** | 252 | *9.92* | 198.5 | *7.81* |
| **DPX100/5** | 288 | *11.34* | 234.5 | *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

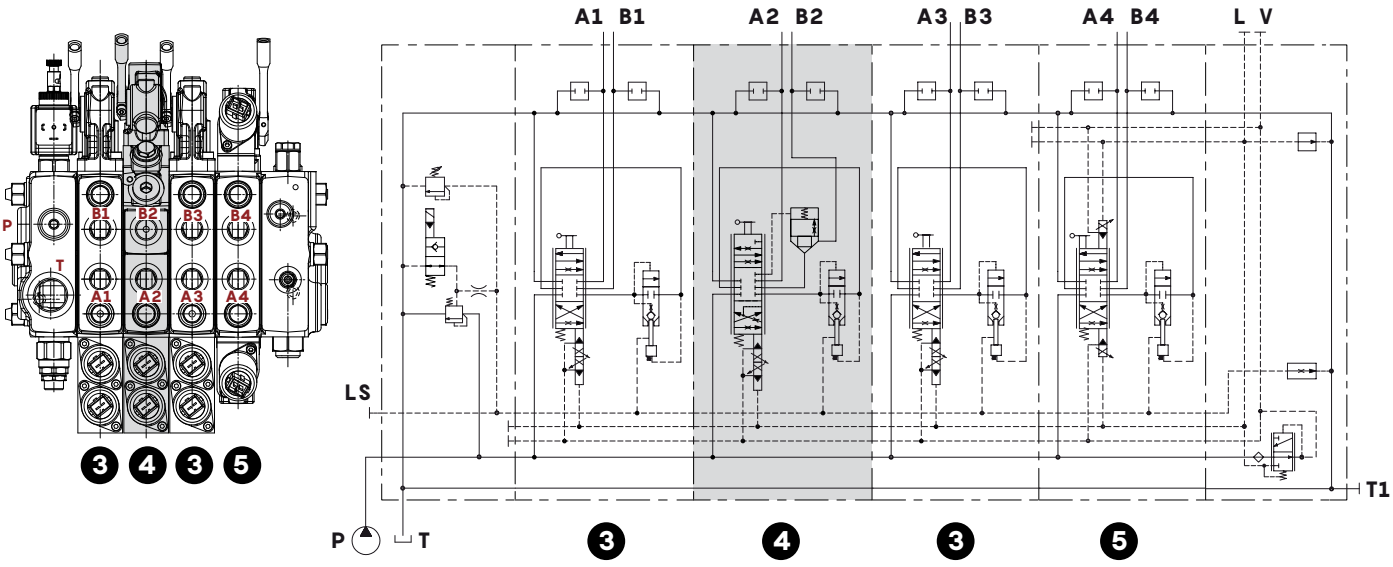
The Low Leak working sections can be assembledin any point of the valve between the inlet section and the outlet section.




**1**: Hydraulic control working section in Right inlet configuration
**2**: Low Leak working section with hydraulic control (Righ 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:

Nr. of working sections

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

Standard Pressure valve — 1A — 1B — 2A — 2B

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

2A — 3 — 4 — 5

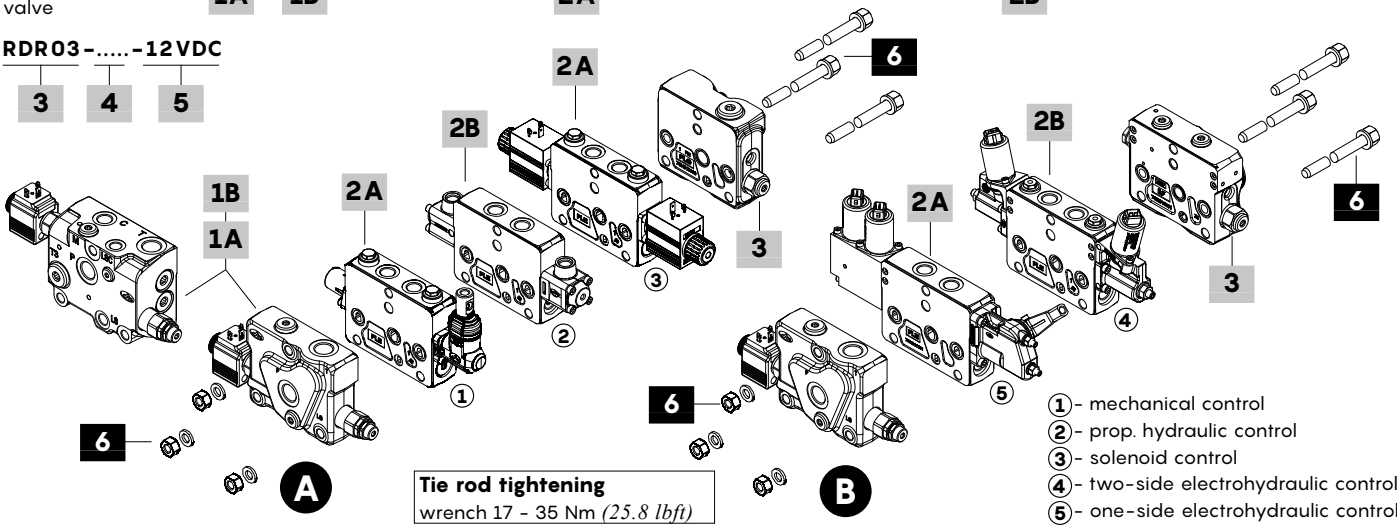
### B Electrohydraulic controls configuration:

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

Standard Pressure valve — 1A — 1B — 2A — 2B

RDR03-.....-12VDC

3 — 4 — 5




### 1A Std pressure inlet section *

**Open Center circuit**

TYPE: **DPX100/AM1(TGW3-175\ELN)-12VDC**
CODE: 640203033S DESCRIPTION: With compensator, press. relief valve and unloader valve, with P-T-LS ports (LS plugged)
TYPE: **DPX100/AM1(TGW3-175\ELN)-BSP34-12VDC**
CODE: 640204007S DESCRIPTION: As previous one with G3/4 P and T ports
TYPE: **DPX100/AM1(SO\TGW3-175\ELN)-12VDC**
CODE: 640203007S 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)-12VDC**
CODE: 640201090S 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**
CODE: 640203302S 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
TYPE: **DPX100/APF4\TGW3-175\VP-D(1.2)-SB10-Q40-BSP34**
CODE: 640203303S DESCRIPTION: As previous one, P-T with G3/4 and C with G1/2 thread

**Closed Center circuit**

TYPE: **DPX100/AN1(TGW3-175\ELN)-12VDC**
CODE: 640203030S DESCRIPTION: Without compensator, with press. relief valve and unloader valve, with P-T-LS ports
TYPE: **DPX100/AN1(TGW3-175\ELN)-BSP34-12VDC**
CODE: 640204008S DESCRIPTION: As previous one with G3/4 P and T ports Not available for High Pressure valve configuration
TYPE: **DPX100/AN1(SO\TGW3-175\ELN)-12VDC**
CODE: 640203009S 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)-12VDC**
CODE: 640203031S 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-12VDC** CODE: 640203300S
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
TYPE: **DPX100/APFS4\TGW4-270\VR5-VP-D(1.2)-SB10-Q40\SB25-LSF(NOFC)\ESO22N4-BSP34(PT)12(C)14(LSLSC)-12VDC**
CODE: 640203304S DESCRIPTION: As previous one, P-T with G3/4 and C with G1/2 thread. Not available for High Pressure valve config.

### 1B High Pressure inlet section *

**Open Center circuit**

TYPE: **DPX100HP/AM1(TGW5-350/ELN)-12VDC**
CODE: 640203036S DESCRIPTION: With compensator, press. relief valve and unloader valve, with P-T-LS ports (LS plugged)
TYPE: **DPX100HP/AM1(TGW5-350/ELN)-BSP34-12VDC**
CODE: 640204011S DESCRIPTION: As previous one with G3/4 P and T ports
TYPE: **DPX100HP/AM1(SO/TGW5-350/ELN)-12VDC**
CODE: 640203037S 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)-12VDC**
CODE: 640203038S 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

## Complete section ordering codes

### 2A Std pressure working section *

**Mechanical control**
TYPE: **DPX100/Q-101(80\80)-8L**
CODE: 640203300S
DESCRIPTION: Lever control without port valve arrangement
TYPE: **DPX100/P-101(80\80)-8L.U3T**
CODE: 640101014S
DESCRIPTION: As previous one with port valve arrangement
**Proportional hydraulic control**
TYPE: **DPX100/Q-E101(80\80)-8IMN**
CODE: 640151006S
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100/P-E101(80\80)-8IMN.U3(100)**
CODE: 640101015S
DESCRIPTION: With antishock port valves
**On/off solenoid control**
TYPE: **DPX100/Q-S102(60\60)-8ES3-12VDC**
CODE: 640151007S
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100/P-S102(60\60)-8ES3.U3(100)-12VDC**
CODE: 640101022S
DESCRIPTION: With antishock port valves
**Two-side proportional electrohydraulic control**
TYPE: **DPX100/QE-E101(80\80)-8EB3TF3-12VDC**
CODE: 640101016S
DESCRIPTION: With spool stroke limiter, without port valve arrang.
TYPE: **DPX100/PE-E101(80/80)-8EB3TF3.U3T-12VDC**
CODE: 640101017S
DESCRIPTION: As previous one with port valves arrangement
TYPE: **DPX100/PE-E101(80\80)-8EB3TF3.U3(100)-12VDC**
CODE: 640101018S
DESCRIPTION: As previous one with antishock port valves
**One-side proportional electrohydraulic control**
TYPE: **DPX100/QZ-E101(80\80)-8EZ3LQF3-12VDC**
CODE: 640101019S
DESCRIPTION: With spool stroke limiter, without port valve arrang.
TYPE: **DPX100/PZ-E101(80\80)-8EZ3LQF3.U3T-12VDC**
CODE: 640101020S
DESCRIPTION: As previous one with port valve arrangement
TYPE: **DPX100/PZ-E101(80\80)-8EZ3LQF3.U3(100)-12VDC**
CODE: 640101021S
DESCRIPTION: As previous one with antishock port valves

### 2B High Pressure working section *

**Mechanical control**
TYPE: **DPX100HP/Q-101(80\80)-8L**
CODE: 640113009S
DESCRIPTION: Lever control without port valve arrangement
TYPE: **DPX100HP/P-101(80\80)-8L.U3T**
CODE: 640103011S
DESCRIPTION: As previous one with port valve arrangement
**Proportional hydraulic control**
TYPE: **DPX100HP/Q-E101(80\80)-8IMN-FPM**
CODE: 640113021V DESCRIPTION: Without port valve arrang.
TYPE: **DPX100HP/P-E101(80\80)-8IMN.U3(320)**
CODE: 640103030S DESCRIPTION: With antishock port valves
**On-off solenoid control**
TYPE: **DPX100HP/Q-S102(60\60)-8ES3-12VDC**
CODE: 640113022S DESCRIPTION: Without port valve arrang.
TYPE: **DPX100HP/P-S102(60\60)- 8ES3.U3(320)-12VDC**
CODE: 640103031S DESCRIPTION: With antishock port valves
**Two-side proportional electrohydraulic control**
TYPE: **DPX100HP/QE-E101(80\80)-8EB3TF3-12VDC**
CODE: 640113023SV
DESCRIPTION: With stroke limiter, without port valve arrangement
TYPE: **DPX100HP/PE-E101(80\80)-8EB3TF3.U3T-12VDC**
CODE: 640103037S
DESCRIPTION: As previous one with port valve arrangement
TYPE: **DPX100HP/PE-E101(80\80)-8EB3TF3.U3(320)-12VDC**
CODE: 640103032S
DESCRIPTION: As previous one with antishock port valves
**One-side proportional electrohydraulic control**
TYPE: **DPX100HP/QZ-E101(80\80)-8EZ3LQF3-12VDC**
CODE: 640113024S
DESCRIPTION: With stroke limiter, without port valve arrangement
TYPE: **DPX100HP/PZ-E101(80\80)-8EZ3LQF3.U3T-12VDC**
CODE: 640103033S
DESCRIPTION: As previous one with port valve arrangement
TYPE: **DPX100HP/PZ-E101(80\80)-8EZ3LQF3.U3(320)-12VDC**
CODE: 640103034S
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** CODE: 6403003003S
DESCRIPTION: With bleed valve and upper T2 port (plugged)
TYPE: **DPX100/RF-BSP34** CODE: 640304003S
DESCRIPTION: As previous one with G3/4 T2 port (plugged)
TYPE: **DPX100/RF(04)** CODE: 6403003011S
DESCRIPTION: Bleed valve, upper T2, side P1-T1-LS1-M1 ports (plugged)
TYPE: **DPX100/RF(04)-BSP34** CODE: 640304011S
DESCRIPTION: As previous one with G3/4 P1,T1,T2 ports
**For electrohydraulic or mixed configuration**
TYPE: **DPX100/RDN-NOTAP(VL)** CODE: 6403003002S
DESCRIPTION: Without pressure reducing valve, external V pilot and L drain ports, with Bleed valve and side T1 port (plugged)
TYPE: **DPX100/RDN-NOTAP(VL)-BSP34** CODE: 640304001S
DESCRIPTION: As previous one with G3/4 T1 port
TYPE: **DPX100/RDR** CODE: 6403003006S
DESCRIPTION: With pressure reducing valve and Bleed valve, internal pilot and drain (V-L plugged ports), side T1 port (plugged)
TYPE: **DPX100/RDR(03)** CODE: 6403003007S
DESCRIPTION: With pressure reducing valve and Bleed valve, internal V pilot and L drain ports (plugged), side T1-P1-LS1 ports (plugged)
TYPE: **DPX100/RDR(03)-BSP34** CODE: 640304005S
DESCRIPTION: As previous one with G3/4 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

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

NOTE (*): Codes are referred to **BSP** thread.

## Inlet section part ordering codes

Valve setting (bar)

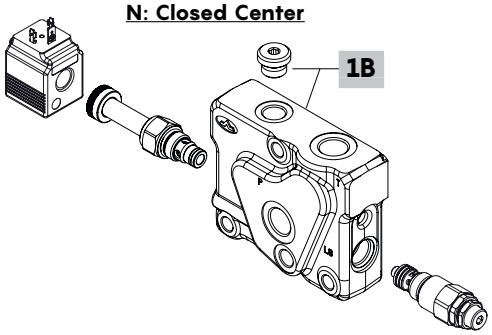
**DPX100 / A M1 (TGW3 - 175 \ ELN) - ..... - 12VDC**

1A 2 3 4 5

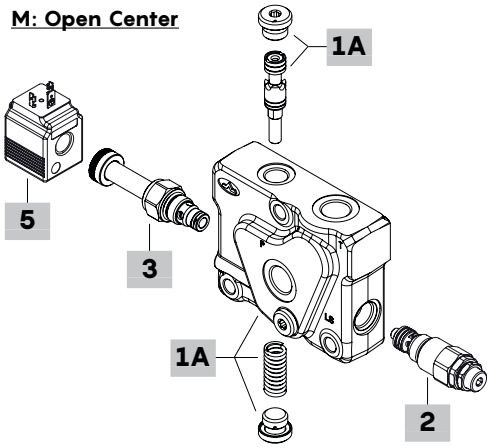
1B

**DPX100:**
Standard Pressure section
**DPX100HP:**
High Pressure section

**N: Closed Center**




**M: Open Center**




### 1A Std pressure inlet section kit * page 60

**Open Center circuit**
TYPE: **DPX100/AM1/EL** CODE: YFIA104310S
DESCRIPTION: With compensator, P-T-LS ports (LS plugged), arranged for unloader valve
TYPE: **DPX100/AM1-BSP34/EL** CODE: YFIA104406S
DESCRIPTION: As previous one with G3/4 P and T ports
TYPE: **DPX100/AM1(SU)/EL** CODE: YFIA104311S
DESCRIPTION: As first one with non return flow limiter from working section to inlet section and by-pass valve
TYPE: **DPX100/AM1(SO)/EL** CODE: YFIA104312S
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/EL** CODE: YFIA104313S
DESCRIPTION: Without compensator, with P-T-LS ports, arranged for unloader valve
TYPE: **DPX100/AN1-BSP34/EL** CODE: YFIA104401S
DESCRIPTION: As previous one with G3/4 P and T ports
Not available for High Pressure configuration
TYPE: **DPX100/AN1(SU)/EL** CODE: YFIA104314S
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)/EL** CODE: YFIA104315S
DESCRIPTION: As previous one with non return flow limiter from inlet section to working section and by-pass valve

### 2 Main pressure relief valve page 64

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **(TGW2-80)** | 0MC09002000 | Range 10-120 bar *(145-1750 psi)* std setting 80 bar *(1160 psi)* |
| **(TGW3-175)** | 0MC09002001 | Range 40-220 bar *(580-3200 psi)* std setting 175 bar *(2550 psi)* |
| **(TGW4-250)** | 0MC09002002 | Range 200-350 bar *(2900-5100 psi)* std setting 250 bar *(3600 psi)* |
| **(TGW5-300)** | 0MC09002003 | Range 290-385 bar *(4200-5600 psi)* std setting 300 bar *(4350 psi)* |
| **SV** | XTAP524340D | Relief valve blanking plug |

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

**Open Center circuit**
TYPE: **DPX100HP/AM1/EL** CODE: YFIA104316S
DESCRIPTION: With compensator, P-T-LS ports (LS plugged) arranged for unloader valve
TYPE: **DPX100HP/AM1-BSP34/EL** CODE: YFIA104402S
DESCRIPTION: As previous one with G3/4 P and T ports
TYPE: **DPX100HP/AM1(SU)/EL** CODE: YFIA104317S
DESCRIPTION: As first one with non return flow limiter from working section to inlet section and by-pass valve
TYPE: **DPX100HP/AM1(SO)/EL** CODE: YFIA104318S
DESCRIPTION: As previous one with non return flow limiter from inlet section to working section and by-pass valve
**Closed Center circuit**
Refer to "Std pressure" inlet sections

### 3 Solenoid operated unloading valve page 64

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **ELN** | 0EF08002000 | Without emergency override |
| **ELV** | 0EF08002003 | With screw type emergency override |
| **ELP** | 0EF08002002 | With push-button emergency override |
| **ELT** | 0EF08002004 | With "twist & push" emergency override |
| **LT** | XTAP510320 | Unloading valve blanking plug |

### 4 Section threading

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

### 5 Coil

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

For complete available coils list see page 160.

NOTE (*): Codes are referred to **BSP** thread.

## Inlet section part ordering codes

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

**A** **DPX100 / APF4 \ TGW3-175 \ VR5 - VP-D(1.2) - SB10 - Q40 \ SB14 - .....**

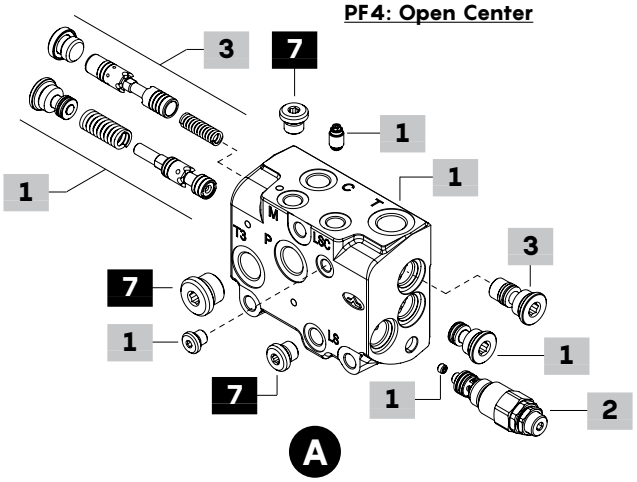
**1** **2** **1** **3** **1** **6**

**DPX100:** Standard Pressure section

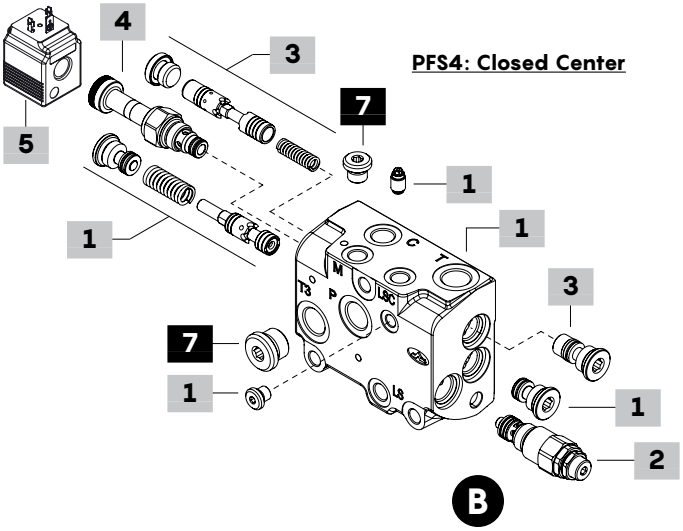
**B** **DPX100 / APFS4 \ TGW3-175 \ VR5 - VP-D(1.2)-SB10-Q40 \ SB25-LSF(NOFC) \ ESO22N - ..... - 12VDC**

**1** **2** **1** **3** **1** **4** **6** **5**

**PF4: Open Center**




**PFS4: Closed Center**




### 1 Inlet section kit * page 62

Following sections are suitable only for Standard Pressure valve

**Open Center circuit**

TYPE: **DPX100/APF4** CODE: YFIA104472S
DESCRIPTION: With compensator, P-T-T3-LS-M-C-LSC ports
TYPE: **DPX100/APF4-BSP34** CODE: YFIA104471S
DESCRIPTION: As previous one, P-T with G3/4 and C with G1/2 thread

**Closed Center circuit**

TYPE: **DPX100/APFS4** CODE: YFIA104473S
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/APFS4-BSP34** CODE: YFIA104470S
DESCRIPTION: As previous one, P-T with G3/4 and C with G1/2 thread
TYPE: **DPX100/APS4** CODE: YFIA104474S
DESCRIPTION: Without compensator (seat plugged), shut-off valve arrangement and P-T-T3-LS-M-C-LSC ports

### 2 Main pressure relief valve page 64

See previous page

### 3 Priority valve kit page 65

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

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

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

### 5 Coil

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

For complete available coils list see page 160.

### 6 Section threading

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

### 8 Plugs *

| CODE | DESCRIPTION |
|---|---|
| 3XTAP719150 | G1/4 plug, nr.1 for PFS section, nr.2 for PF section |
| 3XTAP727180 | G1/2 plug, nr.1 |
| 3XTAP732200 | G3/4 plug, nr.1 (only for BSP34 inlet sections) |

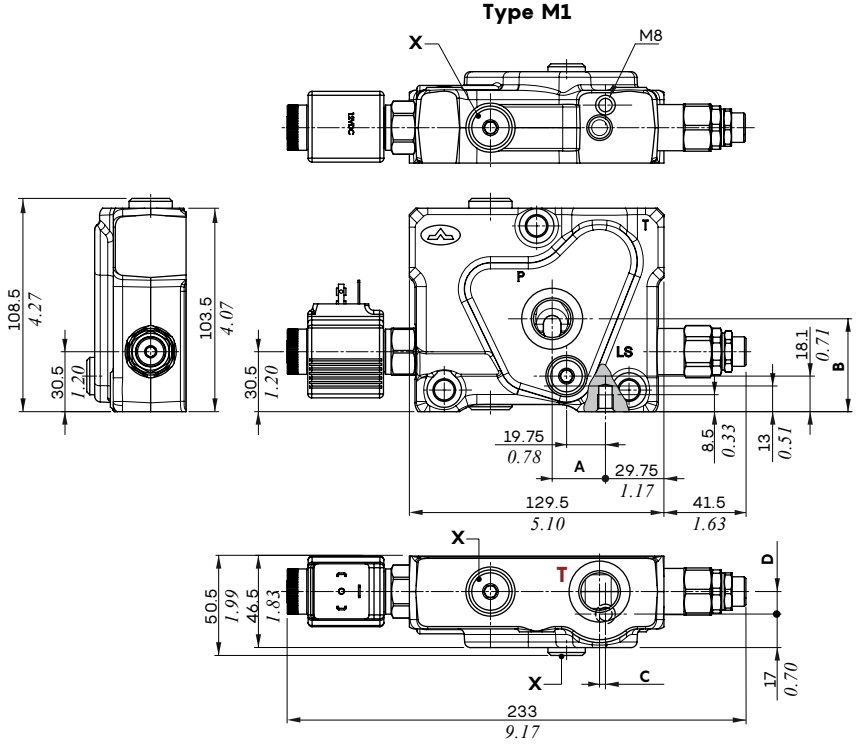
NOTE (*): Codes are referred to **BSP** thread.

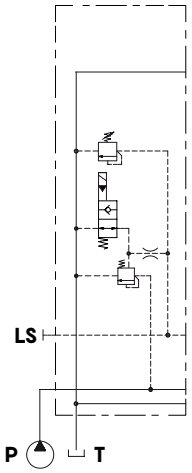
## Inlet section

### Dimensions and hydraulic circuit

**Example of M Open Center section, standard pressure type**

**Type M1**

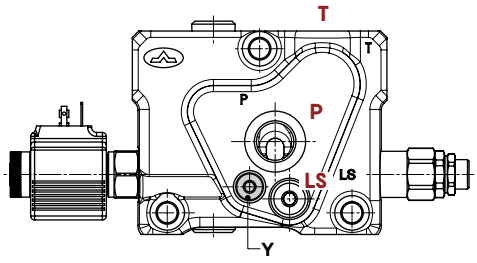


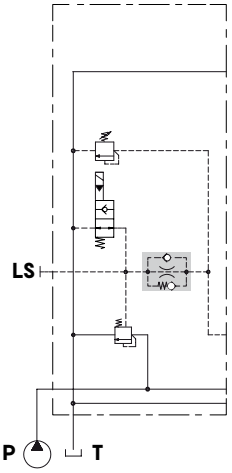

**Wrenches and tightening torques**
X = allen wrench 6 - 24 Nm *(17.7 lbft)*
Y = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
NOTE: for valves wrench and torque see related pages

| INLET SECTION TYPE | | P inlet port A | | P inlet port B | | T outlet port C | | T outlet port 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)** | **Standard thread** | 27.1 | *1.07* | 51.5 | *2.03* | 3 | *0.118* | 11.5 | *0.45* |
| | **G3/4 thread** | 27.1 | *1.07* | 51.5 | *2.03* | 3 | *0.118* | 9 | *0.35* |

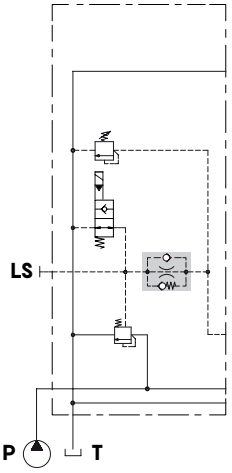
**Type M1(SO) or M1(SU)**




**Type M1(SU)**

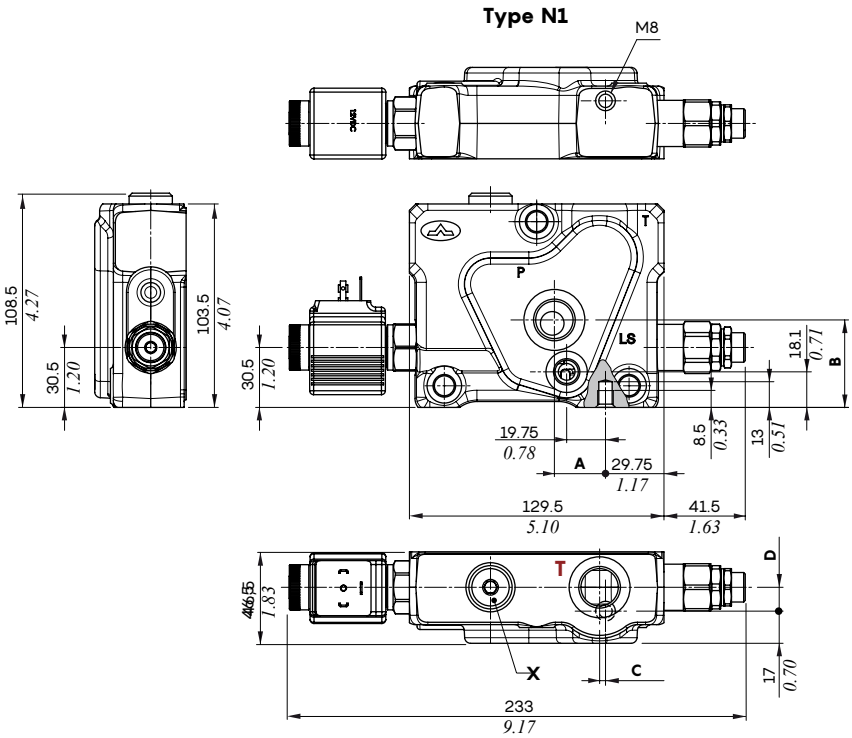


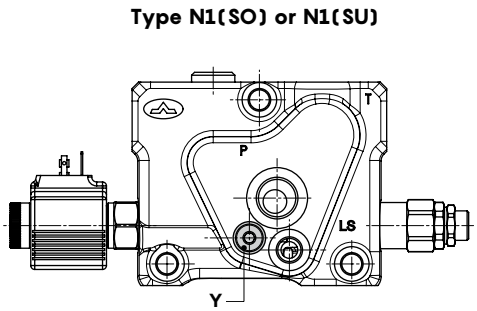

**Type M1(SO)**



## Dimensions and hydraulic circuit

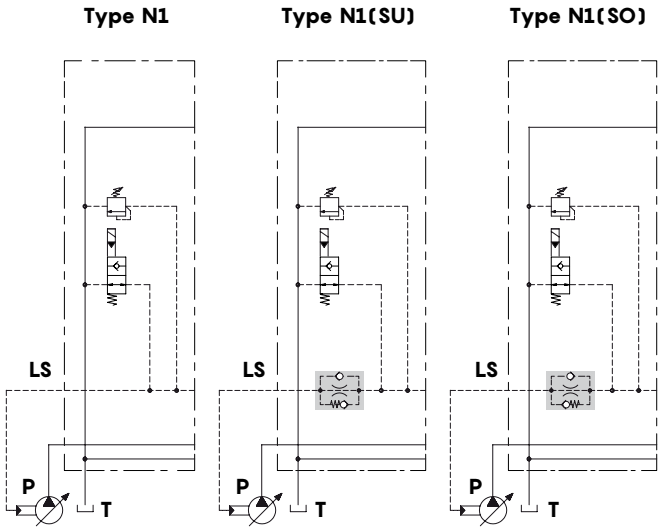
### Example of N Closed Center section




**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

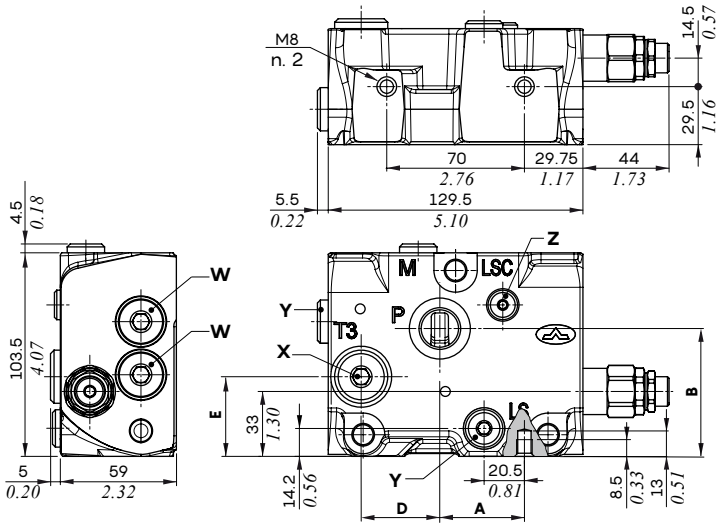
| INLET SECTION TYPE | P inlet port | | | | T outlet port | | | |
|---|---|---|---|---|---|---|---|---|
| | A | | B | | C | | D | |
| | mm | *in* | mm | *in* | mm | *in* | mm | *in* |
| **Standard thread** | 26 | *1.02* | 44.5 | *1.75* | 3 | *0.118* | 11.5 | *0.45* |
| **G3/4 thread** | 27.1 | *1.07* | 47.25 | *1.86* | 3 | *0.118* | 9 | *0.35* |

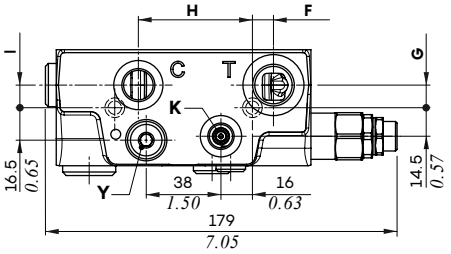


## Inlet section

### Dimensions and hydraulic circuit

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

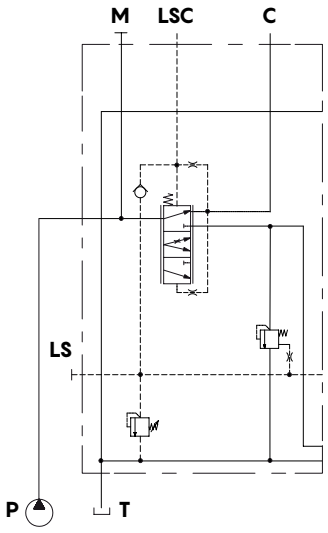



**Wrenches and tightening torques**

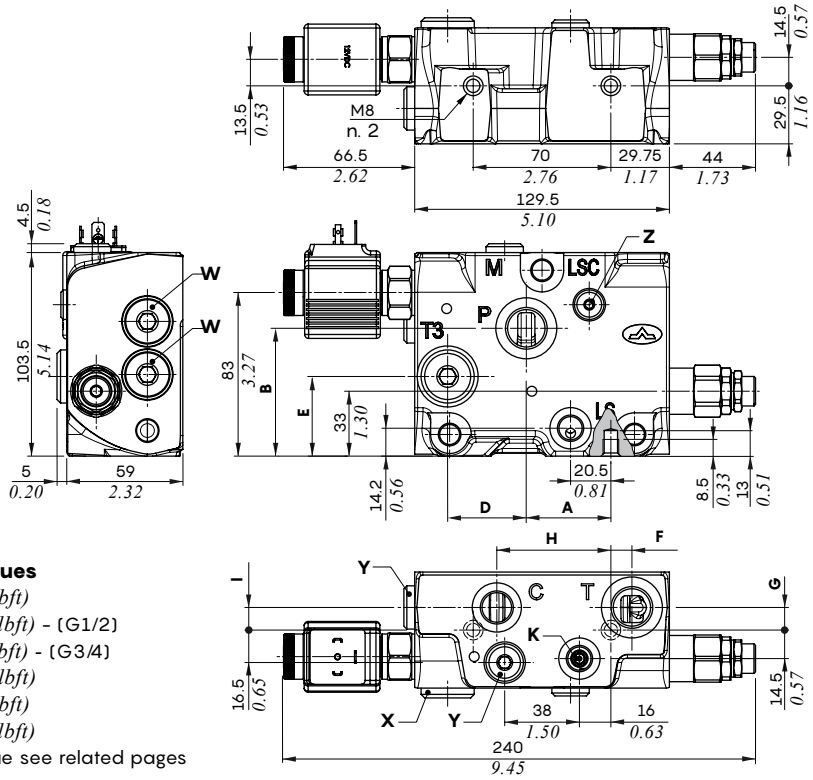
K = allen wrench 5 - 9.8 Nm *(7.2 lbft)*
X = allen wrench 8 - 24 Nm *(17.7 lbft)* - (G1/2)
allen wrench 12 - 42 Nm *(31 lbft)* - (G3/4)
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*
Z = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
W = allen wrench 8 - 24 Nm *(17.7 lbft)*
NOTE: for valves wrench and torque see related pages

| Port threading | P inlet A | | P inlet B | | T3 outlet D | | T3 outlet E | | T outlet F | | T outlet G | | C controlled H | | C controlled I | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | *in* | mm | *in* | mm | *in* | mm | *in* | mm | *in* | mm | *in* | mm | *in* | mm | *in* |
| **P,T=G1/2 / C=G3/8** | 43 | *1.69* | 65 | *2.56* | 40 | *1.57* | 40.5 | *1.59* | 10.7 | *0.42* | 11.5 | *0.45* | 58 | *2.28* | 11.5 | *0.45* |
| **P,T=G3/4 / C=G1/2** | 43 | *1.69* | 63 | *2.48* | 38 | *1.50* | 41 | *1.61* | 9.5 | *0.37* | 9 | *0.35* | 58 | *2.28* | 11.5 | *0.45* |



## Dimensions and hydraulic circuit

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

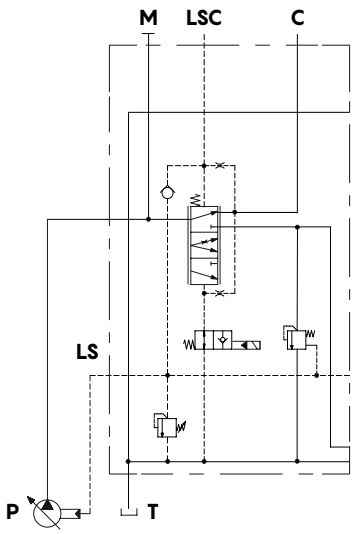



**Wrenches and tightening torques**

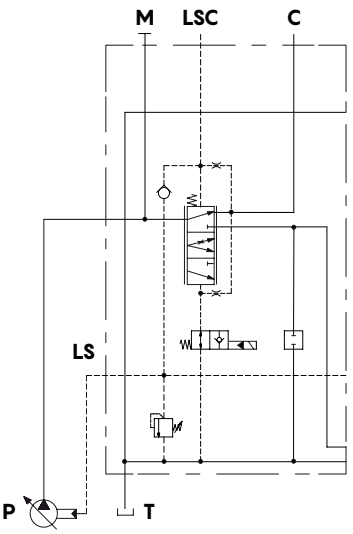
K = allen wrench 5 - 9.8 Nm *(7.2 lbft)*
X = allen wrench 8 - 24 Nm *(17.7 lbft)* - (G1/2)
allen wrench 12 - 42 Nm *(31 lbft)* - (G3/4)
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*
Z = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
W= allen wrench 8 - 24 Nm *(17.7 lbft)*
NOTE: for valves wrench and torque see related pages

| Port threading | P inlet A | | B | | T3 outlet D | | E | | T outlet F | | G | | C controlled H | | I | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | *in* | mm | *in* | mm | *in* | mm | *in* | mm | *in* | mm | *in* | mm | *in* | mm | *in* |
| **P,T=G1/2 / C=G3/8** | 43 | *1.69* | 65 | *2.56* | 40 | *1.57* | 40.5 | *1.59* | 10.7 | *0.42* | 11.5 | *0.45* | 58 | *2.28* | 11.5 | *0.45* |
| **P,T=G3/4 / C=G1/2** | 43 | *1.69* | 63 | *2.48* | 38 | *1.50* | 41 | *1.61* | 9.5 | *0.37* | 9 | *0.35* | 58 | *2.28* | 11.5 | *0.45* |

**Type PFS4**



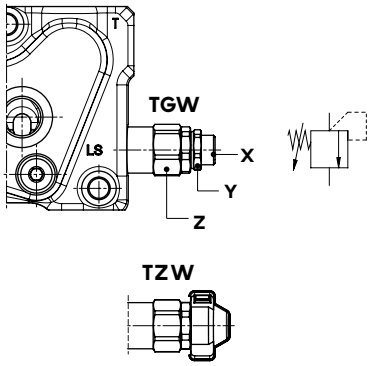

**Type PS4**



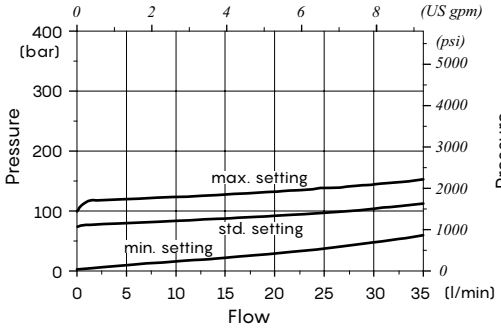
## Inlet section

### Main pressure relief valve

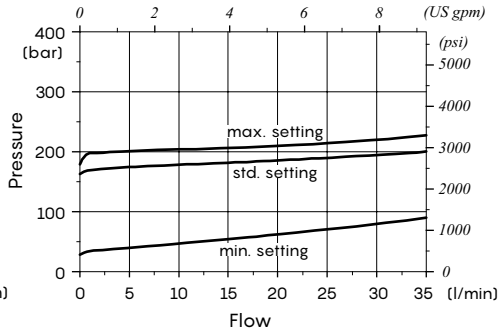
**Setting types**



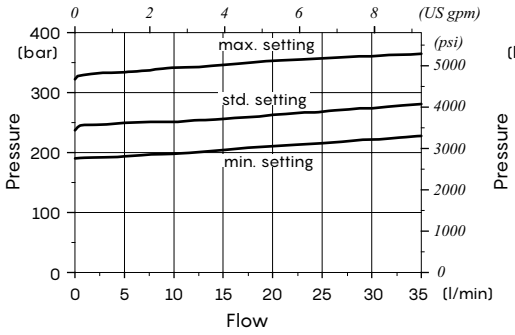

**Setting range: type TGW2**



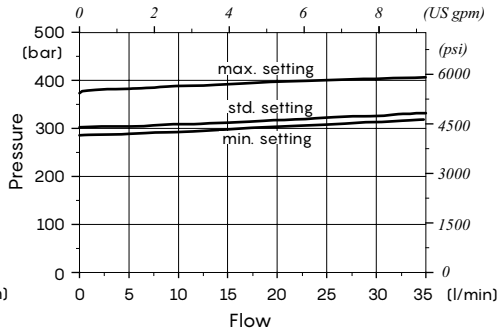

**Setting range: type TGW3**




**Setting range: type TGW4**




**Setting range: type TGW5**

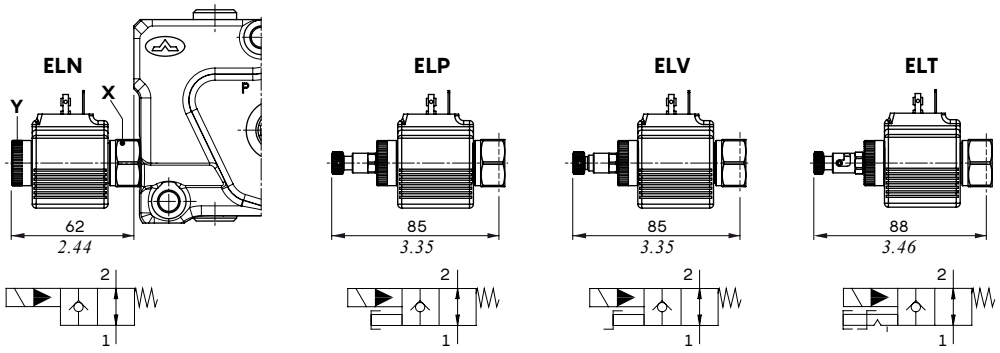



**Legenda**
**TGW**: free setting
**TZW**: valve set and locked
(cap code 4COP126301, n.2 pcs)
RAL3003 pigmented

**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**



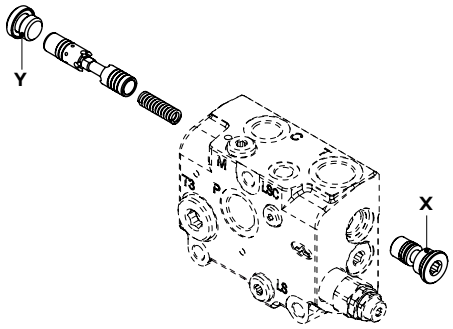

**Legenda**
**ELN**: without emergency
**ELP**: push button emergency override
**ELV**: screw emergency override
**ELT**: "push&twist" emergency override

**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 cm³/min @ 210 bar
*(0.015 in³/min @ 3050 psi)*

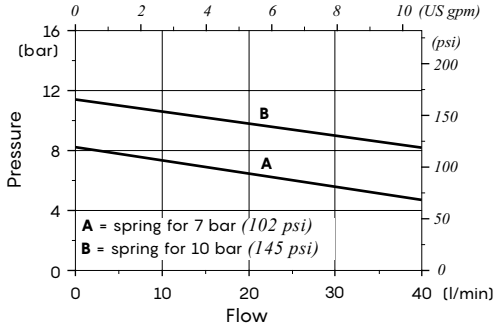
For coil features and options see **BER** type coil at page 160.

## Priority valve kit




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

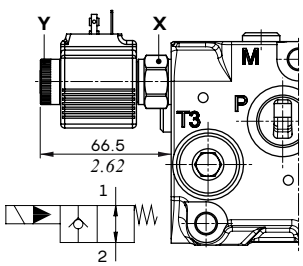
**Stand-by (margin pressure) vs. regulated flow**
Regulated flow = 40 l/min *(10.6 US gpm)*



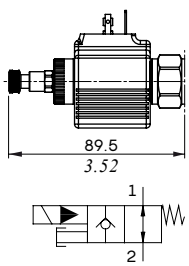

## Shut-off valve

**Manual emergency types**

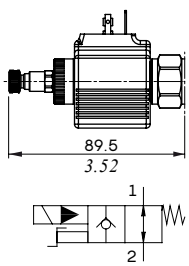
**ESO22N**



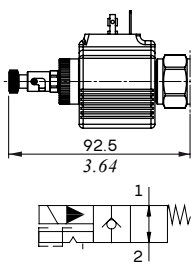

**ESO22P**




**ESO22V**




**ESO22T**




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

**Wrenches and tightening torques**
X = wrench 24 - 30 Nm *(22 lbft)*
Y = manual tightening

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

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

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

### A Mechanical control configuration:

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

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

1A 1B 2A 3 4 8 9

**DPX100**: Pressure Standard section
**DPX100HP**: High Pressure section

### B Prop. hydraulic control configuration:

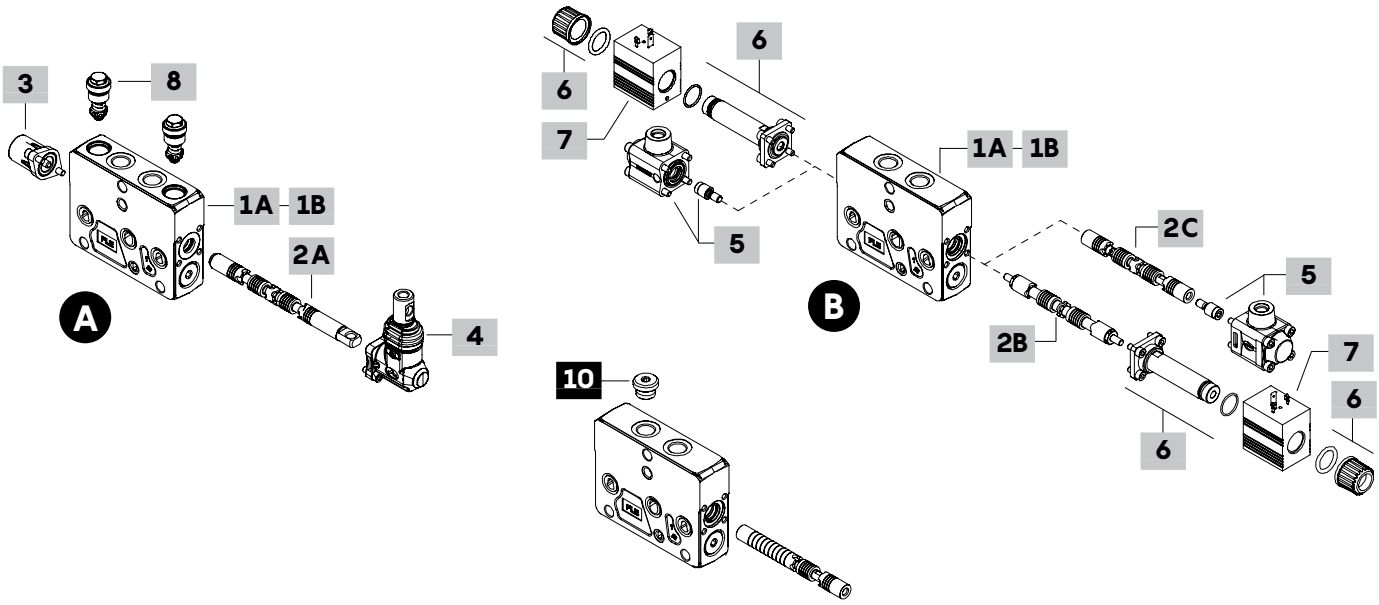
DPX100 / Q - E101(80/80) - 8IMN - ....

1A 1B 2C 5 9

### B Solenoid control configuration:

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

1A 1B 2B 6 9 7




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

**For mechanical control**

TYPE: **DPX100/Q-FPM** CODE: 5EL1043010V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100/Q-BSP12-FPM** CODE: 5EL1044010V
DESCRIPTION: As previous one with G1/2 ports
TYPE: **DPX100/P-FPM** CODE: 5EL1043000V
DESCRIPTION: With port valve arrangement
TYPE: **DPX100/P-BSP12-FPM** CODE: 5EL1044000V
DESCRIPTION: As previous one with G1/2 ports

**For proportional hydraulic and solenoid control**

TYPE: **DPX100/Q-IM-FPM** CODE: 5EL1043010AV
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100/Q-IM-BSP12-FPM** CODE: 5EL1044010AV
DESCRIPTION: As previous one with G1/2 ports
TYPE: **DPX100/P-IM-FPM** CODE: 5EL1043000AV
DESCRIPTION: With port valve arrangement
TYPE: **DPX100/P-IM-BSP12-FPM** CODE: 5EL1044000AV
DESCRIPTION: As previous one with G1/2 ports

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

**For mechanical control**

TYPE: **DPX100HP/Q-FPM** CODE: 5EL1043011V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100HP/Q-BSP12-FPM** CODE: 5EL1044011V
DESCRIPTION: As previous one with G1/2 ports
TYPE: **DPX100HP/P-FPM** CODE: 5EL1043004V
DESCRIPTION: With port valve arrangement
TYPE: **DPX100HP/P-BSP12-FPM** CODE: 5EL1044008V
DESCRIPTION: As previous one with G1/2 ports

**For proportional hydraulic and solenoid control**

TYPE: **DPX100HP/Q-IM-FPM** CODE: 5EL1043010BV
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100HP/Q-IM-BSP12-FPM** CODE: 5EL1044010EV
DESCRIPTION: As previous one with G1/2 ports
TYPE: **DPX100HP/P-IM-FPM** CODE: 5EL1043000BV
DESCRIPTION: With port valve arrangement
TYPE: **DPX100HP/P-IM-BSP12-FPM** CODE: 5EL1044007AV
DESCRIPTION: As previous one with G1/2 ports

NOTE (*): Codes are referred to **BSP** thread.

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

### 2A Spool for mechanical control page 73

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| Double acting with A and B closed in neutral position | | |
| **101(80)** | 3CU7110101 | 80 l/min *(21 US gpm)* flow |
| **109(70)** | 3CU7110109 | 70 l/min *(18.5 US gpm)* flow |
| **102(60)** | 3CU7110102 | 60 l/min *(16 US gpm)* flow |
| **112(50)** | 3CU7110003 | 50 l/min *(13.2 US gpm)* flow |
| **103(40)** | 3CU7110103 | 40 l/min *(10.5 US gpm)* flow |
| **111(30)** | 3CU7110002 | 30 l/min *(7.9 US gpm)* flow |
| **104(20)** | 3CU7110104 | 20 l/min *(5.3 US gpm)* flow |
| **113(10)** | 3CU7110113 | 10 l/min *(2.6 US gpm)* flow |
| Double acting with A and B to tank in neutral position | | |
| **201(80)** | 3CU7110201 | 80 l/min *(21 US gpm)* flow |
| **211(70)** | 3CU7125211 | 70 l/min *(18.5 US gpm)* flow |
| **206(60)** | 3CU7110204 | 60 l/min *(16 US gpm)* flow |
| **209(50)** | 3CU7125209 | 50 l/min *(13.2 US gpm)* flow |
| **208(40)** | 3CU7125208 | 40 l/min *(10.5 US gpm)* flow |
| **212(30)** | 3CU7125212 | 30 l/min *(7.9 US gpm)* flow |
| **205(20)** | 3CU7110205 | 20 l/min *(5.3 US gpm)* flow |
| **214(5)** | 3CU7125214 | 5 l/min *(1.3 US gpm)* flow |
| Double acting with A and B partially to tank in neutral position | | |
| **2H01(80)** | 3CU7110202 | 80 l/min *(21 US gpm)* flow |
| **2H12(70)** | 3CU7124220 | 70 l/min *(18.5 US gpm)* flow |
| **2H06(60)** | 3CU7124213 | 60 l/min *(16 US gpm)* flow |
| **2H05(40)** | 3CU7124212 | 40 l/min *(10.5 US gpm)* flow |
| **2H03(30)** | 3CU7110206 | 30 l/min *(7.9 US gpm)* flow |
| **2H04(20)** | 3CU7124211 | 20 l/min *(5.3 US gpm)* flow |
| **2H07(10)** | 3CU7124214 | 10 l/min *(2.6 US gpm)* flow |
| Single acting on A, B plugged: G3/8 or G1/2 plug is required | | |
| **301(80)** | 3CU7110301 | 80 l/min *(21 US gpm)* flow |
| **304(60)** | 3CU7131304 | 60 l/min *(16 US gpm)* flow |
| **303(40)** | 3CU7131303 | 40 l/min *(10.5 US gpm)* flow |
| **302(20)** | 3CU7131302 | 20 l/min *(5.3 US gpm)* flow |
| Single acting on B, A plugged: G3/8 or G1/2 plug is required | | |
| **401(80)** | 3CU7110401 | 80 l/min *(21 US gpm)* flow |
| **404(60)** | 3CU7135404 | 60 l/min *(16 US gpm)* flow |
| **403(40)** | 3CU7135403 | 40 l/min *(10.5 US gpm)* flow |
| **402(20)** | 3CU7135402 | 20 l/min *(5.3 US gpm)* flow |
| Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: type 13 or 13F positioner is required | | |
| **508(70)** | 3CU7142508 | 70 l/min *(18.5 US gpm)* flow |
| **507(60)** | 3CU7142507 | 60 l/min *(16 US gpm)* flow |
| **505(40)** | 3CU7142505 | 40 l/min *(10.5 US gpm)* flow |
| **506(20)** | 3CU7142506 | 20 l/min *(5.3 US gpm)* flow |

### 2B Spool for solenoid control page 73

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

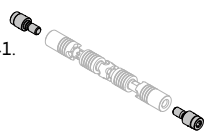
| TYPE | CODE | DESCRIPTION |
|---|---|---|
| Double acting with A and B closed in neutral position | | |
| **S102(60)** | 3CU7410102 | 60 l/min *(16 US gpm)* flow |
| **S108(40)** | 3CU7410108 | 40 l/min *(10.5 US gpm)* flow |
| **S107(30)** | 3CU7410107 | 30 l/min *(7.9 US gpm)* flow |
| **S105(20)** | 3CU7410105 | 20 l/min *(5.3 US gpm)* flow |
| **S106(10)** | 3CU7410106 | 10 l/min *(2.6 US gpm)* flow |
| **S109(5)** | 3CU7410109 | 5 l/min *(1.3 US gpm)* flow |
| Double acting with A and B to tank in neutral position | | |
| **S208(40)** | 3CU7410208 | 40 l/min *(10.5 US gpm)* flow |
| **S205(20)** | 3CU7410205 | 20 l/min *(5.3 US gpm)* flow |
| **S206(10)** | 3CU7410206 | 10 l/min *(2.6 US gpm)* flow |
| Double acting with A and B partially to tank in neutral position | | |
| **S2H02(60)** | 3CU7410203 | 60 l/min *(16 US gpm)* flow |
| **S2H06(10)** | 3CU7410206H | 10 l/min *(2.6 US gpm)* flow |
| Single acting on A or B, other port plugged: G3/8 or G1/2 plug is required | | |
| **S308-S408(40)** | 3CU7410308 | 40 l/min *(10.5 US gpm)* flow |
| **S305-S405(20)** | 3CU7410305 | 20 l/min *(5.3 US gpm)* flow |

### 2C Spool for 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 | | |
| **E101(80)** | 3CU7710101 | 80 l/min *(21 US gpm)* flow |
| **E108(60)** | 3CU7710108 | 60 l/min *(16 US gpm)* flow |
| **E123(50)** | 3CU7710123 | 50 l/min *(13.2 US gpm)* flow |
| **E105(40)** | 3CU7710105 | 40 l/min *(10.5 US gpm)* flow |
| **E113(30)** | 3CU7710113 | 30 l/min *(7.9 US gpm)* flow |
| **E106(20)** | 3CU7710106 | 20 l/min *(5.3 US gpm)* flow |
| **E110(10)** | 3CU7710110 | 10 l/min *(2.6 US gpm)* flow |
| **E159(5)** | 3CU7710159 | 5 l/min *(1.3 US gpm)* flow |
| Double acting with A and B to tank in neutral position | | |
| **E210(70)** | 3CU7725006 | 70 l/min *(18.5 US gpm)* flow |
| **E209(60)** | 3CU7725005 | 60 l/min *(16 US gpm)* flow |
| **E214(50)** | 3CU7725010 | 50 l/min *(13.2 US gpm)* flow |
| **E206(40)** | 3CU7725003 | 40 l/min *(10.5 US gpm)* flow |
| **E202(30)** | 3CU7725002 | 30 l/min *(7.9 US gpm)* flow |
| **E205(20)** | 3CU7725001 | 20 l/min *(2.6 US gpm)* flow |
| **E211(10)** | 3CU7725007 | 10 l/min *(2.6 US gpm)* flow |
| Double acting with A and B partially to tank in neutral position | | |
| **E2H01(80)** | 3CU7710202 | 80 l/min *(21 US gpm)* flow |
| **E2H05(60)** | 3CU7724004 | 60 l/min *(16 US gpm)* flow |
| **E2H04(40)** | 3CU7724003 | 40 l/min *(10.5 US gpm)* flow |
| **E2H06(20)** | 3CU7724005 | 20 l/min *(5.3 US gpm)* flow |
| **E2H03(10)** | 3CU7724002 | 10 l/min *(2.6 US gpm)* flow |
| **E2H25(5)** | 3CU7724159 | 5 l/min *(1.3 US gpm)* flow |
| Single acting on A or B, other port plugged: G3/8 or G1/2 plug is required | | |
| **E301-E401(80)** | 3CU7710301 | 80 l/min *(21 US gpm)* flow |
| **E305-E405(60)** | 3CU7731305 | 60 l/min *(16 US gpm)* flow |
| **E304-E404(40)** | 3CU7731304 | 40 l/min *(10.5 US gpm)* flow |
| **E303-E403(20)** | 3CU7731303 | 20 l/min *(5.3 US gpm)* flow |
| Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: type 13IMS control is required | | |
| **I504(60)** | YCU7742504 | 60 l/min *(16 US gpm)* flow |
| **I503(20)** | YCU7742503 | 20 l/min *(5.3 US gpm)* flow |

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



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

### 3 "A" side spool positioners page 75

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **7FT** | 5V07407000 | With friction and neutral pos. notch |
| **7FTN** | 5V07407010 | As 7FT, friction regulation with spring |
| **8** | 5V08107000 | 3 pos., spring return to neutral pos. |
| **8F2** | 5V08107100 | Spool stroke limiter on B port |
| **8D** | 5V08107200 | External pin with M6 female thread |
| **8TL** | 5V08107310 | Arrangement for double control |
| **8RM2-12VDC** | 5V08107590 | Electromagnetic detent in pos.2 |
| **8MG3(NO)** | 5V08107660 | With micro in postions 1 and 2 |
| **8PP** | 5V08107700 | Proportional pneumatic control |
| **8PNB** | 5V08107718 | On/off waterproof pneumatic control |
| **8EPNB3-12VDC** | 5V08107742 | On/off electropneumatic control |
| **8EPNB3-24VDC** | 5V08107743 | 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 |
| For floating circuit (spool 5) | | |
| **13N** | 5V13307005 | 4 positions, detent in 4th position with spring return to neutral position |
| **13F** | 5V13507000 | 4 positions, spring return to neutral position |

### 4 "B" side spool control kit page 80

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

### 5 Proportional hydraulic control * page 82

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **8IMN** | 5IDR204304V | Range 8-27 bar *(116-392 psi)* |
| **8IMF3N** | 5IDR204314V | As previous one, with spool stroke limiter |
| **8IMXN** | 5IDR204303V | Range 7.5-24 bar *(109-348 psi)* |
| **8IMXF3N** | 5IDR204313V | As previous one, with spool stroke limiter |
| **8IMNO** | 5IDR204305V | Range 8-27 bar *(116-392 psi)*, steel cap configuration |
| For floating circuit (spool I5) | | |
| **13IMS** | 5IDR207350V | Range 6.5-15.5 / 8-22.5 bar *(94-225 / 116-326 psi)* |

### 6 On/off solenoid control page 84

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **8ES1-8ES2** | 5CAN08061V | Single acting on A or B port |
| **8ES3** | 5CAN08062V | Double acting |
| **8ES3F3** | 5CAN08040V | Double acting with spool stroke limiter |

### 7 Coil

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

For complete available coils list see page 160.

