



DPX Series

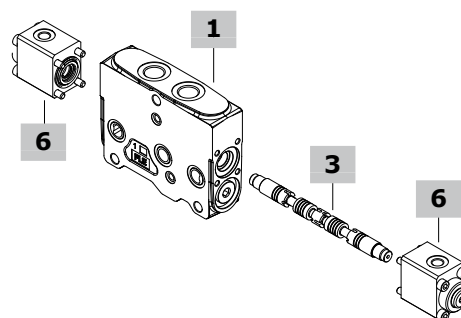
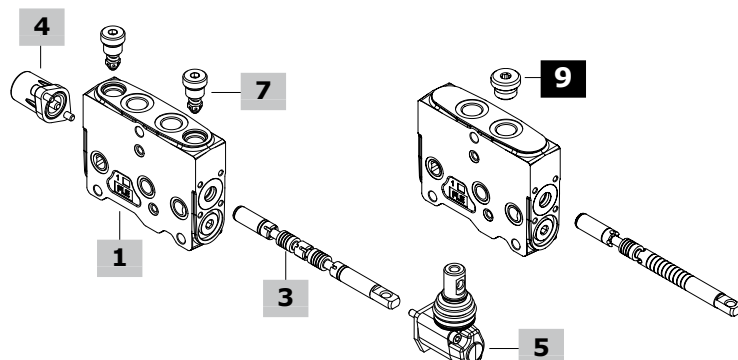
Full Flow Sharing sectional valves

TECHNICAL CATALOGUE

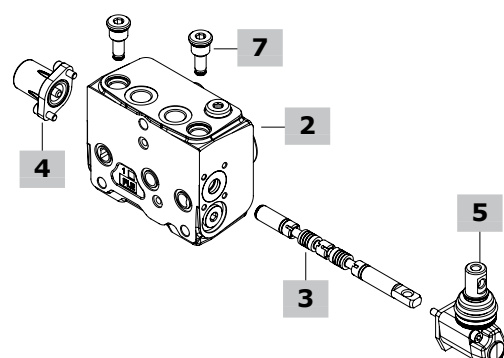


Working and outlet section part ordering codes (mechanical and hydraulic)

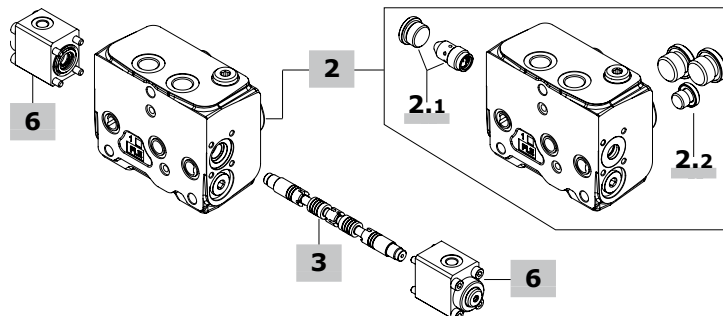
Flow on A/B ports (l/min)					Valve setting (bar)		
					A port	B port	
DPX050 / P - 104(40\40) - 8	L . U1(100) U2(120) -						
1	3	4	5	7	8		



DPX050 / RP - 104(40\40) - 8	L . U3T- ...						
2	3	4	5	7	8		



DPX050 / RQ - I104(40\40) - 8IM (VBT) - F1- ...							
2	2	3	6	2.1	2.2	8	



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 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

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 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

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

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

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

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

TYPE	CODE	DESCRIPTION
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For mechanical control

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

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

Double acting with A and B to tank in neutral position

202(20)	3CUA123002	20 l/min (5.3 US gpm) flow
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 hydraulic control

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

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

Double acting with A and B to tank in neutral position

1204(40)	3CUA325004	40 l/min (10.5 US gpm) flow
1203(30)	3CUA325003	30 l/min (7.9 US gpm) flow
1202(20)	3CUA325002	20 l/min (5.3 US gpm) flow
1201(10)	3CUA325001	10 l/min (2.6 US gpm) flow
1206(5)	3CUA325006	5 l/min (1.3 US gpm) flow