### 8 Port valves page 94

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

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

TYPE: **U 100** (100 = setting (bar))
CODE: 5KIT330 100 (100 = setting (bar))

SETTING:

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

### 9 Section threading

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

### 10 Plug for single acting spool *

| CODE | DESCRIPTION |
|---|---|
| 3XTAP722160 | G3/8 plug |
| 3XTAP727180 | G1/2 plug |

NOTE (*): Codes are referred to **BSP** thread.

## 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) - ..... - 12VDC**

1A 1B 2 3 4 7 8 3

**DPX100**: Standard Pressure section
**DPX100HP**: High Pressure section

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

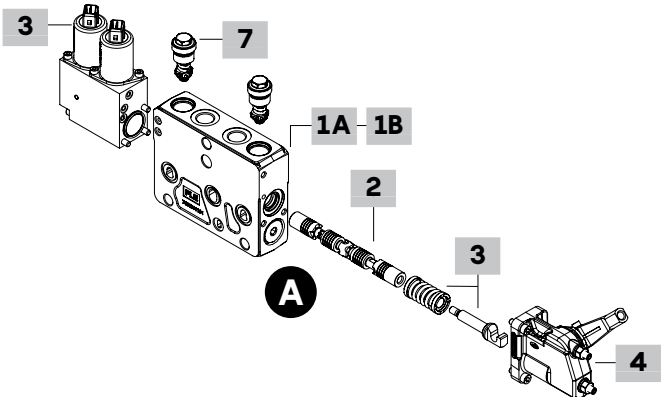
**DPX100 / QZ - E101(80\80) - 8EZ3SLCQ - .... -12VDC**

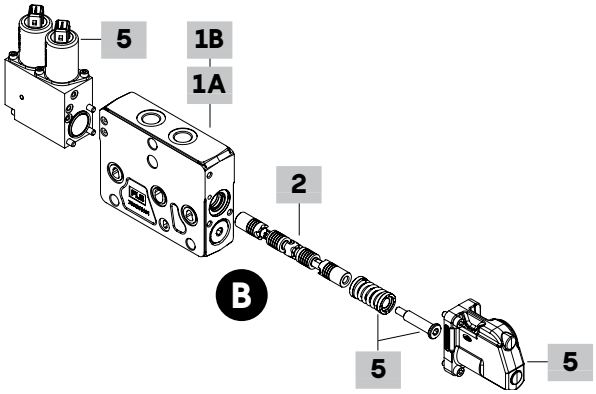
1A 1B 2 5 8 5

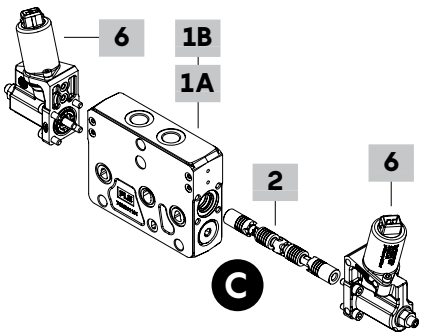
### C Two-side electrohydraulic control configuration:

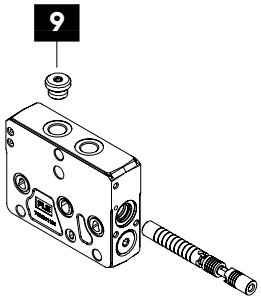
**DPX100 / QE - E101(80\80) - 8EB3TF3 - .... -12VDC**

1A 1B 2 6 8 6



## Working section part ordering codes (electrohydraulic)

### 1A Std press. working section kit * page 72

**For two-side electrohydraulic control**

TYPE: **DPX100/QE-FPM** CODE: 5EL1043012V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100/QE-BSP12-FPM** CODE: 5EL1044012V
DESCRIPTION: As previous one with G1/2 ports
TYPE: **DPX100/PE-FPM** CODE: 5EL1043002V
DESCRIPTION: With port valve arrangement
TYPE: **DPX100/PE-BSP12-FPM** CODE: 5EL1044002V
DESCRIPTION: As previous one with G1/2 ports

**For one-side electrohydraulic control**

TYPE: **DPX100/QZ-FPM** CODE: 5EL1043022V
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100/QZ-BSP12-FPM** CODE: 5EL1044013AV
DESCRIPTION: As previous one with G1/2 ports
TYPE: **DPX100/PZ-FPM** CODE: 5EL1043006V
DESCRIPTION: With port valve arrangement
TYPE: **DPX100/PZ-BSP12-FPM** CODE: 5EL1044004AV
DESCRIPTION: As previous one with G1/2 ports

### 2 Spool page 73

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| Double acting with A and B closed in neutral position | | |
| **E101(80)** | 3CU7710101 | 80 l/min *(21 US gpm)* flow |
| **E108(60)** | 3CU7710108 | 60 l/min *(16 US gpm)* flow |
| **E123(50)** | 3CU7710123 | 50 l/min *(13.2 US gpm)* flow |
| **E105(40)** | 3CU7710105 | 40 l/min *(10.5 US gpm)* flow |
| **E113(30)** | 3CU7710113 | 30 l/min *(7.9 US gpm)* flow |
| **E106(20)** | 3CU7710106 | 20 l/min *(5.3 US gpm)* flow |
| **E110(10)** | 3CU7710110 | 10 l/min *(2.6 US gpm)* flow |
| **E159(5)** | 3CU7710159 | 5 l/min *(1.3 US gpm)* flow |
| Double acting with A and B to tank in neutral position | | |
| **E210(70)** | 3CU7725006 | 70 l/min *(18.5 US gpm)* flow |
| **E209(60)** | 3CU7725005 | 60 l/min *(16 US gpm)* flow |
| **E214(50)** | 3CU7725010 | 50 l/min *(13.2 US gpm)* flow |
| **E206(40)** | 3CU7725003 | 40 l/min *(10.5 US gpm)* flow |
| **E202(30)** | 3CU7725002 | 30 l/min *(7.9 US gpm)* flow |
| **E205(20)** | 3CU7725001 | 20 l/min *(2.6 US gpm)* flow |
| **E211(10)** | 3CU7725007 | 10 l/min *(2.6 US gpm)* flow |
| Double acting with A and B partially to tank in neutral position | | |
| **E2H01(80)** | 3CU7710202 | 80 l/min *(21 US gpm)* flow |
| **E2H05(60)** | 3CU7724004 | 60 l/min *(16 US gpm)* flow |
| **E2H04(40)** | 3CU7724003 | 40 l/min *(10.5 US gpm)* flow |
| **E2H06(20)** | 3CU7724005 | 20 l/min *(5.3 US gpm)* flow |
| **E2H03(10)** | 3CU7724002 | 10 l/min *(2.6 US gpm)* flow |
| **E2H25(5)** | 3CU7724159 | 5 l/min *(1.3 US gpm)* flow |
| Single acting on A or B, other port plugged: G3/8 or G1/2 plug is required | | |
| **E301-E401(80)** | 3CU7710301 | 80 l/min *(21 US gpm)* flow |
| **E305-E405(60)** | 3CU7731305 | 60 l/min *(16 US gpm)* flow |
| **E304-E404(40)** | 3CU7731304 | 40 l/min *(10.5 US gpm)* flow |
| **E303-E403(20)** | 3CU7731303 | 20 l/min *(5.3 US gpm)* flow |
| Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: type 13IMS control is required | | |
| **I504(60)** | YCU7742504 | 60 l/min *(16 US gpm)* flow |
| **I503(20)** | YCU7742503 | 20 l/min *(5.3 US gpm)* flow |

### 1B High press. working section kit * page 72

**For two-side electrohydraulic control**

TYPE: **DPX100HP/QE-FPM** CODE: 5EL1043015V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100HP/QE-BSP12-FPM** CODE: 5EL1044014V
DESCRIPTION: As previous one with G1/2 ports
TYPE: **DPX100HP/PE-FPM** CODE: 5EL1043005V
DESCRIPTION: With port valve arrangement
TYPE: **DPX100HP/PE-BSP12-FPM** CODE: 5EL1044005V
DESCRIPTION: As previous one with G1/2 ports

**For one-side electrohydraulic control**

TYPE: **DPX100HP/QZ-FPM** CODE: 5EL1043022AV
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100HP/QZ-BSP12-FPM** CODE: 5EL1044013BV
DESCRIPTION: As previous one with G1/2 ports
TYPE: **DPX100HP/PZ-FPM** CODE: 5EL1043200AV
DESCRIPTION: With port valves arrangement
TYPE: **DPX100HP/PZ-BSP12-FPM** CODE: 5EL1044003AV
DESCRIPTION: As previous one with G1/2 ports

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

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **8EZ3-12VDC** | 5IDR604300V | With AMP connector |
| **8EZ3-24VDC** | 5IDR604301V | As previous one |
| **8EZH3-12VDC** | 5IDR604329V | With horizontal pressure reducing valves and AMP conn. |
| **8EZH3-24VDC** | 5IDR604331V | As previous one |
| **8EZ34-12VDC** | 5IDR604302V | With Deutsch connector |
| **8EZ34-24VDC** | 5IDR604303V | As previous one |
| **8EZH34-12VDC** | 5IDR604310V | With horizontal pressure reducing valves and Deutsch connector |
| **8EZH34-24VDC** | 5IDR604324V | As previous one |
| With spool position sensor | | |
| **8EZ3SPSD-12VDC** | 5IDR604304V | AMP conn. and digital sensor |
| **8EZ3SPSD-24VDC** | 5IDR604305V | As previous one |
| **8EZ34SPSD-12VDC** | 5IDR604306V | Deutsch conn. and digital sensor |
| **8EZ34SPSD-24VDC** | 5IDR604307V | As previous one |
| **8EZ34SPSL-0.5(A)-4.5(B)-12VDC** | 5IDR604311V | AMP conn. and analog sensor |
| For floating circuit (spool E5) | | |
| **13EZ3-12VDC** | 5IDR614300V | With AMP connector |
| **13EZ3-24VDC** | 5IDR614301V | As previous one |
| **13EZ34-12VDC** | 5IDR614302V | With Deutsch connector |
| **13EZ34-24VDC** | 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 |
|---|---|---|
| **LQ** | 5LEV100707V | Lever box |
| **LQF3** | 5LEV100708V | Lever box with spool stroke limiter |
| **LQSL** | 5COP204100AV | Lever box without lever |

NOTE (*): Codes are referred to **BSP** 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 |
|---|---|---|
| **8EZ3SLCQ-12VDC** | 5IDR604300SV | With AMP connector |
| **8EZ3SLCQ-24VDC** | 5IDR604301SV | As previous one |
| **8EZ34SLCQ-12VDC** | 5IDR604302SV | With Deutsch connector |
| **8EZ34SLCQ-24VDC** | 5IDR604303SV | As previous one |
| **8EZH34SLCQ-12VDC** | 5IDR604310SV | With horizontal pressure reducing valves and Deutsch connector |
| **8EZH34SLCQ-24VDC** | 5IDR604325SV | As previous one |
| With spool position sensor | | |
| **8EZ3SPSDSLCQ-12VDC** | 5IDR604304SV | With AMP connector and digital sensor |
| **8EZ3SPSDSLCQ-24VDC** | 5IDR604305SV | As previous one |
| **8EZ34SPSDSLCQ-12VDC** | 5IDR604306SV | With Deutsch connector and digital sensor |
| **8EZ34SPSDSLCQ-24VDC** | 5IDR604307SV | As previous one |
| **8EZ34SPSL-0.5(A)-4.5(B)SLCQ-12VDC** | 5IDR604311SV | With AMP connector and analog sensor |

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

| 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 |
| Without lever control: for floating circuit (E5 spool) | | |
| **13EB3T-12VDC** | 5IDR914201V | With AMP connector |
| **13EB3T-24VDC** | 5IDR914202V | As previous one |
| **13EB34T-12VDC** | 5IDR914214V | With Deutsch connector |
| **13EB34T-24VDC** | 5IDR914215V | 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 | With AMP, spool stroke limiter |
| **8EB3TLHF3-24VDC** | 5IDR904308V | As previous one |
| **8EB34TLHF3-12VDC** | 5IDR904240AV | With Deutsch connector with spool 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 | With spool limiter, AMP connector and analog sensor |
| **8EB3TLHF3SPSL-0.5(A)-4.5(B)-24VDC** | 5IDR904247AV | As previous one |
| With lever control: for floating circuit (E5 spool) | | |
| **13EB3TLH-12VDC** | 5IDR914220AV | With AMP connector |
| **13EB3TLH-24VDC** | 5IDR914211AV | As previous one |
| **13EB34TLH-12VDC** | 5IDR914216V | With Deutsch connector |
| **13EB34TLH-24VDC** | 5IDR914217AV | As previous one |
| **13EB3TLHF3-12VDC** | 5IDR914213AV | With AMP and spool stroke limiter |
| **13EB3TLHF3-24VDC** | 5IDR914210AV | As previous one |
| **13EB34TLHF3-12VDC** | 5IDR914218AV | With Deutsch, spool stroke limiter |
| **13EB34TLHF3-24VDC** | 5IDR914219V | As previous one |

### 7 Port valves page 94

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

For complete valves list see previous pages.

### 8 Section threading

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

### 9 Plug for single acting spool *

| CODE | DESCRIPTION |
|---|---|
| 3XTAP722160 | G3/8 plug |
| 3XTAP727180 | G1/2 plug |

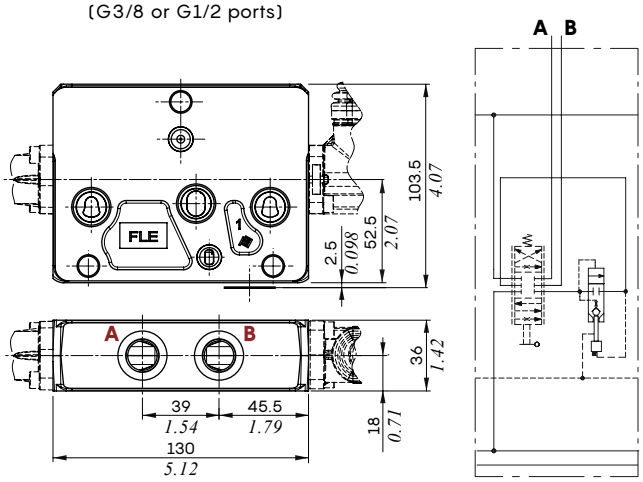
NOTE (*): Codes are referred to **BSP** thread.

## Working section

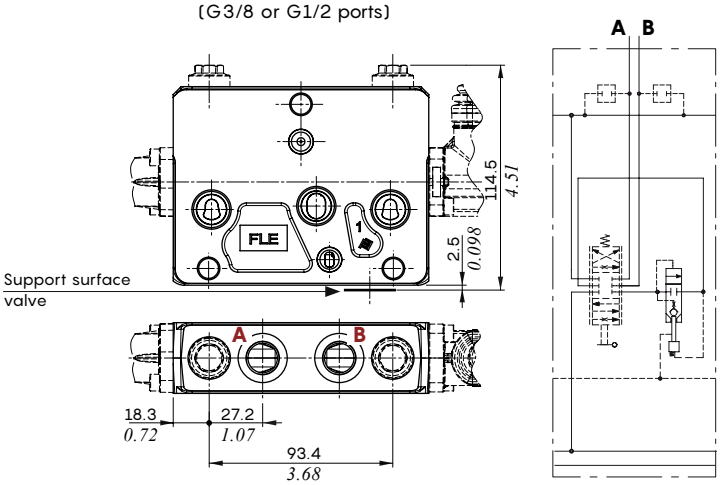
### Dimensions and hydraulic circuit

#### Sections for mechanical, hydraulic and solenoid controls

**Type Q for Std or HP**
(G3/8 or G1/2 ports)

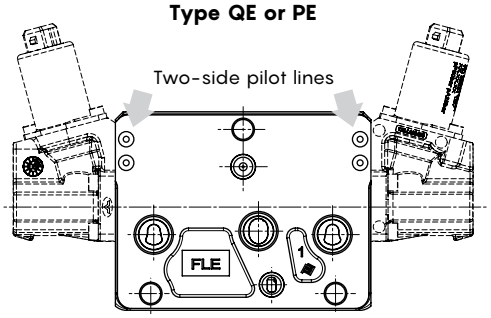



**Type P for Std or HP**
(G3/8 or G1/2 ports)

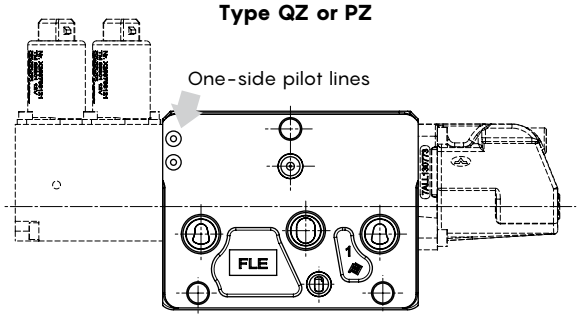



#### Sections for electrohydraulic control

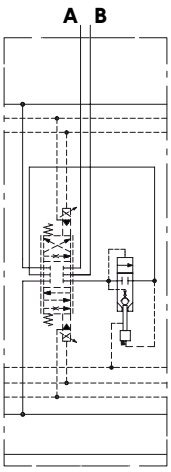
**Type QE or PE**



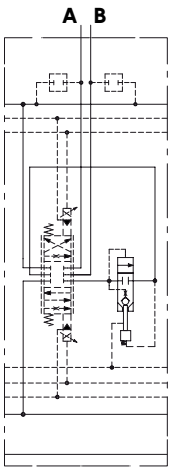

**Type QZ or PZ**



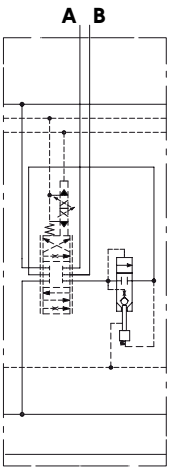

**Type QE**



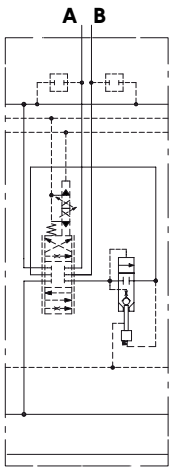

**Type PE**




**Type QZ**



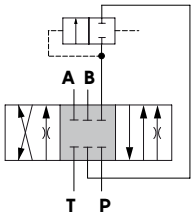

**Type PZ**



## Spool

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

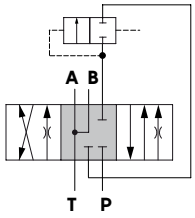
1 0 2




**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

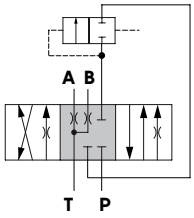
1 0 2




**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

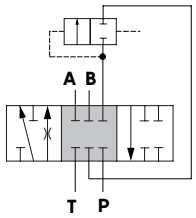
1 0 2




**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

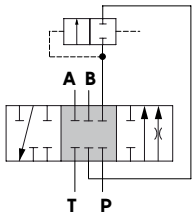
1 0 2




**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

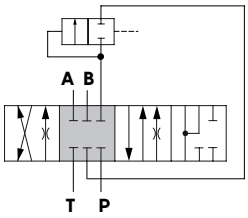
1 0 2



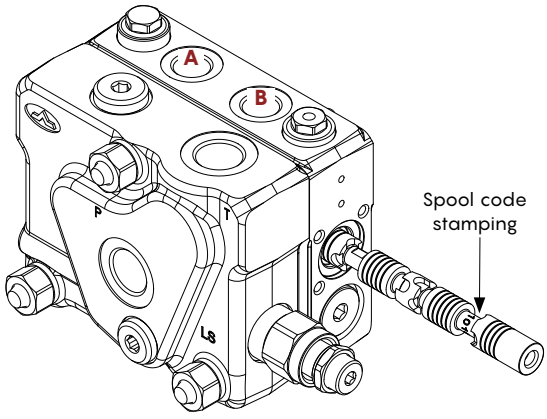

**Stroke (4../E4..)**
position 1: + 6.5 mm *(+ 0.26 in)*
position 2: - 6.5 mm *(- 0.26 in)*
**Stroke (S4..)**
position 1: + 3.5 mm *(+ 0.14 in)*
position 2: - 3.5 mm *(- 0.14 in)*

**Type 5 (5../E5../I5..)**
Floating in 4th position (pos.3)

1 0 2 3

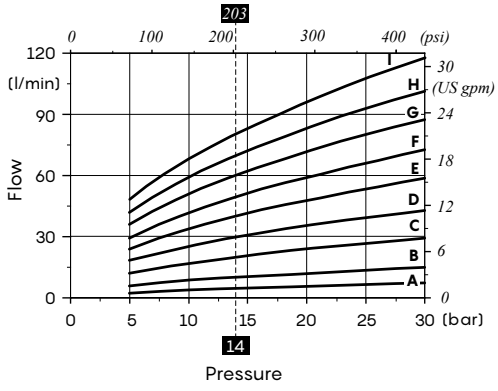



**Stroke**
position 1: + 6 mm *(+ 0.24 in)*
position 2: - 6 mm *(- 0.24 in)*
position 3: - 10.5 mm *(- 0.41 in)*




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%

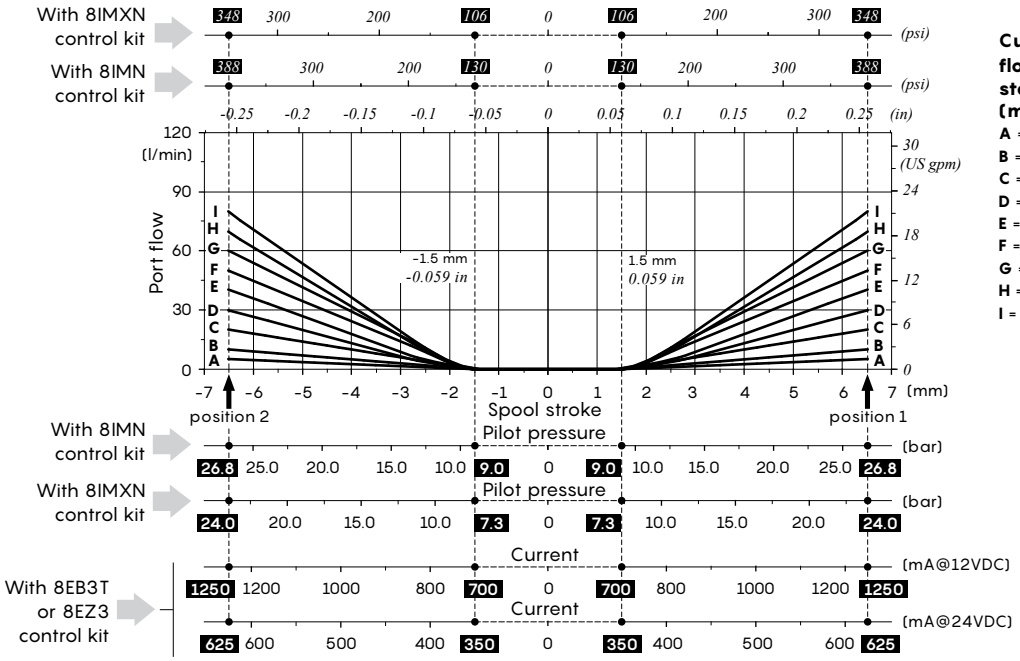
## Working section

### 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**

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

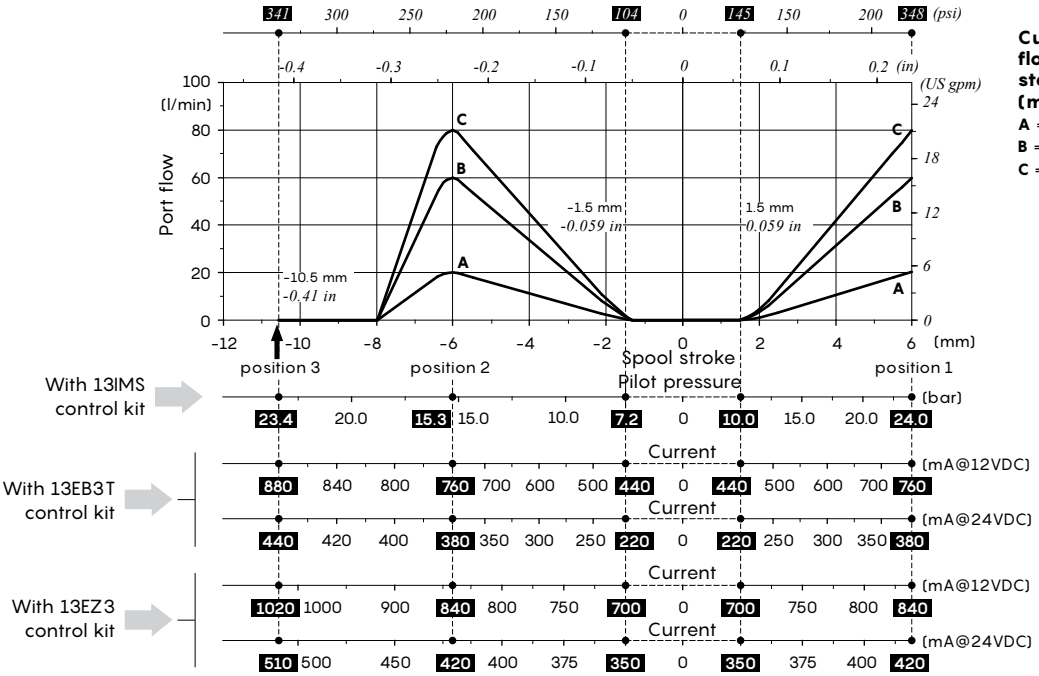



**Curves with spool nominal flow @ 14 bar** *(200 psi)* **stand-by (margin pressure)**

**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**

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



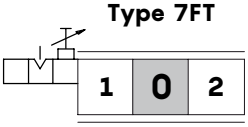

**Curves with spool nominal flow @ 14 bar** *(200 psi)* **stand-by (margin pressure)**

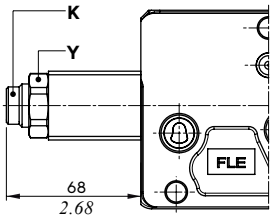
**A** = 20 l/min *(5.3 US gpm)*
**B** = 60 l/min *(16 US gpm)*
**C** = 80 l/min *(21 US gpm)*

## "A" side spool positioners

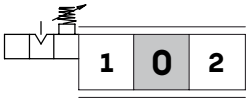
### With friction and neutral position notch

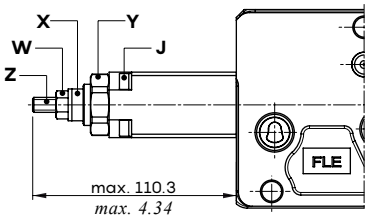
**Type 7FT**




**Type 7FTN**
With spring regulation

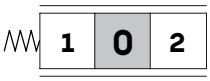


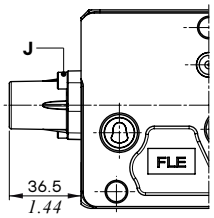




**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
K = allen wrench 6
X = wrench 17
Y = wrench 30, manual tightening
Z = allen wrench 4
W = wrench 13 - 24 Nm *(17.7 lbft)*

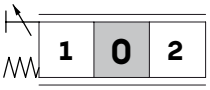
### With spring return to neutral position

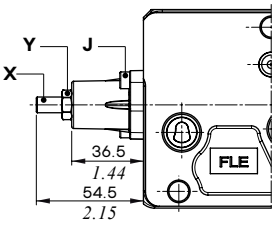
**Type 8**



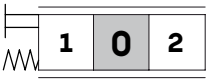



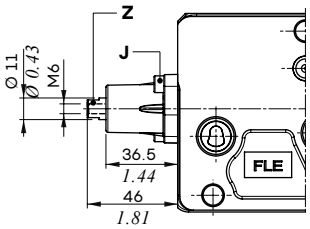

**Type 8F2**
Spool stroke limiter on B port



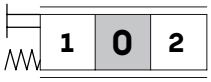



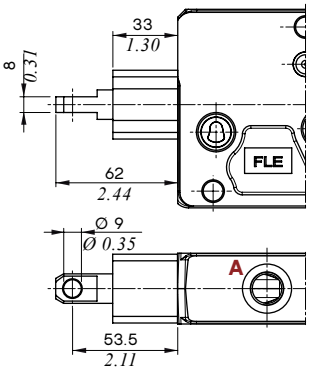

**Type 8D**
External pin with M6 female thread



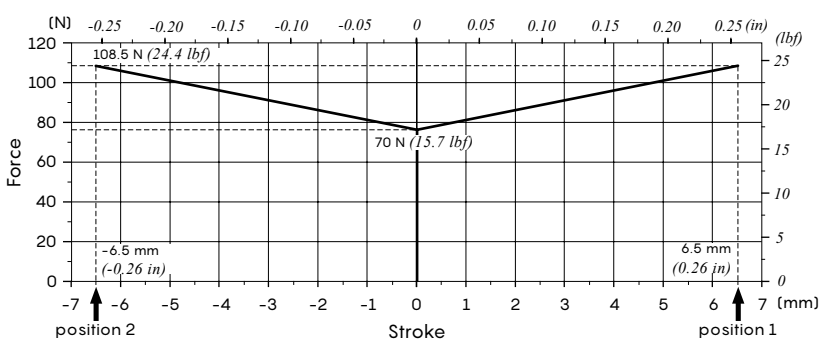

**Type 8TL**
Arrangement for double mechanical control




**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

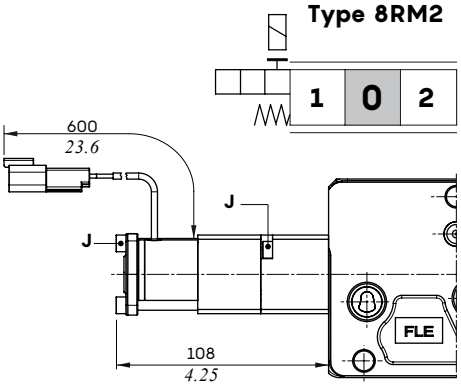
**Force vs. Stroke diagram**



## Working section

### "A" side spool positioners

#### With electromagnetic detent in position 2

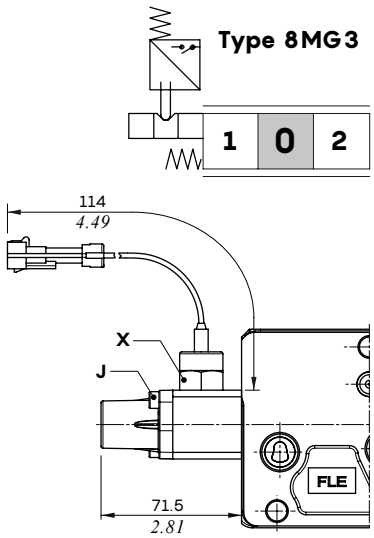



**Features**

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 insulance . . . . . : 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**

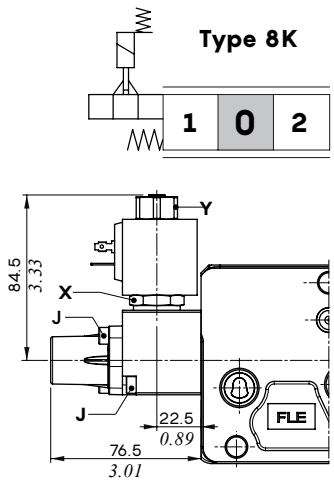
Switch mechanical life . . . . . : 5x10⁵ cycles
Switch electric life . . . . . : 10⁵ cycles @ 7 A - 13.5 VDC, resistive load
5x10⁴ cycles @ 10 A - 12 VDC, resistive load
5x10⁴ cycles @ 3 A - 28 VDC, resistive load
Connector . . . . . : Packard Weather-Pack
Mating connector . . . . . : Packard Weather-Pack,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

| Circuit | Complete controls<br>Microswitch operation<br>position 1<br>**8MG1** | position 2<br>**8MG2** | position 1, 2<br>**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




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

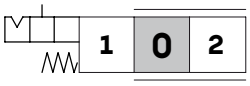
For coil features and options see **BE** type coil at page 160.

**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)*

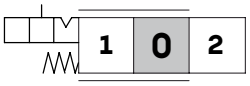
## "A" side spool positioners

### With detent and spring return to neutral position

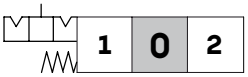
**Type 9B**
Detent in position 1
(see A curve)

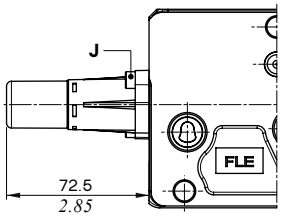



**Type 10B**
Detent in position 2
(see B curve)

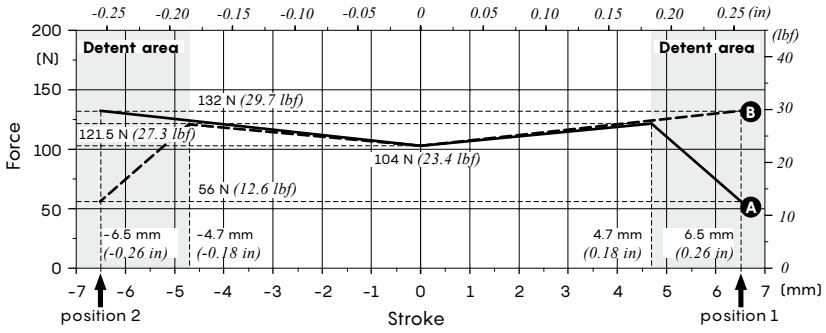



**Type 11B**
Detent in positions 1
(A curve) and 2 (B curve)




**Force vs. Stroke diagram**



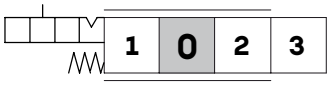

**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

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

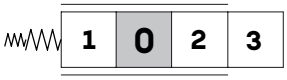
### With detent and spring return to neutral position, for floating circuit

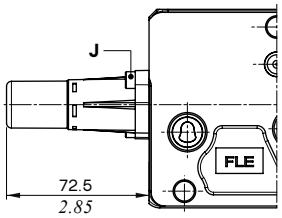
Not available for HF (High Flow) sections.

**Type 13N**
Detent in position 3

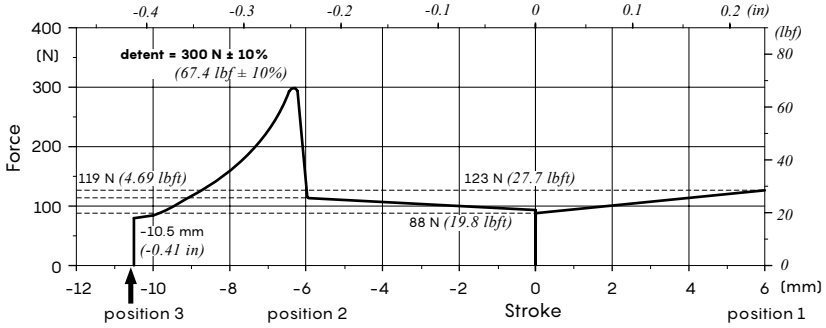



**Type 13F**
Additional spring in position 3



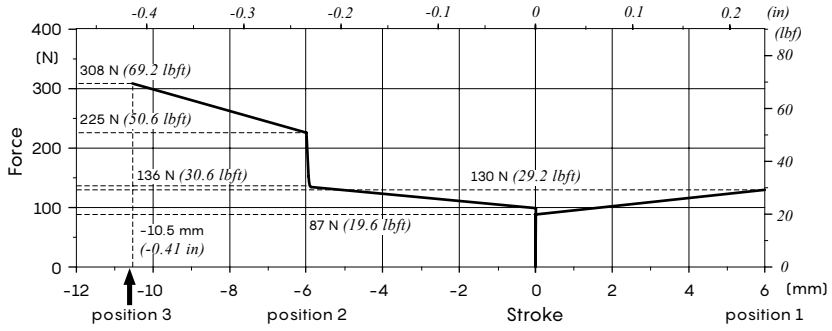




**Type 13N: Force vs. Stroke diagram**




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

**Type 13F: Force vs. Stroke diagram**



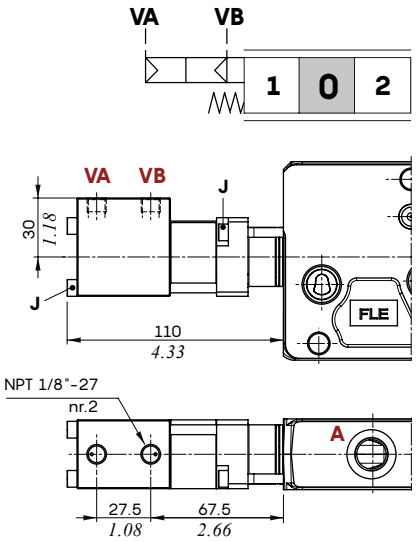

**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

## Working section

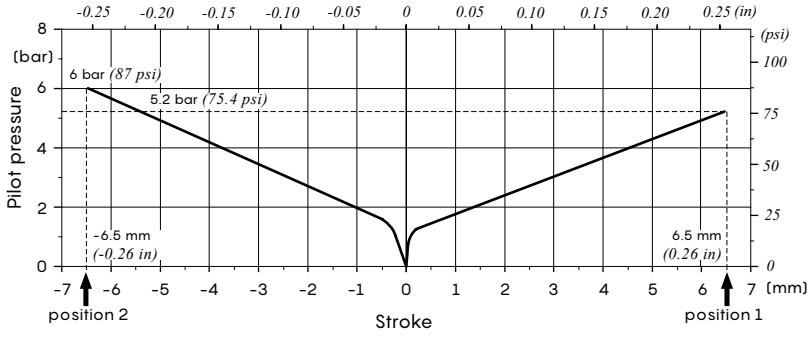
### "A" side spool positioners

#### Proportional pneumatic control

**Type 8PP**



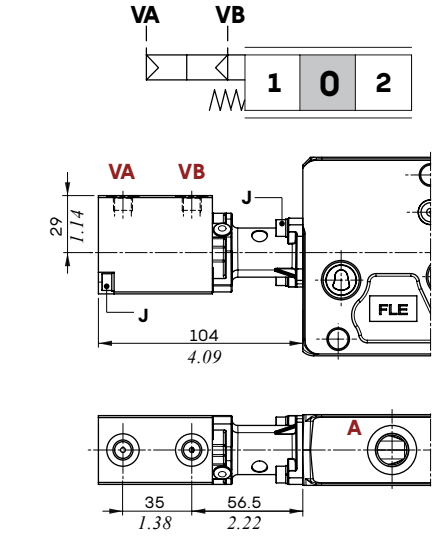

**Stroke vs. Pilot pressure diagram**



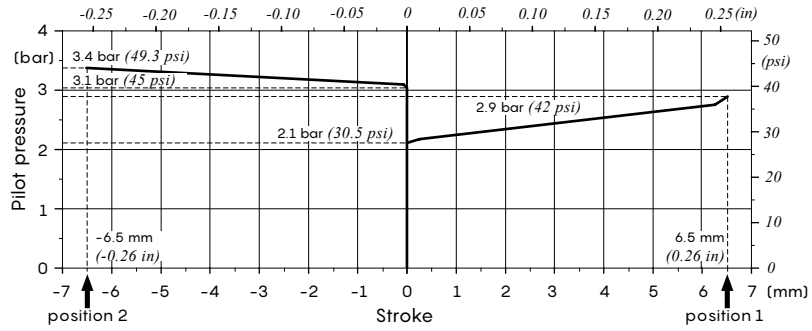

**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

#### On/off pneumatic control

**Type 8PNB**




**Stroke vs. Pilot pressure diagram**

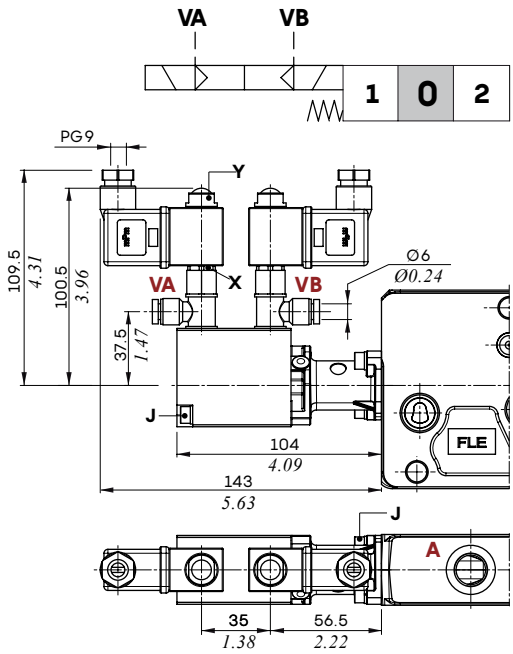



**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

## "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**

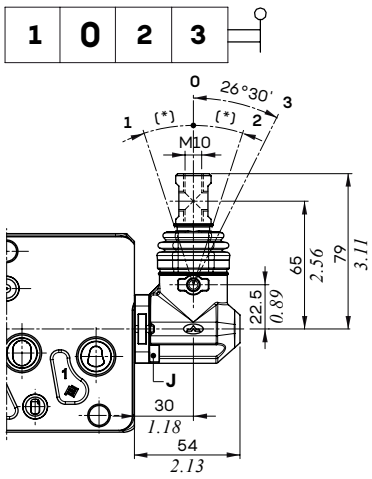
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = wrench 15 - 6.6 Nm *(4.9 lbft)*
Y = wrench 13, manual tightening

## Working section

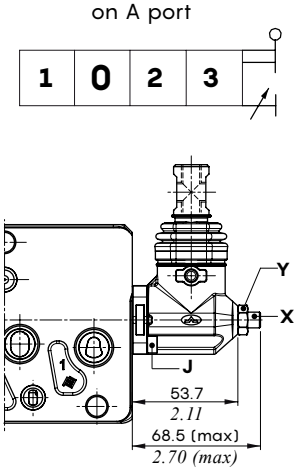
### "B" side spool control kit

#### Lever box

**Type L**

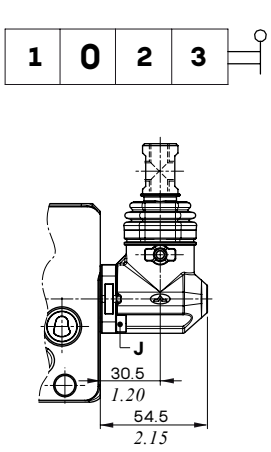



**Type LF1**
Spool stroke limiter
on A port

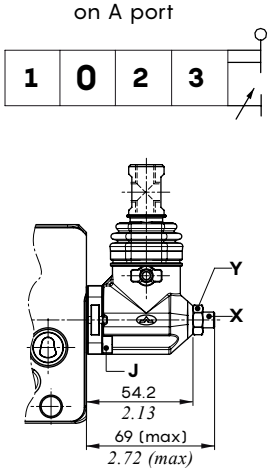



#### Waterproof lever box

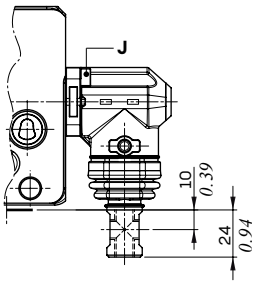
**Type LSG**




**Type LSGF1**
Spool stroke limiter
on A port




L180 configuration

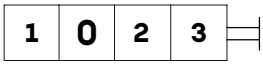


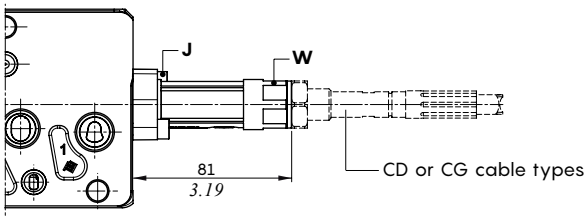

Angle (*)
16° with 8 type positioners
15° with 13 type positioners

**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = allen wrench 4
Y = wrench 13 - 24 Nm *(17.7 lbft)*

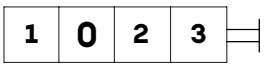
#### Without lever box

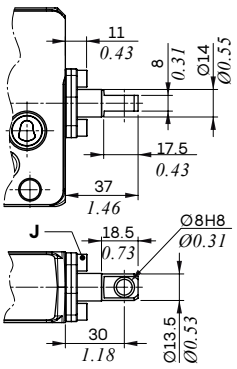
**Type TQ**
Flexible cable connection



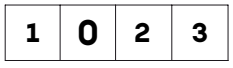



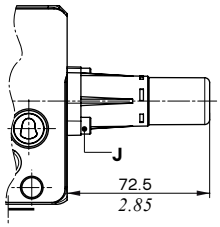

**Type SLP**
With dust-proof plate




**Type SLC**
With endcap



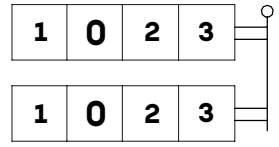




**Wrenches and tightening torques**
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
W= wrench 24

## "B" side spool control kit

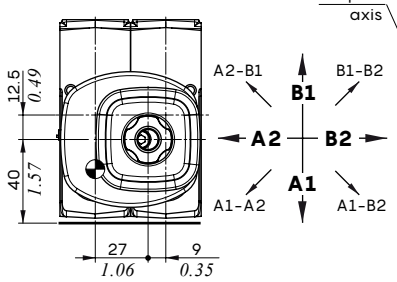
### Joysticks for two section operation

Not available for HF (High Flow) sections.



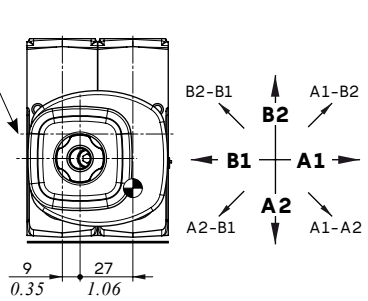

**Type LCA1-4**

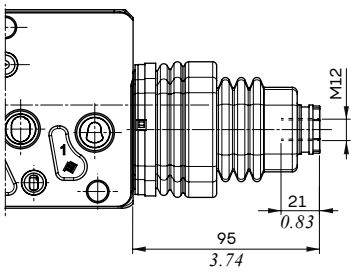
LCA1 configuration



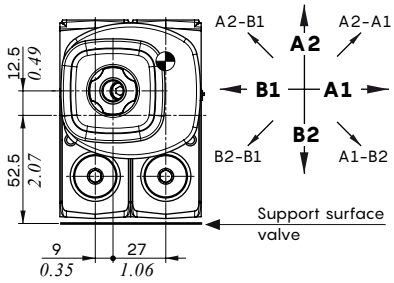

**Type LCA2-3**

LCA2 configuration

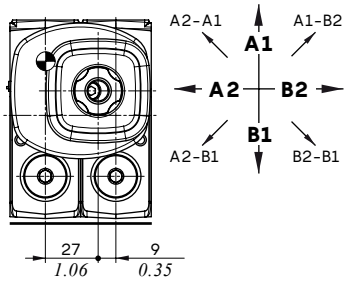


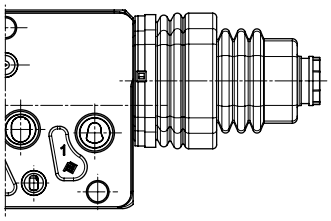




LCA4 configuration

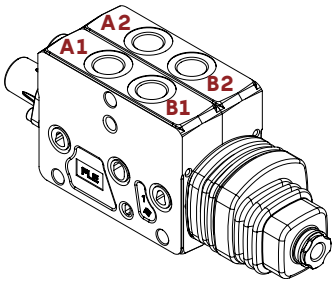



LCA3 configuration



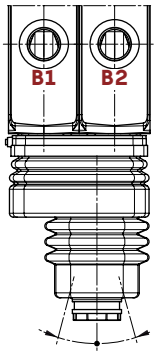




**LCA2 configuration example**

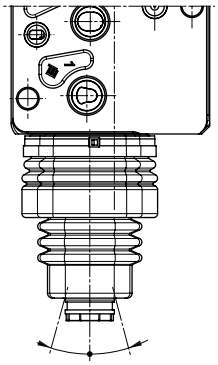



**Working angles**

Horizontal axis




Vertical axis

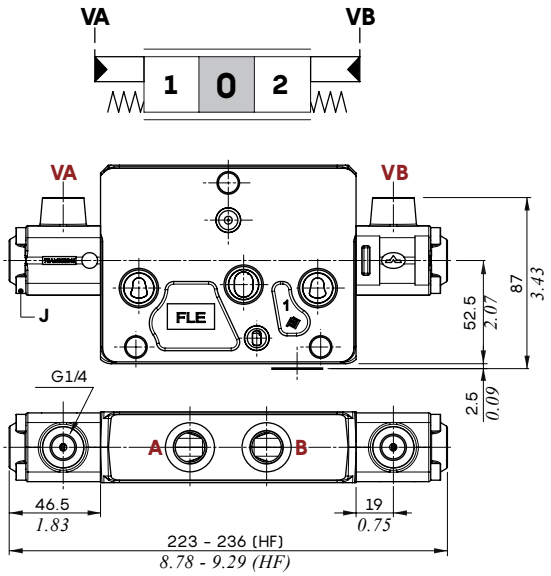


| Max. working angles | Horizontal axis | Vertical axis |
|---|---|---|
| Single action operation | 15°4' | 15°4' |
| Single action operation with floating | 25°2' | 25°2' |
| Two section operation | 15°52' | 15°52' |
| Two section operation with floating | 18°3' | 18°3' |

## Working section

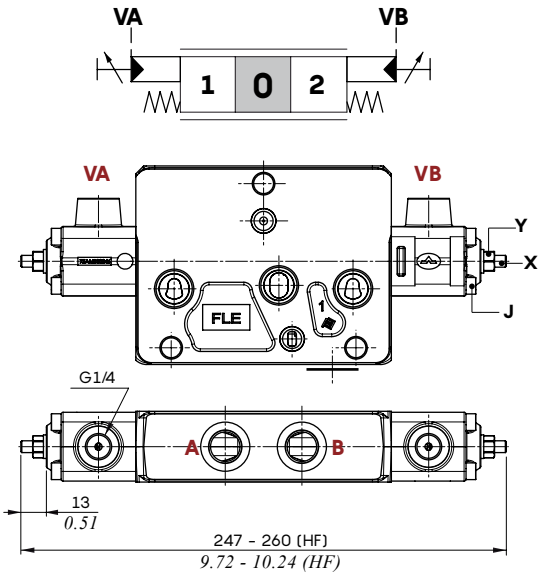
### Proportional hydraulic control

#### Types 8IMN - 8IMXN



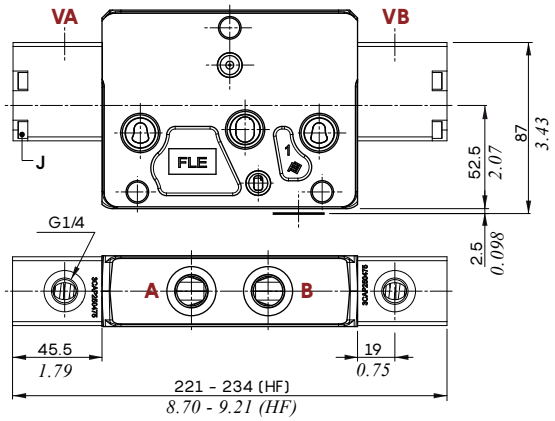

#### Types 8IMF3N - 8IMXF3N

With spool stroke limiter on A and B ports




#### Type 8IMNO

Steel cap configuration



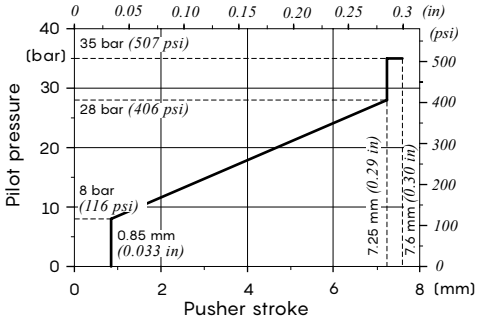

**Wrenches and tightening torques**

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**

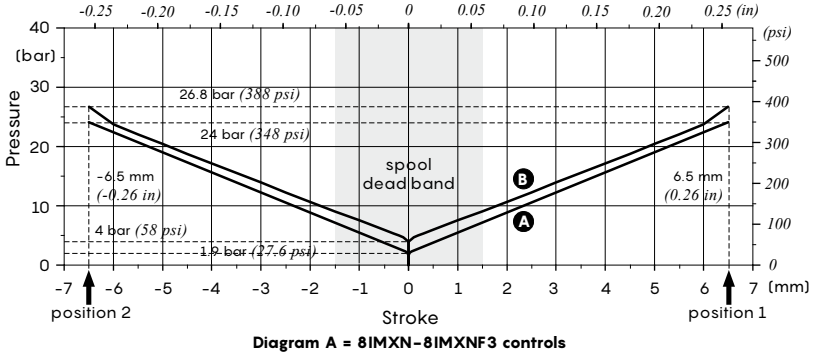
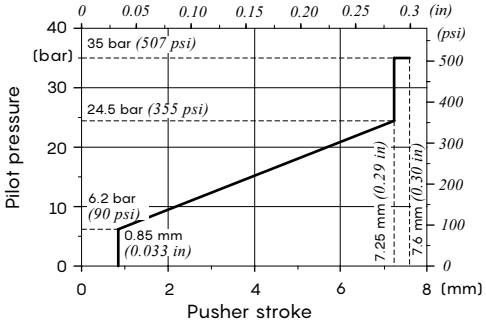



**Diagram A = 8IMXN-8IMXNF3 controls**
**Diagram B = 8IMN-8IMNF3-8IMNO controls**

**Suggested pressure control curve: type 054**

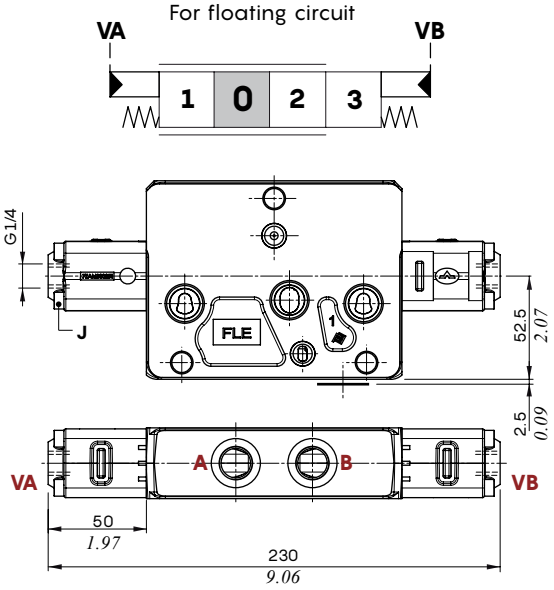


## Proportional hydraulic control

Not available for HF (High Flow) sections.

**Type 13IMS**

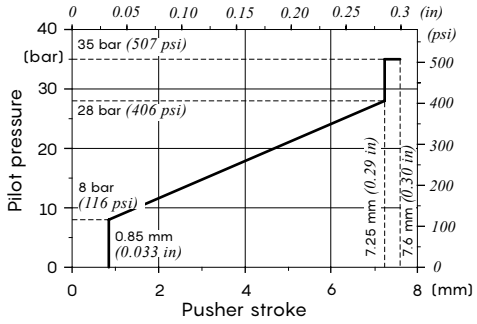
For floating circuit




**Features**

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

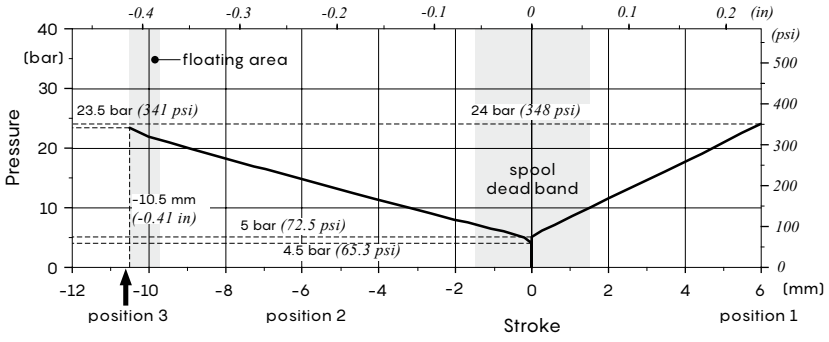
**Suggested pressure control curve: type 089**



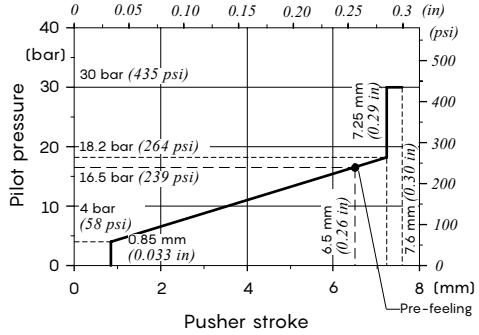

**Wrenches and tightening torques**

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

**Stroke vs. Pressure diagram**




**Suggested pressure control curve on port VB: type 086**

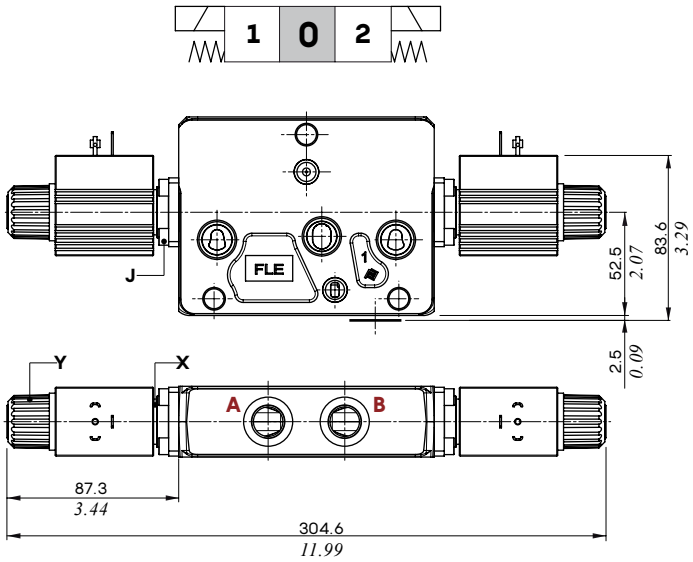


## Working section

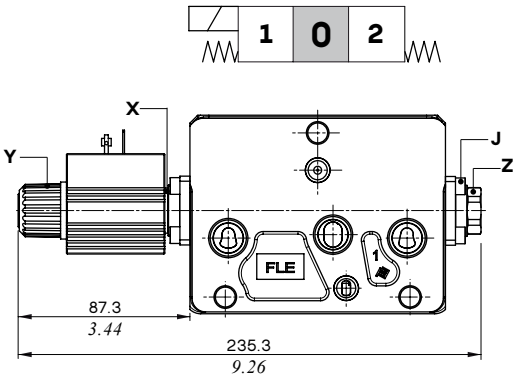
### On/off solenoid control

Not available for HF (High Flow) sections.

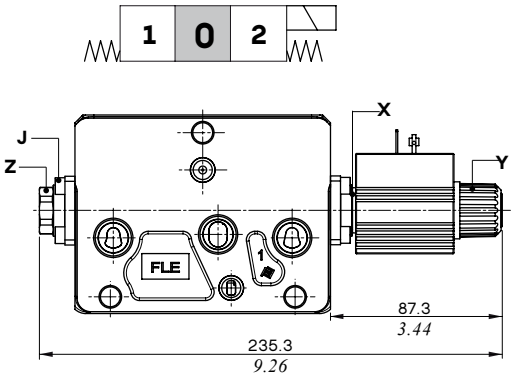
**Type 8ES3**
Double acting




**Type 8ES1**
Single acting in A



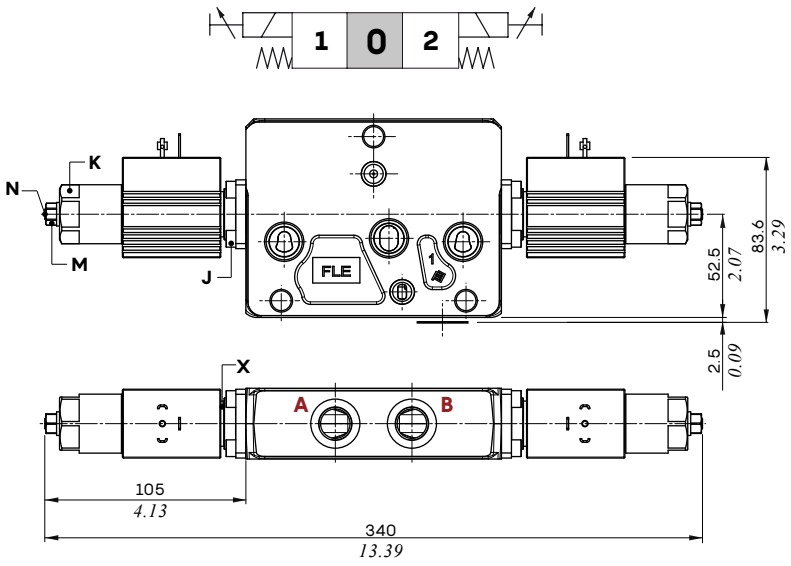

**Type 8ES2**
Single acting in B




**Features**
Max. flow on working ports. : **60 l/min** *(16 US gpm)*
Internal leakage A(B)⇒T . . . . : 15 cm³/min @ 100 bar and 20°C
*(0.92 in³/min @ 1450 psi and 68°F)*

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

**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 performace data

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

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

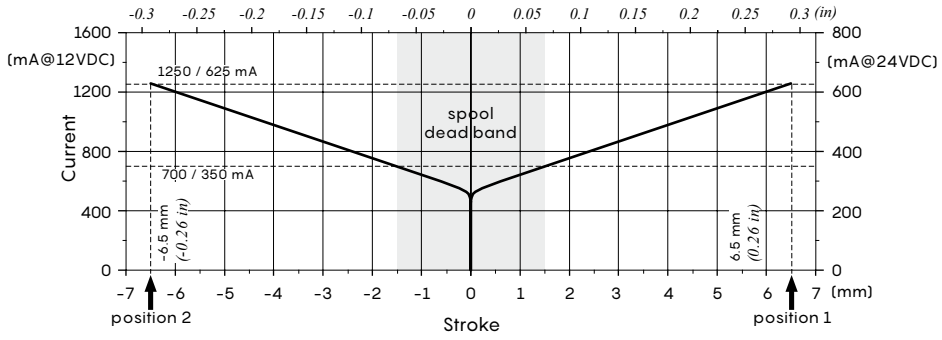
| Specifications | | Spool control type | | | |
|---|---|---|---|---|---|
| | | 8EB3 | 13EB3 | 8EZ3 | 13EZ3 |
| **Electric specifications** | | | | | |
| Coil impedance | 12 VDC | 4.72 Ω | 4.72 Ω | 4.72 Ω | 4.72 Ω |
| | 24 VDC | 20.8 Ω | 20.8 Ω | 20.8 Ω | 20.8 Ω |
| Max. operating current | 12 VDC | 1.5 A | 1.5 A | 1.5 A | 1.5 A |
| | 24 VDC | 0.75 A | 0.75 A | 0.75 A | 0.75 A |
| No load current consumption | | 0 | 0 | 0 | 0 |
| Hysteresis max. (1) | | | | With lever box configured controls | |
| | external drain | 3%<br>5% with lever | 4%<br>7% with lever | 7% | 7% |
| | internal drain | 4%<br>6% with lever | 6%<br>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 insulance | | Class H (180°C - *356°F*) | | Class H (180°C - *356°F*) | |
| Connector type | | AMP JPT - Deutsch DT | | AMP JPT - Deutsch DT | |
| Weather protection (connector) | | IP65 (JPT type) - IP69K (DT type) | | IP65 (JPT type) - IP69K (DT type) | |
| **Hydraulic specifications** | | | | | |
| Max. pressure | | 40 bar *(580 psi)* | | 50 bar *(725 psi)* | |
| Max. back pressure | | 10 bar *(145 psi)* | | 10 bar *(145 psi)* | |

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

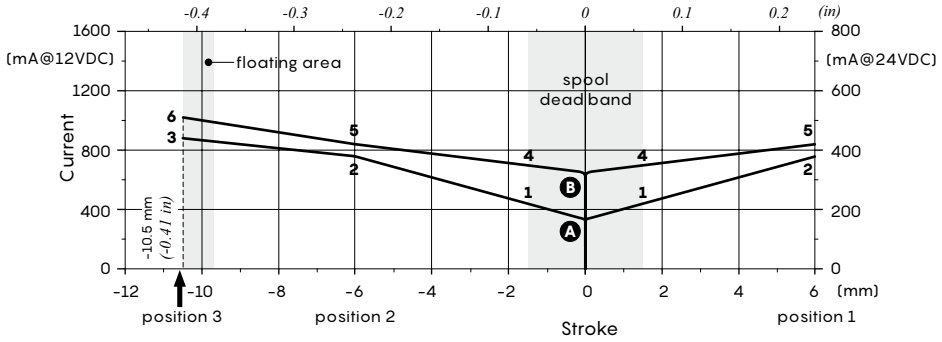
## Working section

### Electrohydraulic control performace data

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




**Types 13EB3T-13EZ3: Stroke vs. Current diagram**




**A curve = 13EB3T control**
**1** = 440 mA a 12 VDC - 220 mA a 24 VDC
**2** = 760 mA a 12 VDC - 380 mA a 24 VDC
**3** = 880 mA a 12 VDC - 440 mA a 24 VDC

**B curve = 13EZ3 control**
**4** = 700 mA a 12 VDC - 350 mA a 24 VDC
**5** = 840 mA a 12 VDC - 420 mA a 24 VDC
**6** = 1020 mA a 12 VDC - 510 mA a 24 VDC

## Electrohydraulic controls: spool position sensor

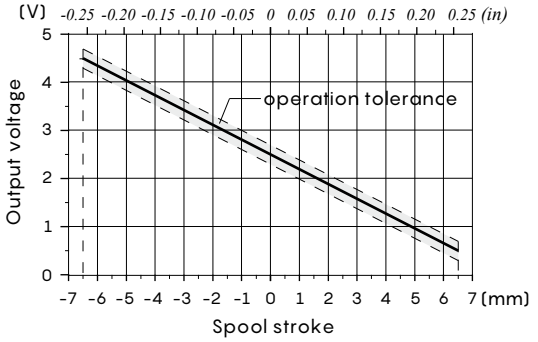
The sensor can be ordered exclusively through the electrohydraulic EB and EZ type controls; see pages 70-71-103 for available control -list.

### SPSL sensor

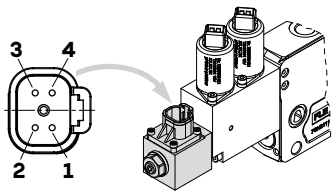
The SPSL position sensor converts the spool movements into a voltage linear signal.

| Working conditions | | |
|---|---|---|
| Voltage supply | | 5 VDC |
| Current absorption | | < 10 mA (no load) |
| Mechanical life | | 3x10⁶ |
| 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 |



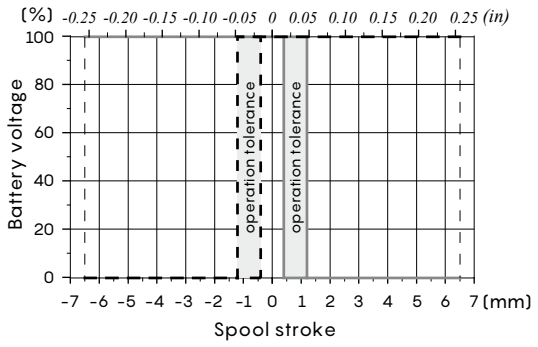

Deutsch DT06-4S mating connector, code 5CON140072

### SPSD sensor

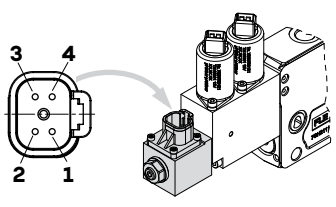
The SPSD position sensor converts the spool movements into an electric digital signal.

| Working conditions | | |
|---|---|---|
| Voltage supply | | from 9 to 32 VDC |
| Current absorption | | < 10 mA (no load) |
| Mechanical life | | 3x10⁶ |
| 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 |

**SPSD sensor output signal**




| Deutsch DT04-4P connector | |
|---|---|
| **Pin** | **Function** |
| **1** | Out A |
| **2** | GND |
| **3** | VB + |
| **4** | Out B |




Deutsch DT06-4S mating connector, code 5CON140072

## Working section

### Two-side electrohydraulic control

**Control types**

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

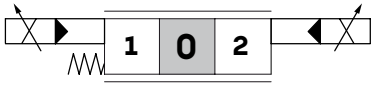
2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

**13EB3 type controls are not available for HF sections.**

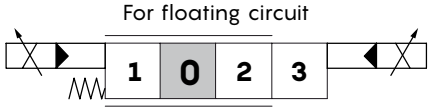
**Wrenches and tightening torques**

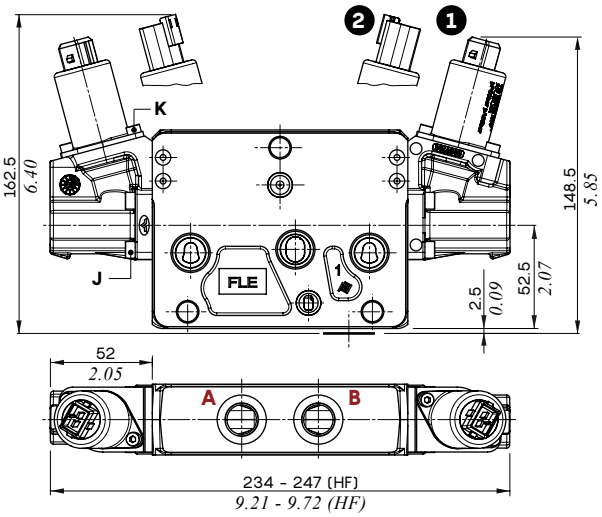
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
H = allen wrench 3 - 6.6 Nm *(4.9 lbft)*
K = allen wrench 3 - 5 Nm *(3.7 lbft)*
Z = wrench 29 - 24 Nm *(17.7 lbft)*
W = wrench 8
X = allen wrench 3
Y = wrench 10 - 9.8 Nm *(7.2 lbft)*

**Types 8EB3T - 8EB34T**
Without lever control

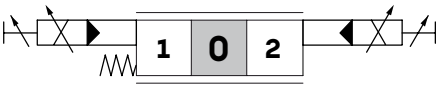


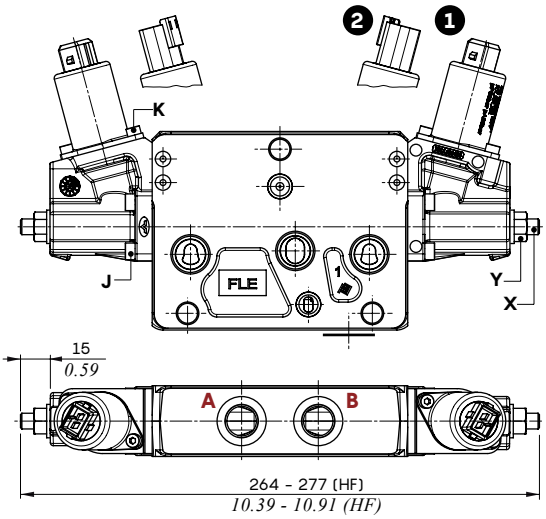

**Types 13EB3T - 13EB34T**
For floating circuit

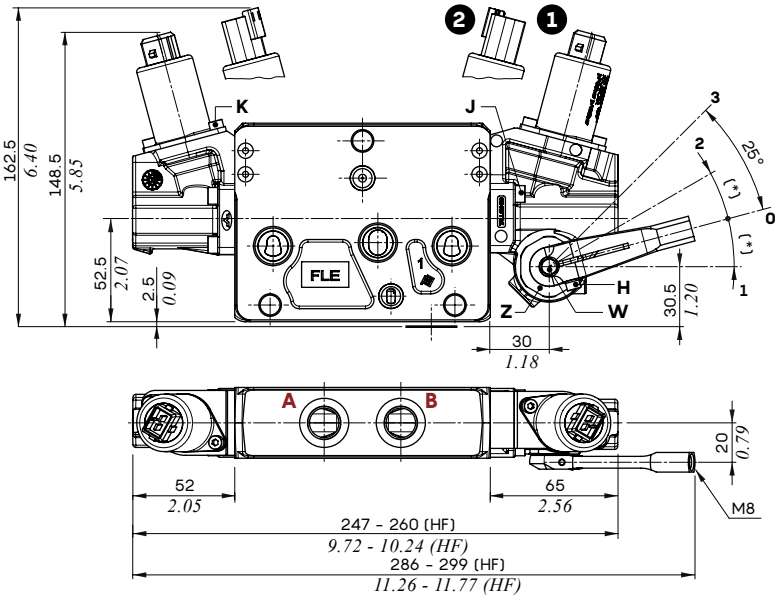


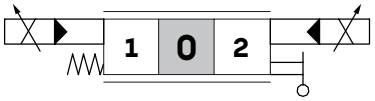

**Types 8EB3TF3 - 8EB34TF3**
With spool stroke limiter



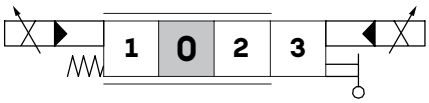




**Types 8EB3TLH - 8EB34TLH**
Lever control




**Types 13EB3TLH - 13EB34TLH**
For floating circuit




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

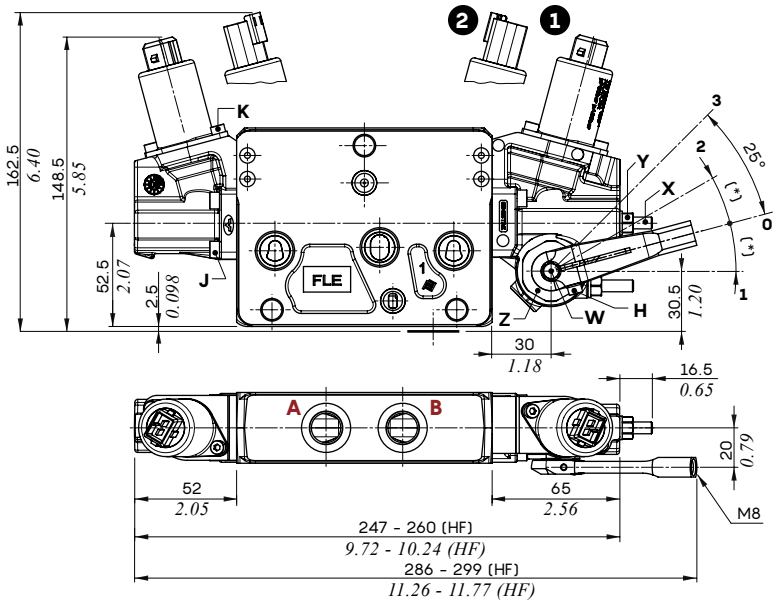
## Two-side electrohydraulic control

**Control types**

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

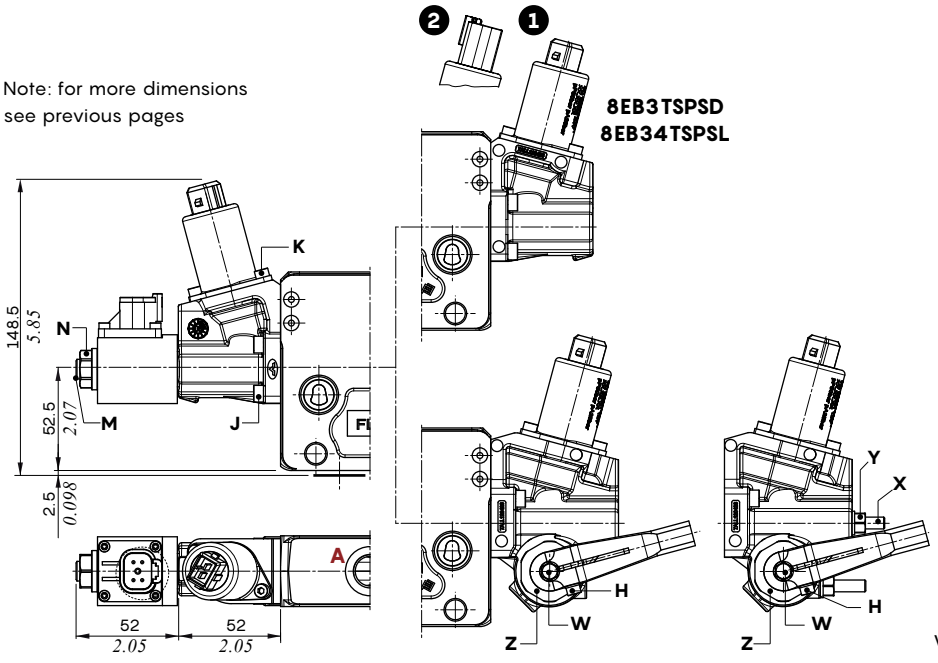
❷: With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

**13EB3 type controls are not available for HF sections.**

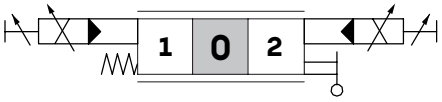



Angle (*): 15° with 8EB3.. type controls; 14° with 13EB3.. type controls

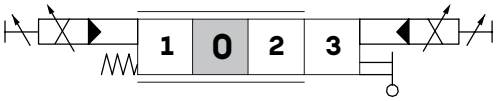
Note: for more dimensions see previous pages




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



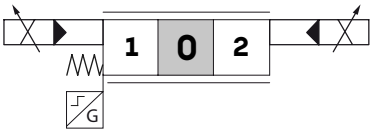

**Types 13EB3TLHF3 - 13EB34TLHF3**
For floating circuit



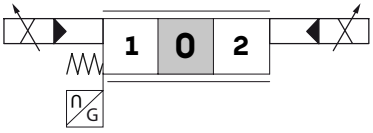

**Wrenches and tightening torques**

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 lbf)*
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

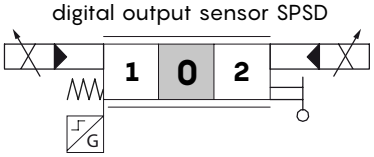
**Type 8EB3TSPSD**
Without lever control and digital output sensor SPSD



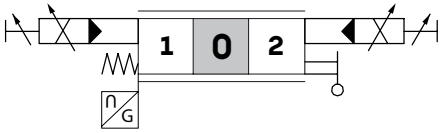

**Type 8EB34TSPSL**
Without lever control and analog output sensor SPSL




**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

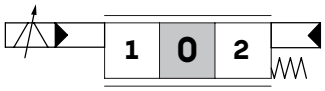
### One-side electrohydraulic control: "A" side

**Control types**

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

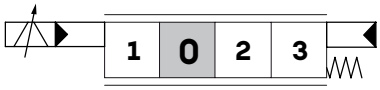
2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

**Types 8EZ3 - 8EZ34**



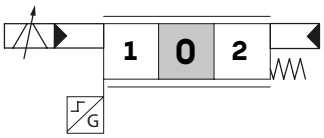

**Types 13EZ3 - 13EZ34**

For floating circuit



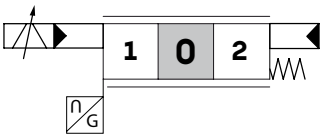

**Tipi 8EZ3SPSD - 8EZ34SPSD**

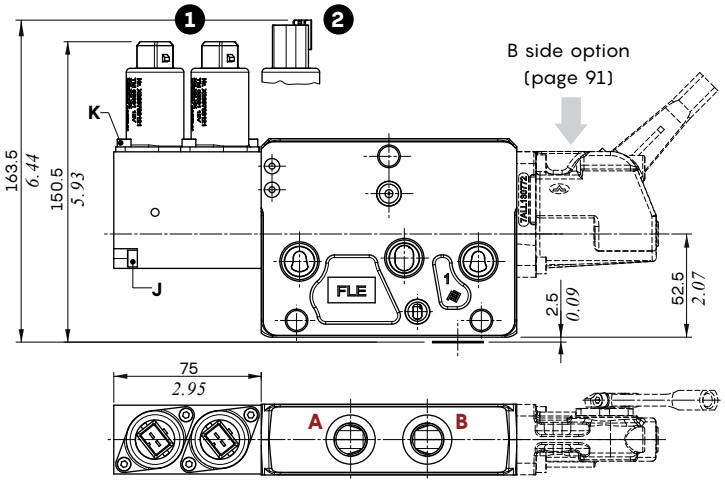
Digital output sensor SPSD

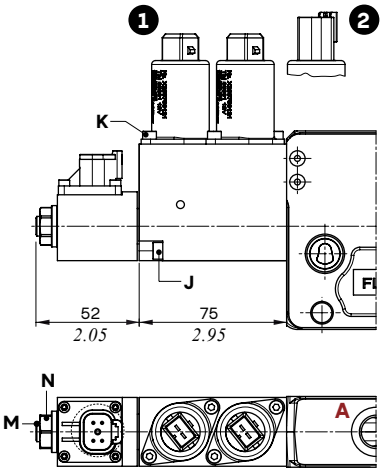



**Tipo 8EZ34SPSL**

Analog output sensor SPSL

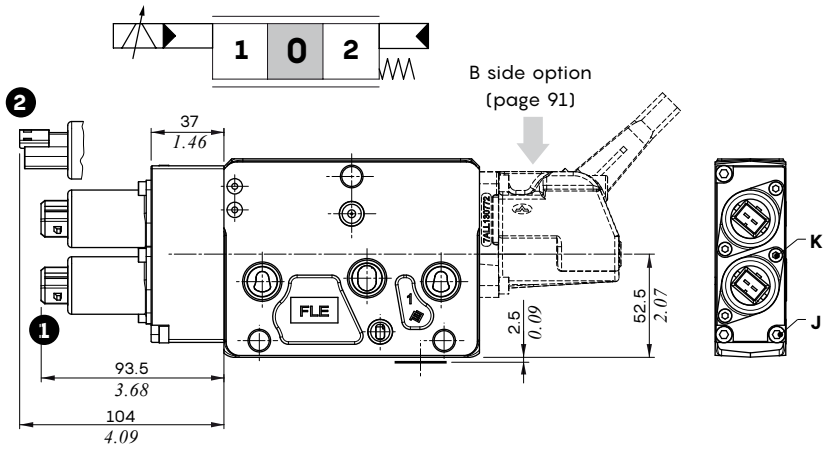



**Types 8EZH3 - 8EZH34**

With horizontal pressure reducing valves




**Wrenches and tightening torques**

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

K = allen wrench 3 - 5 Nm *(3.7 lbft)*

M = allen wrench 4 - 9.8 Nm *(7.2 lbft)*

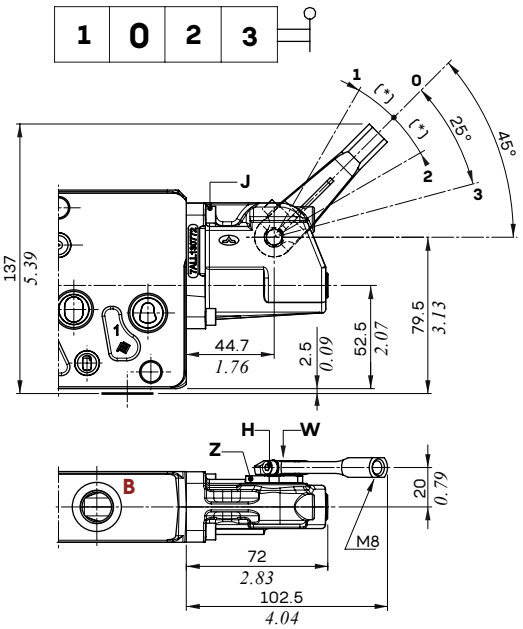
N = wrench 17 - 9.8 Nm *(7.2 lbft)*

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

These options are available for one-side electyrohydraulic controls only

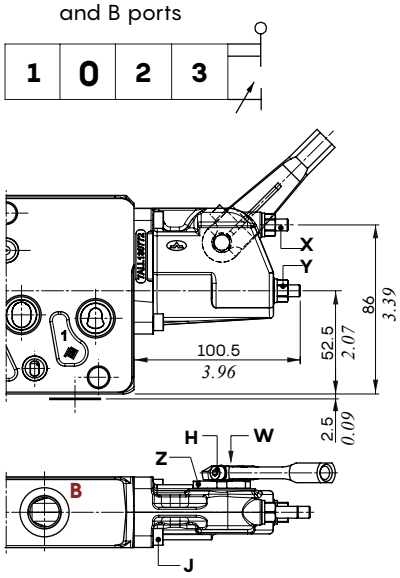
### Type LQ

Lever box




### Type LQF3

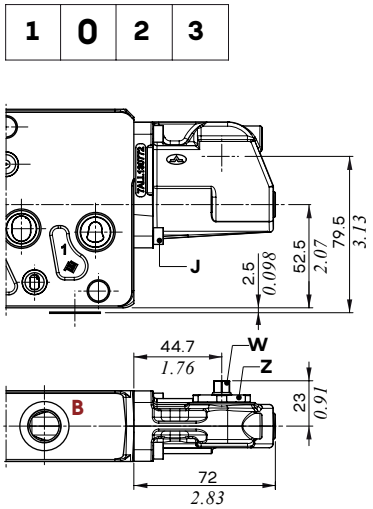
Spool stroke limiter on A and B ports




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

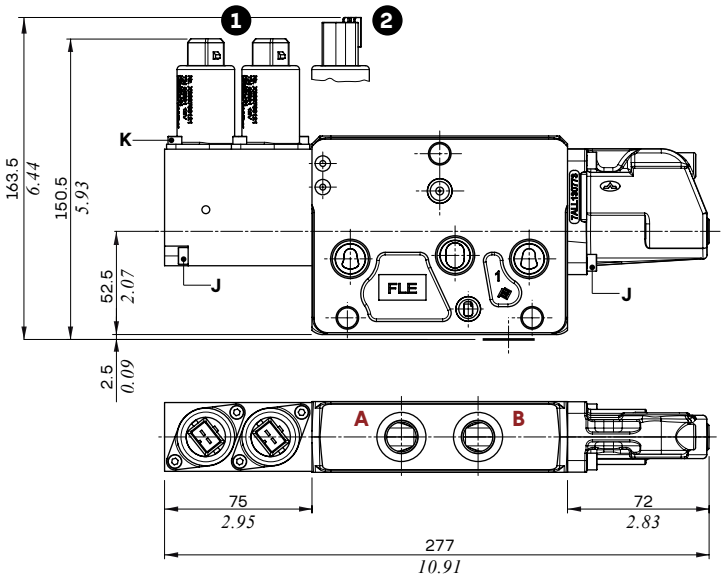
### Complete one-side electrohydraulic control

Controls already comprehensive of endcap on B side.

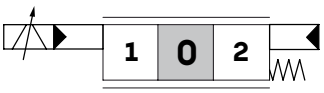
**Control types**

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

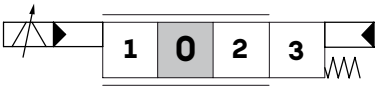
2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031

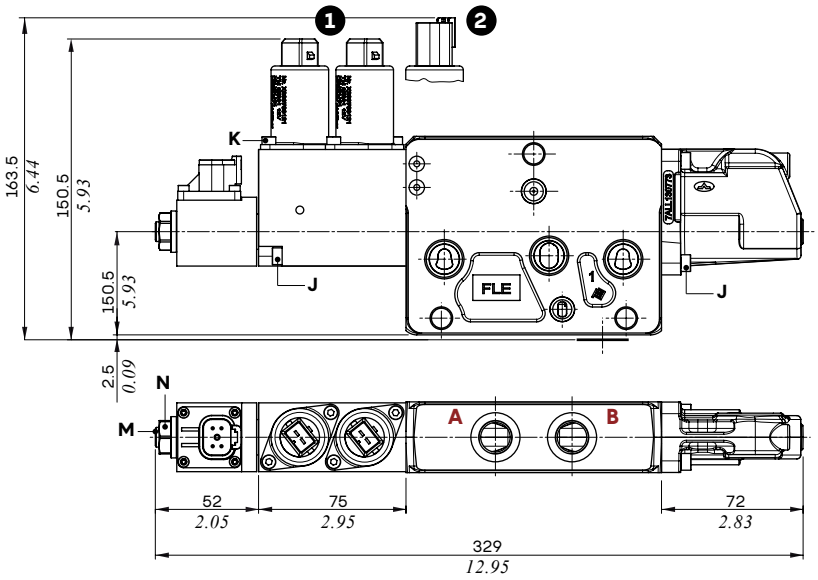



**Types**
**8EZ3SLCQ - 8EZ34SLCQ**
Without lever control

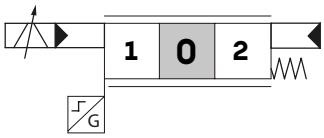



**Types**
**13EZ3SLCQ - 13EZ34SLCQ**
For floating circuit

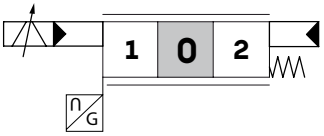



**Types**
**8EZ3SPSDSLCQ - 8EZ34SPSDSLCQ**
Digital output sensor SPSD




**Type 8EZ34SPSLSLCQ**
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)*

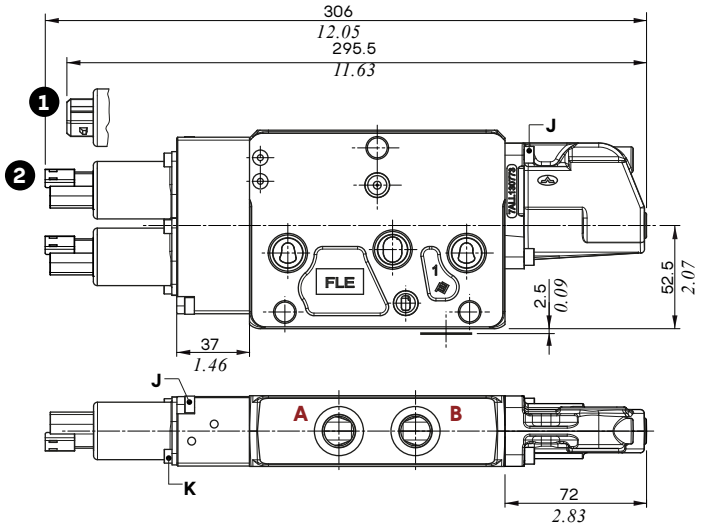
## Complete one-side electrohydraulic control

Controls already comprehensive of endcap on B side.

**Control types**

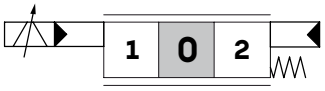
1 : With AMP JPT connector - AMP JPT mating connector, code: 5CON003

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




**Type 8EZH34SLCQ**

With horizontal pressure reducing valves




**Wrenches and tightening torques**

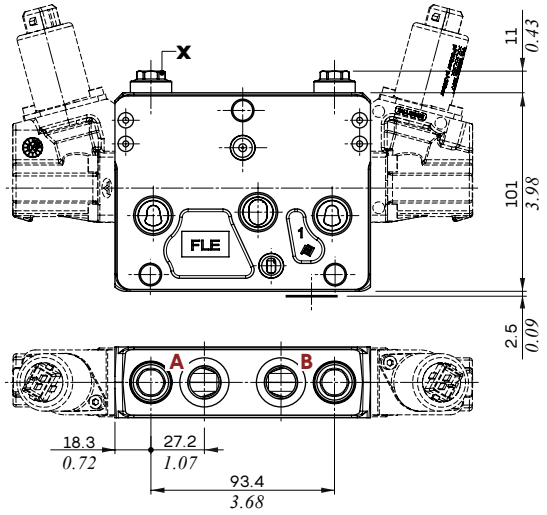
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

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**



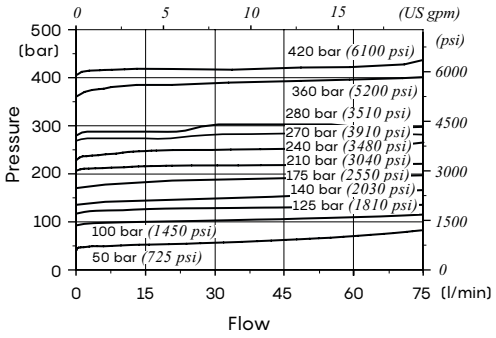
**Type C valve:**
**anticavitation**



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

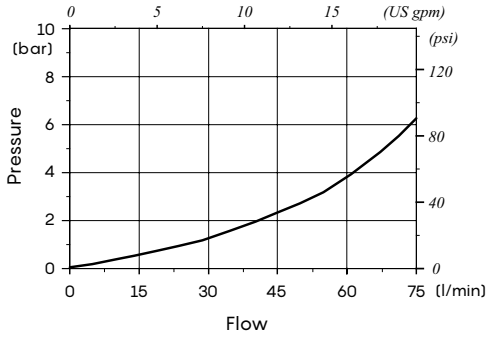
**Type U: antishock valves with prefill**

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

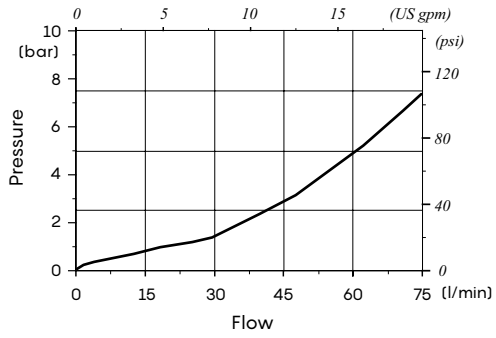



**Type C: anticavitation valves**

**Pressure drop**




**Pressure drop**
(in anticavitation)



## Outlet section part ordering codes

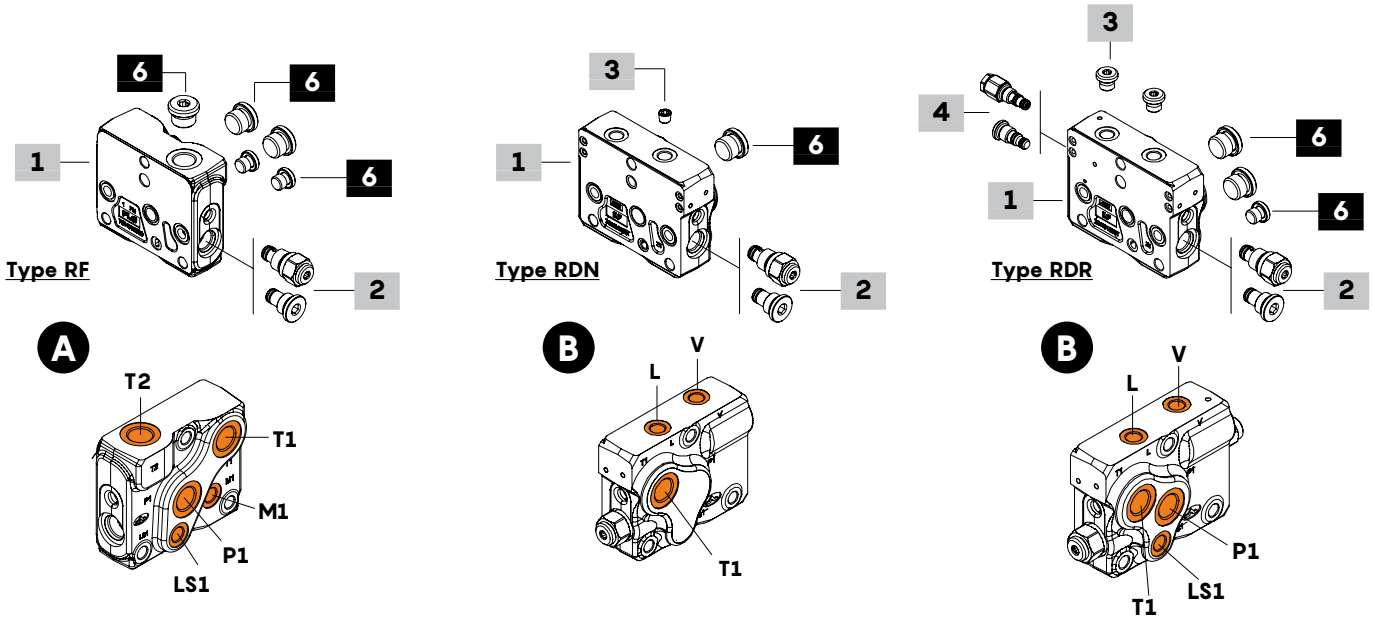
**A** **For mechanical, proportional hydraulic and solenoid controls configuration:**

DPX100 / RF (04) - .....
1 1 5

**B** **For electrohydraulic control configuration:**

DPX100 / RDN (VBT) - NOTAP(VL) - .....
1 2 3

DPX100 / RDR (VBT \ 03 \ RT) - TAP(VL) - .....
1 2 1 4 3




### 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** CODE: YFIA204300S
DESCRIPTION: With T2 upper port
TYPE: **DPX100/RF-BSP34** CODE: YFIA204400S
DESCRIPTION: As previous one with G3/4 port
TYPE: **DPX100/RF(04)** CODE: YFIA204305S
DESCRIPTION: With T2 upper port and P1, T1, LS1, M1 side ports

**For electrohydraulic controls**

TYPE: **DPX100/RDN** CODE: YFIA204391S
DESCRIPTION: Without pressure reducing valve arrangement, T1 side and V-L upper ports
TYPE: **DPX100/RDN-BSP34** CODE: YFIA204491S
DESCRIPTION: As previous one with G3/4 T1 port
TYPE: **DPX100/RDR** CODE: YFIA204307S
DESCRIPTION: With pressure reducing valve arrangement, V and L upper ports, T1 side port
TYPE: **DPX100/RDR(03)** CODE: YFIA204302S
DESCRIPTION: With pressure reducing valve arrangement, V and L upper ports, P1, T1, LS1 side ports
TYPE: **DPX100/RDR(03)-BSP34** CODE: YFIA204403S
DESCRIPTION: As previous one with G3/4 P and T ports

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

### 2 Bleed valve page 97

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

### 3 Pilot and drain *

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **NOTAP(VL)** | 4TAP310007 | M10x1 DIN906 plug, for external drain |
| **-** | 3XTAP719150 | G1/4 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 *

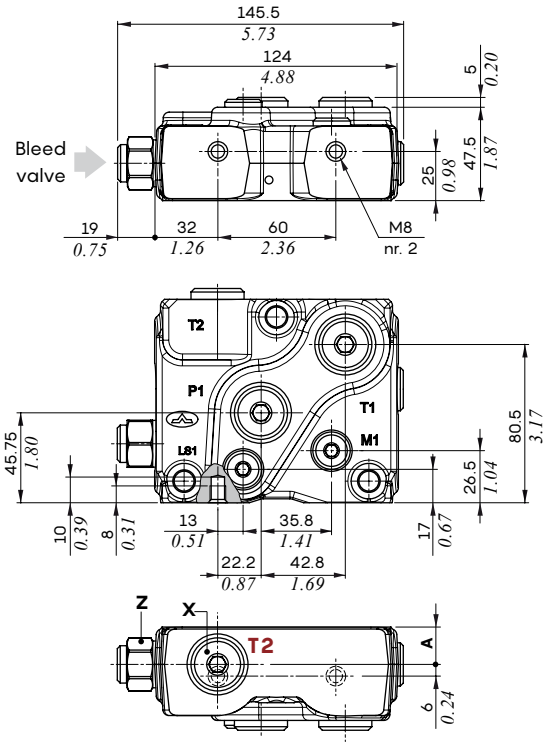
| CODE | DESCRIPTION |
|---|---|
| 3XTAP727180 | G1/2 plug, nr.1 for RF and RDN section, nr.2 for RDR(03) section, nr.3 for RF(04) section |
| 3XTAP732200 | G3/4 plug, for qty see G1/2 plug |
| 3XTAP719150 | G1/4 plug, nr.1 for RDR(03) section, nr.2 for RF(04) section |

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

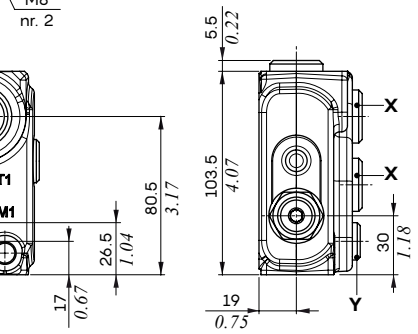
## Outlet section

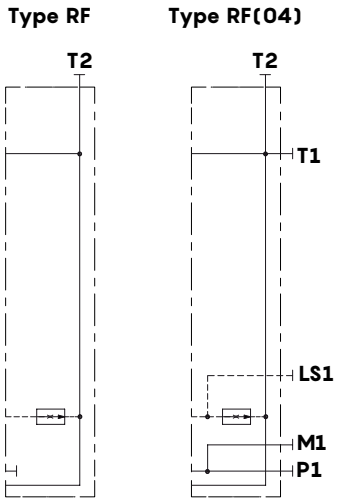
### Dimensions and hydraulic circuit

#### Example of RF(04) outlet section



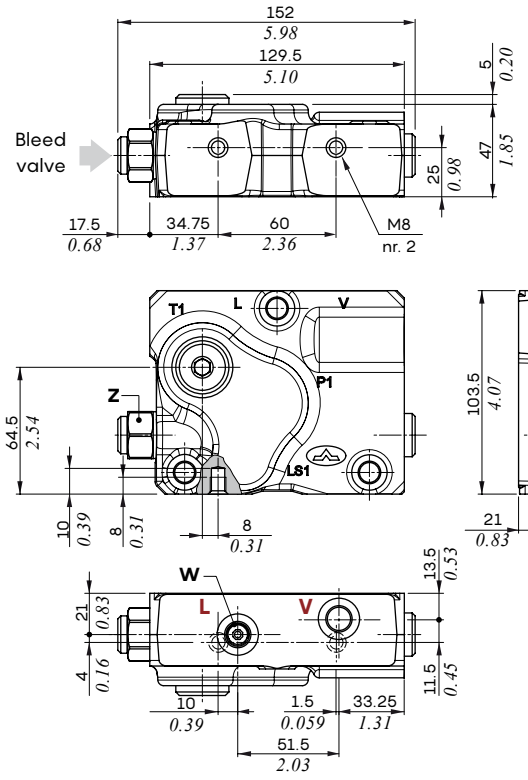

**Wrenches and tightening torques**
X = allen wrench 8 - 24 Nm *(17.7 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*
Z = wrench 24 - 42 Nm *(31 lbft)*

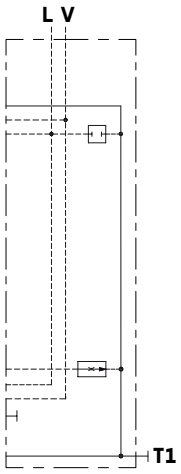



| OUTLET SECTION TYPE | A | |
|---|---|---|
| | mm | *in* |
| **T2 standard thread** | 19 | *0.75* |
| **T2 with G3/4 thread** | 23 | *0.91* |

#### Example of RDN outlet section

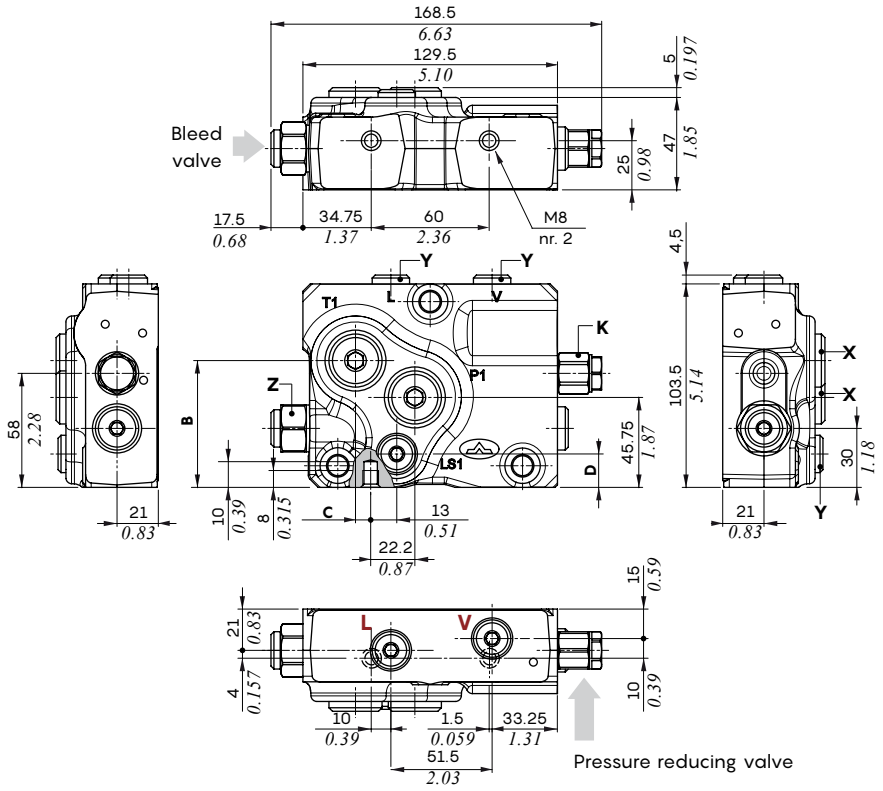


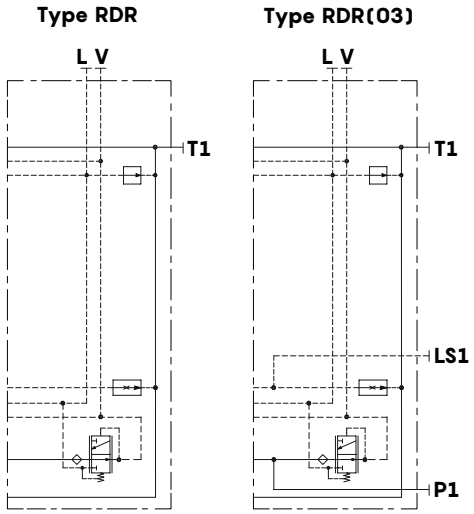




**Wrenches and tightening torques**
X = allen wrench 8 - 24 Nm *(17.7 lbft)* - (G1/2)
= allen wrench 12 - 42 Nm *(31 lbft)* - (G3/4)
Z = wrench 24 - 42 Nm *(31 lbft)*
W = allen wrench 5 - 9.8 Nm *(7.2 lbft)*

## Dimensions and hydraulic circuit

### Example of RDR(03) outlet section




| OUTLET SECTION TYPE | B | | C | | D | |
|---|---|---|---|---|---|---|
| | mm | *in* | mm | *in* | mm | *in* |
| **T1 standard thread** | 64.5 | *2.54* | 8 | *0.31* | 17 | *0.67* |
| **T1 with G3/4 thread** | 65.5 | *2.58* | 9 | *0.35* | 16 | *0.63* |

**Bleed valve features**

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

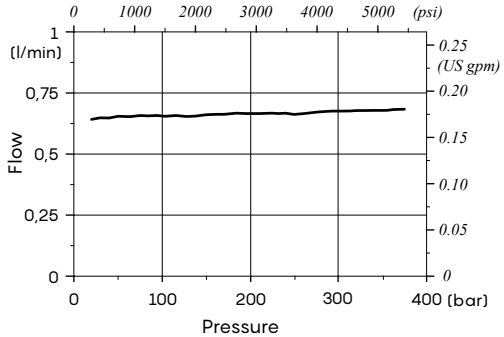
**Pressure reducing valve features**

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

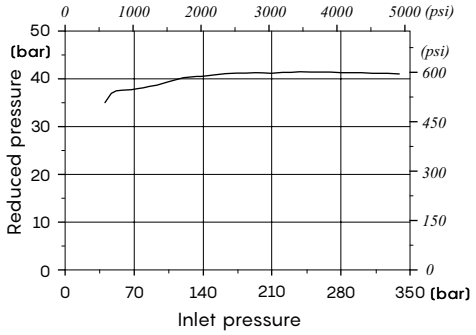
**Wrenches and tightening torques**

K = wrench 19 - 24 Nm *(17.7 lbft)*
X = allen wrench 8 - 24 Nm *(17.7 lbft)* - (G1/2)
= allen wrench 12 - 42 Nm *(31 lbft)* - (G3/4)
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-.....-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/

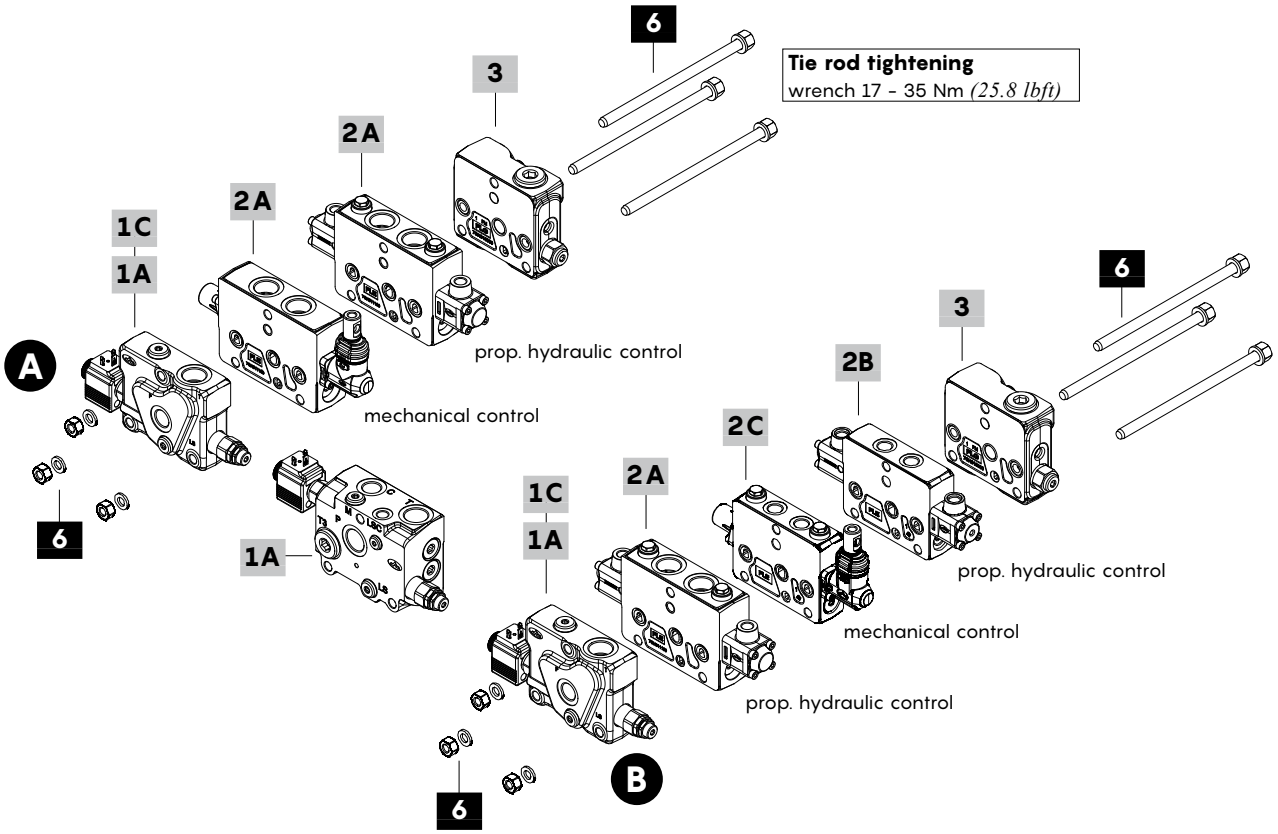
1A 1C 2A 2C

**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-.....-12VDC

2B 3 4 5



## HF complete section ordering codes

### 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-.....-12VDC**

3 4 5

### B Electrohydraulic controls in mixed configuration:

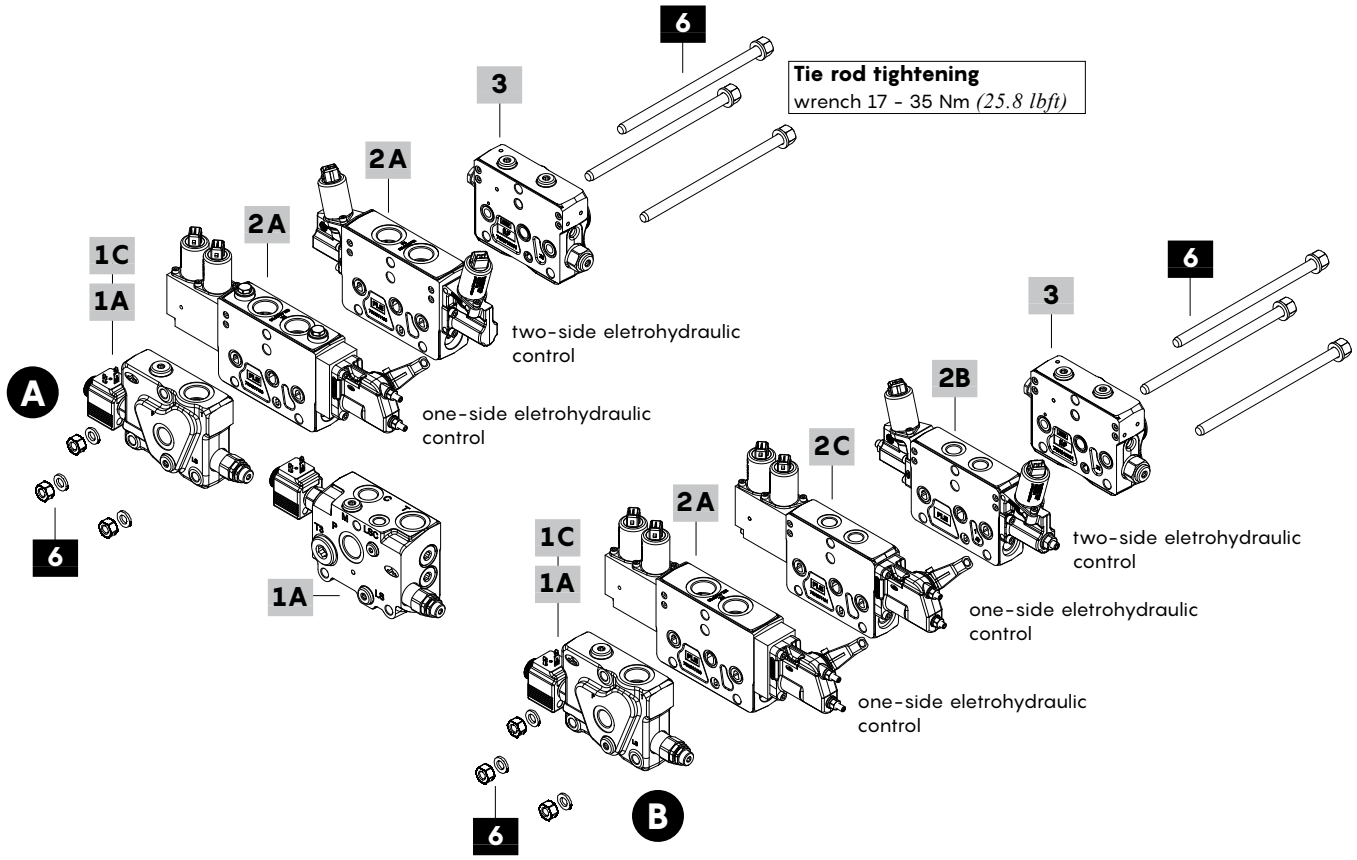
**DPX100/3/AM1(TGW3-175\ELN)/HF-QZ-E101(100\100)-8EZ3LQF3/HP-PZ-E101(80\80)-EZ3LQF3/**

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-.....-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)-BSP34-12VDC**
CODE: 640204007S
DESCRIPTION: For Standard Pressure. With compensator, pressure relief valve and unloader valve, with P-T-LS ports (LS plugged), G3/4 P and T ports
TYPE: **DPX100/APF4\TGW3-175\VP-D(1.2)-SB10-Q40-BSP34**
CODE: 640203303S
DESCRIPTION: For Standard Pressure. **Designed for steering**, compensator, priority and pressure relief valves, with P-T-T3-LS-M-C-LSC ports (T-M-LS plugged), P-T with G3/4 and C with G1/2 thread. Needs special tie rods
**Closed Center circuit**
TYPE: **DPX100/AN1(TGW3-175\ELN)-BSP34-12VDC**
CODE: 640204008S
DESCRIPTION: For Standard Pressure. Without compensator, with press. relief valve and unloader valve, with P-T-LS ports, G3/4 P and T ports.
TYPE: **DPX100/APFS4\TGW4-270\VR5-VP-D(1.2)-SB10-Q40\SB25-LSF(NOFC)\ESO22N4-BSP34(PT)12(C)14(LSLSC)-12VDC**
CODE: 640203304S
DESCRIPTION: For Standard Pressure. **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), P-T with G3/4 and C with G1/2 thread. Richiede tiranti speciali. Needs special tie rods

### 1C High Pressure inlet section *

**Open Center circuit**
TYPE: **DPX100HP/AM1(TGW5-350/ELN)-BSP34-12VDC**
CODE: 640204011S
DESCRIPTION: As previous one with G3/4 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-FPM**
CODE: 640113026V
DESCRIPTION: Lever control without port valve arrangement
TYPE: **DPX100HF/P-101(120\120)-8L.U3T-FPM**
CODE: 640103039V
DESCRIPTION: As previous one with port valve arrangement
**Proportional hydraulic control**
TYPE: **DPX100HF/Q-E101(120\120)-8IMN-FPM**
CODE: 640113027V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100HF/P-E101(120\120)-8IMN.U3(100)**
CODE: 640103040S
DESCRIPTION: With antishock port valves
**Two-side proportional electrohydraulic control**
TYPE: **DPX100HF/QE-E101(120\120)-8EB3TF3-12VDC-FPM**
CODE: 640113028V
DESCRIPTION: With stroke limiter, without port valve arrangement
TYPE: **DPX100HF/PE-E101(120/120)-8EB3TF3.U3T-12VDC-FPM**
CODE: 640103041V
DESCRIPTION: As previous one with port valve arrangement
**One-side proportional electrohydraulic control**
TYPE: **DPX100/QZ-E101(120\120)-8EZ34SLCQ-12VDC-FPM**
CODE: 640103046V
DESCRIPTION: With encap on B side, without port valve arrangement
TYPE: **DPX100HF/PZ-E101(120\120)-8EZ34LQF3.U3T-12VDC-FPM**
CODE: 640103045V
DESCRIPTION: With spool stroke limiter, with port valve arrangement

### 2B Standard Pressure working section *

Pressure Standard working sections can be assembled in all cataloue 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-BSP34**
CODE: 640304003S
DESCRIPTION: With bleed valve and upper G3/4 T2 port (plugged)
**For electrohydraulic or mixed configuration**
TYPE: **DPX100/RDN-NOTAP(VL)-BSP34**
CODE: 640304001S
DESCRIPTION: Without pressure reducing valve, external pilot and drain (V-L ports), with Bleed valve and side G3/4 T1 port (plugged).
TYPE: **DPX100/RDR(03)-BSP34**
CODE: 640304005S
DESCRIPTION: With pressure reducing valve and Bleed valve, internal pilot and drain (V-L plugged ports), side T1-P1-LS1 ports (plugged), G3/4 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 **BSP** thread.

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

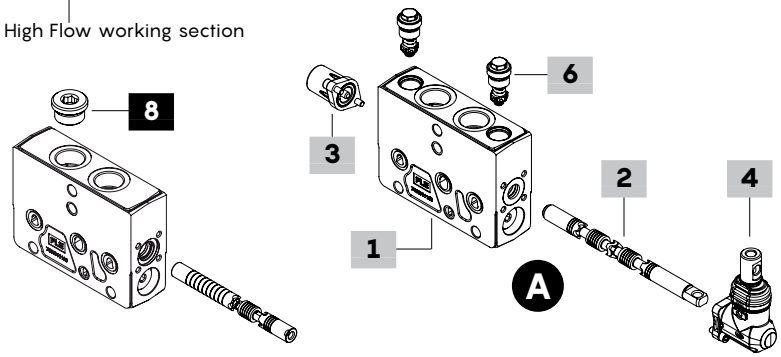
### A Mechanical control configuration:

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

**DPX100HF / P – 101(80\80) – 8 L . U1(100) U2(120) – .....**

1 2 3 4 6 7

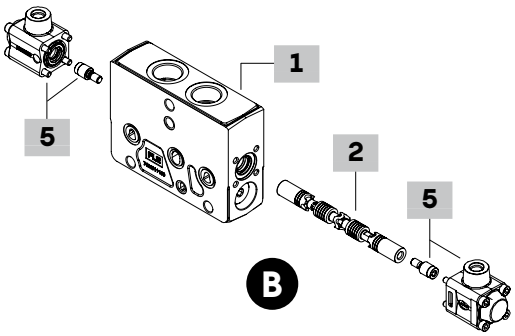
High Flow working section




### B Prop. hydraulic control configuration:

**DPX100HF / Q – E101(120\120) – 8IMN – .....**

1 2 5 7




### 1 High Flow working section * page 104

**For mechanical control**

TYPE: **DPX100HF/Q-FPM** CODE: 5EL1043F10V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100HF/P-FPM** CODE: 5EL1043F00V
DESCRIPTION: With port valve arrangement

**For proportional hydraulic control**

TYPE: **DPX100HF/Q-IM-FPM** CODE: 5EL1043F10AV
DESCRIPTION: With port valve arrangement
TYPE: **DPX100HF/P-IM-FPM** CODE: 5EL1043F00AV
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: G3/4 plug is required | | |
| **E301-E401(120)** | 3CU7731F01 | 120 l/min *(32 US gpm)* flow |

### 8 Plug for single acting spool *

| CODE | DESCRIPTION |
|---|---|
| 3XTAP732200 | G3/4 plug |

NOTE (*): Codes are referred to **BSP** 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 postions 1 and 2 |
| **8PP** | 5V08107700 | Proportional pneumatic control |
| **8PNB** | 5V08107718 | On/off waterproof pneumatic control |
| **8EPNB3-12VDC** | 5V08107742 | On/off electropneumatic control |
| **8EPNB3-24VDC** | 5V08107743 | 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** | 5IDR204304V | Range 8-27 bar *(116-392 psi)* |
| **8IMF3N** | 5IDR204314V | As previous one with spool stroke limiter |
| **8IMXN** | 5IDR204303V | Range 7.5-24 bar *(109-348 psi)* |
| **8IMXF3N** | 5IDR204313V | As previous one with spool stroke limiter |
| **8IMNO** | 5IDR204305V | As 8IMN type, steel cap configuration |

### 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 - ..... - 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

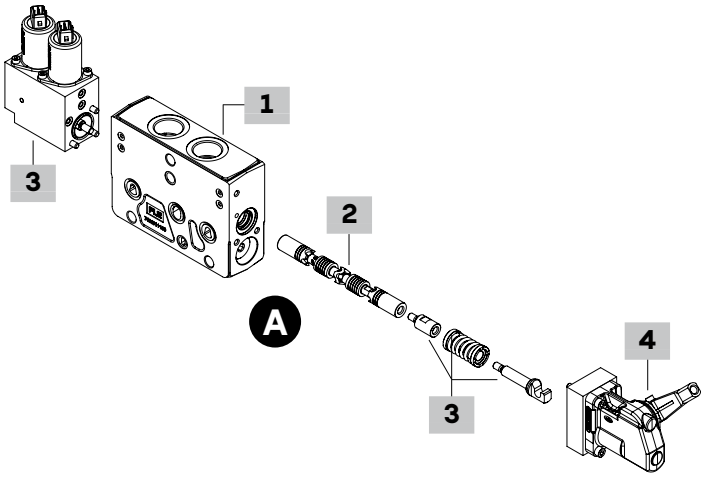
DPX100HF / PZ - E101(120\120) - 8EZ3SLCQ . U1(100) U2(120) - ..... - 12VDC

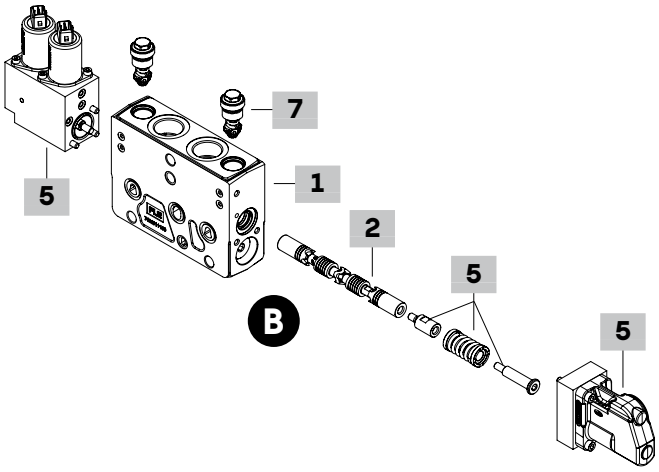
1 2 5 7 8 5

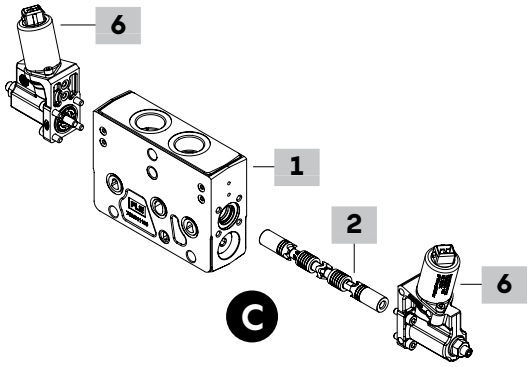
### C Two-side electrohydraulic control configuration:

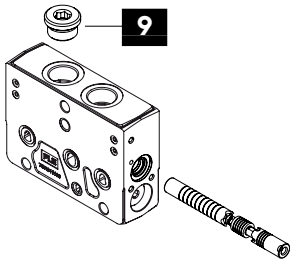
DPX100HF / QE - E101(120\120) - 8EB3TF3 - ..... - 12VDC

1 2 6 8 6



# HF working section part ordering codes (electrohydraulic)

## 1 High Flow working section * page 104

**For two-side electrohydraulic control**

TYPE: **DPX100HF/QE-FPM** CODE: 5EL1043F11V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100HF/PE-FPM** CODE: 5EL1043F02V
DESCRIPTION: With port valve arrangement

**For one-side electrohydraulic control**

TYPE: **DPX100HF/QZ-FPM** CODE: 5EL1043F22V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX100HF/PZ-FPM** CODE: 5EL1043F06V
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: G3/4 plug is required | | |
| **E301-E401(120)** | 3CU7731F01 | 120 l/min *(32 US gpm)* flow |

## 3 One-side electrohydr.control; "A" side page 107

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **8EZ3-12VDC** | 5IDR604314V | With AMP connector |
| **8EZ3-24VDC** | 5IDR604313V | As previous one |
| **8EZ34-12VDC** | 5IDR604315V | With Deutsch connector |
| **8EZ34-24VDC** | 5IDR604316V | As previous 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 |
|---|---|
| 3XTAP732200 | G3/4 plug |

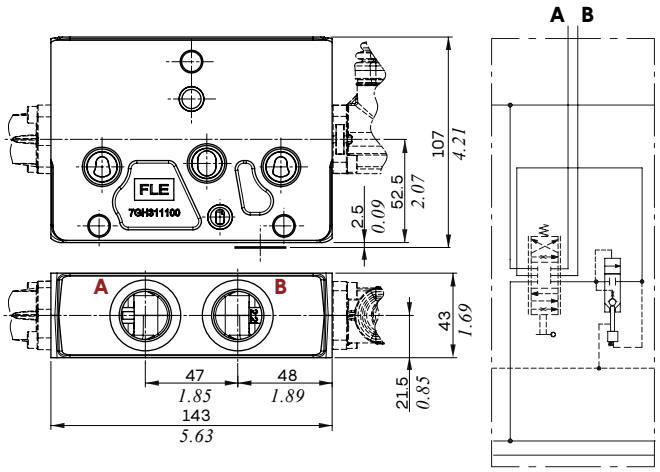
NOTE (*): Codes are referred to **BSP** thread.

## HF working section

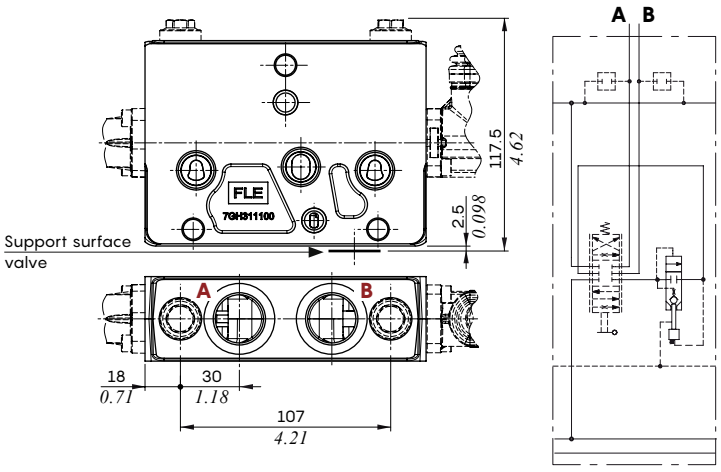
### Dimensions and hydraulic circuit

#### Section for mechanical and proportional hydraulic controls

**Type Q**
(G3/4 ports)

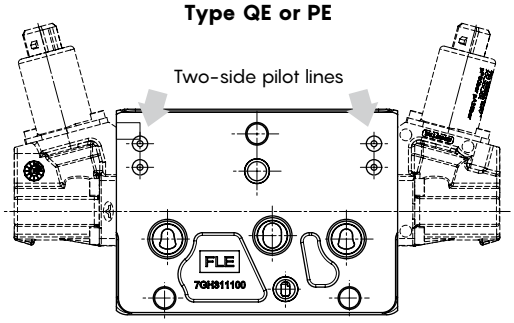



**Type P**
(G3/4 ports)

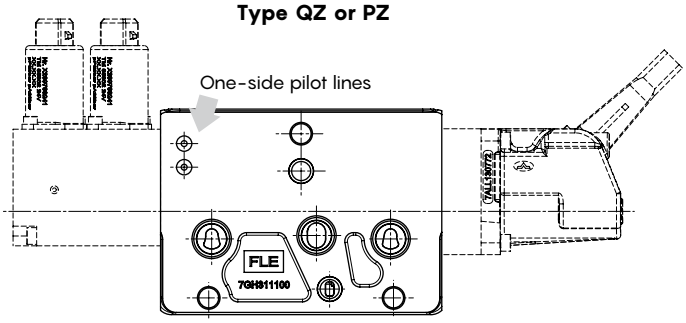



#### Section for electrohydraulic control

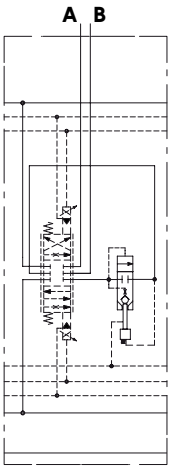
**Type QE or PE**



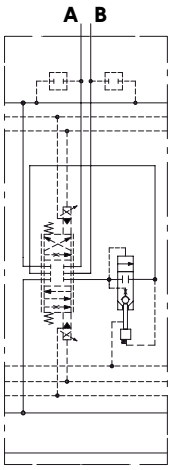

**Type QZ or PZ**



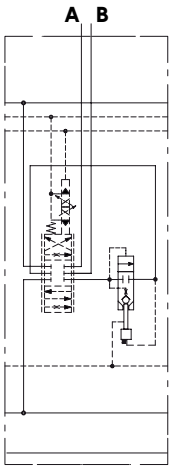

**Type QE**



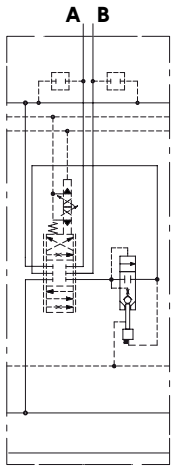

**Type PE**




**Type QZ**



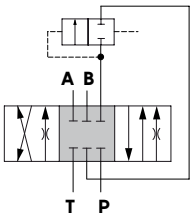

**Type PZ**



## Spool

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

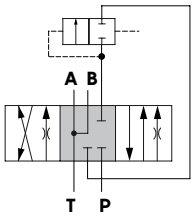
1 0 2




**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

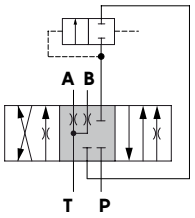
1 0 2




**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.

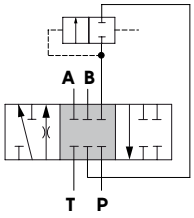
1 0 2




**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

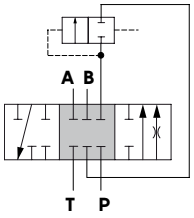
1 0 2




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

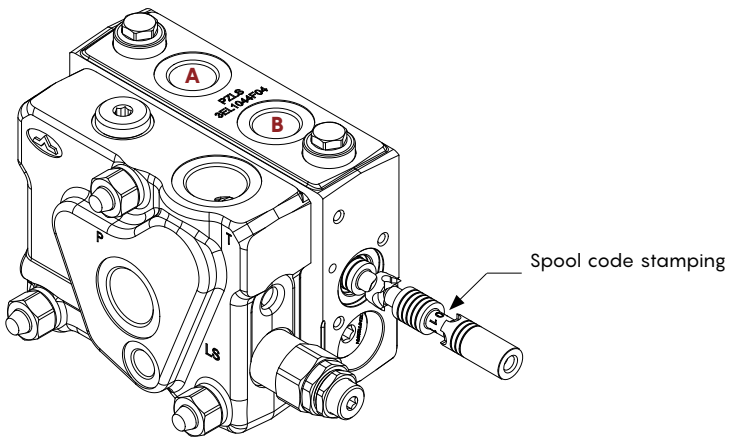
**Type 4 (4../E4..)**
Single acting on B

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.

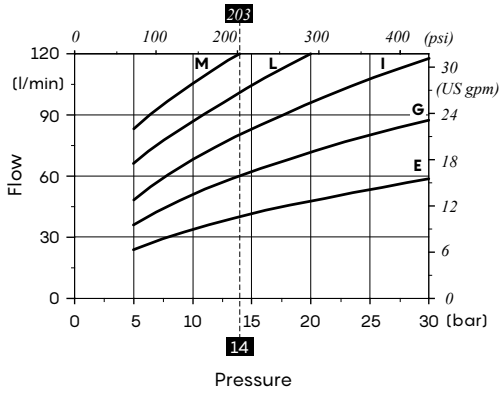


## HF working section

### 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.

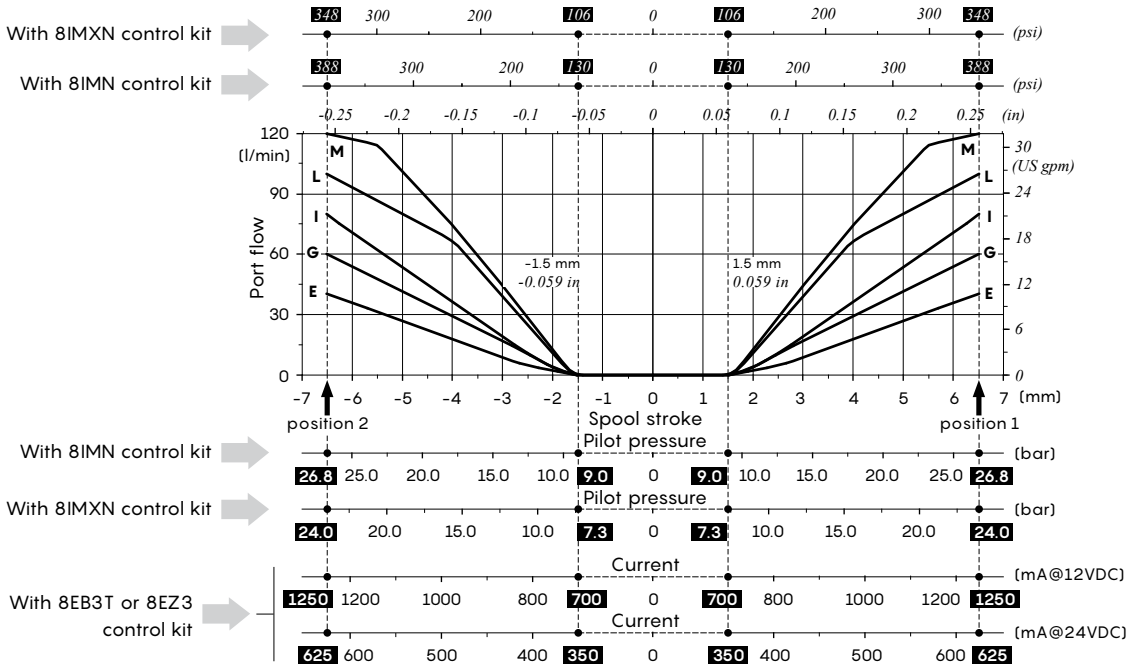
**Spool flow vs. Stand-by pressure (margin pressure)**




**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**
Qin = 120 l/min *(32 US gpm)* - Open center circuit



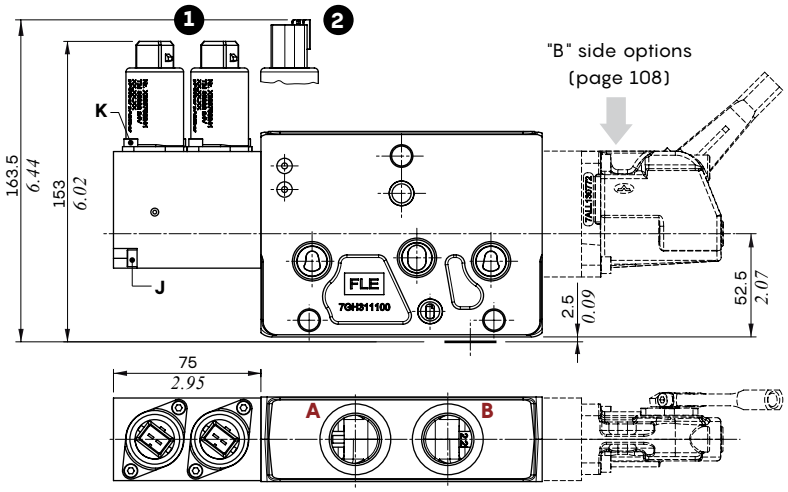
## One-side electrohydraulic control: "A" side

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

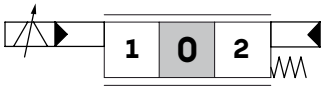
**Control types**

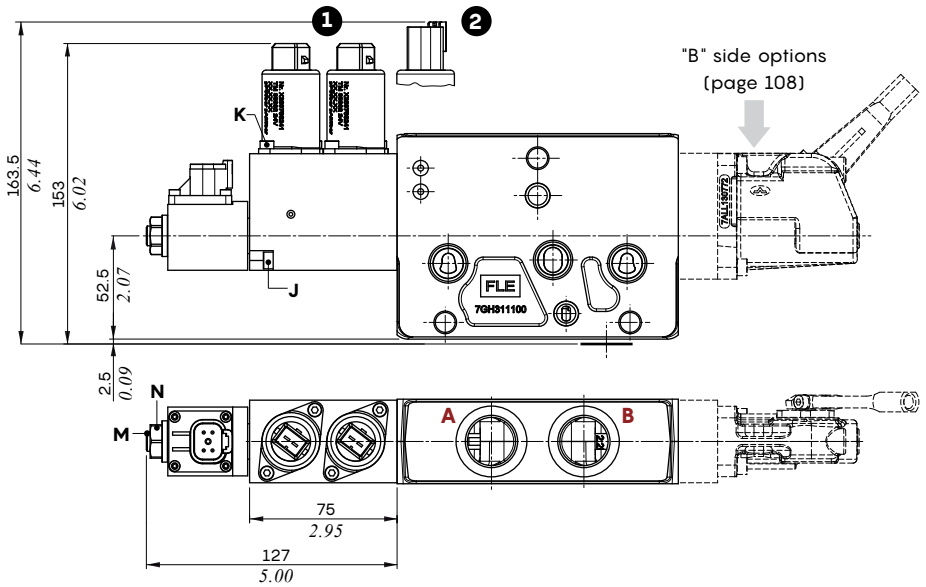
1 : With AMP JPT connector - AMP JPT mating connector, code: 5CON003

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



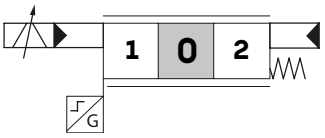

**Types 8EZ3 - 8EZ34**



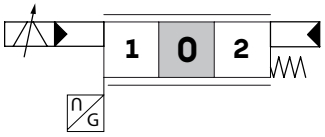

**Types 8EZ3SPSD - 8EZ34SPSD**

Digital output sensor SPSD




**Type 8EZ34SPSL**

Analog output sensor SPSL




**Wrenches and tightening torques**

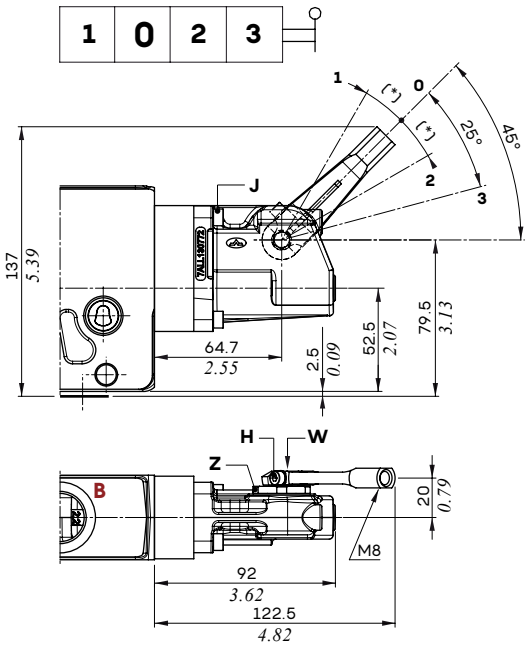
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
K = allen wrench 3 - 5 Nm *(3.7 lbft)*
M = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
N = wrench 17 - 9.8 Nm *(7.2 lbft)*

## HF working section

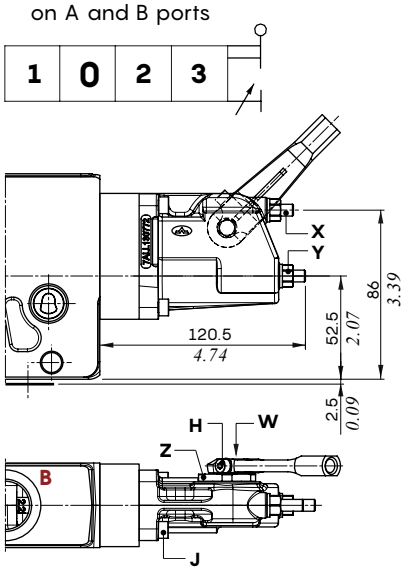
### One-side electrohydraulic control: "B" side option

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

**Type LQ**
Lever box

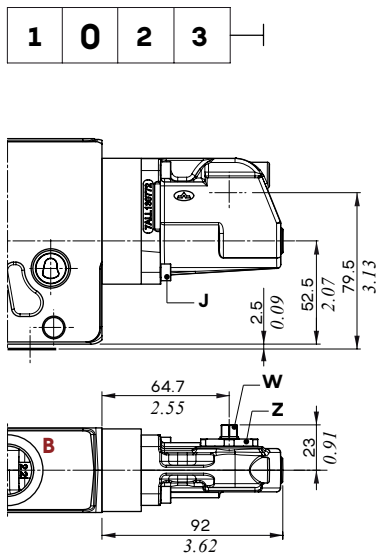



**Type LQF3**
Spool stroke limiter
on A and B ports




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

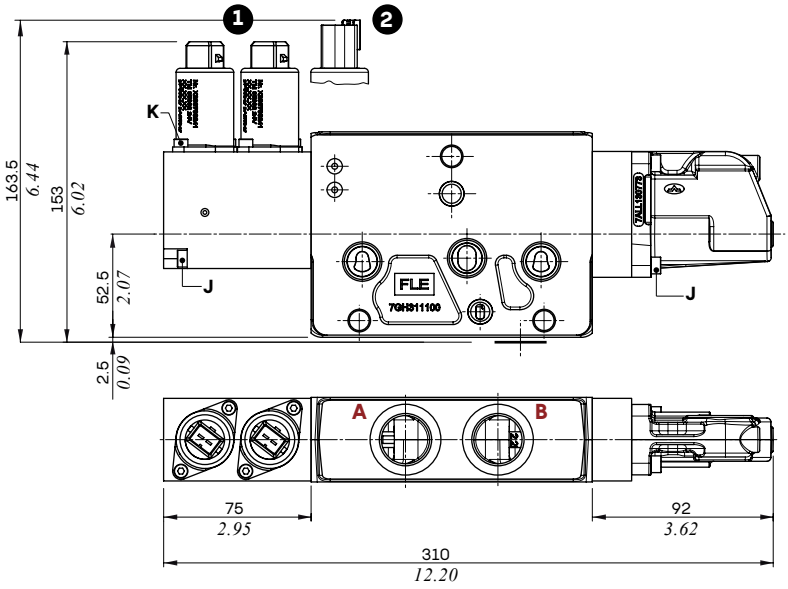
## Complete one-side electrohydraulic control

Controls already comprehensive of endcap on B side.

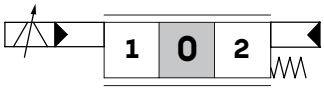
**Control types**

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

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

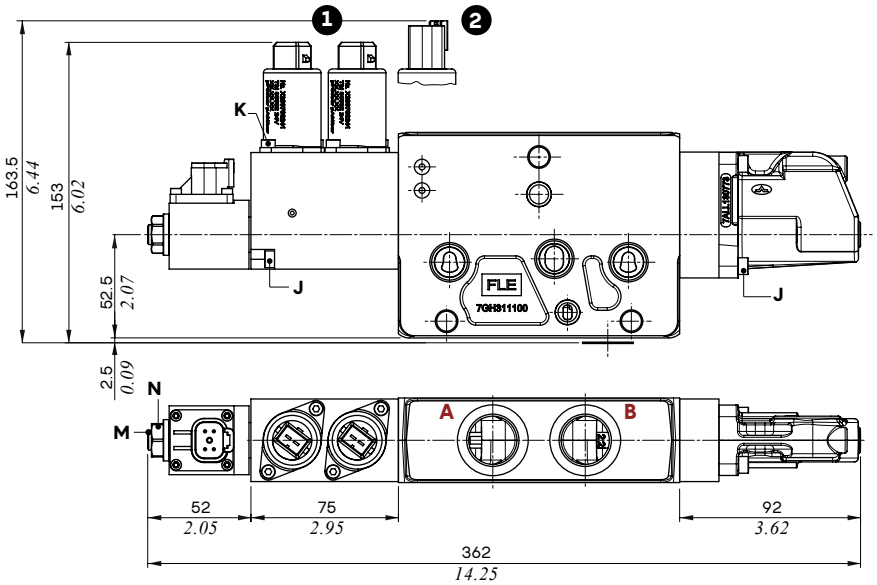



**Types**
**8EZ3SLCQ - 8EZ34SLCQ**
Without lever control

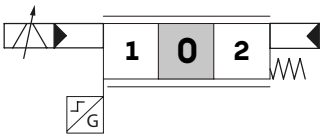



**Wrenches and tightening torques**

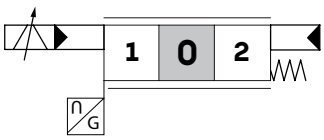
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
K = allen wrench 3 - 5 Nm *(3.7 lbft)*
M = allen wrench 4 - 9.8 Nm *(7.2 lbf)*
N = wrench 17 - 9.8 Nm *(7.2 lbf)*




**Types**
**8EZ3SPSDSLCA - 8EZ34SPSDSLCA**
Digital output sensor SPSD




**Type 8EZ34SPSLSLCQ**
Analog output sensor SPSL



## 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-.....-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)/

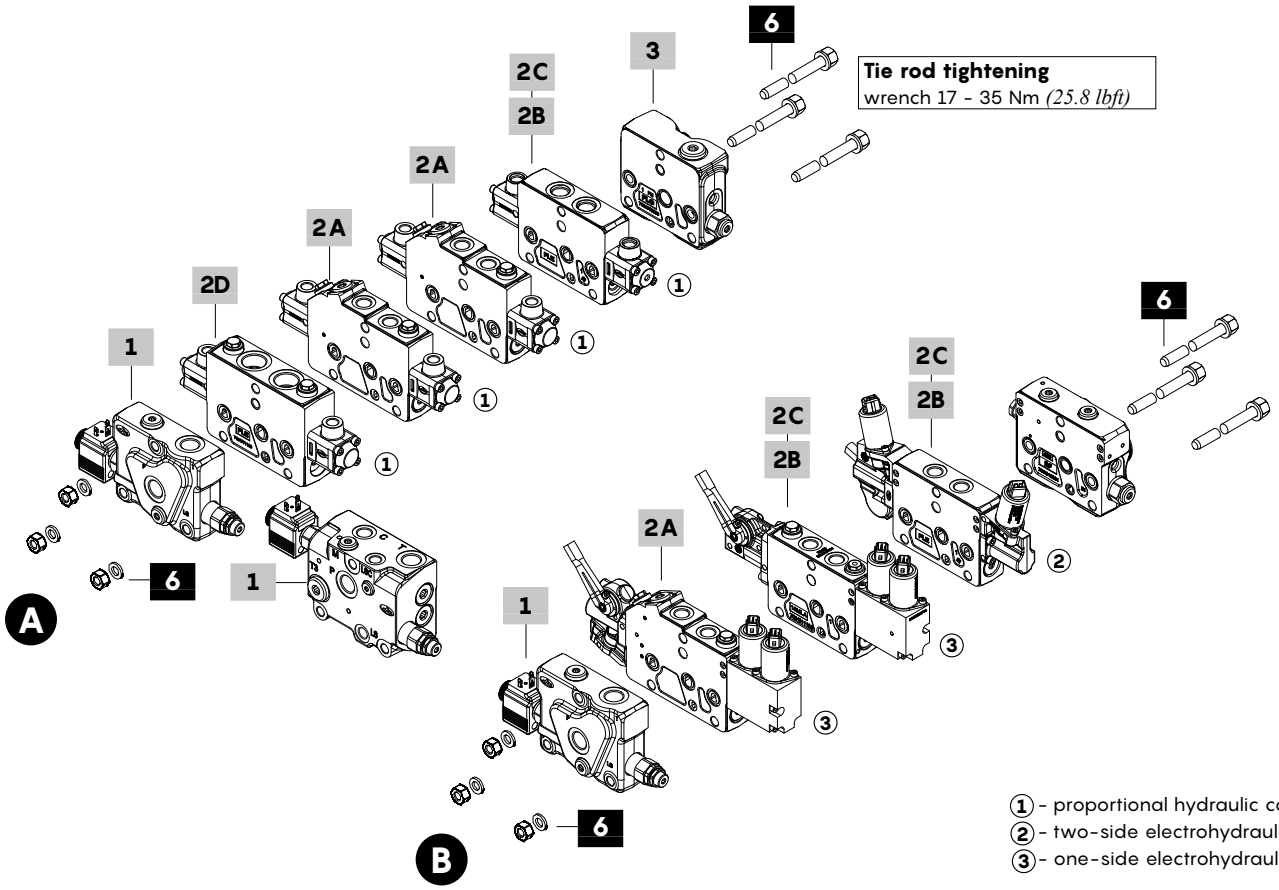
1 2A 2B 2C

**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)-.....-12VDC

2B 2C 3 4 5




① - proportional hydraulic control
② - two-side electrohydraulic control
③ - one-side electrohydraulic control

## LL configuration complete section ordering codes

### 1 Std pressure inlet section *

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

**Open Center circuit**
TYPE: **DPX100/AM1(TGW3-175\ELN)-12VDC**
CODE: 640203033S
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)-12VDC**
CODE: 640203030S
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**
CODE: 640100001S
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100/PLL-ED-E101(80\80)-8IMN.U3(100)**
CODE: 640100002S
DESCRIPTION: With antishock valves

**One-side proportional electrohydraulic control**
TYPE: **DPX100/QZLL-ED-E101(80\80)-8EZ3LQF3-12VDC**
CODE: 640100003S
DESCRIPTION: With spool stroke limiter, without port valves arrangement
TYPE: **DPX100/PZLL-ED-E101(80\80)-8EZ3LQF3.U3T-12VDC**
CODE: 640100004S
DESCRIPTION: As previous one with port valves arrangement
TYPE: **DPX100/PZLL-ED-E101(80\80)-8EZ3LQF3.U3(100)-12VDC**
CODE: 640100005S
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**
CODE: 640100006S
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100/P-ED-E101(80\80)-8IMN.U3(100)**
CODE: 640100007S
DESCRIPTION: With antishock valves

**Two-side proportional electrohydraulic control**
TYPE: **DPX100/QE-ED-E101(80\80)-8EB3TF3-12VDC**
CODE: 640100008S
DESCRIPTION: With spool stroke limiter, without port valve arrangement
TYPE: **DPX100/PE-ED-E101(80\80)-8EB3TF3.U3T-12VDC**
CODE: 640100009S
DESCRIPTION: As previous one with port valves arrangement
TYPE: **DPX100/PE-ED-E101(80\80)-8EB3TLH.U3T-12VDC**
CODE: 640100010S
DESCRIPTION: With lever control and port valves arrangement

**One-side proportional electrohydraulic control**
TYPE: **DPX100/QZ-ED-E101(80\80)-8EZ3LQ-12VDC**
CODE: 640100108S
DESCRIPTION: With lever control, without port valves arrangement
TYPE: **DPX100/PZ-ED-E101(80\80)-8EZ3LQ.U3T-12VDC**
CODE: 640100109S
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**
CODE: 640103055S
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100HP/P-ED-E101(80\80)-8IMN.U3(100)**
CODE: 640103056S
DESCRIPTION: With antishock valves

**Two-side proportional electrohydraulic control**
TYPE: **DPX100HP/QE-ED-E101(80\80)-8EB3TF3-12VDC**
CODE: 640103057S
DESCRIPTION: With spool stroke limiter, without port valve arrangement
TYPE: **DPX100HP/PE-ED-E101(80\80)-8EB3TF3.U3T-12VDC**
CODE: 640103058S
DESCRIPTION: As previous one with port valves arrangement
TYPE: **DPX100HP/PE-ED-E101(80\80)-8EB3TLH.U3T-12VDC**
CODE: 640103059S
DESCRIPTION: With lever control and port valves arrangement

**One-side proportional electrohydraulic control**
TYPE: **DPX100HP/QZ-ED-E101(80\80)-8EZ3LQ-12VDC**
CODE: 640100110S
DESCRIPTION: With lever control, without port valves arrangement
TYPE: **DPX100HP/PZ-ED-E101(80\80)-8EZ3LQ.U3T-12VDC**
CODE: 640100111S
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**
CODE: 640100011S
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100HF/P-ED-E101(120\120)-8IMN.U3(100)**
CODE: 640100012S
DESCRIPTION: With antishock valves

**Two-side proportional electrohydraulic control**
TYPE: **DPX100HF/QE-ED-E101(120\120)-8EB3TF3-12VDC**
CODE: 640100013S
DESCRIPTION: With spool stroke limiter, without port valves arrangement
TYPE: **DPX100HF/PE-ED-101(120/120)-8EB3TLH.U3T-12VDC**
CODE: 640100014S
DESCRIPTION: With lever control and port valves arrangement

### 3 Outlet section *

The sections listed are by way of example; the complete list of available otlet sections is on page 57.
Outlet section are the same for Standard and HP pressure configuration

**For proportional hydraulic configuration**
TYPE: **DPX100/RF** CODE: 640303003S
DESCRIPTION: With bleed valve and upper T2 port (plugged)

**For electrohydraulic configuration**
TYPE: **DPX100/RDN-NOTAP(VL)** CODE: 640303002S
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

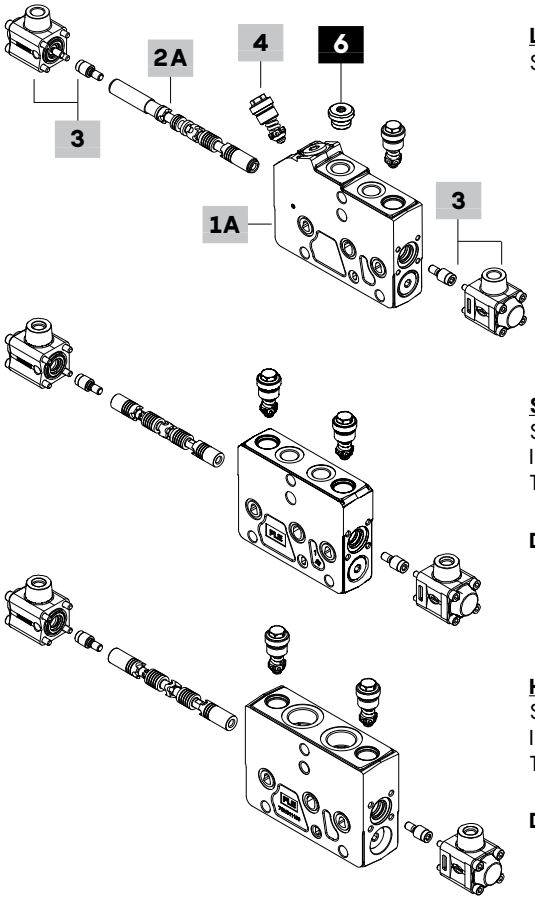
Specify the voltage of electric devices.

### 6 Assembling kit

For tie rods list see page 57.

NOTE (*): Codes are referred to **BSP** thread.

## LL working section part ordering codes (hydraulic)




**Low Leak working section:**
Standard pressure configuration only

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

**DPX100 / PLL - ED - E101LL(80/80) - 8IMN . U1(100) U2(120) - ....**

1A — Right Inlet — 2A — 3 — 4 — 5

**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)- ....**

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)-....**

Right Inlet

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

**For proportional hydraulic control**
TYPE: **DPX100/QLL-IM-FPM** CODE: 5EL1043010ALV
DESCRIPTION: Without port valves arrangement
TYPE : **DPX100/PLL-IM-FPM** CODE: 5EL1043000ALV
DESCRIPTION: With port valves arrangement

### 2A Spool page 116

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| Double acting with A and B closed in neutral position | | |
| **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 |
| Single acting on A or B, other port plugged: G3/8 plug is required | | |
| **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 |
| Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: type 13IMS control is required | | |
| **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** | 5IDR204304V | Range 8-27 bar *(116-392 psi)* |
| **8IMF3N** | 5IDR204314V | As previous one, with spool stroke limiter |
| **8IMXN** | 5IDR204303V | Range 7.5-24 bar *(109-348 psi)* |
| **8IMXF3N** | 5IDR204313V | As previous one, with spool stroke limiter |
| **8IMNO** | 5IDR204305V | Range 8-27 bar *(116-392 psi)*, steel cap configuration |
| For floating circuit (spool I5) | | |
| **13IMS** | 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

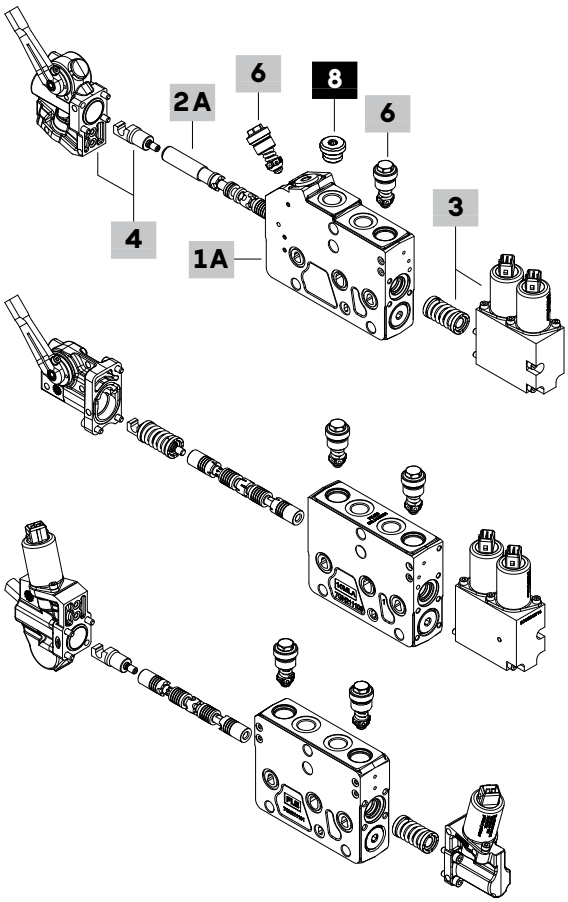
Only specify if it is different from **BSP** standard (see page 7).

### 6 Plug for single acting spool *

| CODE | DESCRIPTION |
|---|---|
| 3XTAP727160 | G3/8 plug |

NOTE (*): Codes are referred to **BSP** thread.

## LL working section part ordering codes (electrohydraulic)




**Low Leak working section:**
Only for Standard Pressure and with one-side electrohydraulic control

flow on A/B ports (l/min)

**DPX100 / PZLL - ED - E101LL(80/80)-**

1A — Right Inlet — 2A

Valve setting (bar): A port, B port

**8EZ3 LQF3 . U1(100) U2(120) - .... - 12VDC**

3 — 4 — 6 — 7 — 3

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

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

Right Inlet

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

Right Inlet

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

**For one-side electrohydraulic control**

TYPE: **DPX100/QZLL-FPM** CODE: 5EL1043038V
DESCRIPTION: Without port valves arrangement
TYPE: **DPX100/PZLL-FPM** CODE: 5EL1043037V
DESCRIPTION: With port valves arrangement

### 2A Spool page 116

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| Double acting with A and B closed in neutral position | | |
| **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 |
| Single acting on A or B, other port plugged: G3/8 plug is required | | |
| **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 |
| Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: type 13IMS control is required | | |
| **E504LL(60)** | 3CU7742504L | 60 l/min *(16 US gpm)* flow |
| **E503LL(20)** | 3CU7742503L | 20 l/min *(5.3 US gpm)* flow |

### 8 Plug for single acting spool *

| CODE | DESCRIPTION |
|---|---|
| 3XTAP727160 | G3/8 plug |

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

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **8EZ3LL-12VDC** | 5IDR604300LV | With AMP connector |
| **8EZ3LL-24VDC** | 5IDR604301LV | As previous one |
| **8EZ34LL-12VDC** | 5IDR604302LV | With Deutsch connector |
| **8EZ34LL-24VDC** | 5IDR604303LV | As previous one |
| For floating circuit (spool E5) | | |
| **13EZ3LL-12VDC** | 5IDR614300LV | With AMP connector |
| **13EZ3LL-24VDC** | 5IDR614301LV | As previous one |
| **13EZ34LL-12VDC** | 5IDR614302LV | With Deutsch connector |
| **13EZ34LL-24VDC** | 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 |
|---|---|---|
| **LQ** | 5LEV100700ALV | Lever box |
| **LQF3** | 5LEV100701LV | Lever box with spool stroke limiter |
| **LQSL** | 5COP204100LV | Without lever with endcap |

### 6 Port valves page 94

For complete valves list see page 65

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

### 7 Section threading

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

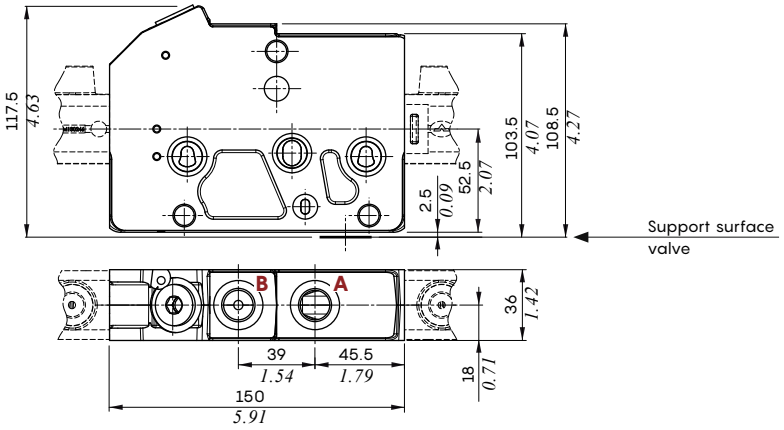
NOTE (*): Codes are referred to **BSP** thread.

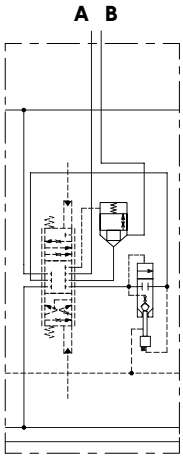
## LL working section

### Dimensions and hydraulic circuit: Low Leak section

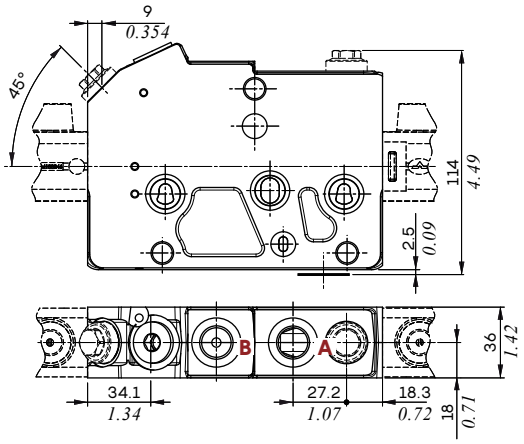
#### Low Leak section for proportional hydraulic control, Right Inlet

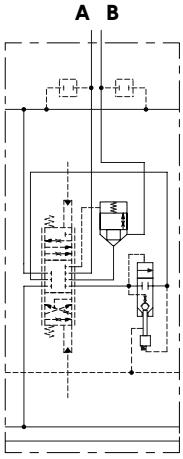
Type QLL-ED



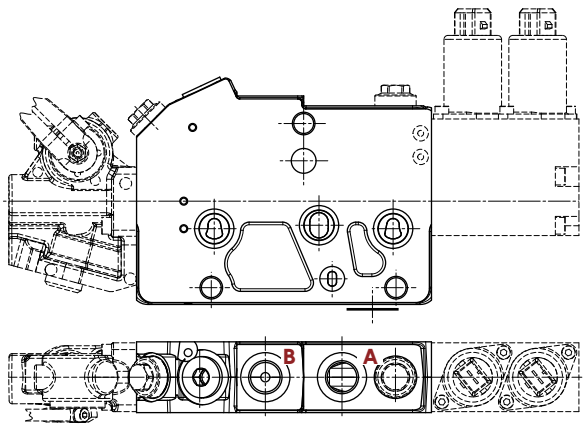

Type PLL-ED



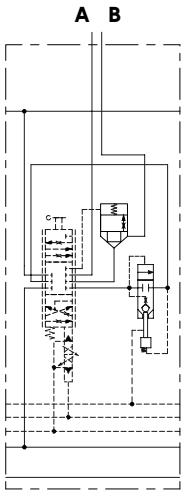




#### Low Leak section for electrohydraulic control, Right Inlet

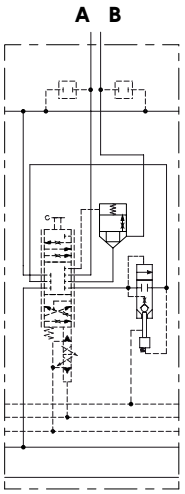
Type QZLL-ED or PZLL-ED




Type QZLL-ED




Type PZLL-ED

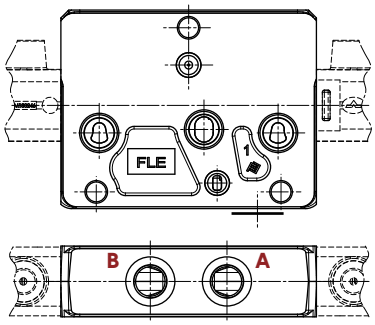


## Dimensions and hydraulic circuit: section for Low Leak valve configuration

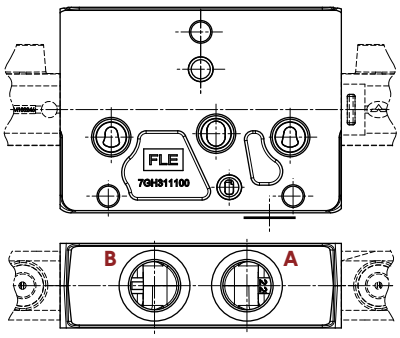
### Section for hydraulic control, Right Inlet

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

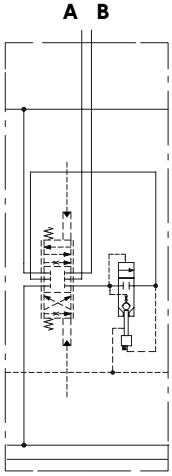
**Standard section, type Q-ED**
(G3/8 or G1/2 ports)



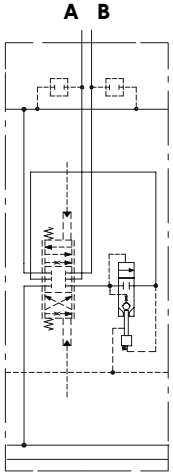

**HF section, type Q-ED**
(G3/4 ports)



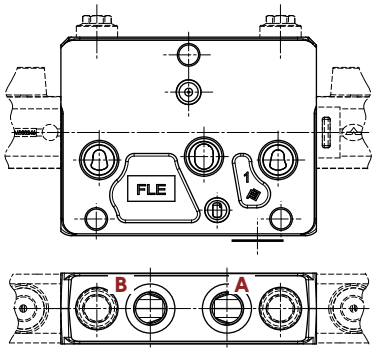

**Type Q-ED**



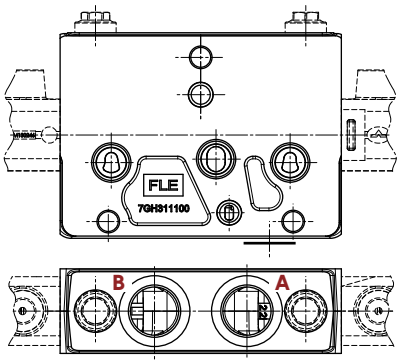

**Type P-ED**




**Standard section, type P-ED**
(G3/8 or G1/2 ports)

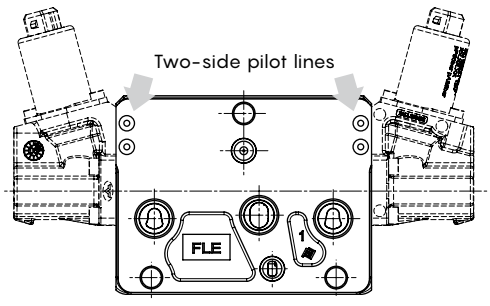



**HF section, type P-ED**
(G3/4 ports)

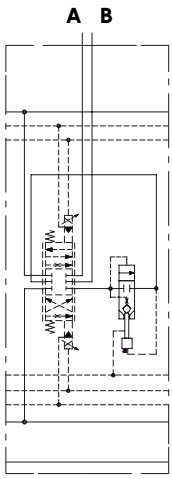



### Section for electrohydraulic control, Right Inlet

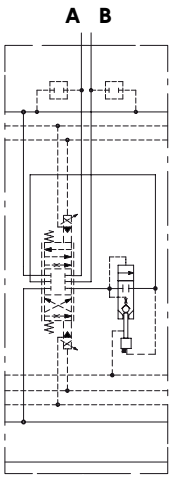
**Type QE-ED o PE-ED**




**Type QE-ED**




**Type PE-ED**



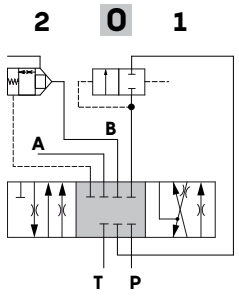
## LL working section

### Spool

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

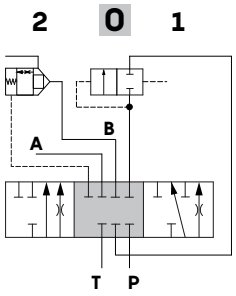
### For Low Leak section

**Type E1..**
A, B closed in neutral position



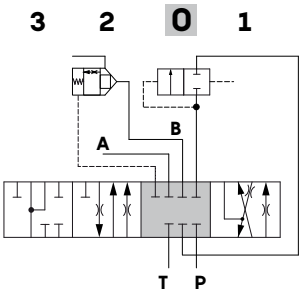

**Stroke**
position 1: + 6.5 mm *(+ 0.26 in)*
position 2: - 6.5 mm *(- 0.26 in)*

**Type E3..**
Single acting on A




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

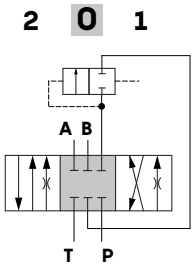
**Type E5..**
Floating in 4th position (pos.3)




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

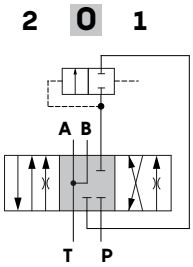
### For Right Inlet standard section in Low Leak valve configuration

**Type E1..**
A, B closed in neutral position



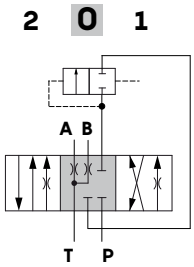

**Stroke**
position 1: + 6.5 mm *(+ 0.26 in)*
position 2: - 6.5 mm *(- 0.26 in)*

**Type E2..**
A, B to tank in neutral position



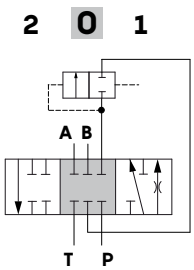

**Stroke**
position 1: + 6.5 mm *(+ 0.26 in)*
position 2: - 6.5 mm *(- 0.26 in)*

**Type E2H..**
A, B partially to tank
in neutral position



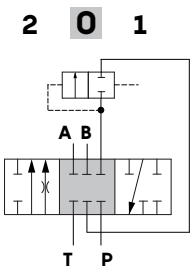

**Stroke**
position 1: + 6.5 mm *(+ 0.26 in)*
position 2: - 6.5 mm *(- 0.26 in)*

**Type E3..**
Single acting on A



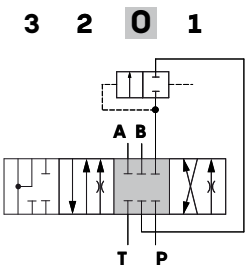

**Stroke**
position 1: + 6.5 mm *(+ 0.26 in)*
position 2: - 6.5 mm *(- 0.26 in)*

**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 4th position (pos.3)

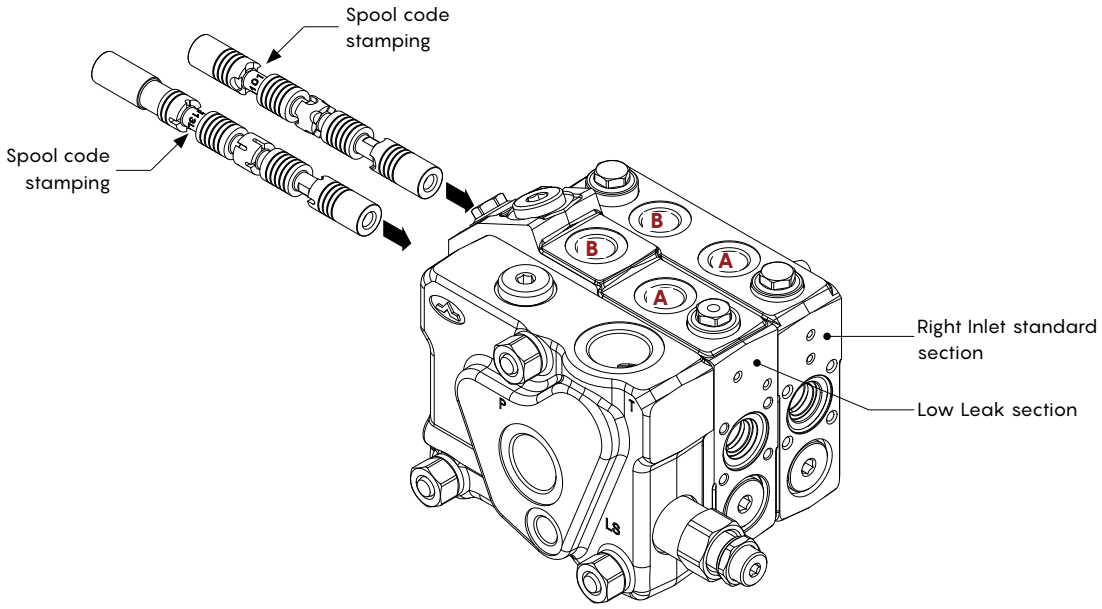



**Stroke**
position 1: + 6 mm *(+ 0.26 in)*
position 2: - 6 mm *(- 0.26 in)*
position 3: - 10.5 mm *(- 0.41 in)*

## LL working section

### Spool

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



## LL working section

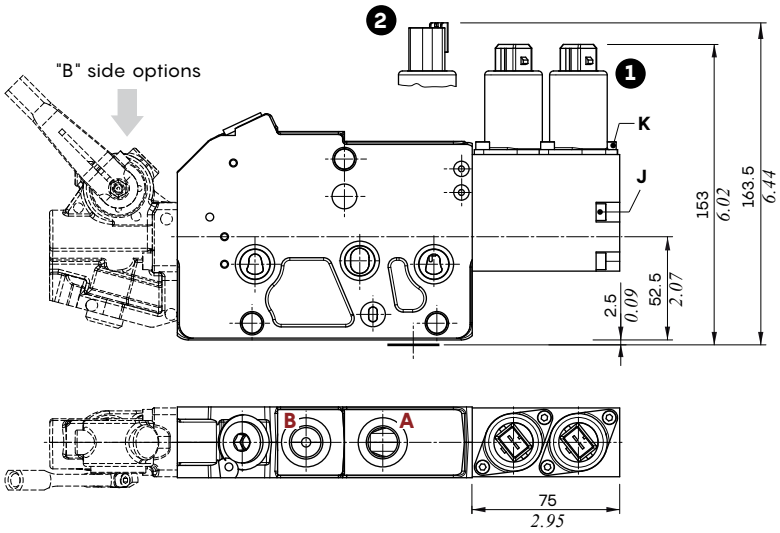
### One-side electrohydraulic control for Low Leak section: "A" side

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

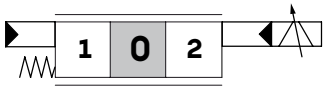
**Control types**

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

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

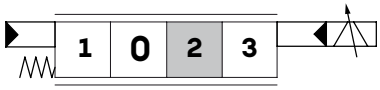



**Types 8EZ3LL - 8EZ34LL**




**Types 13EZ3LL - 13EZ34LL**

For floating circuit




**Wrenches and tightening torques**

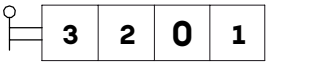
J = allen wrench 4 - 6.6 Nm *(4.9 lbft)*

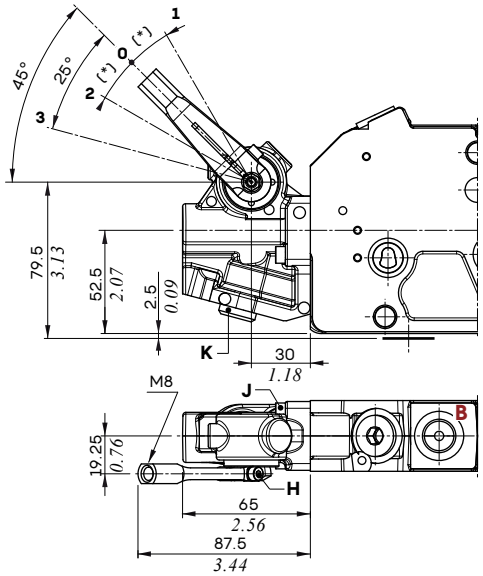
K = allen wrench 3 - 5 Nm *(3.7 lbft)*

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

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

**Type LQ**



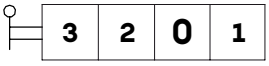

Angle (*)

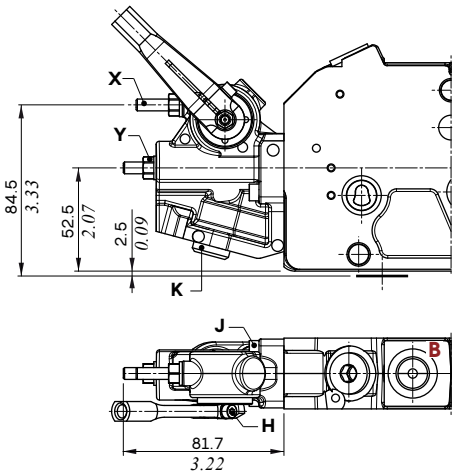
15° with 8EZ3.. type controls

14° with 13EZ3.. type controls

**Type LQF3**

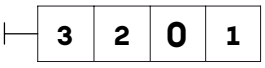
Spool stroke limiter on A and B ports

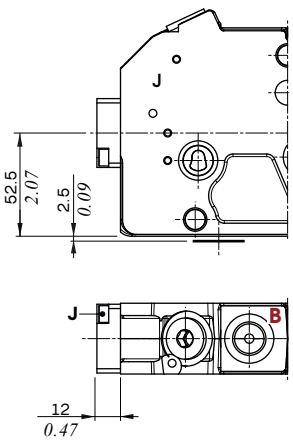



**Type LQSL**

With endcap




**Wrenches and tightening torques**

H = wrench 3 - 6.6 Nm *(4.9 lbft)*

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

K = allen wrench 6 - 24 Nm *(7.7 lbft)*

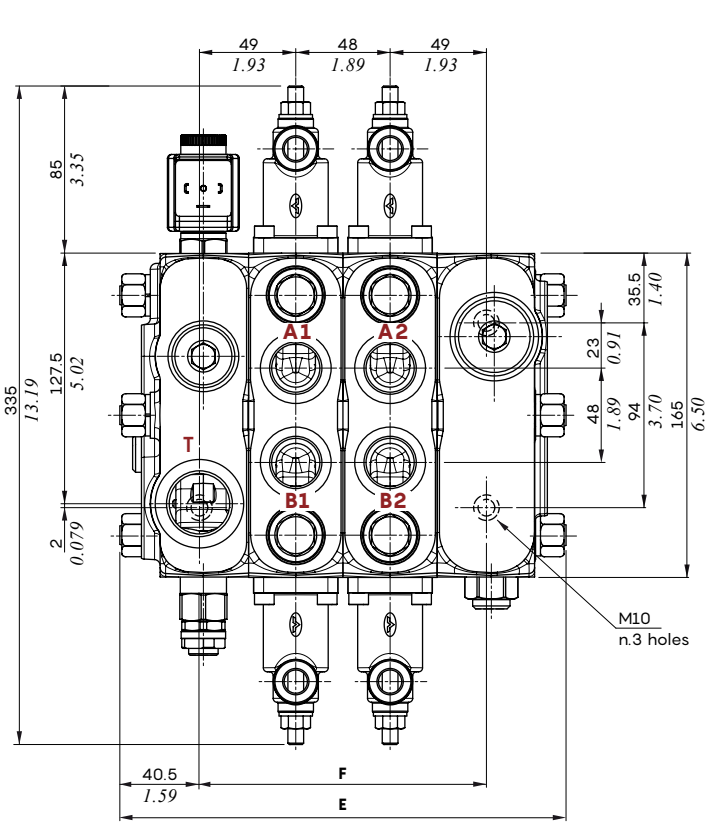
X = allen wrench 3

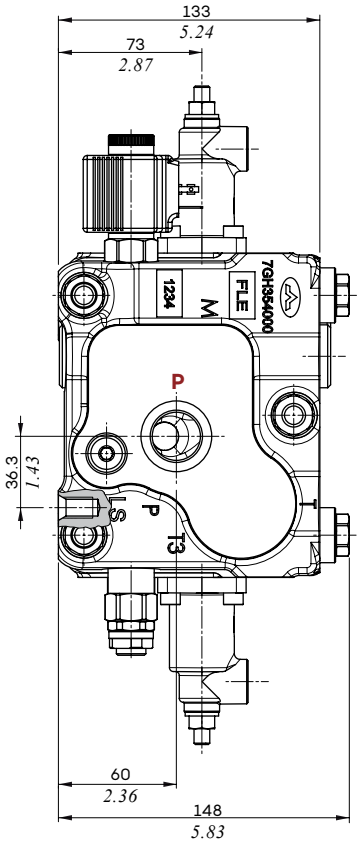
Y = wrench 10 - 9.8 Nm *(7.2 lbft)*

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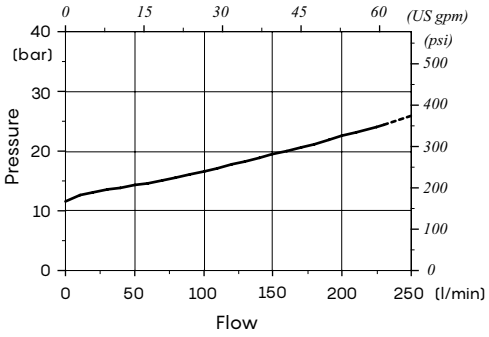
## Dimensional data and performance



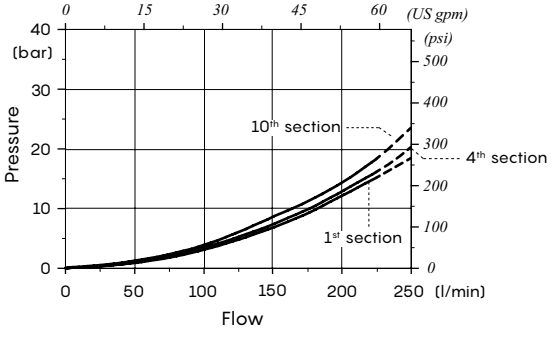




| TYPE | E | | F | |
|---|---|---|---|---|
| | mm | *in* | mm | *in* |
| **DPX160/1** | 179 | *7.05* | 98 | *3.86* |
| **DPX160/2** | 227 | *8.94* | 146 | *5.75* |
| **DPX160/3** | 275 | *10.83* | 194 | *7.64* |
| **DPX160/4** | 323 | *12.72* | 242 | *9.53* |
| **DPX160/5** | 371 | *14.61* | 290 | *11.42*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

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

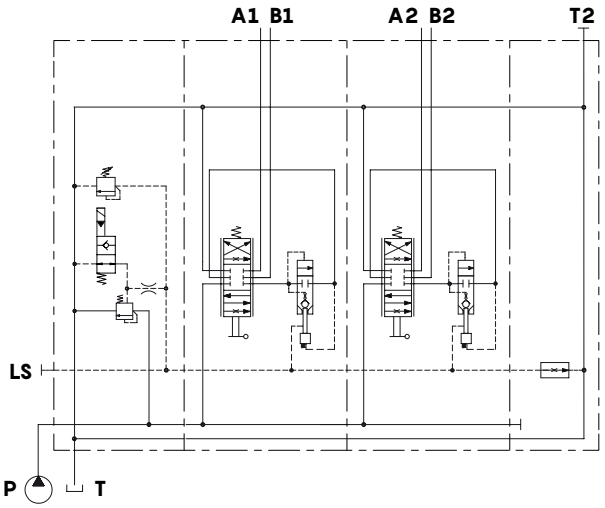



**A(B)⇒T pressure drop (standard spool @ max.stroke)**

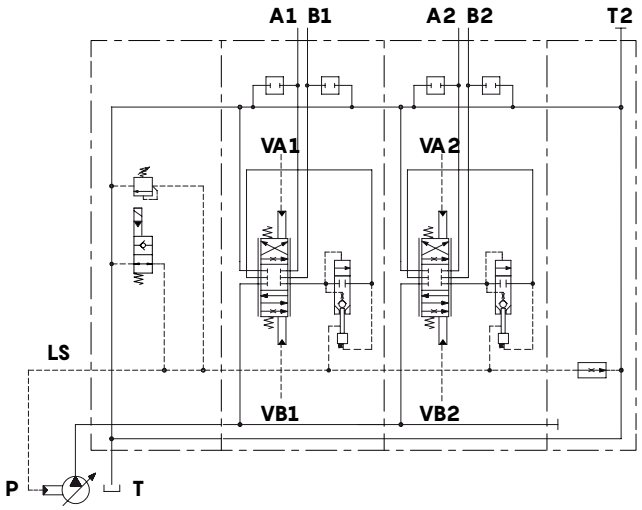


## Hydraulic cuircuit

### Configuration example with mechanical and hydraulic controls

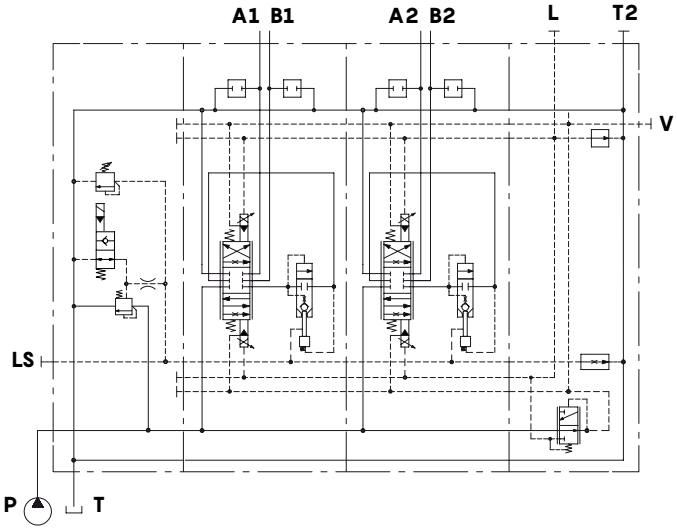



Open center circuit and lever control, with unloader valve, without port valve arrangement

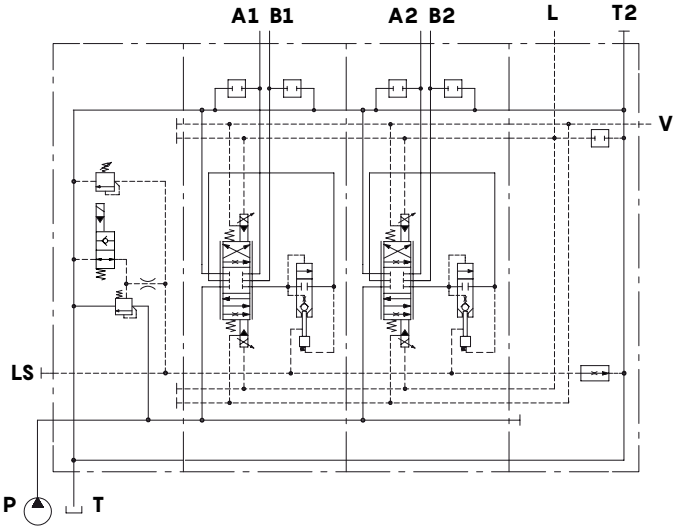



Closed center circuit and proportional hydraulic control, with unloader valve and port valve arrangement

### 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 confortable regulation, especially if they occur with high frequency.
The DPX Series directional valves, open and closed center ones, are available with inlet sections equipped with devices for L.S. signal 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 configurated for Standard pressure or HP, a mixed configuration — Standard/HP — is available by combining only the sections needed.

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

**Example of entirely Standard Pressure valve configuration**

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

- Std open center inlet section or Std Pressure closed center inlet section
- Std Pressure working sections
- Standard Pressure outlet section

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

**DPX160HP/2/AM1A(TGW5-300\ELN)/P-E108(150\150)-8IMNOH.U3T/Q-E108(150\150)-8IMNOH/RC1A-12VDC**

- HP open center inlet section or Std Pressure closed center inlet section
- HP working sections
- Standard Pressure outlet section

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

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

- Std open center inlet section or Std Pressure closed center inlet section
- Std Pressure working section
- HP working section
- Standard Pressure outlet section

## 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-.....-12VDC**

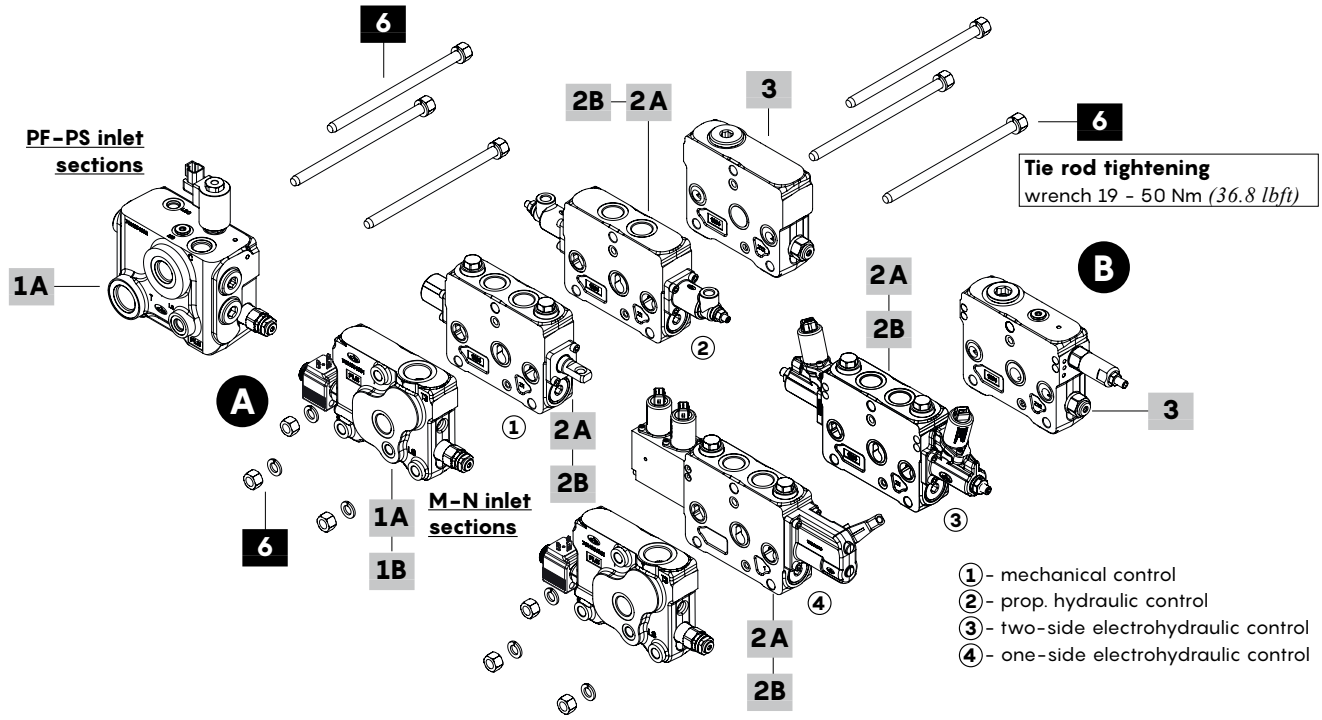
1A 1B — 2A 2B — 3 — 4 — 5

**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-.....-12VDC**

1A 1B — 2A 2B — 3 — 4 — 5




### 1A Std pressure inlet section *

**Open Center circuit**
TYPE: **DPX160/M3B(TGW3-175/ELN)-12VDC**
CODE: 650203023S
DESCRIPTION: With compensator, press. relief valve and unloader valve, with P-T-LS-M ports (LS-M plugged)
TYPE: **DPX160/M3B(SO/TGW3-175/ELN)-12VDC**
CODE: 650203025S
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)-12VDC**
CODE: 650203024S
DESCRIPTION: With non-return flow limiter from working section to inlet section and by-pass valve
TYPE: **DPX160/M4B(TGW3-175/ELN)-12VDC**
CODE: 650203026S
DESCRIPTION: As type M3, with T3 side outlet port (plugged)
TYPE: **DPX160/PF1A\TGW3-175\VP-D(1)-SB10-Q40\CF(1)-SB14**
CODE: 650203301S
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: 650203019S
DESCRIPTION: Without compensator, with pressure relief valve and unloader valve, with P-T-LS ports
TYPE: **DPX160/N1A(SO/TGW3-175/ELN)-12VDC**
CODE: 650203315S
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: 650201326S
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: 650203022S
DESCRIPTION: As N1 type, with T3 side outlet port (plugged)
TYPE: **DPX160/PS1A\TGW3-175\VP-D(1)-SB10-Q40\ESO32N-12VDC**
CODE: 650203300S
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 **BSP** thread.

## Complete section ordering codes

### 1B High pressure inlet section *

**Open Center circuit**
TYPE: **DPX160HP/M3B(TGW5-350/ELN)-12VDC**
CODE: 650203031S
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)-12VDC**
CODE: 650203033S
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)-12VDC**
CODE: 650203032S
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**
CODE: 650151001S
DESCRIPTION: With dust-proof plate, without port valve arrangement
TYPE: **DPX160/P-108(150/150)-8SLP.UL3T**
CODE: 650101007S
DESCRIPTION: As previous one with port pressure relief valve arrangement
TYPE: **DPX160/P-108(150/150)-8SLP.US3T**
CODE: 650101008S
DESCRIPTION: With port antishock valve arrangement
**Proportional hydraulic control**
TYPE: **DPX160/Q-E108(150/150)-8IMOHF3N**
CODE: 650151002S
DESCRIPTION: With spool stroke limiter, without port valve arrang.
TYPE: **DPX160/P-E108(150/150)-8IMOHF3N.UL3T**
CODE: 650101009S
DESCRIPTION: As previous one with port pressure relief valves arrang.
TYPE: **DPX160/P-E108(150/150)-8IMOHF3N.US3T**
CODE: 650101010S
DESCRIPTION: With port antishock valve arrangement
**Two-side proportional electrohydraulic control**
TYPE: **DPX160/QE-E108(150/150)-8EB3F3-12VDC**
CODE: 650101011S
DESCRIPTION: With spool stroke limiter, without port valve arrang.
TYPE: **DPX160/PE-E108(150/150)-8EB3F3.UL3T-12VDC**
CODE: 650101012S
DESCRIPTION: As previous one with port pressure relief valves arrang.
TYPE: **DPX160/PE-E108(150/150)-8EB3F3.US3T-12VDC**
CODE: 650101013S
DESCRIPTION: With port antishock valve arrangement
**One-side proportional electrohydraulic control**
TYPE: **DPX160/QZ-E108(150/150)-8EZ3LQF3-12VDC-FPM**
CODE: 650103031V
DESCRIPTION: With spool stroke limiter, without port valves arrang.
TYPE: **DPX160/PZ-E108(150/150)-8EZ3LQF3.UL3T-12VDC-FPM**
CODE: 650103032V
DESCRIPTION: As previous one with port pressure relief valves arrang.
TYPE: **DPX160/PZ-E108(150/150)-8EZ3LQF3.US3T-12VDC-FPM**
CODE: 650103033V
DESCRIPTION: With port antishock valve arrangement

### 2B High pressure working section *

**Mechanical control**
TYPE: **DPX160HP/Q-108(150/150)-8SLP**
CODE: 650113010S
DESCRIPTION: With dust-proof plate, without port valve arrangement
TYPE: **DPX160HP/P-108(150/150)-8SLP.US3T**
CODE: 650103027S
DESCRIPTION: As previous one with port antishock valve arrangement
**Proportional hydraulic control**
TYPE: **DPX160HP/Q-E108(150/150)-8IMOHF3N**
CODE: 650113011S
DESCRIPTION: With spool stroke limiter, without port valve arrang.
TYPE: **DPX160HP/P-E108(150/150)-8IMOHF3N.US3T**
CODE: 650103028S
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)-8EB3F3-12VDC**
CODE: 650113012S
DESCRIPTION: With spool stroke limiter, without port valve arrang.
TYPE: **DPX160HP/PE-E108(150/150)-8EB3F3.US3T-12VDC**
CODE: 650103029S
DESCRIPTION: As previous one with port antishock valve arrangement
**One-side proportional electrohydraulic control**
TYPE: **DPX160HP/QZ-E108(150/150)-8EZ3LQF3-12VDC-FPM**
CODE: 650103034V
DESCRIPTION: With spool stroke limiter, without port valve arrang.
TYPE: **DPX160HP/PZ-E108(150/150)-8EZ3LQF3.UL3T-12VDC-FPM**
CODE: 650103035V
DESCRIPTION: As previous one with port pressure relief valve arrang.
TYPE: **DPX160HP/PZ-E108(150/150)-8EZ3LQF3.US3T-12VDC-FPM**
CODE: 650103036V
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** CODE: 650303002S
DESCRIPTION: With bleed valve and T2 upper port (plugged)
TYPE: **DPX160/RC3A** CODE: 650303004S
DESCRIPTION: With bleed valve and T2, P1-T1-LS1 side ports (plugged)
TYPE: **DPX160/RC3A-CL-12VDC** CODE: 650303020S
DESCRIPTION: As previous one , with clamp release function
**For electrohydraulic or mixed configuration**
TYPE: **DPX160/RCN1A** CODE: 650303014S
DESCRIPTION: Without pressure reducing valve, external pilot and drain (V-L ports), with Bleed valve and T2 upper port (plugged)
TYPE: **DPX160/RCN3A** CODE: 650303016S
DESCRIPTION: As previous one, with P1-T1-LS1 side ports (plugged)
TYPE: **DPX160/RCN3A-CL-12VDC** CODE: 650303021S
DESCRIPTION: As previous, with clamp release function
TYPE: **DPX160/RCR1A-TAP(VL)** CODE: 650303005S
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)** CODE: 650303017S
DESCRIPTION: As previous one, with P1-T1-LS1 side ports (plugged)
TYPE: **DPX160/RCR3A-CL-TAP(VL)-12VDC**
CODE: 650303022S
DESCRIPTION: As previous one, with clamp release function
**Note**: for outlet sections with different port arrangement please contact Sales Dpt.

### 4 Valve threading

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

### 5 Voltage

Specify the voltage of electric devices.

### 6 Assembling kit

| CODE | DESCRIPTION | CODE | DESCRIPTION |
|---|---|---|---|
| **Standard tie rods: for M and N inlet sections** | | | |
| 5TIR112179 | for 1 work.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 |
| **Special tie rods: for PF and PS inlet sections** | | | |
| 5TIR112141 | for 1 work.section | 5TIR112381 | for 6 work.sections |
| 5TIR112189 | for 2 work.sections | 5TIR112429 | for 7 work.sections |
| 5TIR112237 | for 3 work.sections | 5TIR112477 | for 8 work.sections |
| 5TIR112285 | for 4 work.sections | 5TIR112525 | for 9 work.sections |
| 5TIR112333 | for 5 work.sections | 5TIR112573 | for 10 work.sections |

NOTE (*): Codes are referred to **BSP** thread.

## Inlet section part ordering codes

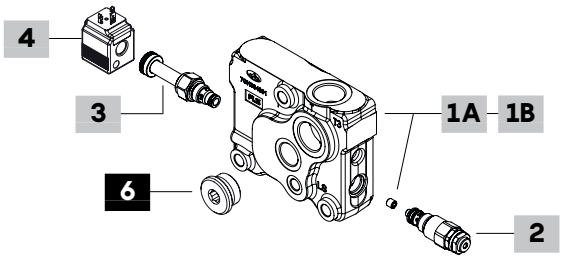
Valve setting (bar)

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

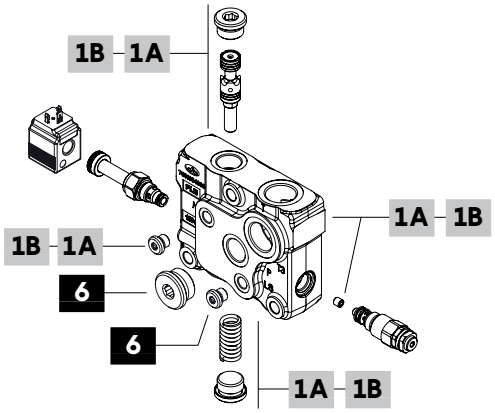
**1A** **1B** **2** **3** **5** **4**

**DPX160**: Standard pressure section
**DPX160HP**: High Pressure section

**N: Closed Center**




**M: Open Center**




### 1A Std pressure inlet section kit * page 127

**Open Center circuit**

TYPE: **DPX160/M3-EL** CODE: YFIA105309S
DESCRIPTION: With compensator, P-T-LS-M ports (M plugged), arranged for unloader valve

TYPE: **DPX160/M3(SU)-EL** CODE: YFIA105310S
DESCRIPTION: As previous one with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX160/M3(SO)-EL** CODE: YFIA105311S
DESCRIPTION: With non return flow limiter from inlet section to working section and by-pass valve

TYPE: **DPX160/M4-EL** CODE: YFIA105308S
DESCRIPTION: As type M3, with T3 side outlet port

**Closed Center circuit**

TYPE: **DPX160/N1-EL** CODE: YFIA105320S
DESCRIPTION: Without compensator, with P-T-LS ports, arranged for unloader valve

TYPE: **DPX160/N1(SU)-EL** CODE: YFIA105327S
DESCRIPTION: As previous one with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX160/N1(SO)-EL** CODE: YFIA105328S
DESCRIPTION: With non return flow limiter from inlet section to working section and by-pass valve

TYPE: **DPX160/N2-EL** CODE: YFIA105326S
DESCRIPTION: As N1 type, with T3 side outlet port

### 1B High pressure inlet section kit * page 127

**Open Center circuit**

TYPE: **DPX160HP/M3-EL** CODE: YFIA105329S
DESCRIPTION: With compensator, P-T-LS-M ports (M plugged), arranged for unloader valve

TYPE: **DPX160HP/M3(SU)-EL** CODE: YFIA105330S
DESCRIPTION: As previous one with non return flow limiter from working section to inlet section and by-pass valve

TYPE: **DPX160HP/M3(SO)-EL** CODE: YFIA105331S
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)** | 0MC09002000 | Range 10-120 bar *(145-1750 psi)* std setting 80 bar *(1160 psi)* |
| **(TGW3-175)** | 0MC09002001 | Range 40-220 bar *(580-3200 psi)* std setting 175 bar *(2550 psi)* |
| **(TGW4-250)** | 0MC09002002 | Range 200-350 bar *(2900-5100 psi)* std setting 250 bar *(3600 psi)* |
| **(TGW5-300)** | 0MC09002003 | Range 290-385 bar *(4200-5600 psi)* std setting 300 bar *(4350 psi)* |
| **SV** | 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 |
|---|---|
| 3XTAP740210 | G1 plug, nr.1 for M4 and N2 section |
| 3XTAP719150 | G1/4 plug, nr.1 for Open Center sections |

NOTE (*): Codes are referred to **BSP** thread.

## Inlet section part ordering codes

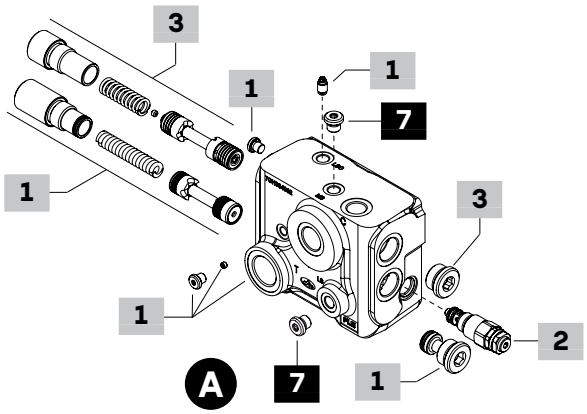
Valve setting (bar) — Priority valve stand-by (bar) — Steering max flow — Compensator stand-by (bar)

**A** DPX160 / PF1A \ TGW3-175 \ VR5 - VP-D(1)-SB10-Q40 \ CF(1)-SB14 - .....
1 2 1 3 1 6

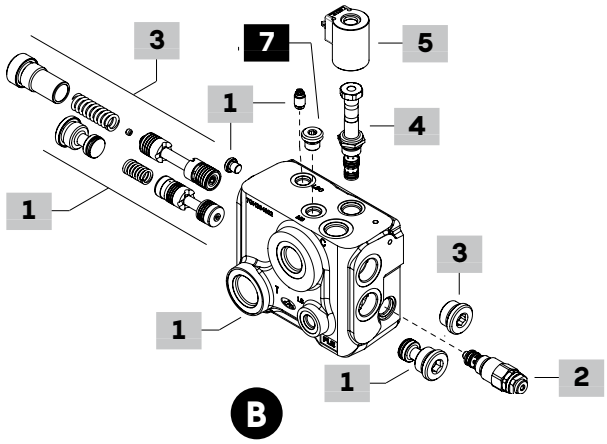
**DPX160**: Standard pressure valve

**B** DPX160 / PS1A \ TGW3-175 \ VR5 - VP-D(1)-SB10-Q40 \ ESO32N - ..... - 12VDC
1 2 1 3 4 5

**PF1: Open Center**




**PS1: Closed Center**




### 1 Inlet section kit * page 129

Following sections are suitable only for standard pressure valve

**Open Center circuit**
TYPE: **DPX160/PF1** CODE: YFIA105350S
DESCRIPTION: With compensator, P-T-LS-M3-C-LSC ports

**Closed Center circuit**
TYPE: **DPX160/PS1** CODE: YFIA105351S
DESCRIPTION: With shut-off spool, P-T-LS-M3-C-LSC ports
TYPE: **DPX160/PST1** CODE: YFIA105352S
DESCRIPTION: With shut-off blanking kit, P-T-LS-M3-C-LSC ports

### 2 Main pressure relief valve page 131

See previous page

### 3 Priority valve kit page 132

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

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **ESO32A** | 0EJ08002035 | Without emergency override |
| **ESO32V** | 0EJ08002042 | With screw type emergency override |
| **EST** | XTAP324540V | Valve blanking plug, only for PST inlet section |

### 5 Coil

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **12VDC** | 4SL3000120 | **BT** type coil, ISO4400 connector, 12VDC |

For complete available coil list see page 160.

### 6 Section threading

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

### 7 Plugs *

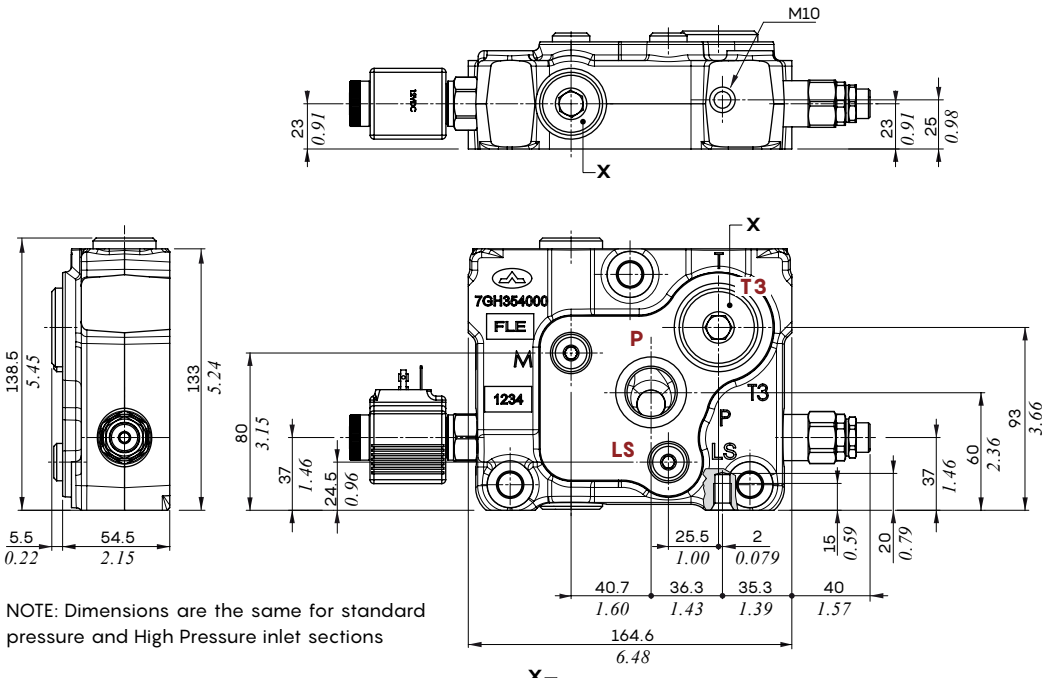
| CODE | DESCRIPTION |
|---|---|
| 3XTAP719150 | G1/4 plug, nr.1 for PS section, nr.2 for PF section |

NOTE (*): Codes are referred to **BSP** thread.

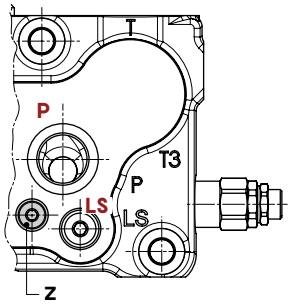
## Dimensions and hydraulic circuit

### Example of M Open Center section

**Type M4**




**Types M3(SO) or M3(SU)**

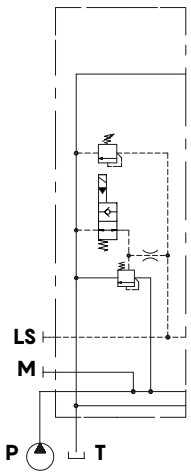



NOTE: Dimensions are the same for standard pressure and High Pressure inlet sections

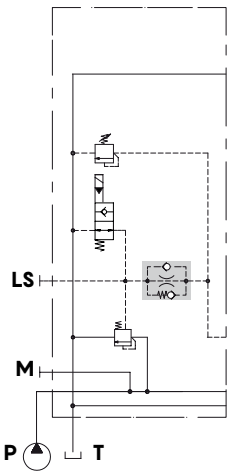
**Wrenches and tightening torques**

X = allen wrench 12 - 42 Nm *(31 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*
Z = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
NOTE: for valves wrench and torque see related pages

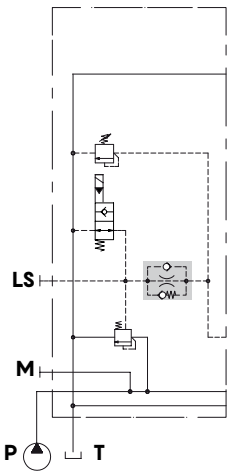
**Type M3**



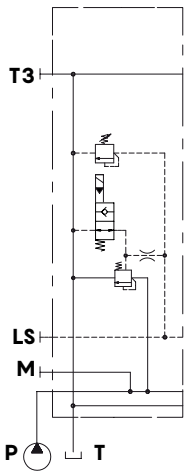

**Type M3(SU)**




**Type M3(SO)**




**Type M4**

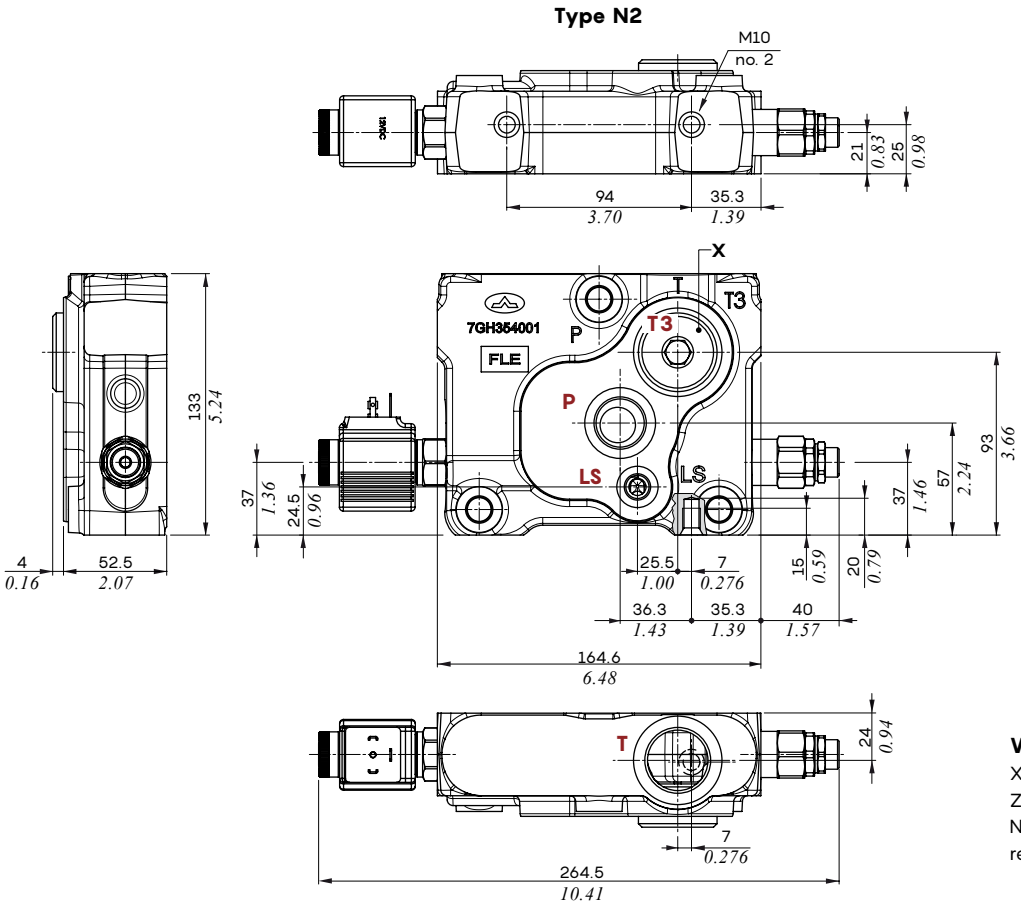


## Inlet section

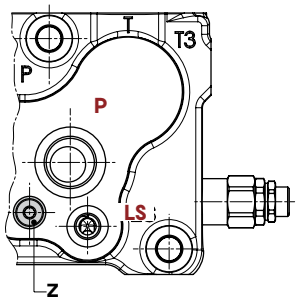
### Dimensions and hydraulic circuit

**Example of N Closed Center section**

**Type N2**



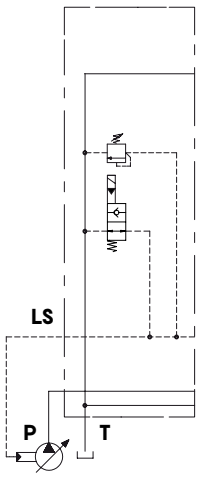

**Type N1(SO) or N1(SU)**



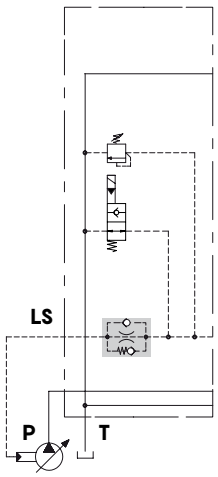

**Wrenches and tightening torques**

X = allen wrench 12 - 42 Nm *(31 lbft)*
Z = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
NOTE: for valves wrench and torque see related pages

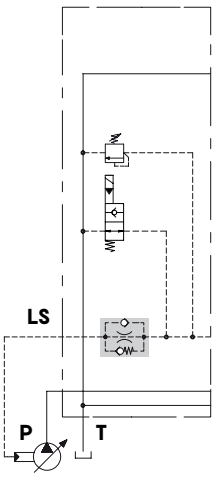
**Type N1**



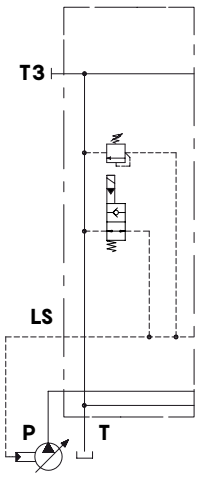

**Type N1(SU)**




**Type N1(SO)**

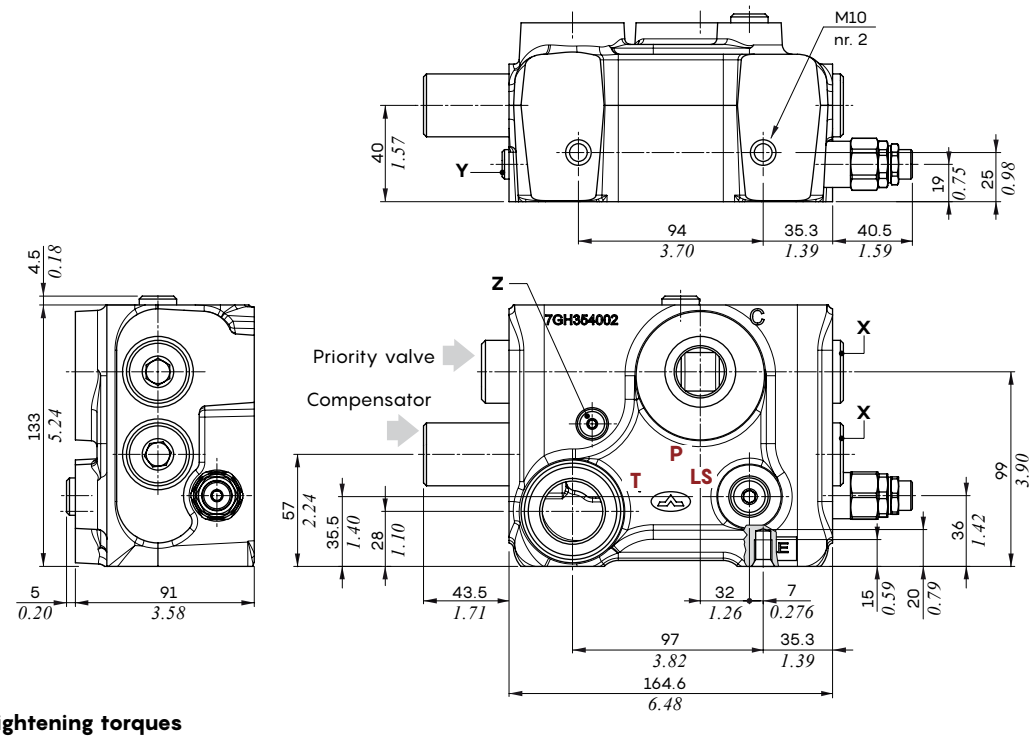



**Type N2**



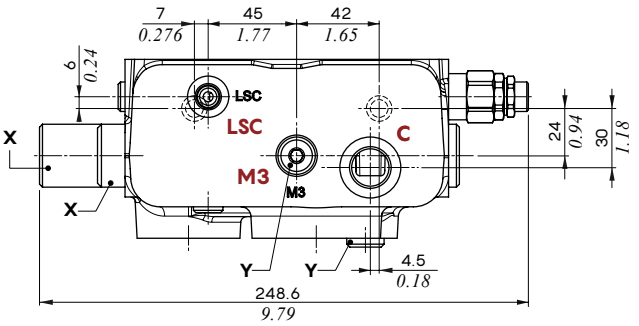
## Dimensions and hydraulic circuit

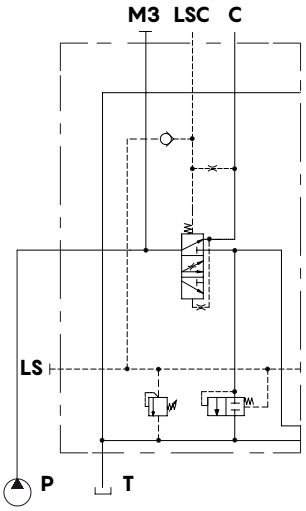
### PF1 Open Center section with priority valve




**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

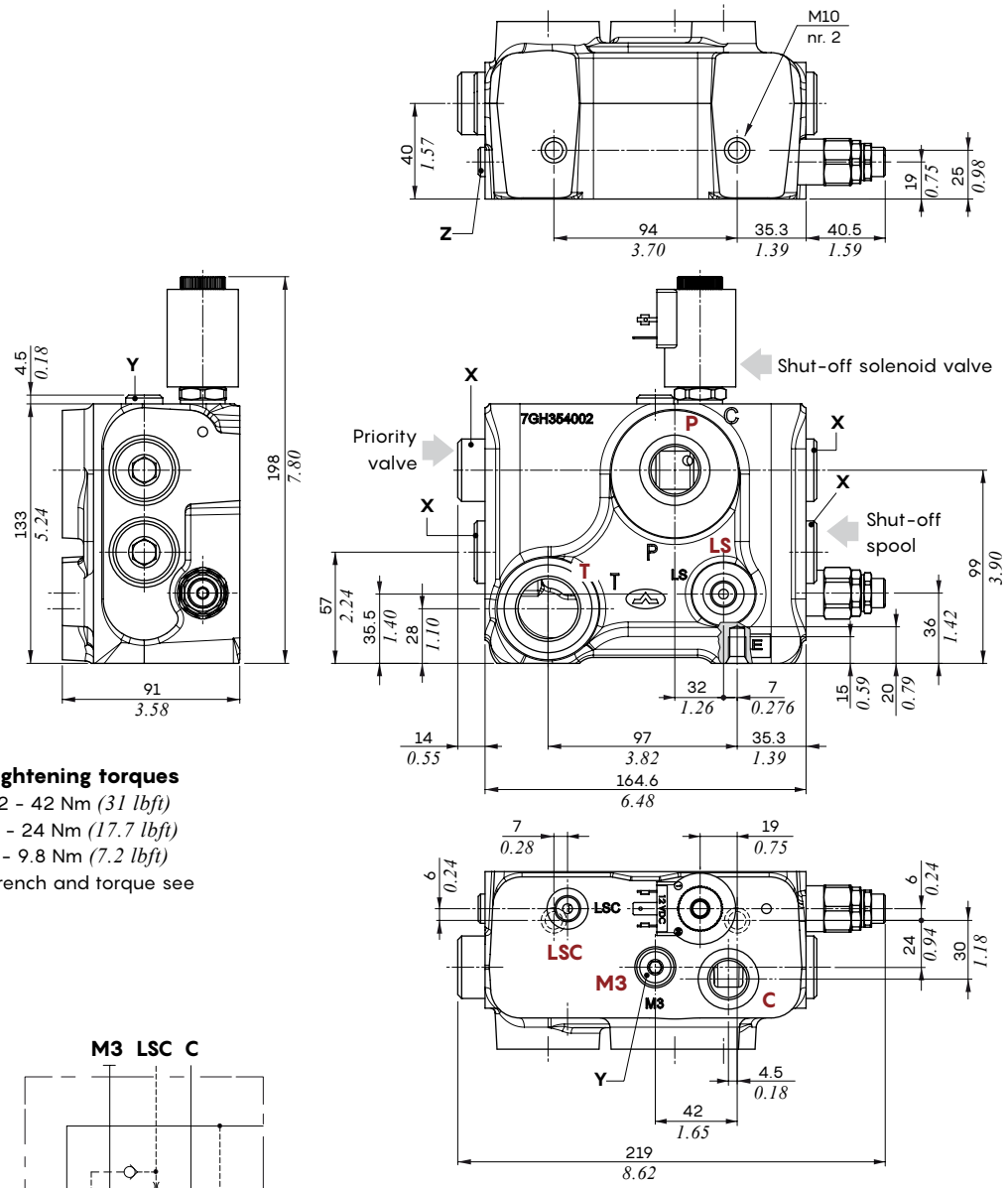


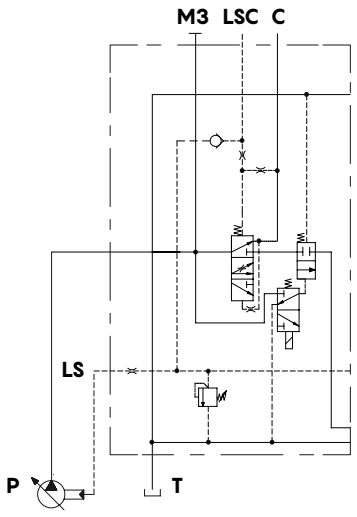
## Inlet section

### Dimensions and hydraulic circuit

**PS1 Closed Center section with priority valve and shut-off**

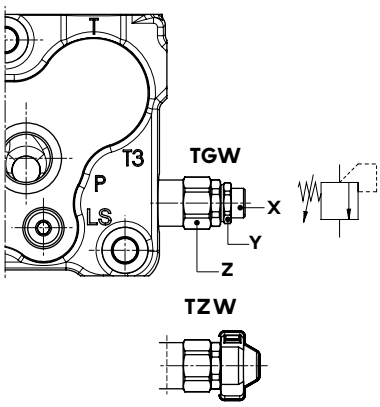



**Wrenches and tightening torques**
X = allen wrench 12 - 42 Nm *(31 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*
Z = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
NOTE: for valves wrench and torque see related pages

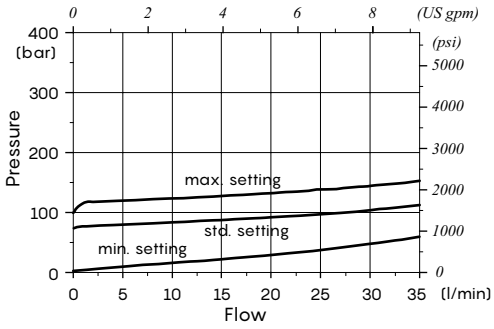


## Main pressure relief valve

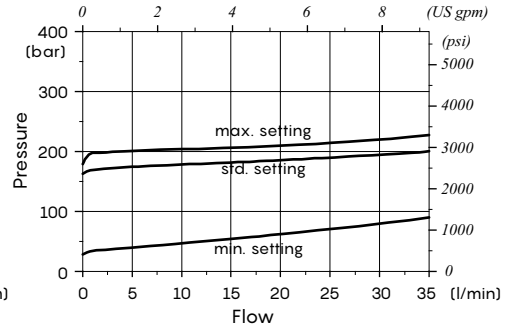
### Setting types



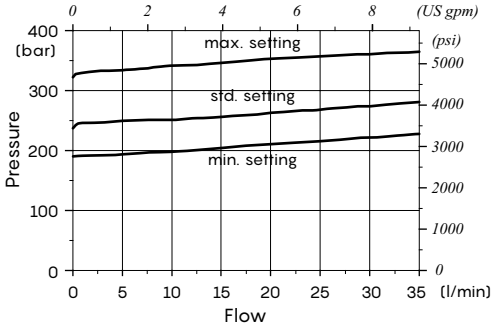

### Setting range: type TGW2



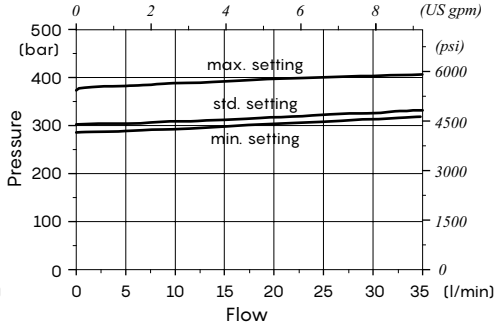

### Setting range: type TGW3




### Setting range: type TGW4




### Setting range: type TGW5

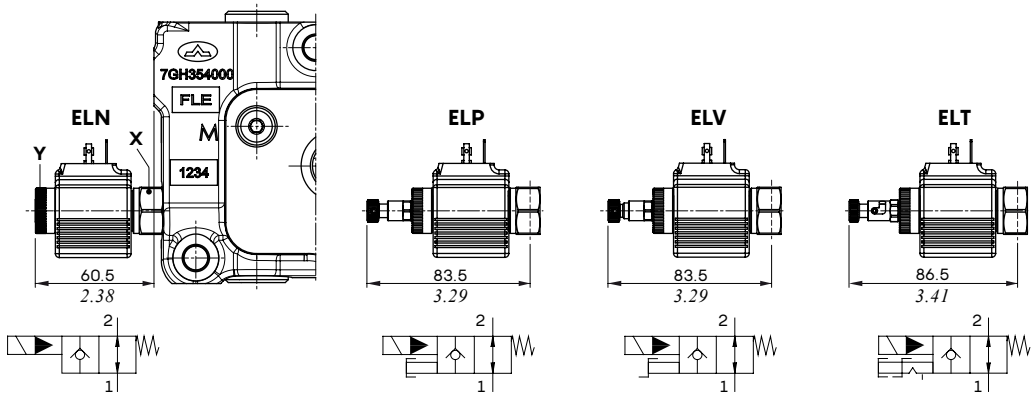



**Legenda**
**TGW**: free setting
**TZW**: set and locked valve
(cap code 4COP126301, n.2 pcs)
RAL3003 pigmented

**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

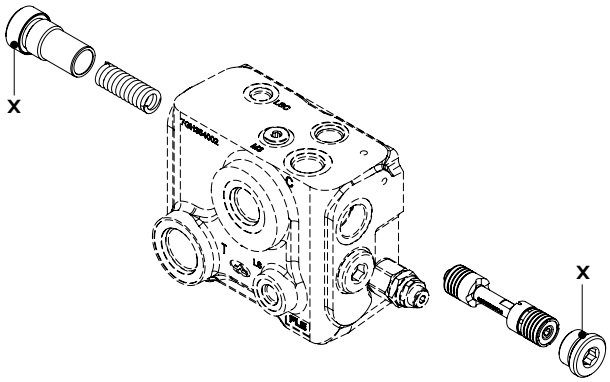
**Wrenches and tightening torques**
X = wrench 24 - 30 Nm *(22 lbft)*
Y = manual tightening

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

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

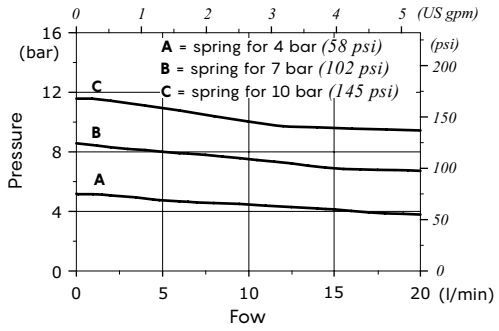
## Inlet section

### Priority valve kit

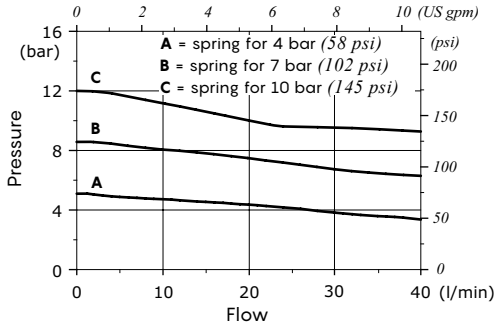



**Wrenches and tightening torques**
X = allen wrench 12 - 42 Nm *(31 lbft)*

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



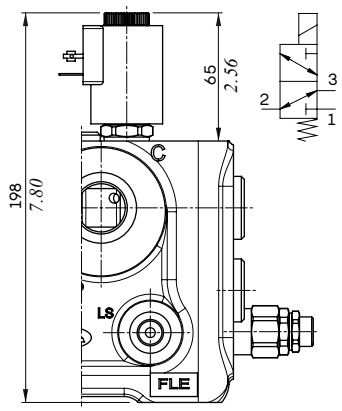

**Stand-by (margin pressure) vs. regulated flow**
Regulated flow = 40 l/min (*10.6 US gpm*)



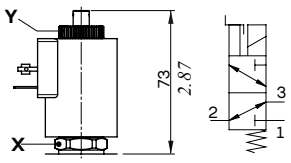

### Shut-off solenoid valve

**Manual emergency types**

**ESO32A**




**ESO32V**




**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 cm³/min @ 210 bar
*(0.61 in³/min @ 3050 psi)*

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

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

### A Mechanical control configuration:

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

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

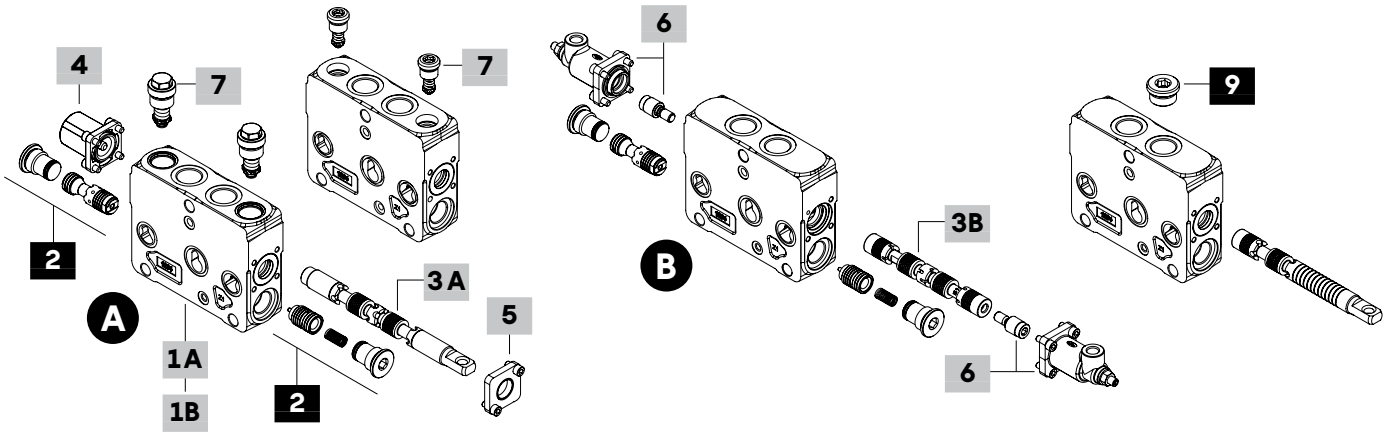
1A 1B 3A 4 5 7 8

**DPX160**: Standard pressure section
**DPX160HP**: High Pressure section

### B Proportional hydraulic control configuration:

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

3B 6




### 1A Std press. working section kit * page 137

**For mechanical control**
TYPE: **DPX160/Q-FPM** CODE: 5EL1053011V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160/P(UL)-FPM** CODE: 5EL1053000V
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160/P(US)-FPM** CODE: 5EL1053001V
DESCRIPTION: With port antishock valve arrangement
**For proportional hydraulic control**
TYPE: **DPX160/Q-IM-FPM** CODE: 5EL1053011AV
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160/P(UL)-IM-FPM** CODE: 5EL1053000AV
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160/P(US)-IM-FPM** CODE: 5EL1053001AV
DESCRIPTION: With port antishock valve arrangement

### 1B High press. working section kit * page 137

**For mechanical control**
TYPE: **DPX160HP/Q-FPM** CODE: 5EL1053015V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160HP/P(UL)-FPM#** CODE: 5EL1053020V
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160HP/P(US)-FPM** CODE: 5EL1053008V
DESCRIPTION: With port antishock valve arrangement
**For proportional hydraulic control**
TYPE: **DPX160HP/Q-IM-FPM** CODE: 5EL1053015AV
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160HP/P(UL)-IM-FPM#** CODE: 5EL1053020AV
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160HP/P(US)-IM-FPM** CODE: 5EL1053008AV
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 **BSP** thread.

### 3A Spool for mechanical control page 138

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| Double acting with A and B closed in neutral position | | |
| **108(150)** | 3CU8110108 | 150 l/min *(39.5 US gpm)* flow |
| **107(130)** | 3CU8110107 | 130 l/min *(34.3 US gpm)* flow |
| **106(110)** | 3CU8110106 | 110 l/min *(29 US gpm)* flow |
| **105(90)** | 3CU8110105 | 90 l/min *(23.8 US gpm)* flow |
| **104(70)** | 3CU8110104 | 70 l/min *(18.5 US gpm)* flow |
| **103(50)** | 3CU8110103 | 50 l/min *(13.2 US gpm)* flow |
| **102(30)** | 3CU8110102 | 30 l/min *(7.9 US gpm)* flow |
| **109(20)** | 3CU8110109 | 20 l/min *(5.3 US gpm)* flow |
| **101(10)** | 3CU8110101 | 10 l/min *(2.6 US gpm)* flow |
| Double acting with A and B 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 | | |
| **2H08(150)** | 3CU8110209 | 150 l/min *(39.5 US gpm)* flow |
| **2H07(130)** | 3CU8110223 | 130 l/min *(34.3 US gpm)* flow |
| **2H06(110)** | 3CU8110222 | 110 l/min *(29 US gpm)* flow |
| **2H05(90)** | 3CU8110224 | 90 l/min *(23.8 US gpm)* flow |
| **2H04(70)** | 3CU8110221 | 70 l/min *(18.5 US gpm)* flow |
| **2H03(50)** | 3CU8110220 | 50 l/min *(13.2 US gpm)* flow |
| **2H02(30)** | 3CU8110219 | 30 l/min *(7.9 US gpm)* flow |
| **2H09(20)** | 3CU8110218 | 20 l/min *(5.3 US gpm)* flow |
| **2H01(10)** | 3CU8110217 | 10 l/min *(2.6 US gpm)* flow |
| Single acting on A, B plugged: G3/4 plug is required | | |
| **308(150)** | 3CU8110308 | 150 l/min *(39.5 US gpm)* flow |
| **306(110)** | 3CU8110306 | 110 l/min *(29 US gpm)* flow |
| **303(50)** | 3CU8110303 | 50 l/min *(13.2 US gpm)* flow |
| **309(20)** | 3CU8110309 | 20 l/min *(5.3 US gpm)* flow |
| Single acting on B, A plugged: G3/4 plug is required | | |
| **408(150)** | 3CU8110408 | 150 l/min *(39.5 US gpm)* flow |
| **406(110)** | 3CU8110406 | 110 l/min *(29 US gpm)* flow |
| **403(50)** | 3CU8110403 | 50 l/min *(13.2 US gpm)* flow |
| **409(20)** | 3CU8110409 | 20 l/min *(5.3 US gpm)* flow |
| Double acting with A and B closed in neutral pos., 4 positions, floating in 4th position with spool in: 13 type positioner is required | | |
| **508(150)** | 3CU8110508 | 150 l/min *(39.5 US gpm)* flow |
| **504(70)** | 3CU8110504 | 70 l/min *(18.5 US gpm)* flow |

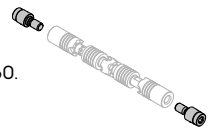
## Working section part ordering codes (mechanical, hydraulic)

### 3B Spool for hydraulic control page 138

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| Double acting with A and B closed in neutral position | | |
| **E108(150)** | 3CU871E108 | 150 l/min *(39.5 US gpm)* flow |
| **E107(130)** | 3CU871E107 | 130 l/min *(34.3 US gpm)* flow |
| **E106(110)** | 3CU871E106 | 110 l/min *(29 US gpm)* flow |
| **E105(90)** | 3CU871E105 | 90 l/min *(23.8 US gpm)* flow |
| **E104(70)** | 3CU871E104 | 70 l/min *(18.5 US gpm)* flow |
| **E103(50)** | 3CU871E103 | 50 l/min *(13.2 US gpm)* flow |
| **E102(30)** | 3CU871E102 | 30 l/min *(7.9 US gpm)* flow |
| **E113(20)** | 3CU871E113 | 20 l/min *(5.3 US gpm)* flow |
| **E101(10)** | 3CU871E101 | 10 l/min *(2.6 US gpm)* flow |
| Double acting with A and B to tank in neutral position | | |
| **E208(150)** | 3CU871E208 | 150 l/min *(39.5 US gpm)* flow |
| **E213(100)** | 3CU871E213 | 100 l/min *(26.4 US gpm)* flow |
| **E212(80)** | 3CU871E212 | 80 l/min *(21 US gpm)* flow |
| **E203(50)** | 3CU871E203 | 50 l/min *(13.2 US gpm)* flow |
| Double acting with A and B partially to tank in neutral position | | |
| **E2H08(150)** | 3CU871E209 | 150 l/min *(39.5 US gpm)* flow |
| **E2H07(130)** | 3CU871E223 | 130 l/min *(34.3 US gpm)* flow |
| **E2H06(110)** | 3CU871E222 | 110 l/min *(29 US gpm)* flow |
| **E2H05(90)** | 3CU871E215 | 90 l/min *(23.8 US gpm)* flow |
| **E2H04(70)** | 3CU871E221 | 70 l/min *(18.5 US gpm)* flow |
| **E2H03(50)** | 3CU871E220 | 50 l/min *(13.2 US gpm)* flow |
| **E2H02(30)** | 3CU871E219 | 30 l/min *(7.9 US gpm)* flow |
| **E2H13(20)** | 3CU871E218 | 20 l/min *(5.3 US gpm)* flow |
| **E2H01(10)** | 3CU871E217 | 10 l/min *(2.6 US gpm)* flow |
| Single acting on A or B, other port plugged: G3/4 plug is required | | |
| **E308-E408(150)** | 3CU871E308 | 150 l/min *(39.5 US gpm)* flow |
| **E306-E406(110)** | 3CU871E306 | 110 l/min *(29 US gpm)* flow |
| **E303-E403(50)** | 3CU871E303 | 50 l/min *(13.2 US gpm)* flow |
| **E313-E413(20)** | 3CU871E313 | 20 l/min *(5.3 US gpm)* flow |
| Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: 13IM type control is required | | |
| **I508(150)** | YCU871E508 | 150 l/min *(39.5 US gpm)* flow |
| **I507(130)** | YCU871E507 | 130 l/min *(34.3 US gpm)* flow |
| **I504(70)** | YCU871E504 | 70 l/min *(18.5 US gpm)* flow |

NOTE: to order these spools as spare parts it's necessary to order nr. 2 pins code 3VIT116360. This rule is not required for floating spools



### 4 "A" side spool positioners page 140

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **7FTNA** | 5V07210101 | With friction and neutral pos. notch |
| **8MD** | 5V08109000 | 3 postions with spring return to neutral position |
| For floating circuit (spool 5) | | |
| **13** | 5V13109000 | 4 positions, detent in 4th position with spring return to neutral position |

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

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

### 6 Proportional hydraulic control * page 143

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **8IMNOH** | 5IDR209304V-H | Range 8-28 bar *(116-406 psi)* |
| **8IMNOHF3** | 5IDR209305V-H | As previous with spool stroke limiter |
| For floating circuit (spool I5) | | |
| **13IMOH** | 5IDR209303V-H | Range 3.1-25.6 / 0-30 bar *(45-371 / 0-435 psi)* |
| **13IMPOH** | 5IDR209014V | 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).*

| | | |
|---|---|---|
| **UST** | XTAP221340V | Valve blanking plug |
| **CS** | 5KIT426270 | Anticavitation valve (for US cavity) |

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

TYPE: **US (100)** CODE: 5KIT326 100

(100) = setting (bar); 100 = setting (bar)

SETTING:

| | | | |
|---|---|---|---|
| 25 bar *(360 psi)* | 40 bar *(725 psi)* | 50 bar *(725 psi)* | 60 bar *(870 psi)* |
| 70 bar *(1010 psi)* | 80 bar *(1150 psi)* | 90 bar *(1300 psi)* | 100 bar *(1450 psi)* |
| 125 bar *(1800 psi)* | 140 bar *(2050 psi)* | 160 bar *(2300 psi)* | 175 bar *(2550 psi)* |
| 190 bar *(2750 psi)* | 210 bar *(3050 psi)* | 230 bar *(3350 psi)* | 240 bar *(3500 psi)* |
| 250 bar *(3600 psi)* | 260 bar *(3750 psi)* | 280 bar *(4050 psi)* | 300 bar *(4350 psi)* |
| 320 bar *(4650 psi)* | 340 bar *(4950 psi)* | 360 bar *(5200 psi)* | 380 bar *(5500 psi)* |
| 400 bar *(5800 psi)* | 420 bar *(6100 psi)* | | |

**"UL" size valves**

| | | |
|---|---|---|
| **ULT** | XTAP528520V | Valve blanking plug |
| **CL** | 5KIT409000 | Anticavitation valve (for UL cavity) |

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

TYPE: **UL (100)** CODE: 5KIT340 100 L

(100) = setting (bar); 100 = setting (bar)

SETTING:

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

### 8 Section threading

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

### 9 Plug for single acting spool *

| CODE | DESCRIPTION |
|---|---|
| 3XTAP732200 | G3/4 plug |

NOTE (*): Codes are referred to **BSP** thread.

## Working section parts ordering codes (electrohydraulic)

### A Two-side electrohydraulic control configuration:

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

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

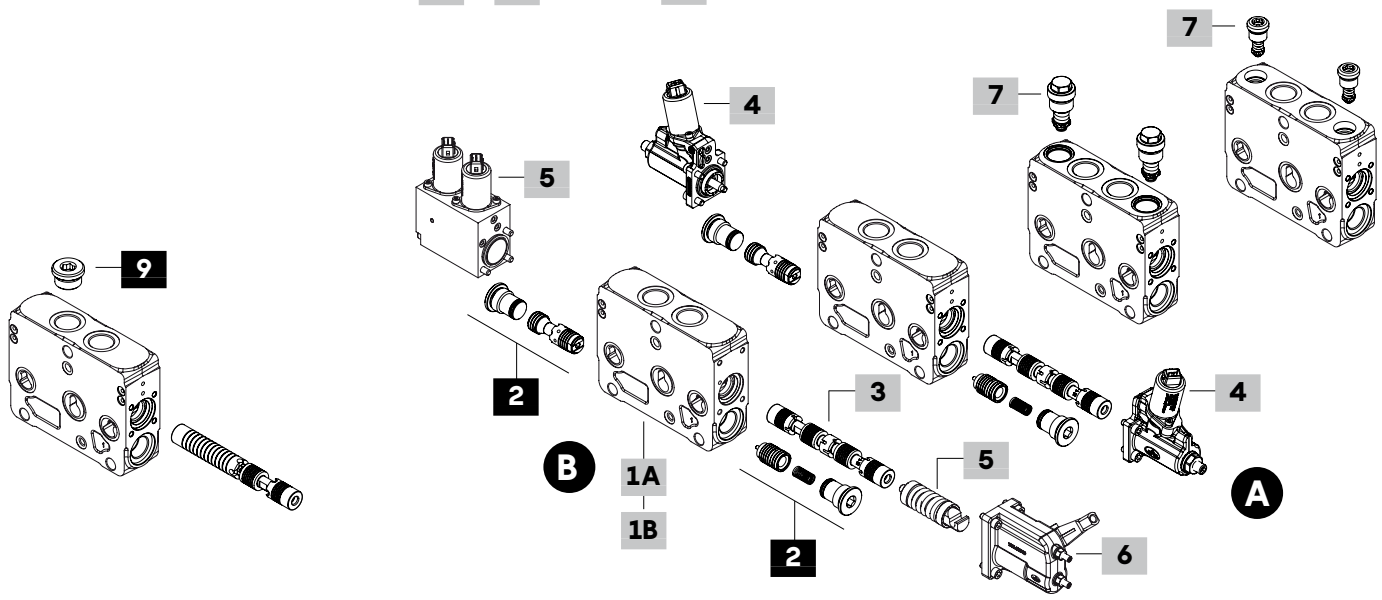
1A 1B — 3 — 4 — 7 — 8 — 4

**DPX160**: Standard pressure section
**DPX160HP**: High Pressure section

### B One-side electrohydraulic control configuration:

**DPX160 / QZ - E108(150/150) - 8EZ3 LQF3 - ..... - 12VDC**

5 — 6 — 5




### 1A Std press. working section kit * page 137

**For two-side electrohydraulic control**

TYPE: **DPX160/QE-FPM** CODE: 5EL1053010V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160/PE(UL)-FPM** CODE: 5EL1053002V
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160/PE(US)-FPM** CODE: 5EL1053003V
DESCRIPTION: With port antishock valve arrangement

**For one-side electrohydraulic control**

TYPE: **DPX160/QZ-FPM** CODE: 5EL1053029V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160/PZ(UL)-FPM** CODE: 5EL1053028V
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160/PZ(US)-FPM** CODE: 5EL1053030V
DESCRIPTION: With port antishock valve arrangement

### 1B High press. working section kit * page 137

**For two-side electrohydraulic control**

TYPE: **DPX160HP/QE-FPM** CODE: 5EL1053016V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160HP/PE(UL)-FPM#** CODE: 5EL1053021V
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160HP/PE(US)-FPM** CODE: 5EL1053009V
DESCRIPTION: With port antishock valve arrangement

**For one-side electrohydraulic control**

TYPE: **DPX160HP/QZ-FPM** CODE: 5EL1053031V
DESCRIPTION: Without port valve arrangement
TYPE: **DPX160HP/PZ(UL)-FPM#** CODE: 5EL1053032V
DESCRIPTION: With port pressure relief valve arrangement
TYPE: **DPX160HP/PZ(US)-FPM** CODE: 5EL1053033V
DESCRIPTION: With port antishock valve arrangement
NOTE (#): Max pressure = 380 bar *(4350 psi)*

### 2 Compensator kit

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| - | 5CAS321061V | Compensator, FPM o-ring seal |

NOTE (*): Codes are referred to **BSP** thread.

## 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 |
|---|---|---|
| Double acting with A and B closed in neutral position | | |
| **E108(150)** | 3CU871E108 | 150 l/min *(39.5 US gpm)* flow |
| **E107(130)** | 3CU871E107 | 130 l/min *(34.3 US gpm)* flow |
| **E106(110)** | 3CU871E106 | 110 l/min *(29 US gpm)* flow |
| **E105(90)** | 3CU871E105 | 90 l/min *(23.8 US gpm)* flow |
| **E104(70)** | 3CU871E104 | 70 l/min *(18.5 US gpm)* flow |
| **E103(50)** | 3CU871E103 | 50 l/min *(13.2 US gpm)* flow |
| **E102(30)** | 3CU871E102 | 30 l/min *(7.9 US gpm)* flow |
| **E113(20)** | 3CU871E113 | 20 l/min *(5.3 US gpm)* flow |
| **E101(10)** | 3CU871E101 | 10 l/min *(2.6 US gpm)* flow |
| Double acting with A and B to tank in neutral position | | |
| **E208(150)** | 3CU871E208 | 150 l/min *(39.5 US gpm)* flow |
| **E213(100)** | 3CU871E213 | 100 l/min *(26.4 US gpm)* flow |
| **E212(80)** | 3CU871E212 | 80 l/min *(21 US gpm)* flow |
| **E203(50)** | 3CU871E203 | 50 l/min *(13.2 US gpm)* flow |
| Double acting with A and B partially to tank in neutral position | | |
| **E2H08(150)** | 3CU871E209 | 150 l/min *(39.5 US gpm)* flow |
| **E2H07(130)** | 3CU871E223 | 130 l/min *(34.3 US gpm)* flow |
| **E2H06(110)** | 3CU871E222 | 110 l/min *(29 US gpm)* flow |
| **E2H05(90)** | 3CU871E215 | 90 l/min *(23.8 US gpm)* flow |
| **E2H04(70)** | 3CU871E221 | 70 l/min *(18.5 US gpm)* flow |
| **E2H03(50)** | 3CU871E220 | 50 l/min *(13.2 US gpm)* flow |
| **E2H02(30)** | 3CU871E219 | 30 l/min *(7.9 US gpm)* flow |
| **E2H13(20)** | 3CU871E218 | 20 l/min *(5.3 US gpm)* flow |
| **E2H01(10)** | 3CU871E217 | 10 l/min *(2.6 US gpm)* flow |
| Single acting on A or B, other port plugged: G3/4 plug is required | | |
| **E308-E408(150)** | 3CU871E308 | 150 l/min *(39.5 US gpm)* flow |
| **E306-E406(110)** | 3CU871E306 | 110 l/min *(29 US gpm)* flow |
| **E303-E403(50)** | 3CU871E303 | 50 l/min *(13.2 US gpm)* flow |
| **E313-E413(20)** | 3CU871E313 | 20 l/min *(5.3 US gpm)* flow |
| Double acting with A and B closed in neutral pos., 4 positions, floating in 4th pos. with spool in: needs control kit type 13EB3.../13EZ3... | | |
| **E508(150)** | 3CU871E508 | 150 l/min *(39.5 US gpm)* flow |
| **E507(130)** | 3CU871E507 | 130 l/min *(34.3 US gpm)* flow |
| **E504(70)** | 3CU871E504 | 70 l/min *(18.5 US gpm)* flow |

### 7 Port valves page 153

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

For complete list see 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 |
|---|---|
| 3XTAP732200 | G3/4 plug |

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| Without lever control | | |
| **8EB3-12VDC** | 5IDR909312V | With AMP connector |
| **8EB3-24VDC** | 5IDR909324V | As previous one |
| **8EB34-12VDC** | 5IDR909329V | With Deutsch connector |
| **8EB34-24VDC** | 5IDR909330V | As previous one |
| **8EB3F3-12VDC** | 5IDR909313V | With AMP connector with spool stroke limiter |
| **8EB3F3-24VDC** | 5IDR909317V | As previous one |
| **8EB34F3-12VDC** | 5IDR909314V | With Deutsch connector with spool stroke limiter |
| **8EB34F3-24VDC** | 5IDR909331V | As previous one |
| Without lever control: for floating circuit (E5 spool) | | |
| **13EB3-12VDC** | 5IDR919312V | With AMP connector |
| **13EB3-24VDC** | 5IDR919324V | As previous one |
| **13EB34-12VDC** | 5IDR919317V | With Deutsch connector |
| **13EB34-24VDC** | 5IDR919318V | As previous one |
| With lever control | | |
| **8EB3LH-12VDC** | 5IDR909315AV | With AMP connector |
| **8EB3LH-24VDC** | 5IDR909326AV | As previous one |
| **8EB34LH-12VDC** | 5IDR909332AV | With Deutsch connector |
| **8EB34LH-24VDC** | 5IDR909333AV | As previous one |
| **8EB3LHF3-12VDC** | 5IDR909355V | With AMP connector with spool stroke limiter |
| **8EB3LHF3-24VDC** | 5IDR909354V | As previous one |
| **8EB34LHF3-12VDC** | 5IDR909334AV | With Deutsch connector with spool stroke limiter |
| **8EB34LHF3-24VDC** | 5IDR909335AV | As previous one |
| With lever control and spool position sensor | | |
| **8EB3LHSPSD-12VDC** | 5IDR909341V | AMP conn. and digital sensor |
| **8EB3LHSPSD-24VDC** | 5IDR909338AV | As previous one |
| **8EB3LHF3SPSD-12VDC** | 5IDR909339V | AMP conn., digital sensor and spool stroke limiter |
| **8EB3LHF3SPSD-24VDC** | 5IDR909336AV | As previous one |
| With lever control: for floating circuit (E5 spool) | | |
| **13EB3LH-12VDC** | 5IDR919313AV | With AMP connector |
| **13EB3LH-24VDC** | 5IDR919325AV | As previous one |
| **13EB34LH-12VDC** | 5IDR919319V | With Deutsch connector |
| **13EB34LH-24VDC** | 5IDR919320V | As previous one |
| **13EB3LHF3-12VDC** | 5IDR919314V | With AMP connector with spool stroke limiter |
| **13EB3LHF3-24VDC** | 5IDR919326AV | As previous one |
| **13EB34LHF3-12VDC** | 5IDR919321AV | With Deutsch connector with spool stroke limiter |
| **13EB34LHF3-24VDC** | 5IDR919322V | As previous one |

### 5 One-side electrohydr.control; "A" side page 151

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

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **8EZ3-12VDC** | 5IDR609315V | With AMP connector |
| **8EZ3-24VDC** | 5IDR609316V | As previous one |
| **8EZ34-12VDC** | 5IDR609317V | With Deutsch connector |
| **8EZ34-24VDC** | 5IDR609318V | As previous one |
| With spool position sensor | | |
| **8EZ34SPSL-0.5(A)-4.5(B)-12VDC** | 5IDR609313V | Deutsch conn. and analog sensor |
| With lever control: for floating circuit (spool E5) | | |
| **13EZ3-12VDC** | 5IDR619300V | With AMP connector |
| **13EZ3-24VDC** | 5IDR619302V | As previous one |
| **13EZ34-12VDC** | 5IDR619301V | With Deutsch connector |
| **13EZ34-24VDC** | 5IDR619303V | As previous one |

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

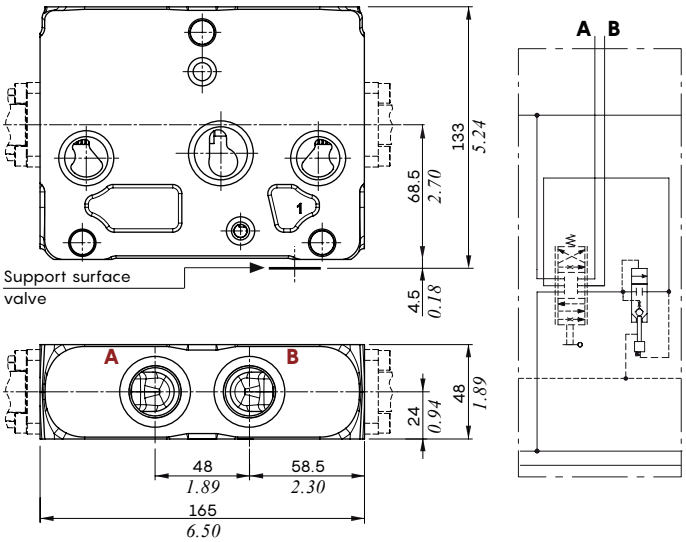
**These options must be coupled with "A" side controls**

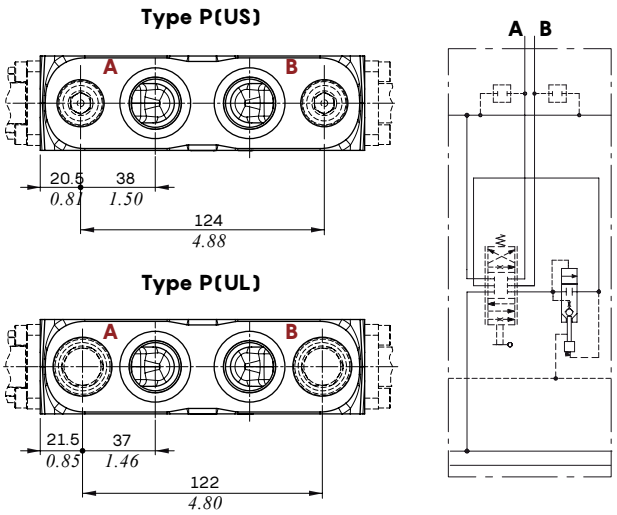
| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **LQ** | 5LEV160700AV | Lever box |
| **LQF3** | 5LEV160701AV | Lever box with spool stroke limiter |
| **SLCQ** | 5COP260000V | Without lever with endcap |

NOTE (*): Codes are referred to **BSP** thread.

## Dimensions and hydraulic circuit

### Section for mechanical and proportional hydraulic controls

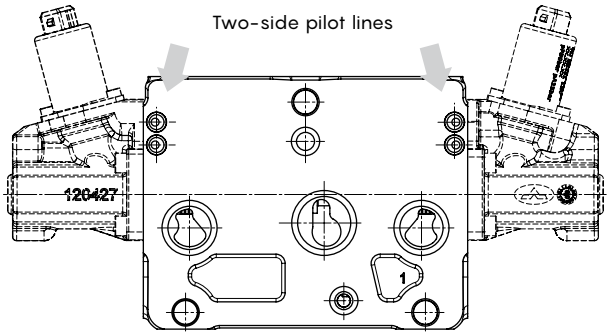


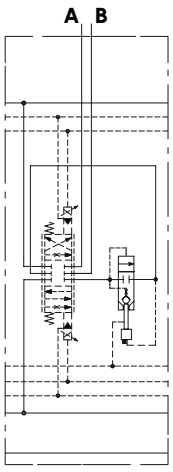

NOTE: US and UL auxiliary valves are not interchangeable: they need dedicated working sections

### Section for two-side electrohydraulic control

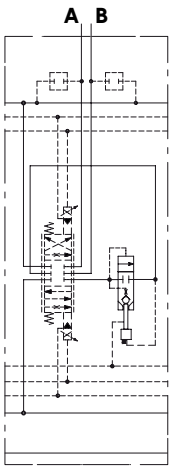
**Type QE, PE(US) or PE(UL)**




**Type QE**

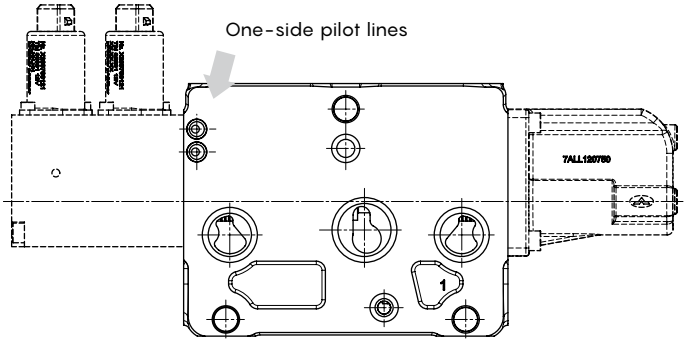



**Type PE**

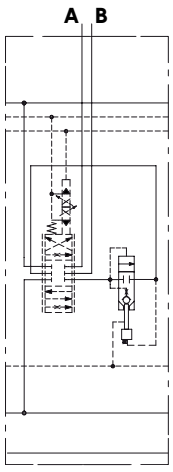



### Section for one-side electrohydraulic control

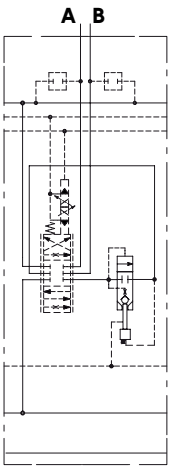
**Type QZ, PZ(US) or PZ(UL)**




**Type QZ**




**Type PZ**

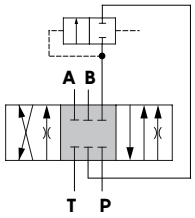


## Working section

### Spool

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

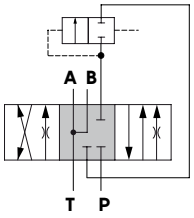
1 0 2




**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

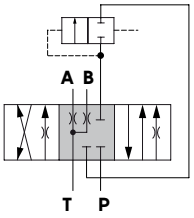
1 0 2




**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

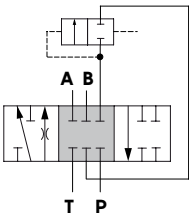
1 0 2




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

**Type 3 (3../E3..)**
Single acting on A

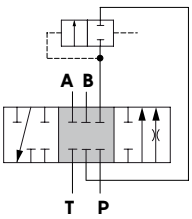
1 0 2




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

**Type 4 (4../E4..)**
Single acting on B

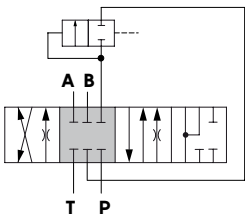
1 0 2



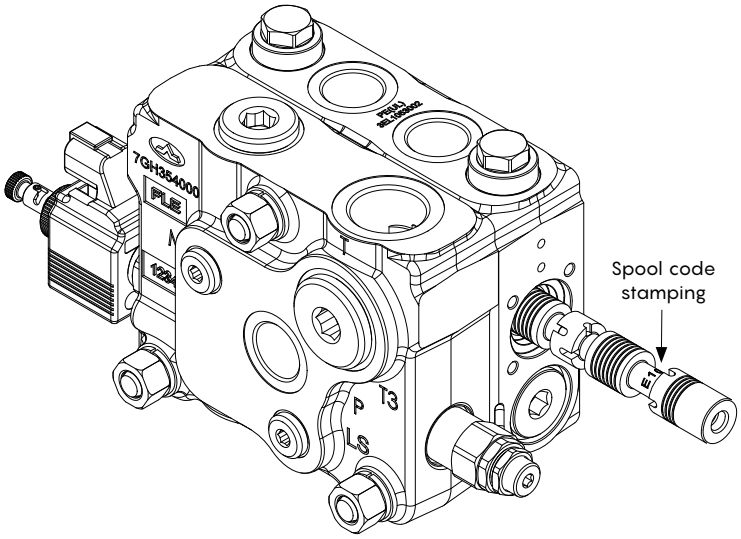

**Stroke**
position 1: + 8 mm *(+ 0.31 in)*
position 2: - 8 mm *(- 0.31 in)*

**Type 5 (5../E5../I5..)**
Floating in 4th position (pos.3)

1 0 2 3

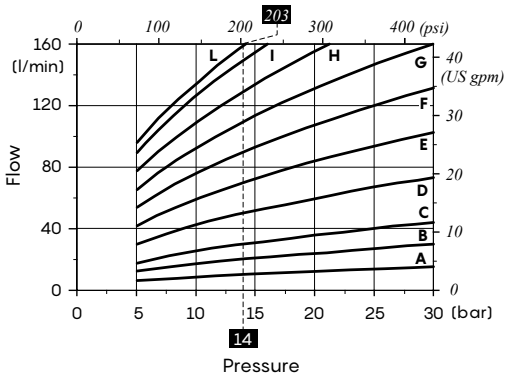



**Stroke**
position 1: + 8 mm *(+ 0.31 in)*
position 2: - 8 mm *(- 0.31 in)*
position 3: - 13 mm *(- 0.51 in)*




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)**

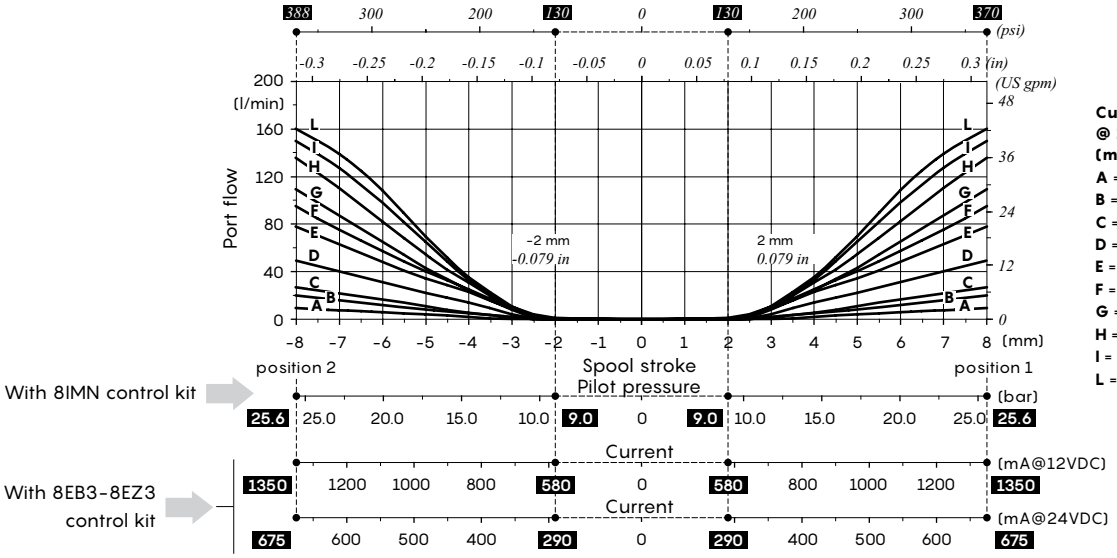
**A** = 10 l/min *(2.6 US gpm)* ± 10%
**B** = 20 l/min *(5.3 US gpm)* ± 10%
**C** = 30 l/min *(7.9 US gpm)* ± 10%
**D** = 50 l/min *(13.2 US gpm)* ± 10%
**E** = 70 l/min *(18.5 US gpm)* ± 10%
**F** = 90 l/min *(23.8 US gpm)* ± 10%
**G** = 110 l/min *(29.0 US gpm)* ± 10%
**H** = 130 l/min *(34.3 US gpm)* ± 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.

### 3 position spool metering curve

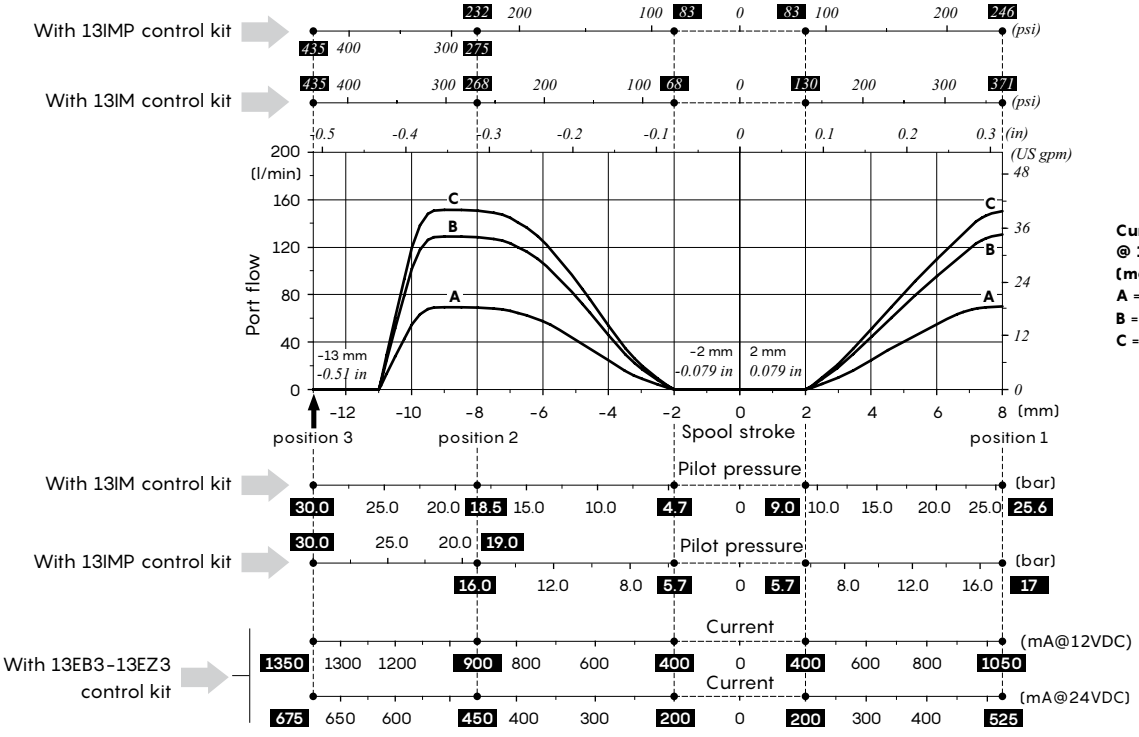
Qin = 160 l/min - *(42.3 US gpm)* - Open center circuit




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

### Floating spool metering curve

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

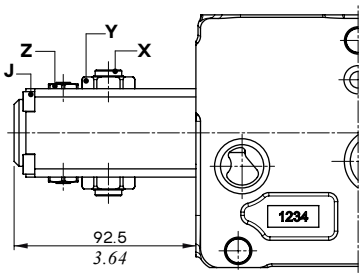



**Curves with spool nom. flow @ 14 bar *(200 psi)* stand-by (margin pressure)**
**A** = 70 l/min *(18.5 US gpm)*
**B** = 130 l/min *(34.3 US gpm)*
**C** = 150 l/min *(39.5 US gpm)*

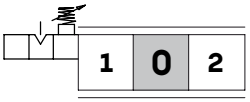
## Working section

### "A" side spool positioners

#### With friction and neutral position notch




**Type 7FTNA**

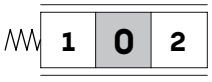


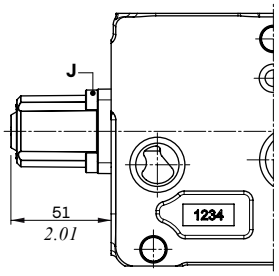

**Wrenches and tightening torques**
J = allen wrench 5 - 9.8 Nm *(7.2 lbft)*
X = allen wrench 4
Y = wrench 24 - manual tightening
Z = wrench 15 - 42 Nm *(31 lbft)*

#### 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).

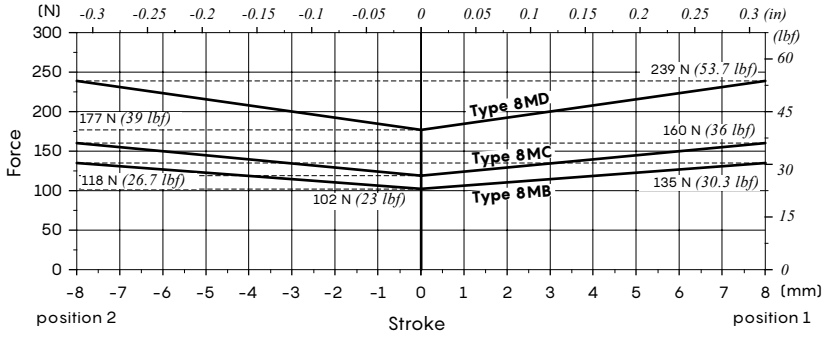
**Types 8MD/8MC/8MB**
Standard/lighter/extra-lighter springs



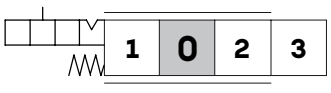

**Wrenches and tightening torques**
J = allen wrench 5 - 9.8 Nm *(7.2 lbft)*

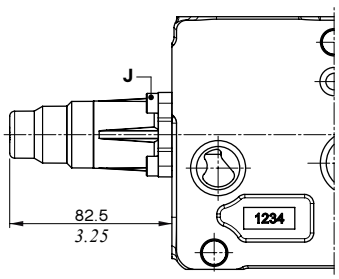
**Force vs. Stroke diagram**




#### With spring return to neutral position, for floating circuit

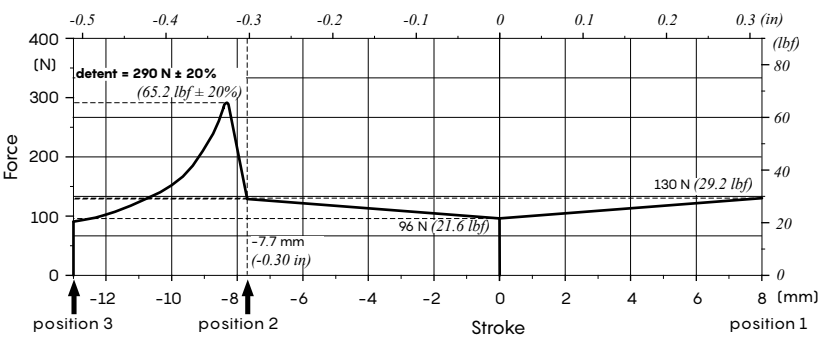
**Type 13**




**Wrenches and tightening torques**
J = allen wrench 5 - 9.8 Nm *(7.2 lbft)*

**Force vs. Stroke diagram**



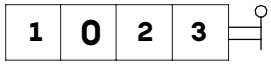

Release force from pos.3: 260 N ± 20% *(58.5 lbf ± 20%)*

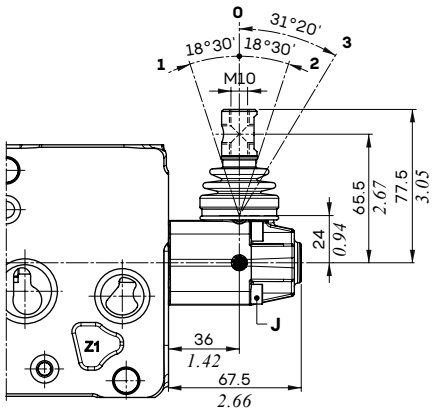
## Working section

### "B" side spool control kit

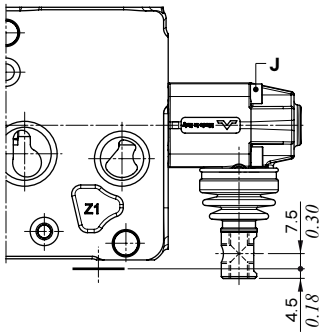
#### Lever box

**Type L**



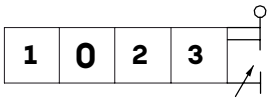



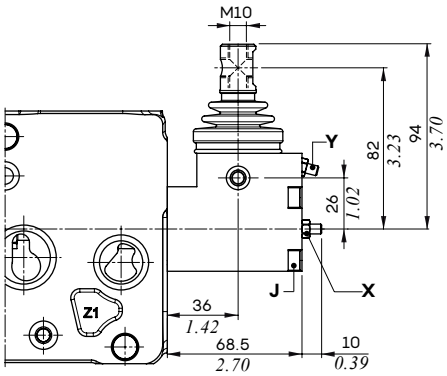

L180 configuration




**Type LFG**

Spool stroke limiter on A and B ports




**Wrenches and tightening torques**

J = allen wrench 5 - 9.8 Nm *(7.2 lbft)*

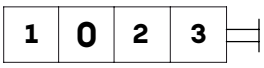
X = allen wrench 2.5

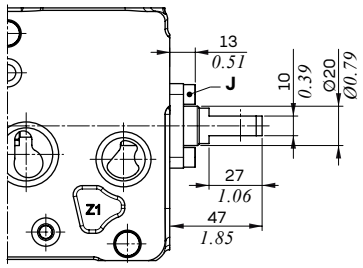
Y = wrench 8 - 6.6 Nm *(4.9 lbft)*

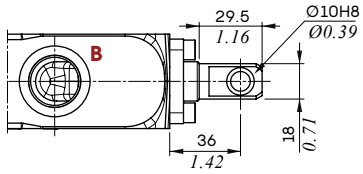
#### Without lever box

**Type SLP**

With dust-proof plate

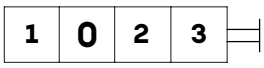


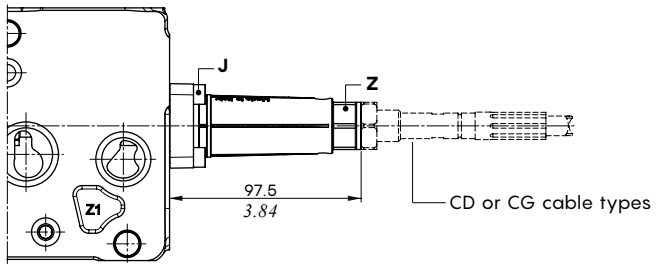




**Type TQ**

Flexible cable connection




**Wrenches and tightening torques**

J = allen wrench 5 - 9.8 Nm *(7.2 lbft)*

Z = wrench 24

## Working section

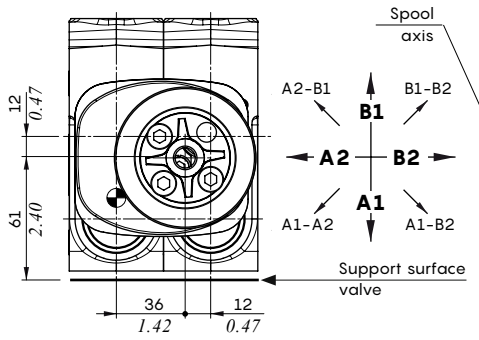
### "B" side spool control kit

#### Joysticks for two section operation

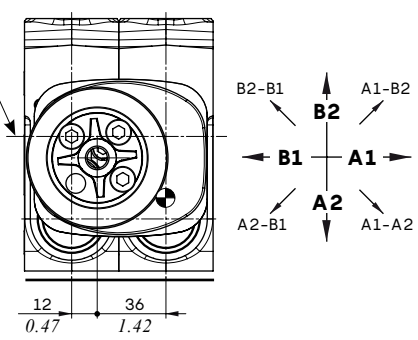
**Type LCB**

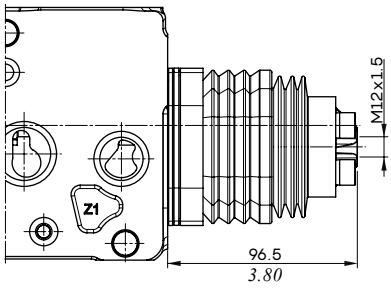
| | | |
|---|---|---|
| 1 | 0 | 2 |
| 1 | 0 | 2 |

LCB1 configuration

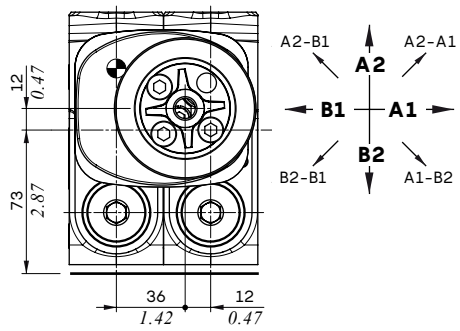



LCB2 configuration

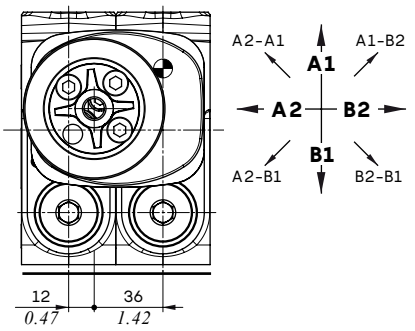


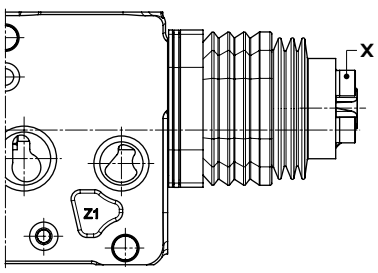




LCB3 configuration




LCB4 configuration

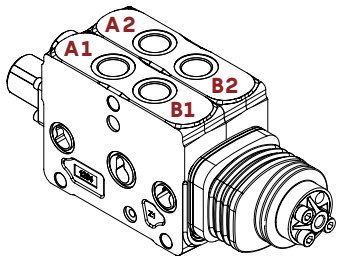



**Wrenches and tightening torques**

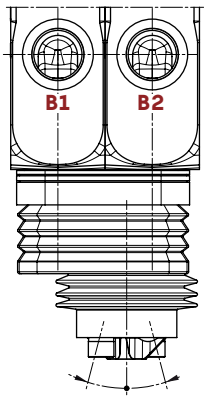
X = allen wrench 6 - 24 Nm *(17.7 lbft)*

**LCB1 configuration example**

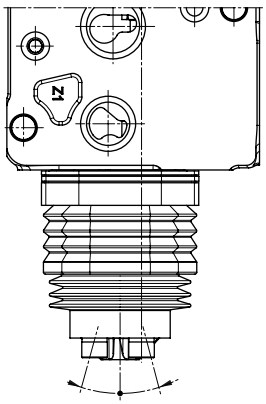



**Working angles**

Horizontal axis



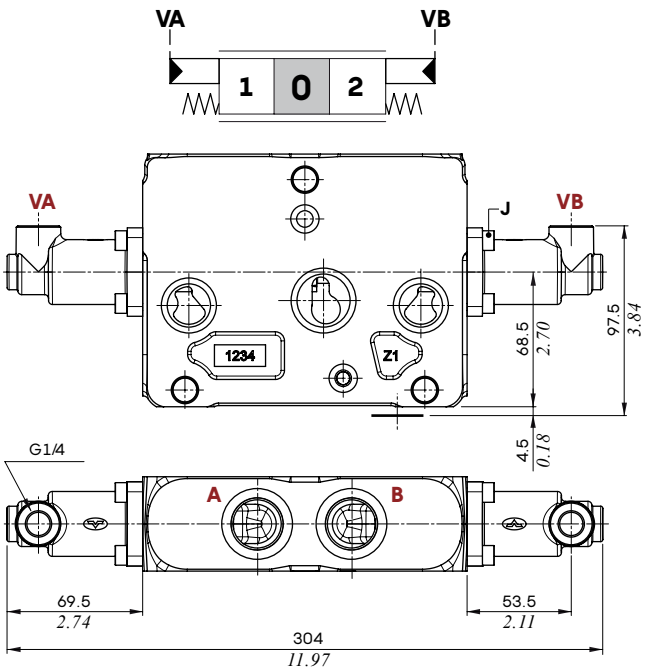

Vertical axis




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

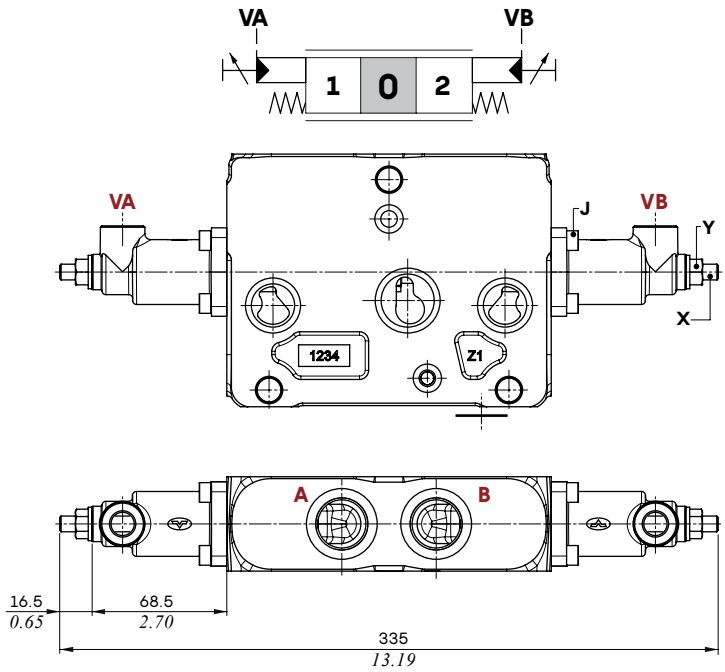
## Proportional hydraulic control

### Type 8IMNOH




### Type 8IMNOHF3

With spool stroke limiter on ports A and B




**Features (all types)**

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

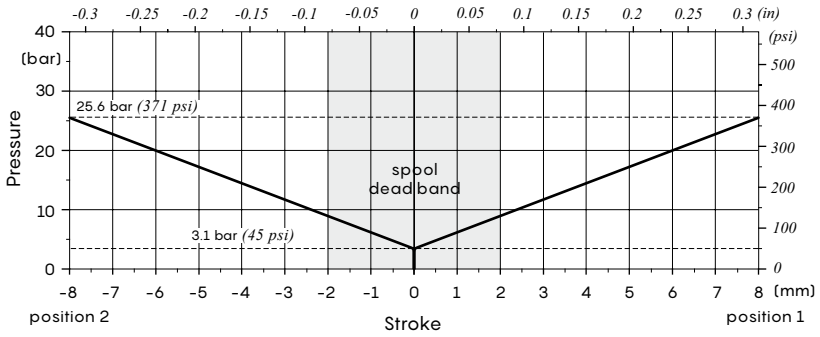
**Wrenches and tightening torques**

J = allen wrench 5 - 9.8 Nm *(7.2 lbft)*

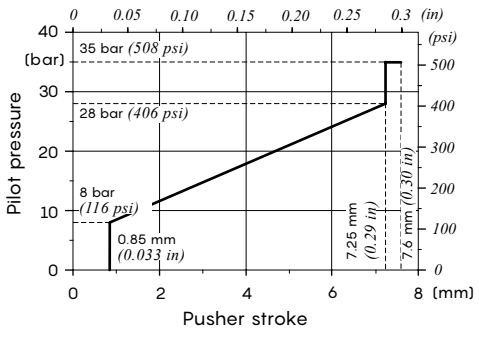
X = allen wrench 4

Y = wrench 13 - 24 Nm *(17.7 lbft)*

**Stroke vs. Pressure diagram**




**Suggested pressure control curve: type 089**

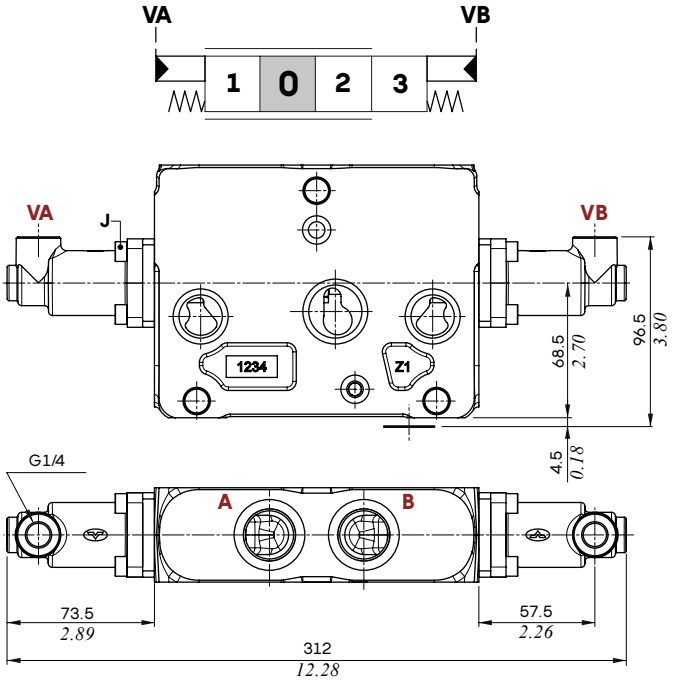


## Working section

### Proportional hydraulic control

**Type 13IMOH – 13IMPOH**

For floating circuit



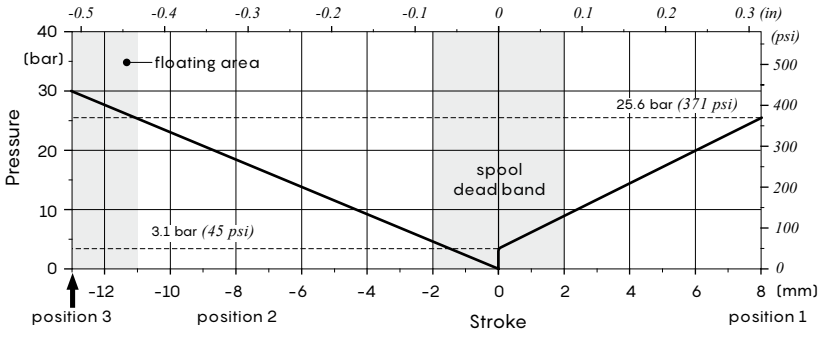

**Features**

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

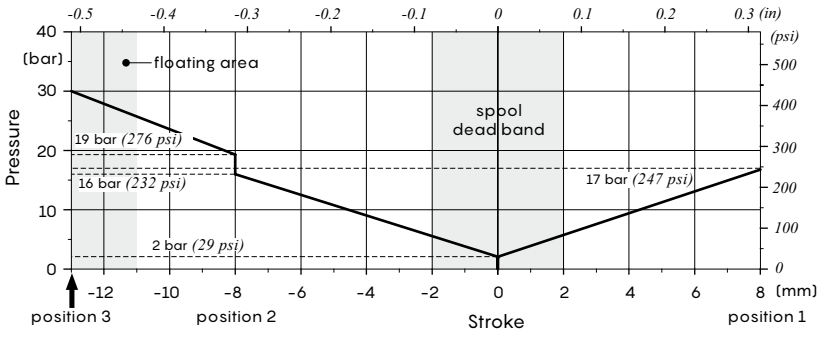
**Wrenches and tightening torques**

J = allen wrench 5 - 9.8 Nm *(7.2 lbft)*

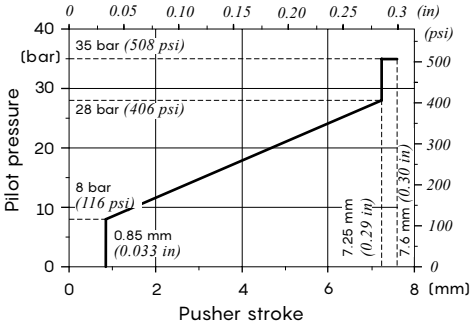
**Type 13IMOH: Stroke vs. Pressure diagram**



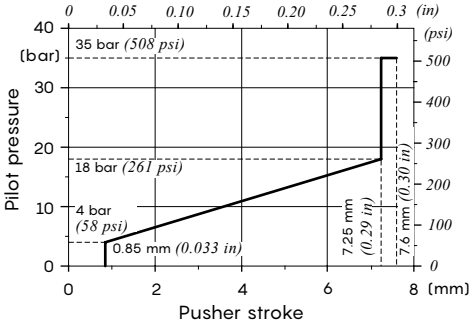

**Type 13IMP: Stroke vs. Pressure diagram**



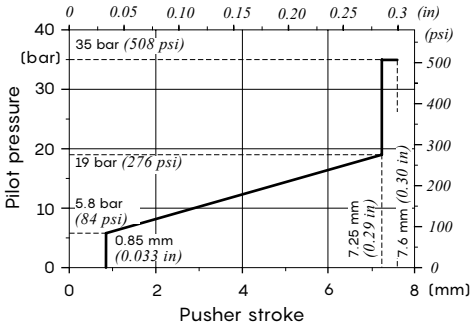

**Type 13IMOH – suggested pressure control curve on port VA: type 089**



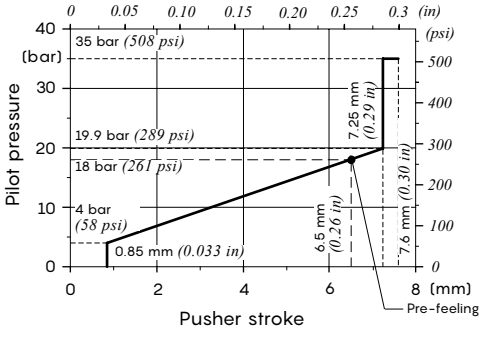

**Type 13IMP – suggested pressure control curve on port VA: type 073**




**Type 13IMOH – suggested pressure control curve on port VB: type 033**




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



## Electrohydraulic control performace data

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

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

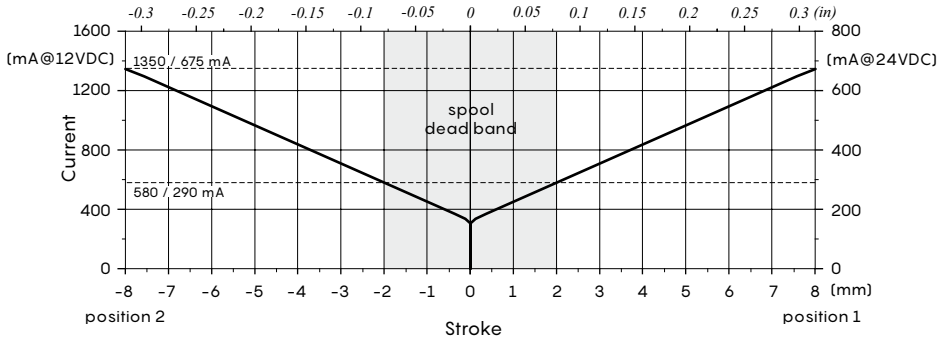
| Specifications | | Spool control type | | | |
|---|---|---|---|---|---|
| | | 8EB3 | 13EB3 | 8EZ3 | 13EZ3 |
| **Electric specifications** | | | | | |
| Coil impedance | 12 VDC | 4,72 Ω | 4,72 Ω | 4,72 Ω | 4,72 Ω |
| | 24 VDC | 20,8 Ω | 20,8 Ω | 20,8 Ω | 20,8 Ω |
| Max. operating current | 12 VDC | 1,5 A | 1,5 A | 1,5 A | 1,5 A |
| | 24 VDC | 0,75 A | 0,75 A | 0,75 A | 0,75 A |
| No load current consumption | | 0 | 0 | 0 | 0 |
| Hysteresis max. (1) | | | | With lever box configured controls | |
| | external drain | 3%<br>4% with lever | 6%<br>8% with lever | 4% | 8% |
| | internal drain | 4%<br>5% with lever | 7%<br>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<br>P⇒B: 900 mA | 1350 mA | P⇒A: 1050 mA<br>P⇒B: 900 mA |
| | 24 VDC | 675 mA | P⇒A: 525 mA<br>P⇒B: 450 mA | 675 mA | P⇒A: 525 mA<br>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 insulance | | Class H (180°C - *356°F*) | | Class H (180°C - *356°F*) | |
| Connector type | | AMP JPT - Deutsch DT | | AMP JPT - Deutsch DT | |
| Weather protection (connector) | | IP65 (JPT type) - IP69K (DT type) | | IP65 (JPT type) - IP69K (DT type) | |
| **Hydraulic specifications** | | | | | |
| Max. pressure | | 40 bar *(580 psi)* | | 50 bar *(725 psi)* | |
| Max. back pressure | | 10 bar *(145 psi)* | | 10 bar *(145 psi)* | |

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

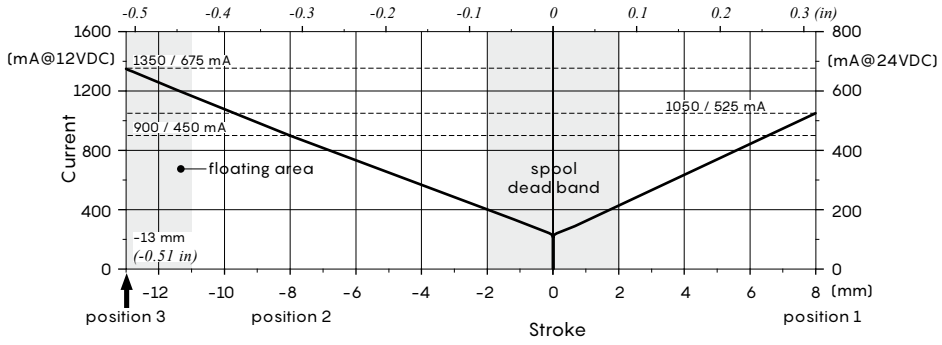
## Working section

### Electrohydraulic control performace data

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




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



## Electrohydraulic controls: spool position sensor

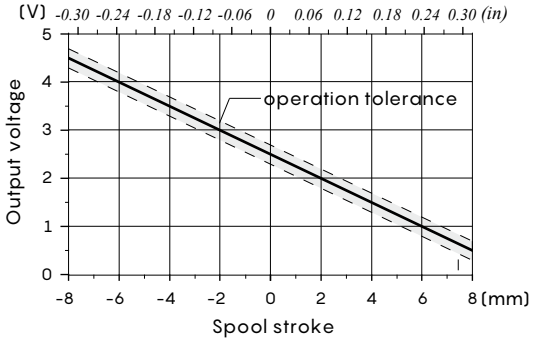
The sensor can be ordered exclusively through the EB and EZ type electrohydraulic controls; see page 136 for available control list.

### SPSL sensor

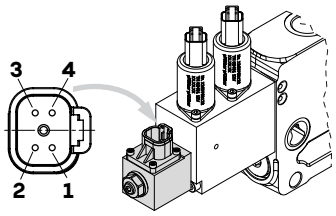
The SPSL position sensor converts the spool movements into a voltage linear signal.

| Working conditions | | |
|---|---|---|
| Voltage supply | | 5 VDC |
| Current absorption | | < 10 mA (no load) |
| Mechanical life | | 3x10⁶ |
| 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 |



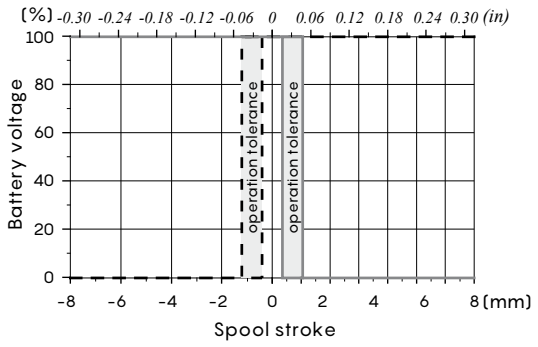

Deutsch DT06-4S mating connector, code 5CON140072

### SPSD sensor

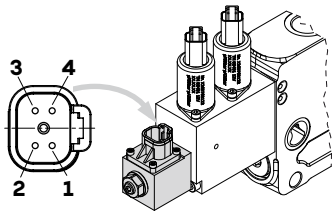
The SPSD position sensor converts the spool movements into an electric digital signal.

| Working conditions | | |
|---|---|---|
| Voltage supply | | from 9 to 32 VDC |
| Current absorption | | < 10 mA (no load) |
| Mechanical life | | 3x10⁶ |
| 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 |

**SPSD sensor output signal**




| Deutsch DT04-4P connector | |
|---|---|
| **Pin** | **Function** |
| **1** | Out A |
| **2** | GND |
| **3** | VB + |
| **4** | Out B |




Deutsch DT06-4S mating connector, code 5CON140072

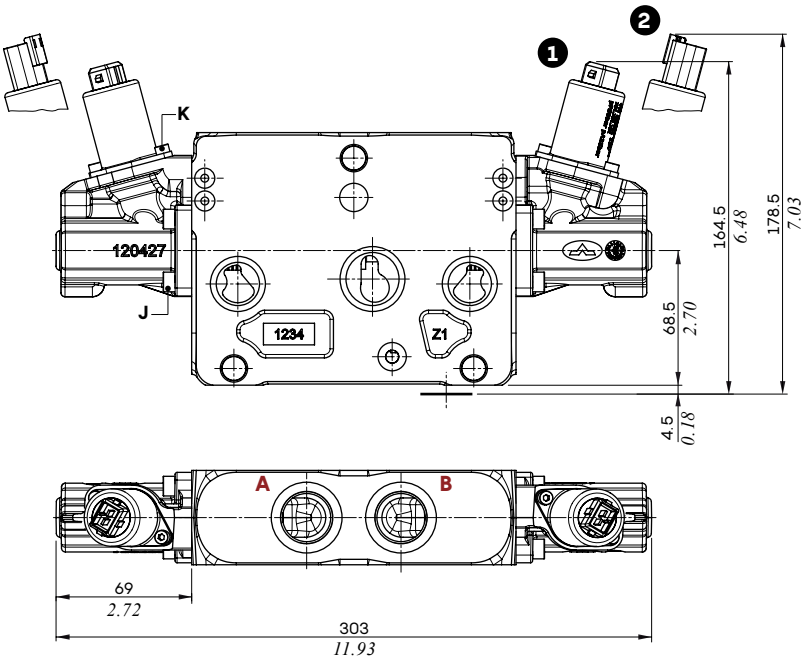
## Working section

### Two-side electrohydraulic control

**Control types**

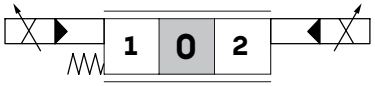
1 : With AMP JPT connector - AMP JPT mating connector, code: 5CON003

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



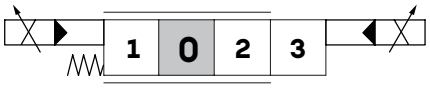

**Types 8EB3 - 8EB34**

Without lever control




**Types 13EB3 - 13EB34**

For floating circuit



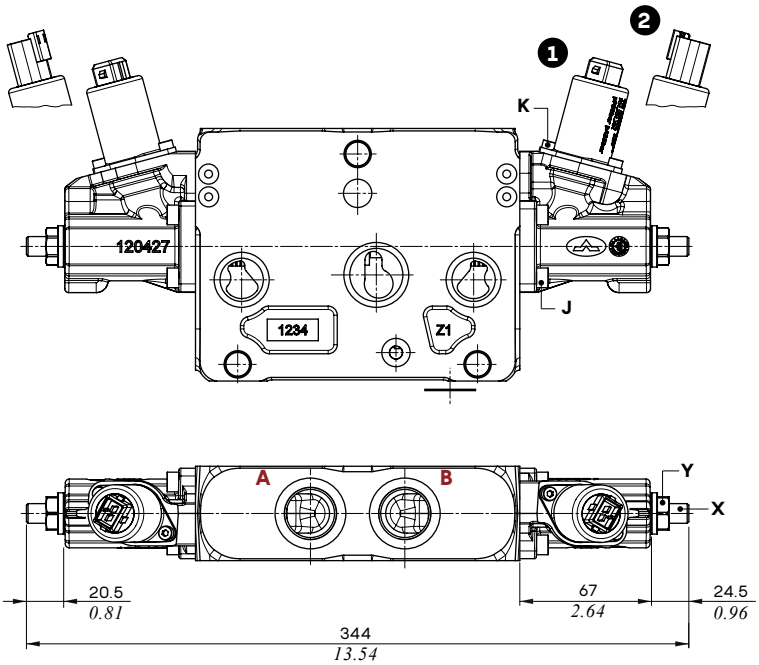

**Wrenches and tightening torques**

J = allen wrench 5 - 9.8 Nm *(7.2 lbft)*

K = allen wrench 3 - 5 Nm *(3.7 lbft)*

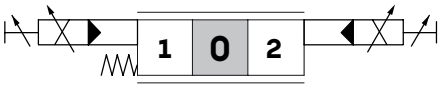
X = allen wrench 5

Y = wrench 17 - 24 Nm *(17.7 lbft)*




**Types 8EB3F3 - 8EB34F3**

With spool stroke limiter

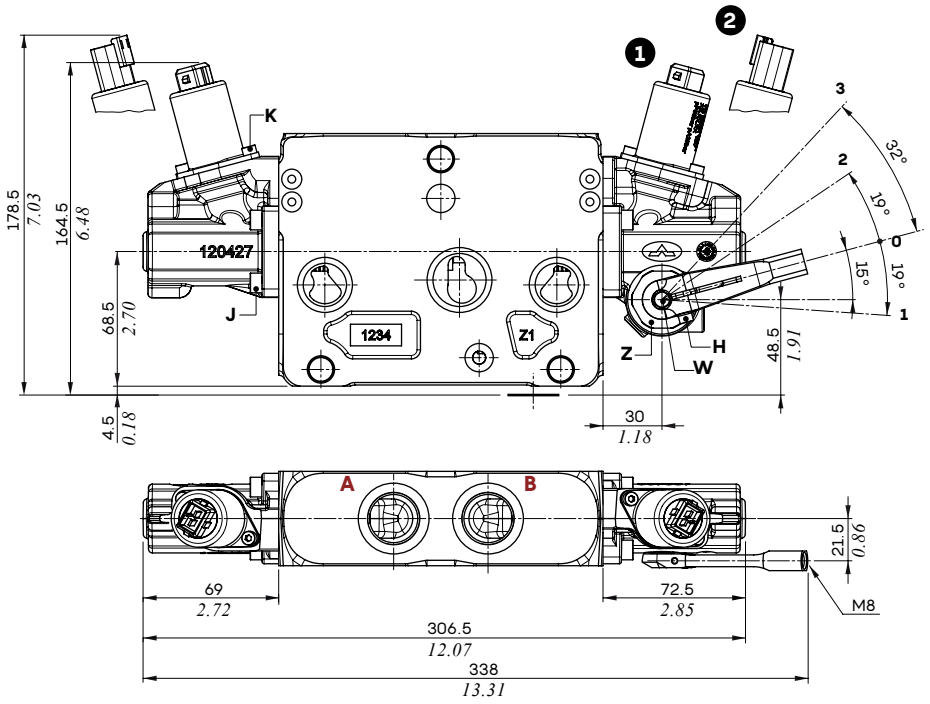


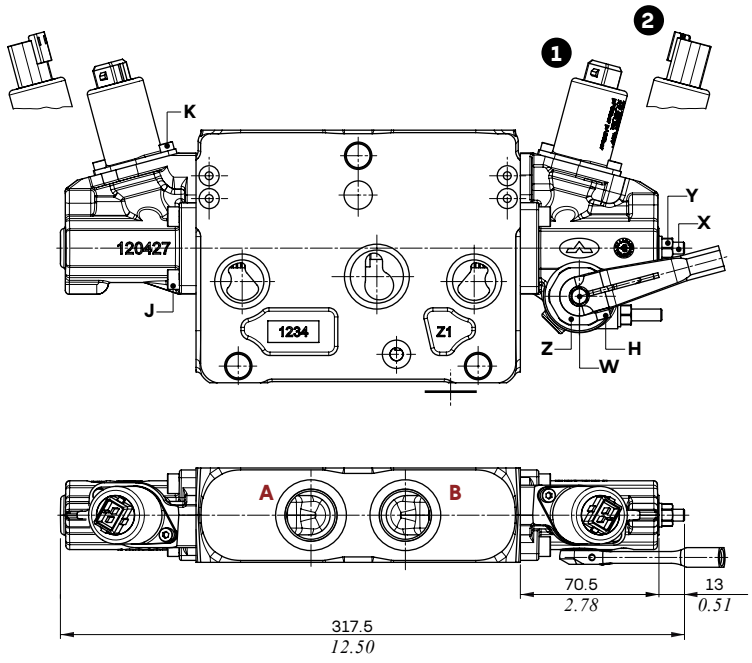
## Two-side electrohydraulic control

**Control types**

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

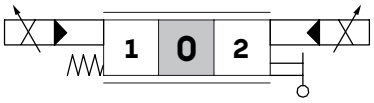
2: With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



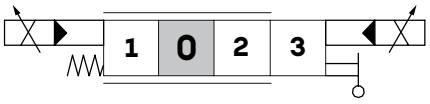

**Types 8EB3LH - 8EB34LH**

Lever control




**Types 13EB3LH - 13EB34LH**

For floating circuit

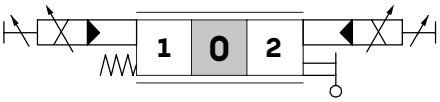



**Wrenches and tightening torques**

H = allen wrench 3 - 6.6 Nm *(4.9 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

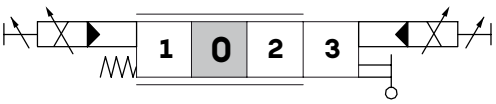
**Types 8EB3LHF3 - 8EB34LHF3**

Lever control with spool stroke limiter




**Types 13EB3LHF3 - 13EB34LHF3**

For floating circuit



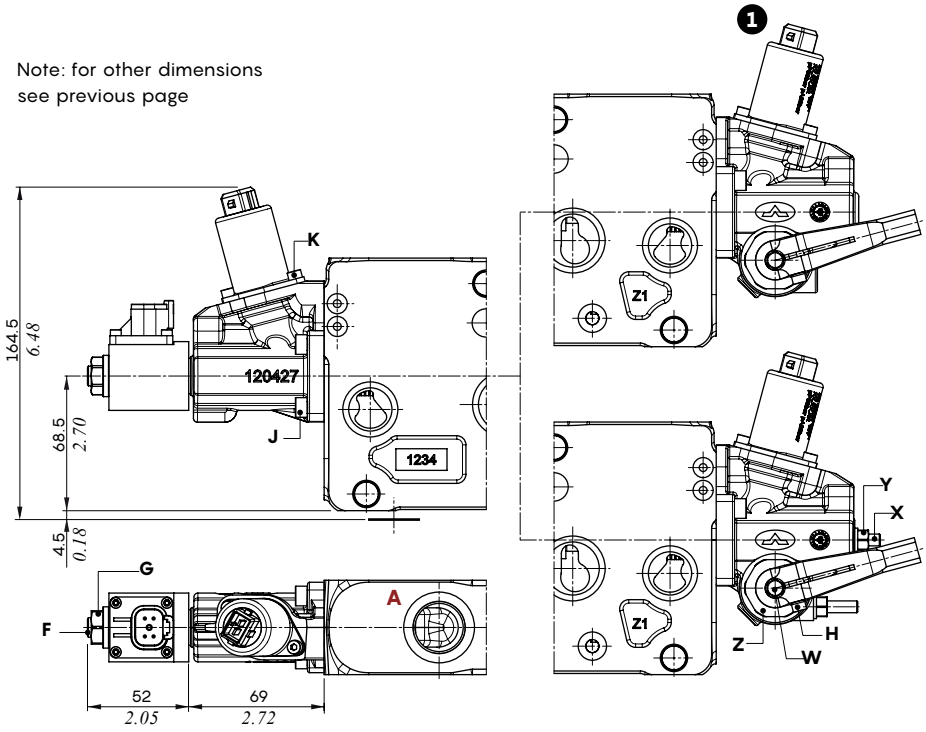
## Working section

### Two-side electrohydraulic control

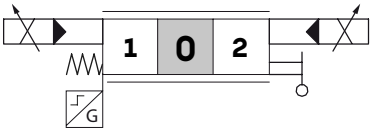
**Control type**

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

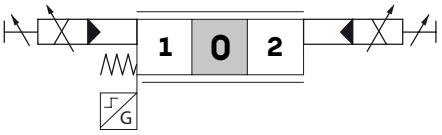
Note: for other dimensions
see previous page




**Type 8EB3LHSPSD**
Lever control and
digital output sensor SPSD




**Type 8EB3LHF3SPSD**
Digital output sensor SPSD
and spool stroke limiter




**Wrenches and tightening torques**

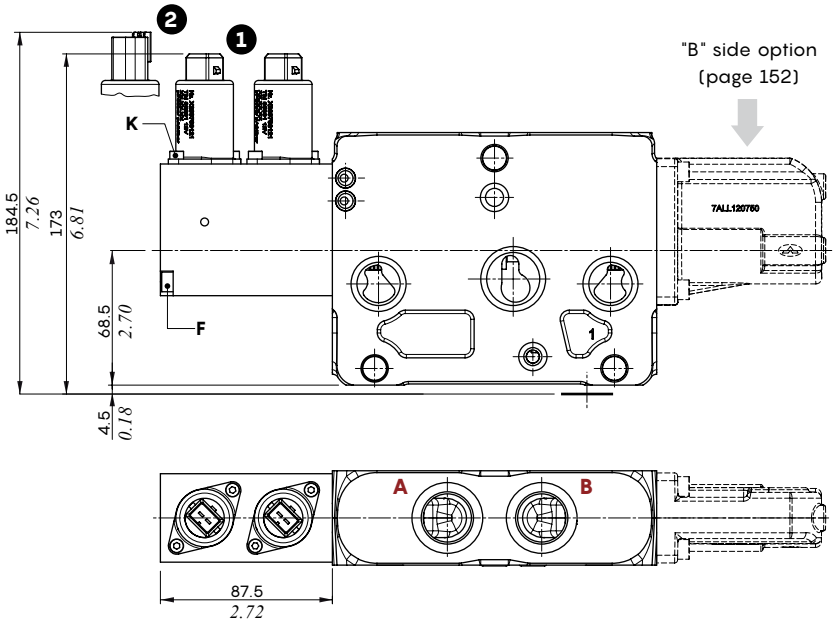
F = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
G = wrench 17 - 9.8 Nm *(7.2 lbft)*
H = allen wrench 3 - 6.6 Nm *(4.9 lbft)*
J = allen wrench 5 - 9.8 Nm *(7.2 lbft)*
K = allen wrench 3 - 5 Nm *(3.7 lbft)*
X = allen wrench 3
Y = wrench 10 - 9.8 Nm *(7.2 lbft)*
Z = wrench 29 - 24 Nm *(17.7 lbft)*
W = wrench 8

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

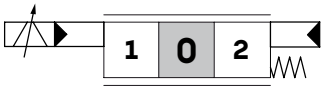
**Control types**

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

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

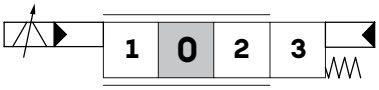



**Types 8EZ3 - 8EZ34**



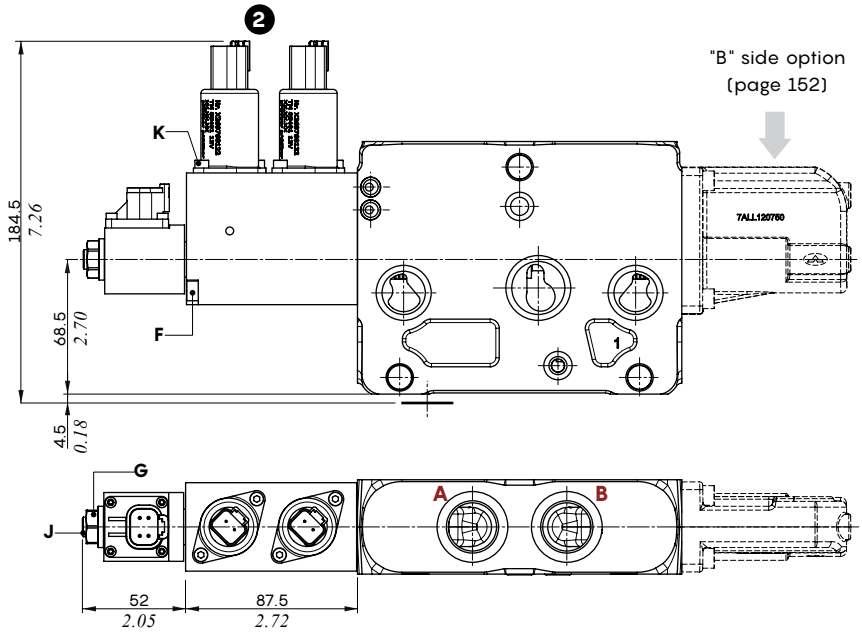

**Types 13EZ3 - 13EZ34**

For floating circuit



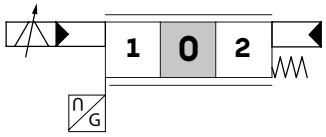

**Wrenches and tightening torques**

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)*




**Types 8EZ34SPSL**

Analog output sensor SPSL



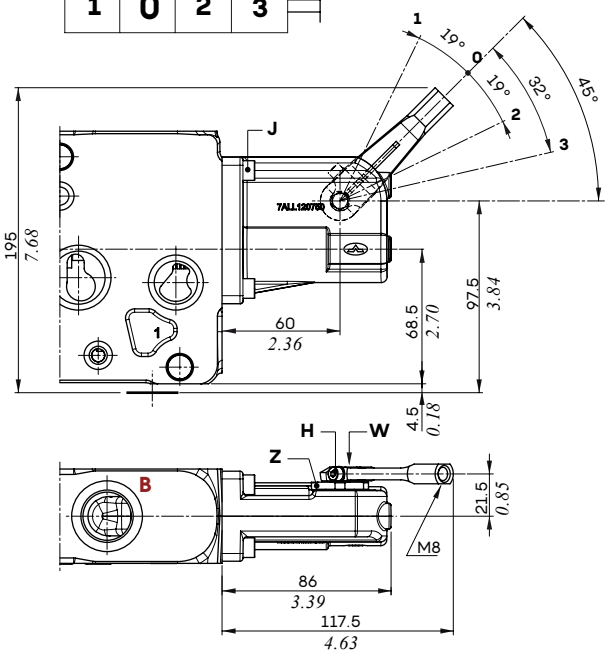
## Working section

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

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

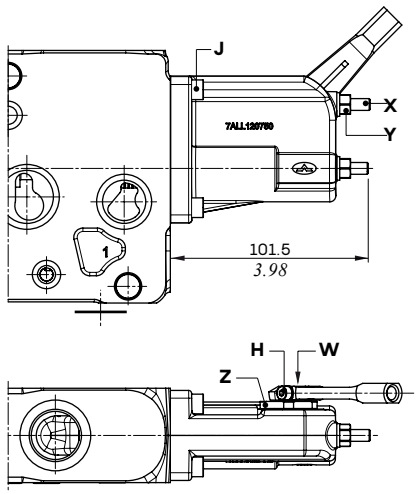
**Type LQ**

| 1 | 0 | 2 | 3 |
|---|---|---|---|



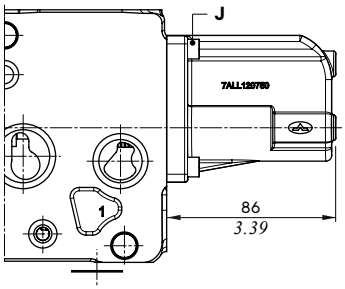

**Type LQF3**
Spool stroke limiter on
A and B ports

| 1 | 0 | 2 | 3 |
|---|---|---|---|




**Type SLCQ**
With endcap

| 1 | 0 | 2 | 3 |
|---|---|---|---|

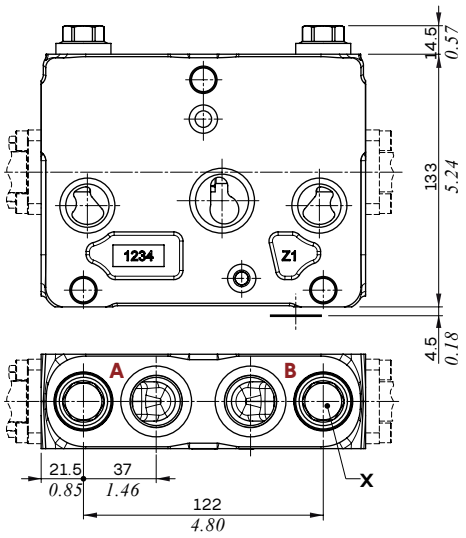



**Wrenches and tightening torques**

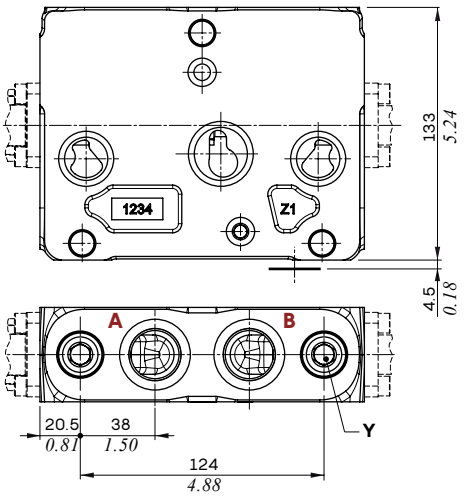
H = allen wrench 3 - 6.6 Nm *(4.9 lbft)*
J = allen wrench 5 - 9.8 Nm *(7.2 lbft)*
X = allen wrench 3
Y = wrench 10 - 9.8 Nm *(7.2 lbft)*
Z = wrench 29 - 24 Nm *(17.7 lbft)*
W = wrench 8

## Port valves

**Pressure relief valves, type UL**
**Anticavitation valve, type CL**




**Antishock valves, type US**
**Anticavitation valve, type CS**




**Types UL-US valve:**



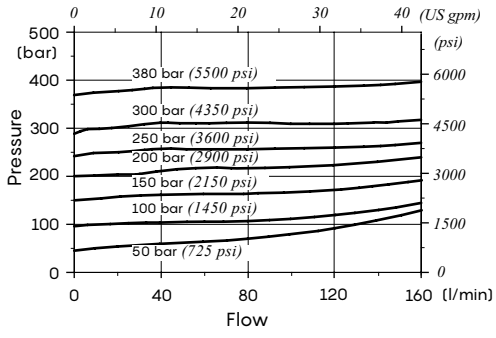
**Types CL-CS valve: anticavitation**



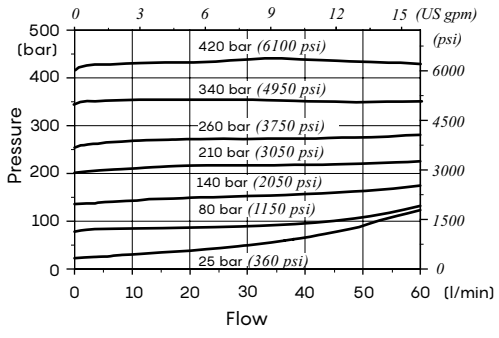
**Wrenches and tightening torques**

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)

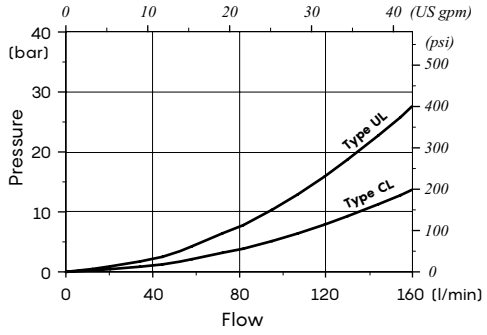
**Type UL, setting example**
(5 l/min - *1.3 Us gpm*)



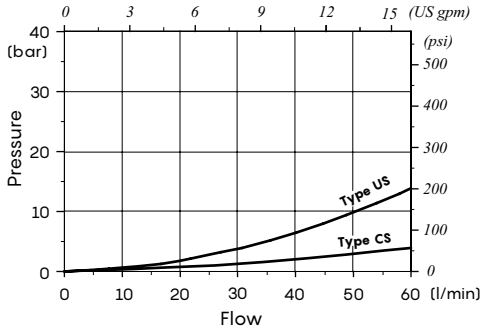

**Type US, setting example**
(10 l/min - *2.6 Us gpm*)




**Types UL-CL, pressure drop**
(in anticavitation)




**Types US-CS, pressure drop**
(in anticavitation)

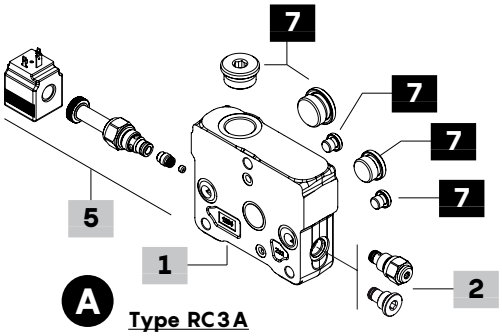


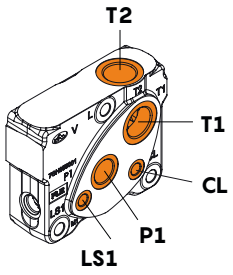
## Outlet section part ordering codes

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

DPX160/RC3A-CL\VR3 - ... -12VDC

1 5 6 5

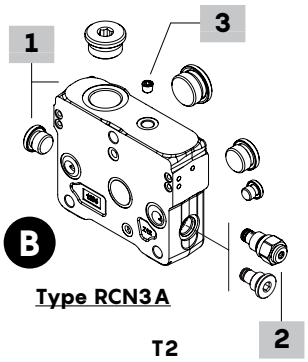


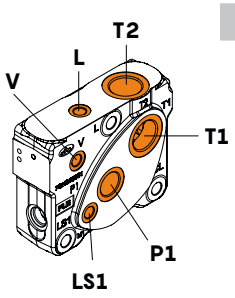




**B** **For electrohydraulic control configuration:**

DPX160/RCN3A(VBT)- ...

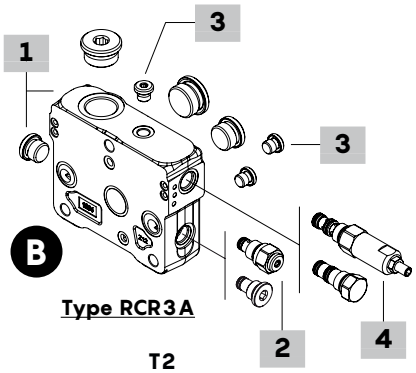
1 2

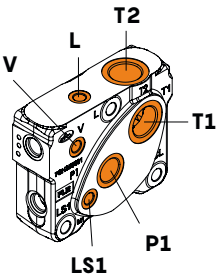



DPX160/RCR3A(RT)(VLT)(VBT)-...

1 4 3 2




### 1 Outlet section kit * page 155

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

**For mechanical and proportional hydraulic controls**

TYPE: **DPX160/RC1** CODE: YFIA205300S
DESCRIPTION: With T2 upper port
TYPE: **DPX160/RC3** CODE: YFIA205302S
DESCRIPTION: With T2 upper port and P1, T1, LS1 side ports
TYPE: **DPX160/RC3-CL** CODE: YFIA205314S
DESCRIPTION: As previous one with clamps release arrang. and CL port

**For electrohydraulic controls**

TYPE: **DPX160/RCN1** CODE: YFIA205306S
DESCRIPTION: Without pressure reducing valve arrangement, L upper and V side ports, T2 upper port
TYPE: **DPX160/RCN3** CODE: YFIA205313S
DESCRIPTION: As previous one with P1, T1, LS1 side ports
TYPE: **DPX160/RCN3-CL** CODE: YFIA205315S
DESCRIPTION: As previous one with clamps release arrang. and CL port
TYPE: **DPX160/RCR1** CODE: YFIA205303S
DESCRIPTION: With pressure reducing valve arrangement, L upper and V side ports, T2 upper port
TYPE: **DPX160/RCR3** CODE: YFIA205307S
DESCRIPTION: As previous one with P1, T1, LS1 side ports
TYPE: **DPX160/RCR3-CL** CODE: YFIA205316S
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 *

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **(-)** | 4TAP306006 | M6-DIN906 plug, for external drain |
| **(VLT)** | XTAP719160 | G1/4 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).

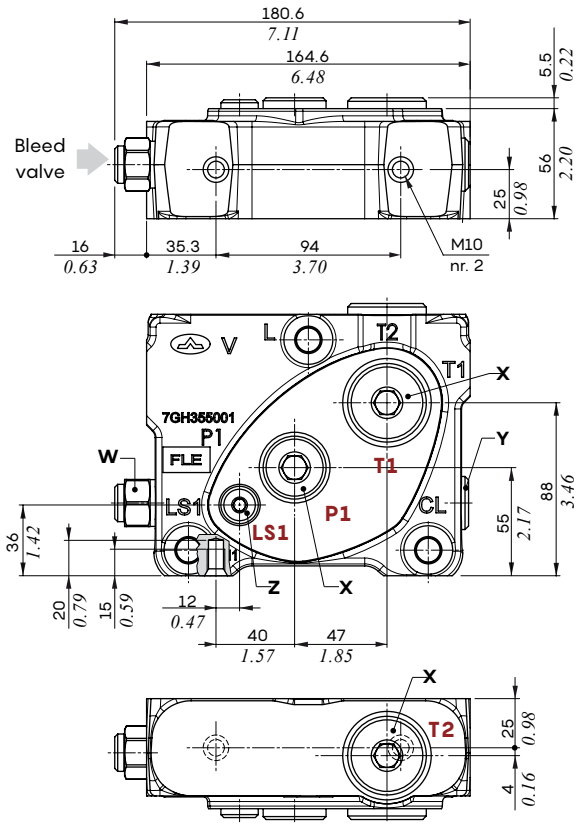
### 7 Parts *

| CODE | DESCRIPTION |
|---|---|
| 3XTAP740210 | G1 plug: for RC1/RCN1/RCR1 = nr. 1<br>for RC3/RCN3/RCR3 = nr. 2 |
| 3XTAP732200 | G3/4 plug, for RC1/RCN1/RCR1 = nr. 0<br>for RC3/RCN3/RCR3 = nr. 1 |
| 3XTAP719150 | G1/4 plug, for RC1/RCN1/RCR1 = nr. 0<br>for RC3/RCN3/RCR3 = nr. 1<br>for RC3-CL/RCN3-CL/RCR3-CL = nr. 2 |

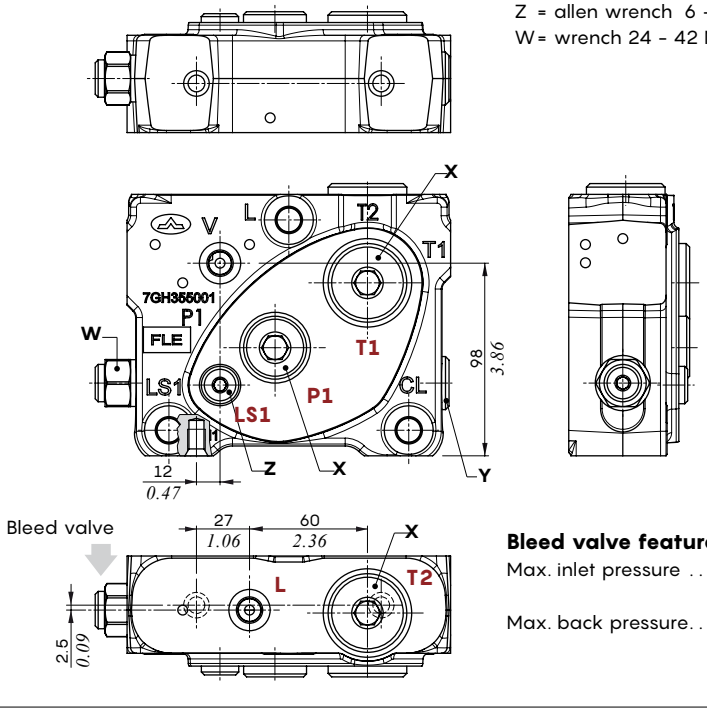
NOTE (*): Codes are referred to **BSP** thread.
NOTE (-): "TYPE" omitted in outlet section description

## Dimensions and hydraulic circuit

### Example of RC3A outlet section




### Example of RCN3A outlet section



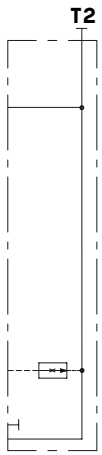

**Wrenches and tightening torques**

X = allen wrench 12 - 42 Nm *(31 lbft)*
Y = allen wrench 8 - 24 Nm *(17.7 lbft)*
Z = allen wrench 6 - 24 Nm *(17.7 lbft)*
W = wrench 24 - 42 Nm *(31 lbft)*

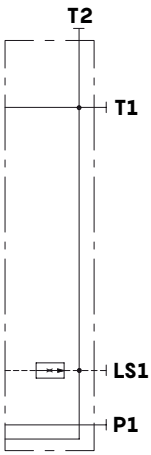
**Bleed valve features**

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

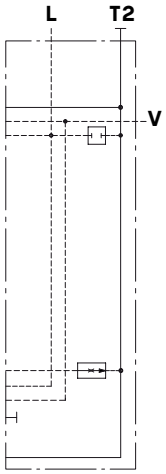
**Type RC1A**



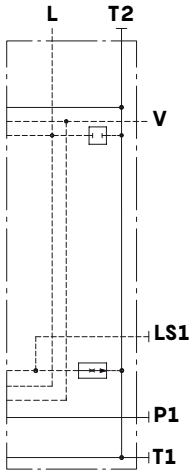

**Type RC3A**



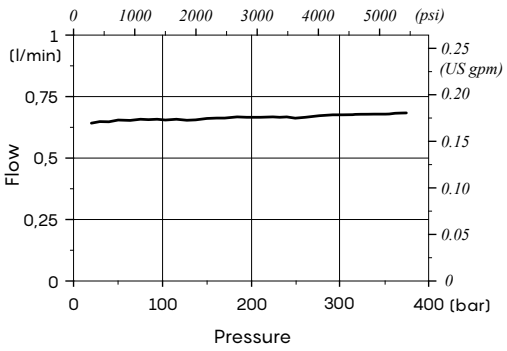

**Type RCN1A**




**Type RCN3A**



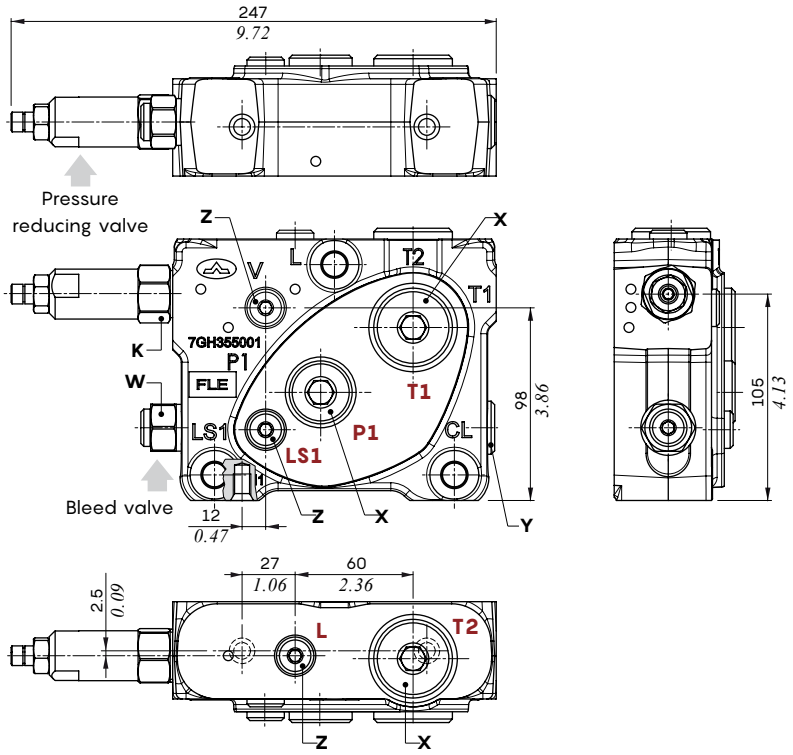

**Bleed valve diagram**
**Flow vs. Pressure**



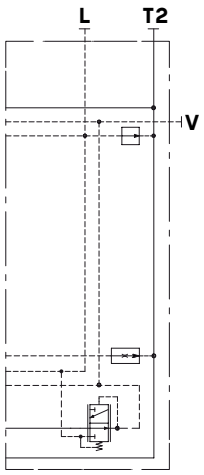
## Outlet section

### Dimensions and hydraulic circuit

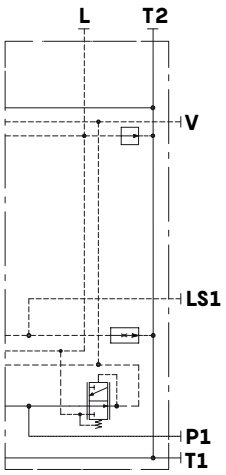
#### Example of RCR3A outlet section




Type RCR1A




Type RCR3A



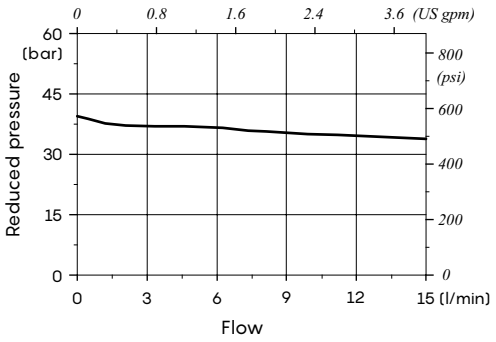

**Pressure reducing valve features**

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

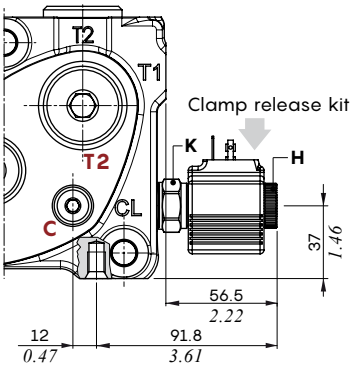
**Wrenches and tightening torques**

H = manual tightening
K = wrench 24 - 30 Nm *(22 lbft)*
X = allen wrench 12 - 42 Nm *(31 lbft)*
Y = allen wrench 8 - 24 Nm *(17.7 lbft)*
Z = allen wrench 6 - 24 Nm *(17.7 lbft)*
W = wrench 24 - 42 Nm *(31 lbft)*

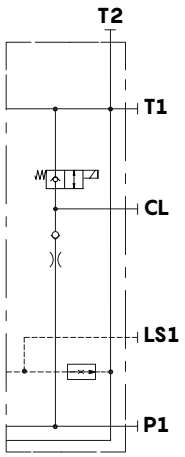
**Pressure reducing valve diagram**
**Reduced pressure vs. Flow**



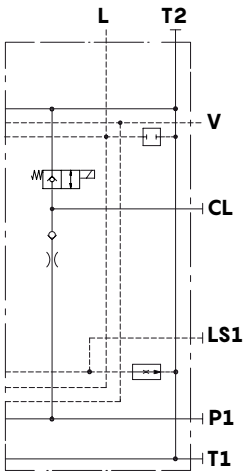

#### Outlet sections with clamp release kit



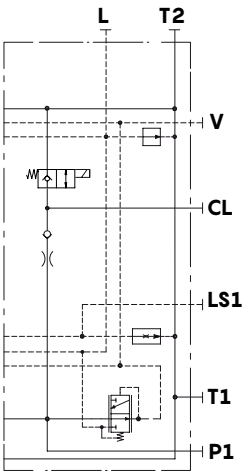

Type RC3A-CL




Type RCN3A-CL




Type RCR3A-CL




**Features**

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

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

## Intermediate section

DPX160 directional valve

DPX100 directional valve

**DPX160/1/AM3B(TGW3-175\ELTN)/PE-E107(130\130)-8EB3F3.UL3T/EIRE-TAP(VLM)/PE-E101(80\80)-8EB3TF3.U3T**

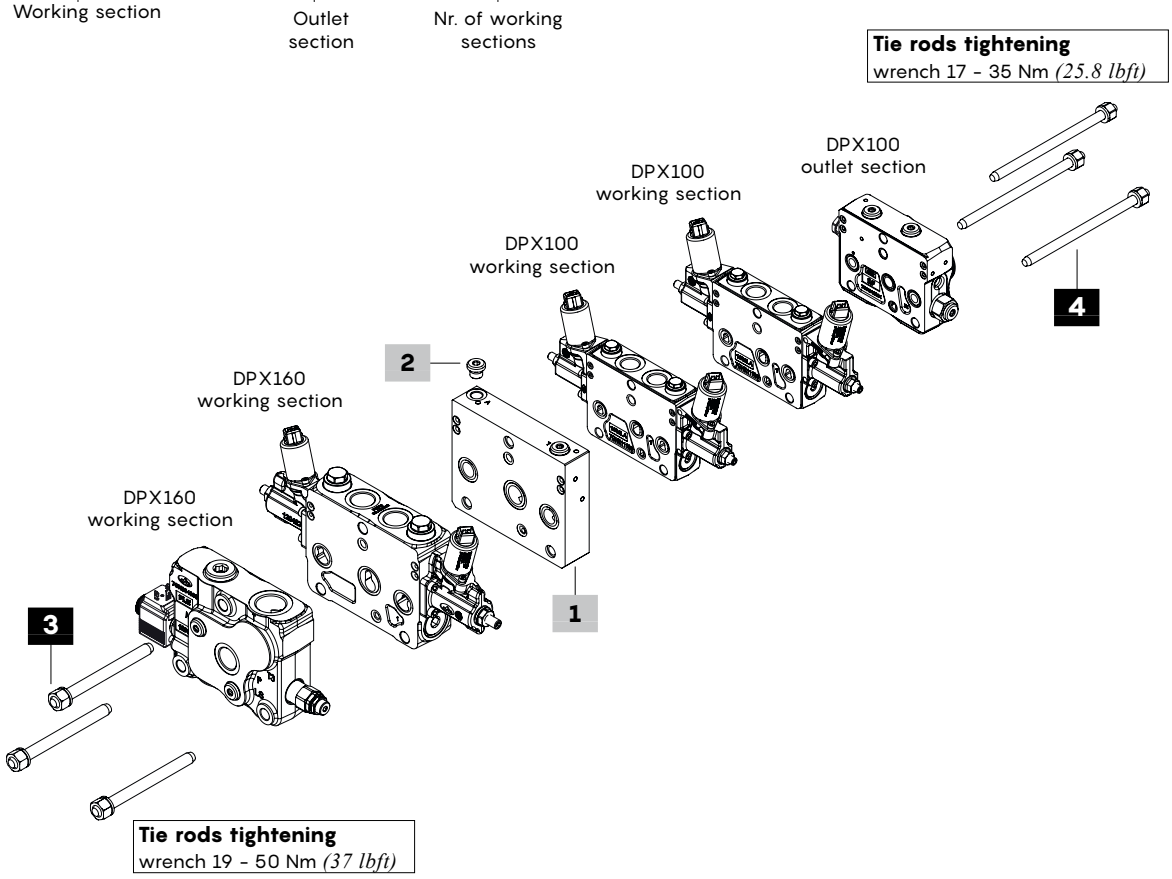
Nr. of working sections | Inlet section | Working section | 1 | 2 | Working section

DPX100 directional valve

Common directional valves specifications

**/PE-E101(80\80)-8EB3TF3.U3T/RDR(03)/DPX100/2-.....-12VDC**

Working section | Outlet section | Nr. of working sections




### 1 Intermediate section * page 158

| TYPE | CODE | DESCRIPTION |
|---|---|---|
| **EIR** | 650423000V | For valves with hydraulic or mechanical controls, with M1 pressure gauge port |
| **EIRE** | 650423001V | For valves with two-side electrohydraulic control; with pilot V, drain L, M1 pressure gauge ports |
| **EIRZS** | 650423004V | As previous one, for valves with one-side electrohydraulic control |

### 2 Pilot and drain

| CODE | DESCRIPTION |
|---|---|
| XTAP719160* | Optional G1/4 plug for internal pilot |
| 4TAP310007 | Optional M10x1 DIN906 plug for external drain |

### 3 DPX160 side assembling kit

| CODE | DESCRIPTION |
|---|---|
| 5TIR112141 | For 1 working section valve |
| 5TIR112189 | For 2 working section valve |
| 5TIR112237 | For 3 working section valve |
| 5TIR112285 | For 4 working section valve |
| 5TIR112333 | For 5 working section valve |
| 5TIR112382 | For 6 working section valve |

### 4 DPX100 side assembling kit

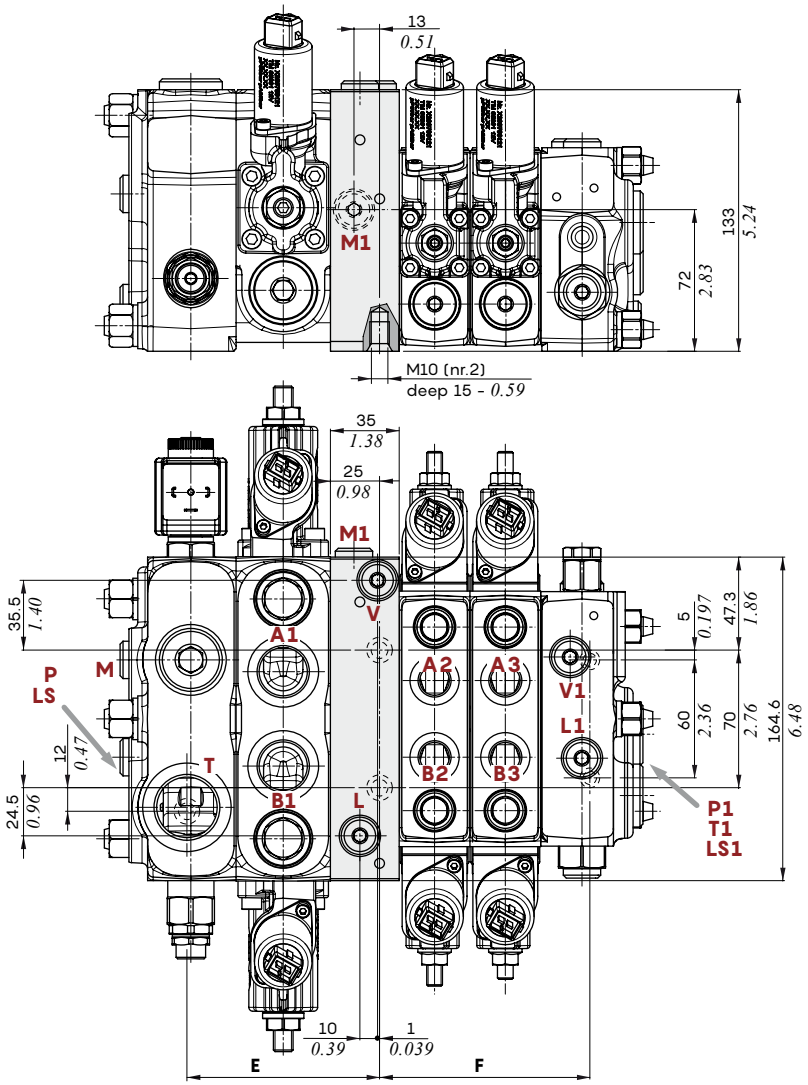
| CODE | DESCRIPTION |
|---|---|
| 5TIR110142 | For 2 working section valve |
| 5TIR110178 | For 3 working section valve |
| 5TIR110216 | For 4 working section valve |
| 5TIR110253 | For 5 working section valve |
| 5TIR110286L | For 6 working section valve |
| 5TIR110322 | For 7 working section valve |

NOTE (*): Codes are referred to **BSP** thread.

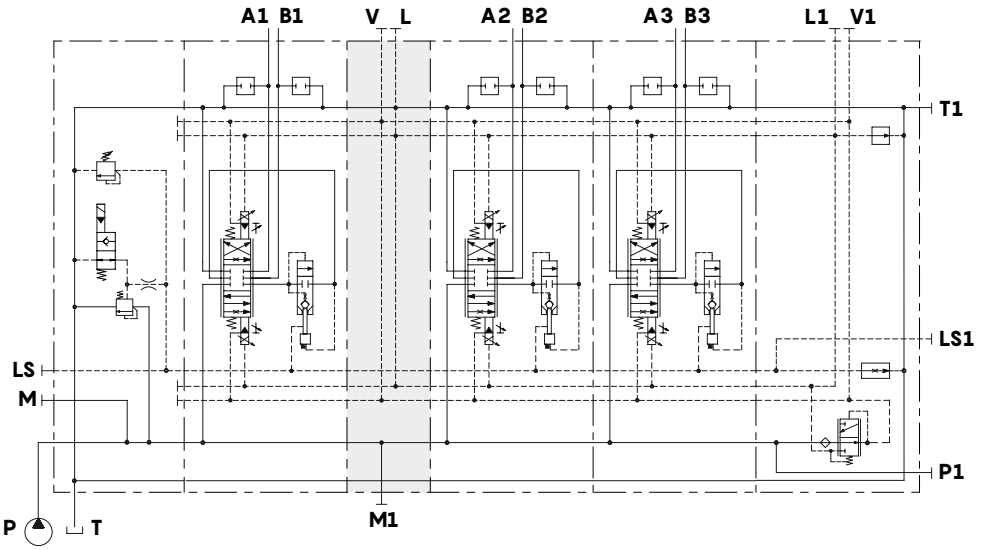
## Intermediate section

### EIRE intermediate section

For DPX valves with two-side electrohydraulic controls.



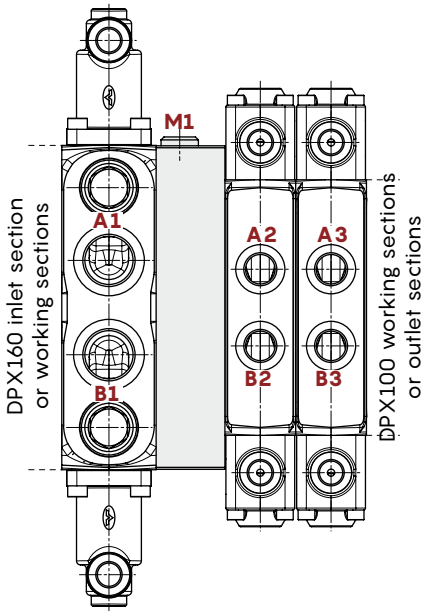

| Nr. of working sections | E with M or N inlet sections | | F with standard or HP sections | |
|---|---|---|---|---|
| | mm | | mm | |
| 1 | 98 | 3.86 | - | - |
| 2 | 146 | 5.75 | 107 | 4.21 |
| 3 | 194 | 7.64 | 143 | 5.63 |
| 4 | 242 | 9.53 | 179 | 7.05 |
| 5 | 290 | 11.42 | 215 | 8.46 |
| 6 | 338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

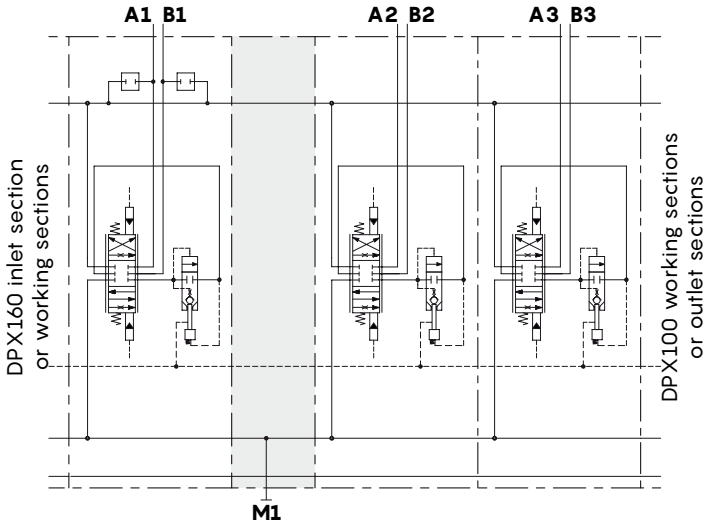


## Intermediate section

### EIR intermediate section

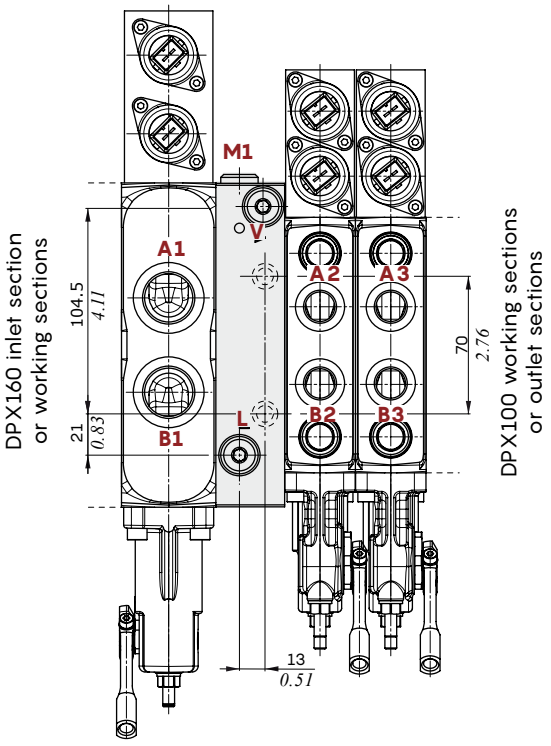
For DPX valves with hydraulic or mechanical controls; for dimensions and port position see EIRE type on previous page.

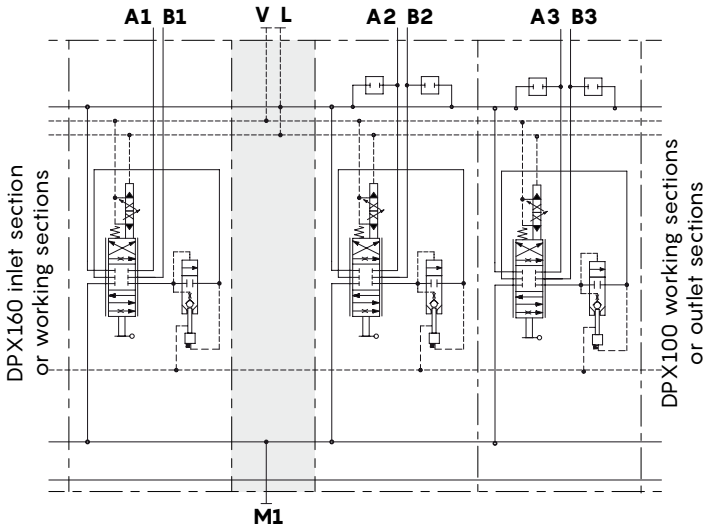



### EIRZS intermediate section

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<br>4SLE001217A(3) | 4SLE001201A(5)<br>4SLE001209A(3-5)<br>4SLE001202A(6)<br>4SLE001216A(3-6)<br>4SLE001206A(2) | 4SLE001203A(5)<br>4SLE001211A(3-5) | 4SLE001210A(2) | 4SLE001214A(2) | 4SLE001207A |
| | 14 VDC | - | 4SLE001400A(6)<br>4SLE001401A(3-6)<br>4SLE001402A(3-5) | 4SLE001403A(3-5) | - | - | - |
| | 24 VDC | 4SLE002400A<br>4SLE002408A(3)<br>4SLE302400A(1) | 4SLE002401A(5)<br>4SLE002407A(3-5)<br>4SLE002402A(6) | 4SLE002403A(5) | - | - | 4SLE002404A |
| | 28 VDC | - | 4SLE002802A(6) | 4SLE002800A(5) | - | - | - |
| | 48 VDC | 4SLE004800A<br>4SLE304800A(1) | - | - | - | - | - |
| | 110 VDC | 4SLE011000A<br>4SLE311000A(1) | - | - | - | - | - |
| | 220 VDC | 4SLE022000A<br>4SLE322000A(1) | - | - | - | - | - |
| BE | 12 VDC | 4SL1000120 | 4SL1000123(6)<br>4SL1000140(3-6)<br>4SL1000124(2) | - | - | - | 4SL1000122 |
| | 24 VDC | 4SL1000240<br>4SL1030240(1) | 4SL1002401(6) | - | - | - | - |
| | 48 VDC | 4SL1010480 | - | - | - | - | - |
| | 110 VDC | 4SL1011100<br>4SL1031100(1) | - | - | - | - | - |
| | 220 VDC | 4SL1022200<br>4SL1032200(1) | - | - | - | - | - |
| BT | 10 VDC | 4SL3000100 | - | - | - | - | - |
| | 12 VDC | 4SL3000120<br>4SL3000126(4) | 4SL3000130(6)<br>4SL3000134(3-6)<br>4SL3000128(2) | 4SL3000122(5)<br>4SL3001200(3-5) | 4SL3000124(2) | 4SL3000127(2) | 4SL300012C |
| | 24 VDC | 4SL3000240<br>4SL3030240(1) | 4SL3000249(6)<br>4SL300024C(3-6) | 4SL3000248(5) | - | - | 4SL3000246 |
| | 26 VDC | 4SL3000260 | - | - | - | - | - |
| | 48 VDC | 4SL3000480<br>4SL3030480(1) | - | - | - | - | - |
| | 110 VDC | 4SL3001100<br>4SL3031100(1) | - | - | - | - | - |
| | 220 VDC | 4SL3002200<br>4SL3032200(1) | - | - | - | - | |
| BPV | 12 VDC | 4SLA001200 | - | - | - | - | - |
| | 24 VDC | 4SLA002400 | - | - | - | - | - |
| D12 | 10,5 VDC | 4SOL412011 | 4SOL412111(2) | - | | | - |
| | 12 VDC | 4SOL412012<br>4SOL412016(3) | 4SOL412013(6)<br>4SOL412112(2)<br>4SOL412015(3-6)<br>4SOL412113(2-3) | - | - | - | 4SOL412017(3) |
| | 24 VDC | 4SOL412024 | 4SOL412025(6)<br>4SOL412124(2)<br>4SOL412027(3-6) | 4SOL412224(2) | - | - | - |
| **Mating connectors**<br>(For connector with rectifier see following table) | | 4CN1009995 | 5CON140031 | 5CON003 | 5CON001 | 5CON017 | - |

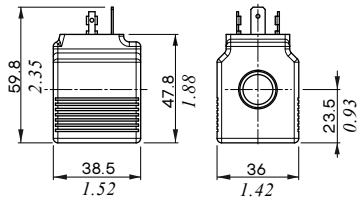
Notes: (1) supply with AC and use only with rectifier connector - (2) with flying leads - (3) with bidirectional diode - (5) with unidirectional diode (5) integrated perpendicular type - (6) integrated parallel type

| Voltage | ISO 4400 mating connector with rectifier | | | | |
|---|---|---|---|---|---|
| | 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 | - |

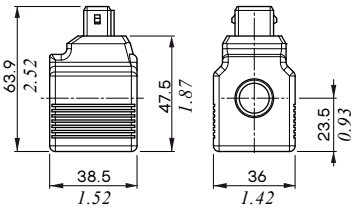
## Coils and connectors

### Type BER

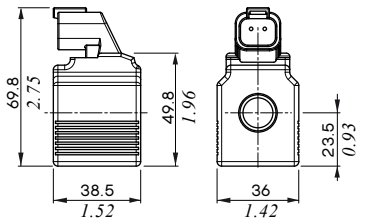
**ISO4400 connector**



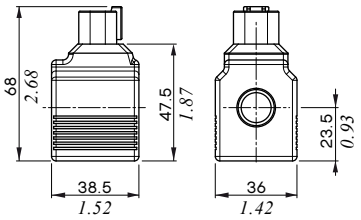

**AMP JPT connector**




**DEUTSCH DT04 connector**
(parallel type)



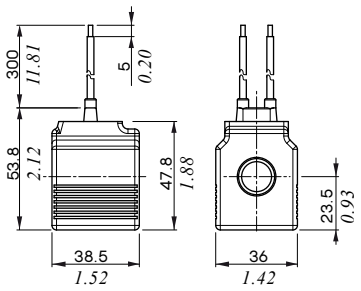

**DEUTSCH DT04 connector**
(perpendicular type)



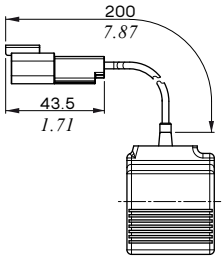

**Features**

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 insulance : Class H (180°C - *356°F*)
Weather protection : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
: IP67 - Weatherpack
: IP67 - Metri-pack
Insertion : 100%

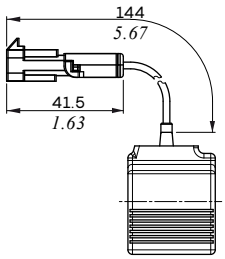
**Flying leads**



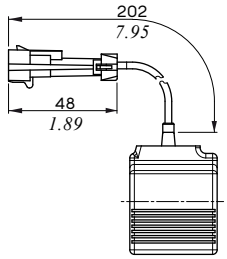

**Flying leads with DEUTSCH DT04 connector**




**Flying leads with PACKARD WEATHER-PACK connector**

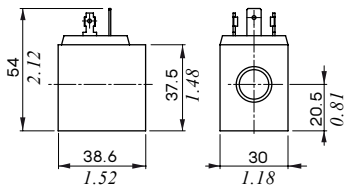



**Flying leads with PACKARD METRI-PACK connector**

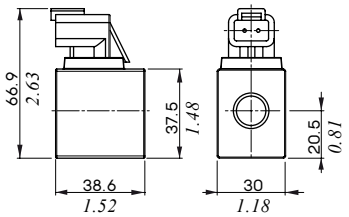



### Type BE

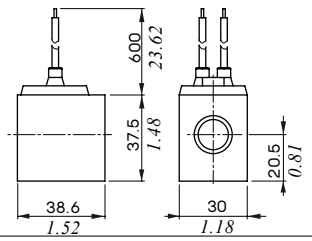
**ISO4400 connector**



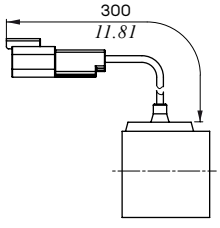

**DEUTSCH DT04 connector**




**Flying leads**




**Flying leads with DEUTSCH DT04 connector**



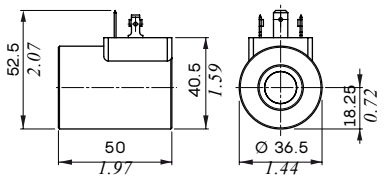

**Features**

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

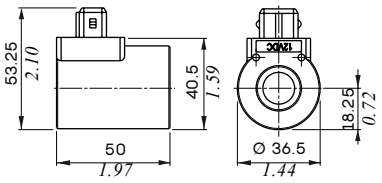
## Coils and connectors

### Type BT

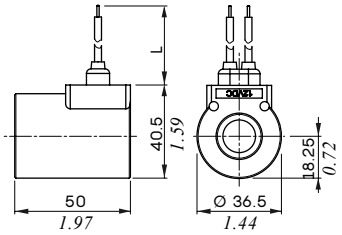
**ISO4400 connector**



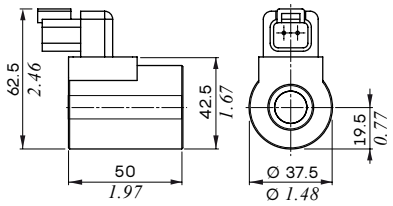

**AMP JPT connector**




**Flying leads**




**DEUTSCH DT04 connector**

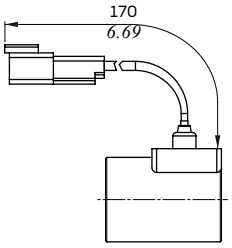



| Coil type | L dimension (mm) | L dimension (in) |
|---|---|---|
| **12VDC** | 247 | *9.72* |
| **24VDC** | 307 | *12.09* |

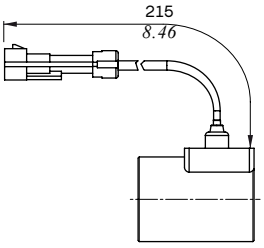
**Features**

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

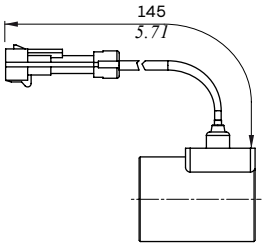
**Flying leads with DEUTSCH DT04 connector**




**Flying leads with PACKARD WEATHER-PACK connector**

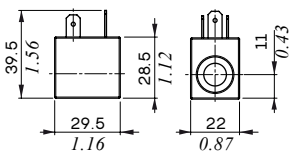



**Flying leads with PACKARD METRI-PACK connector**

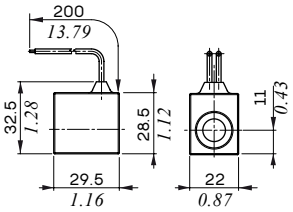



### Type BPV

**ISO4400 connector**




**Flying leads**



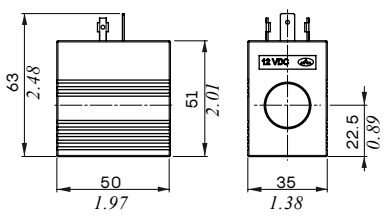

**Features**

Nominal voltage tolerance : ±10%
Power rating : 8 W - 12/24 VDC
Max. operating current : 0.67 A - 12 VDC
: 0.33 A - 24VDC
Coil Insulance : Class H (180°C - *356°F*)
Weather protection : IP65 - ISO4400
Insertion : 100%

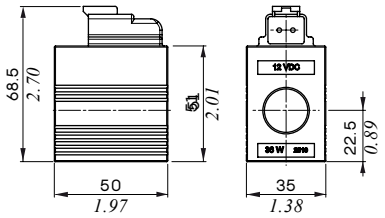
## Coils and connectors

### Type D12

**ISO4400 connector**



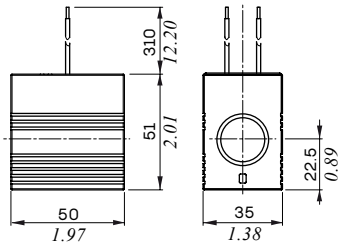

**DEUTSCH DT04 connector**
(with or without bidirectional diode)



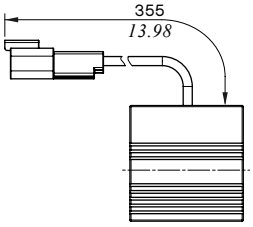

**Features**

Nominal voltage tolerance : ±10%
Power rating . . . . . : 36 W - 10.5/12/24 VDC
Max. operating current . . . : 3,43 A - 10.5 VDC
: 3 A - 12 VDC
: 1.5 A - 24VDC
Coil insulance . . . . . : Class H (180°C - *356°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
Insertion . . . . . : 100%

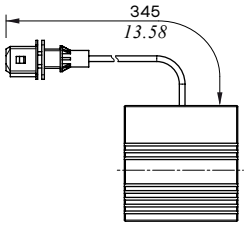
**Flying leads**




**Flying leads with DEUTSCH DT04 connector**



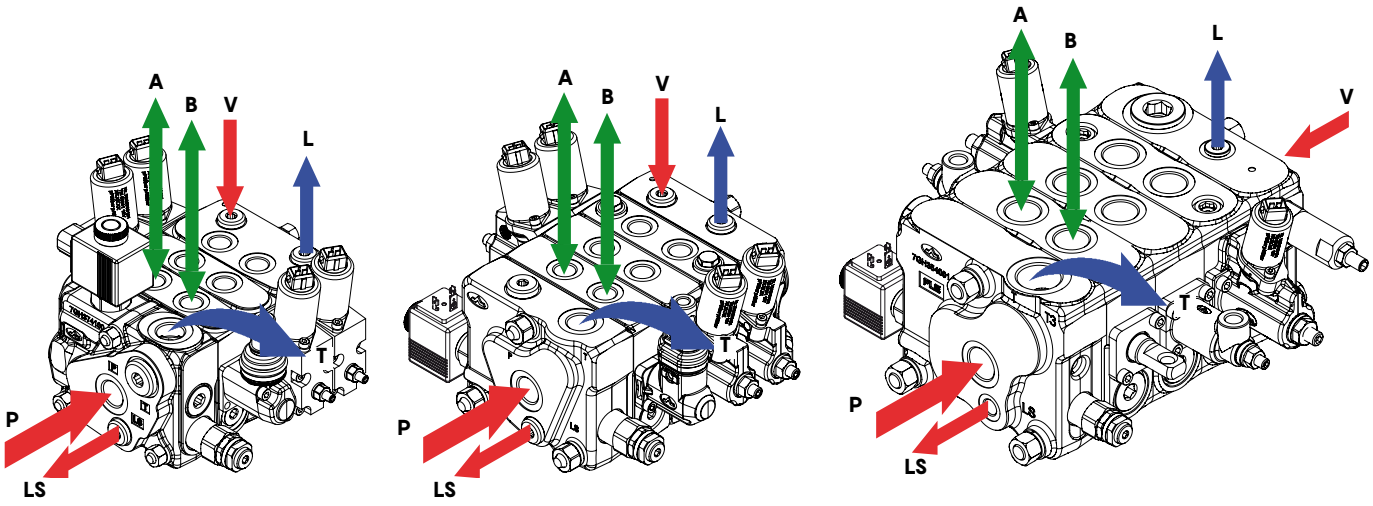

**Flying leads with AMP JPT connector**



## Main rules

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

- the valve can be assembled in any position; in order to prevent body deformation and spool sticking mount the product on a flat surface;
- In order to prevent the possibility of water entering the spool control kit, do not use high pressure washdown directly on the valve;
- prior to painting, ensure plugs on normally open ports are tightly in place.



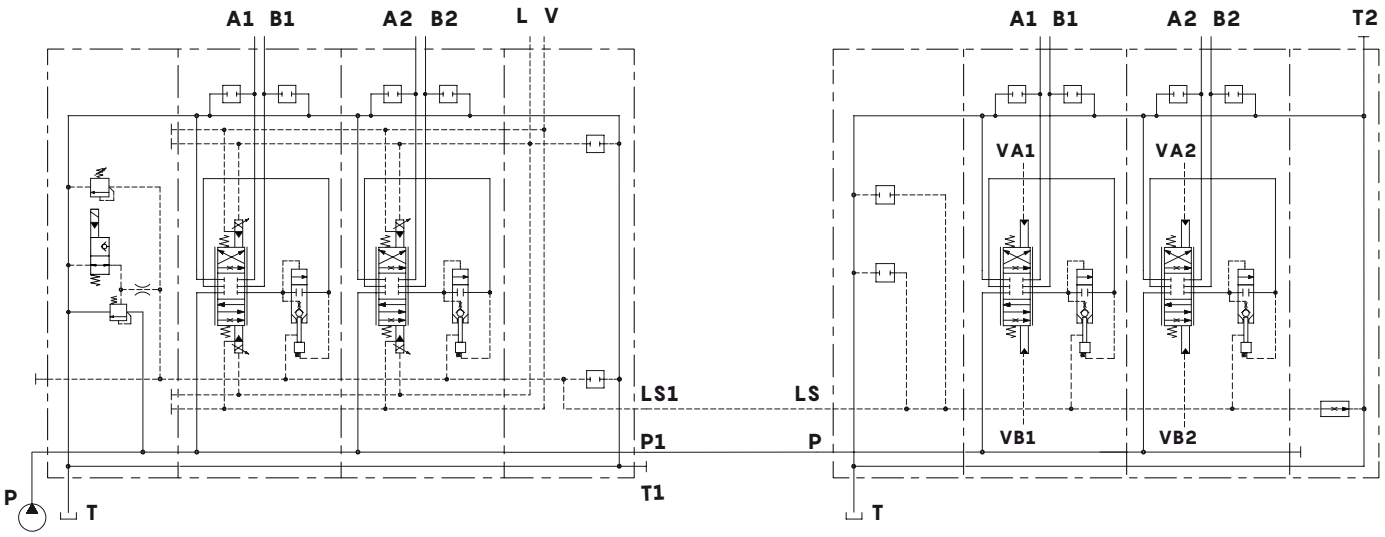

| | | FITTING TIGHTENING TORQUE – Nm / *lbft* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | THREAD TYPE | P inlet port | | A and B workports | | | T outlet port | | LS signal port | V and L ports |
| DPX050 | BSP | G 1/2 | | G 3/8 | | | G 1/2 | | G 1/4 | G 1/4 |
| | With O-Ring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

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

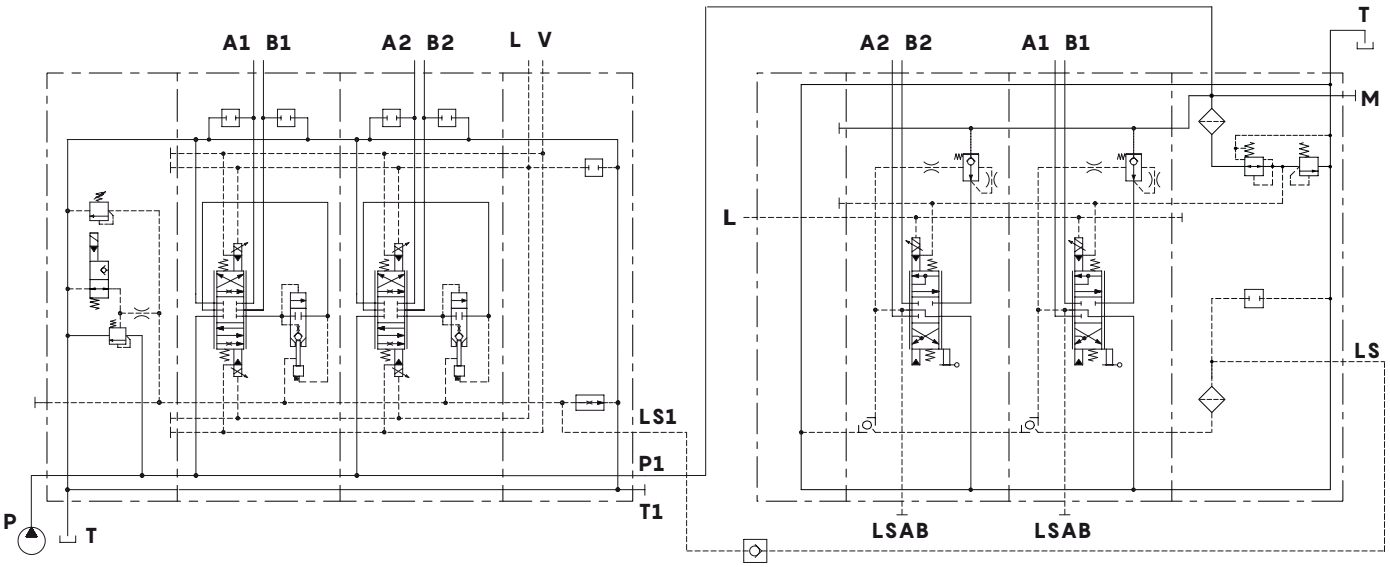
## Connection between two directional valves

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

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



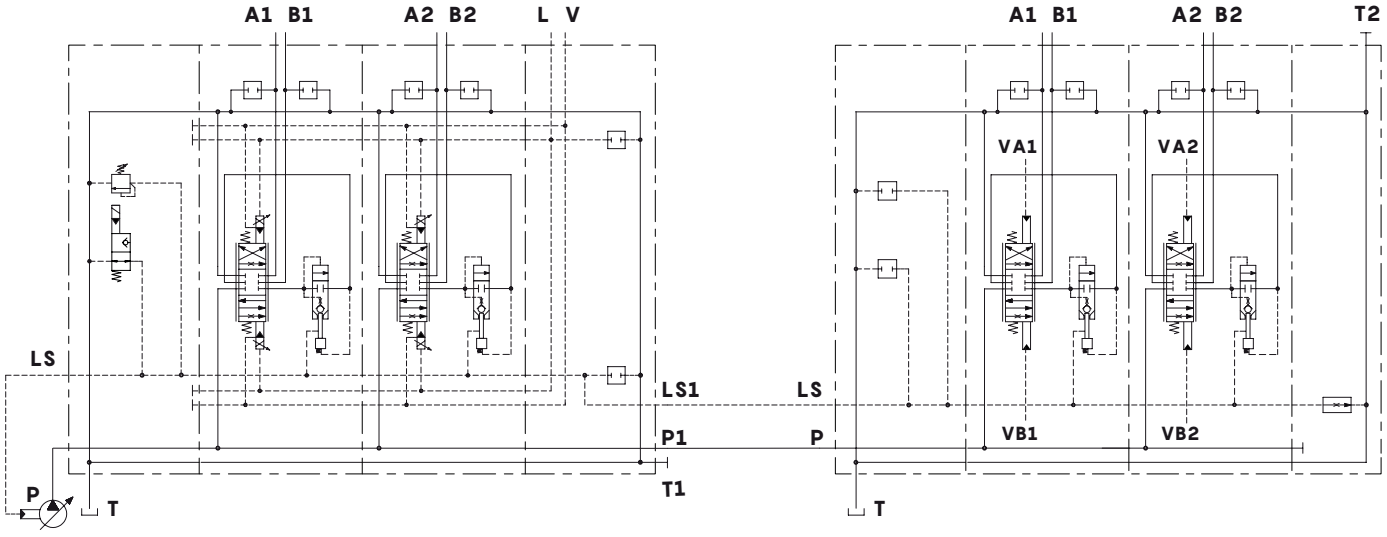

**Example 2: connection between DPX series and DPC series valves, Open Center circuit**



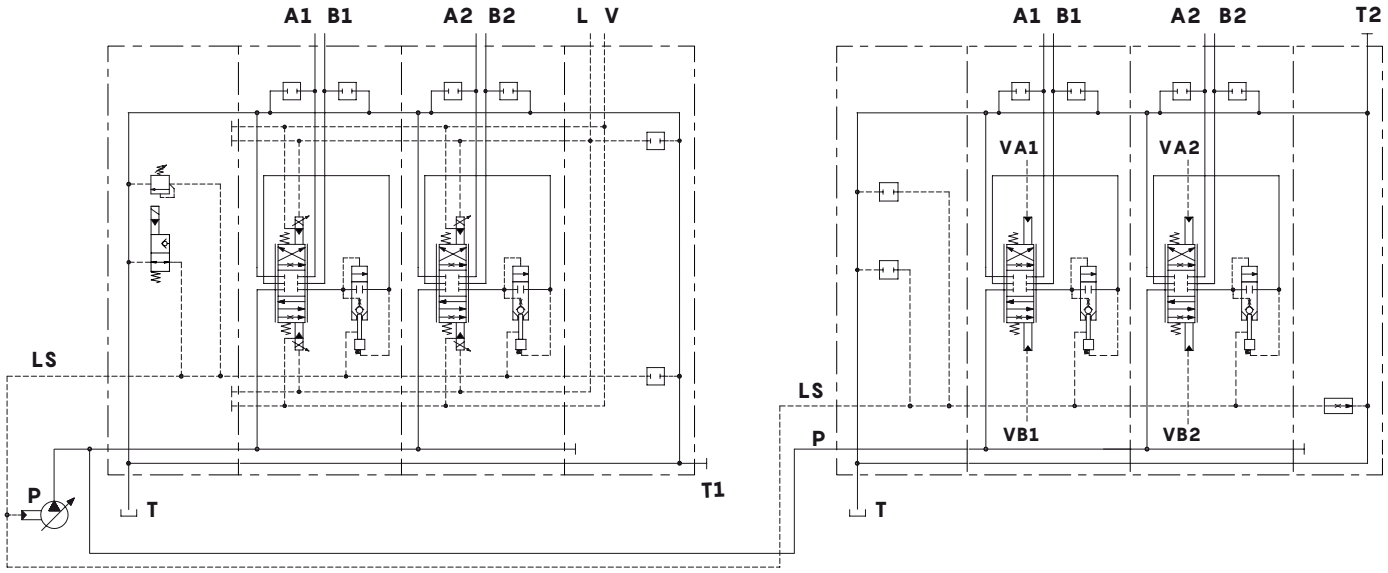

Check valve on L.S. line

## Connection between two directional valves

**Example 3: connection between DPX series valves, Closed Center circuit**
Bleed valve has to be installed only on one DPX valve

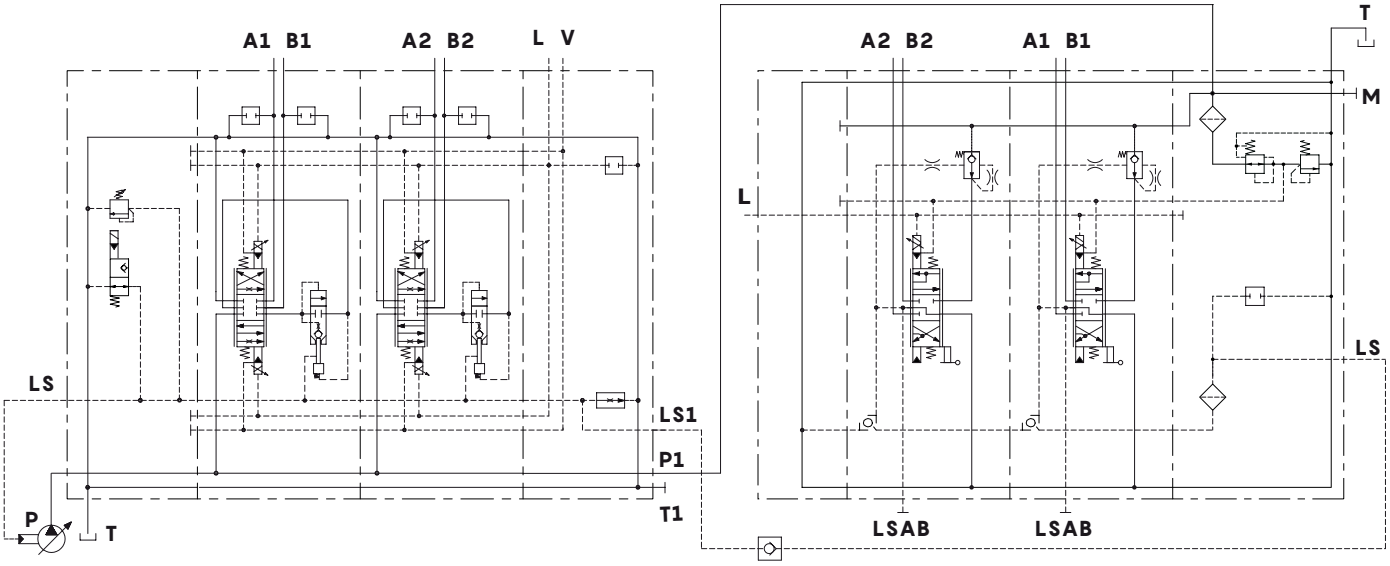



NOTE: if there is a big distance between the valves, the following circuit is suggested.



## Connection between two directional valves

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

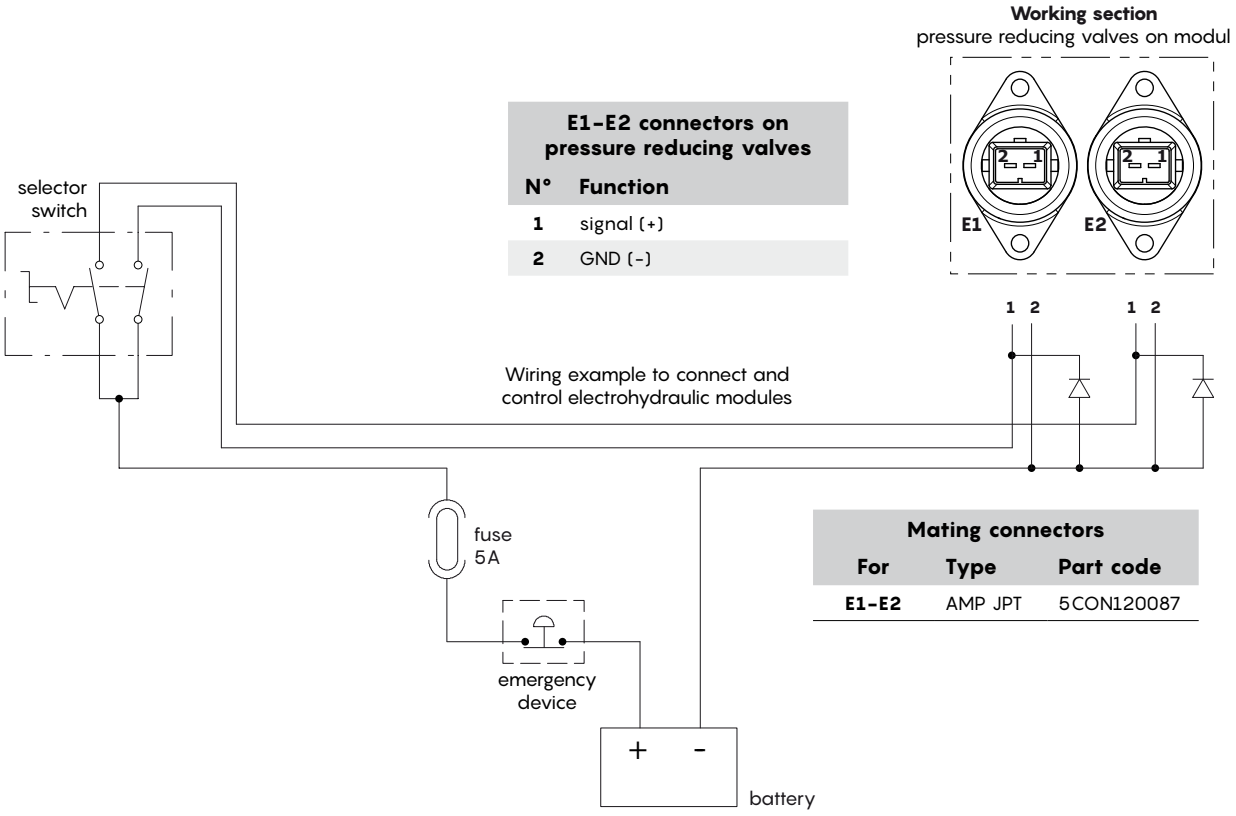



Check valve on L.S. line

## Electrohydraulic control connection

### On/off electrohydraulic control

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




| E1-E2 connectors on pressure reducing valves | |
|---|---|
| **N°** | **Function** |
| **1** | signal (+) |
| **2** | GND (-) |

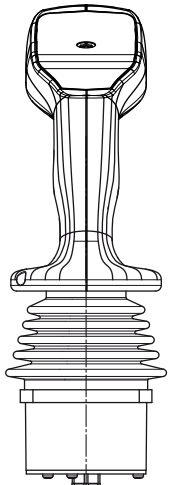
| Mating connectors | | |
|---|---|---|
| **For** | **Type** | **Part code** |
| **E1-E2** | AMP JPT | 5CON120087 |

## 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 | / |

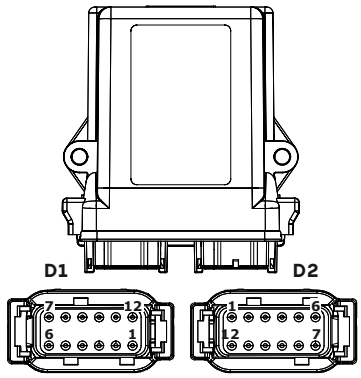
**D1 control unit connector**

| 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**

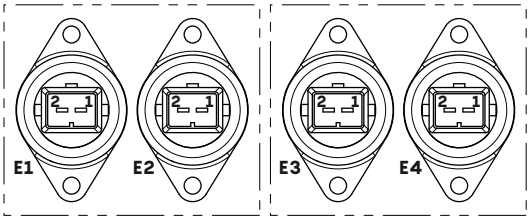
| Nr | Function | Nr | Function |
|---|---|---|---|
| 1 | / | 7 | / |
| 2 | valve E2 (+) | 8 | valves E3/E4 (-) |
| 3 | valve E4 (+) | 9 | valves E1/E2 (-) |
| 4 | valve E3 (+) | 10 | / |
| 5 | / | 11 | valve E1 (+) |
| 6 | / | 12 | / |

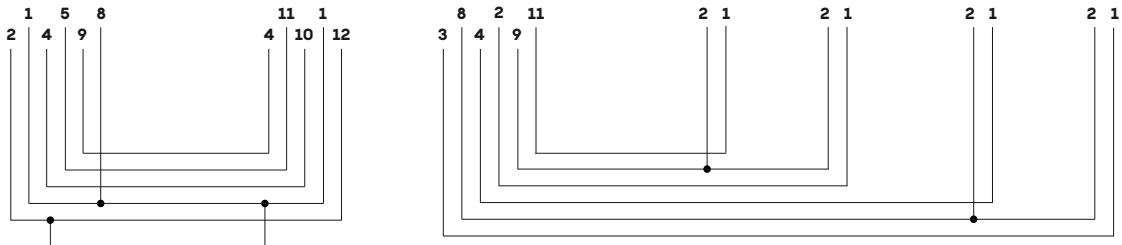
**CED400W control unit**
up to 4 working sections



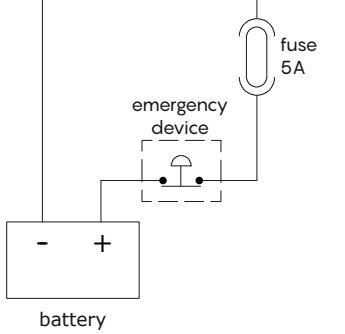

**1st working section**
pressure reducing valves
on module

**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**

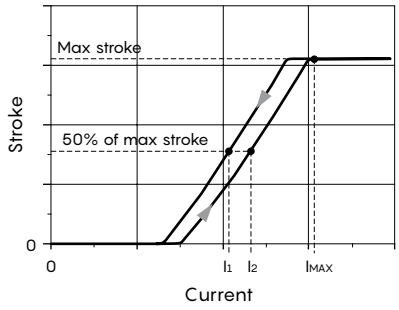
| For | Type | Part code |
|---|---|---|
| J1 | Deutsch DTM06-12S | 5CON140041 |
| D1 | Deutsch DTM06-12S | 5CON140041 |
| D2 | Deutsch DTM06-12SB | 5CON140067 |
| E1-E4 | AMP JPT | 5CON120087 |

## 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**




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

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