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

12H05(50)	3CUA324005	50 l/min (13 US gpm) flow
12H04(40)	3CUA324004	40 l/min (10.5 US gpm) flow
12H03(30)	3CUA324003	30 l/min (7.9 US gpm) flow
12H02(20)	3CUA324002	20 l/min (5.3 US gpm) flow
12H01(10)	3CUA324001	10 l/min (2.6 US gpm) flow
12H06(5)	3CUA324006	5 l/min (1.3 US gpm) flow

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

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

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
<u>For floating circuit (standard spool)</u>		
13RZ	5V13306020	4 pos., detent in 4 th position with spool in, spring return to neutral position

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

TYPE	CODE	DESCRIPTION
8IM	5IDR20A300V	Range 8-27 bar (116-392 psi)
8IMX	5IDR20A301V	Range 3.5-20 bar (51-290 psi)
8IMF3	5IDR20A302V	Range 8-27 bar (116-392 psi), with spool stroke limiter on A and B ports
8IMXF3	5IDR20A303V	Range 3.5-20 bar (51-290 psi), with spool stroke limiter on A and B ports
<u>For floating circuit (standard spool)</u>		
13IMP	5IDR20A310V	Range 4-16.5-28 bar (58-239-406 psi)

TYPE	CODE	DESCRIPTION
UT	XTAP518370V	Valve blanking plug
C	5KIT411000	Anticavitation valve
Fixed setting antishock and anticavitation valves: setting is referred to 10 l/min (2.6 US gpm)		
TYPE: U 100		CODE: 5KIT308 100
taratura (bar)		taratura (bar)

SETTING:

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

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

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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)

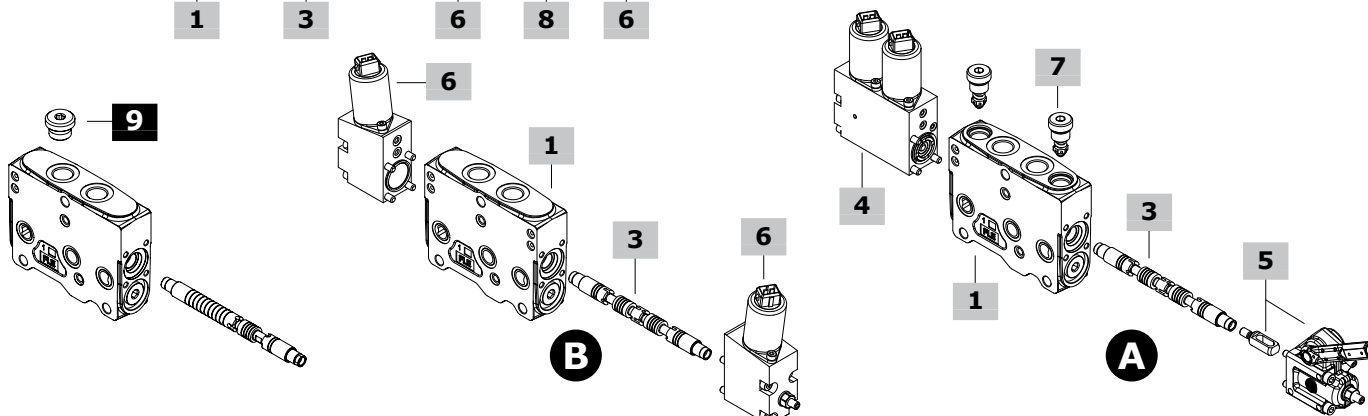
A DPX050 / PZ - I104(40\40) - 8EZ3 LQF3 . U1(100) U2(120) - - 12VDC

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

1 3 4 5 7 8 4

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

1 3 6 8 6

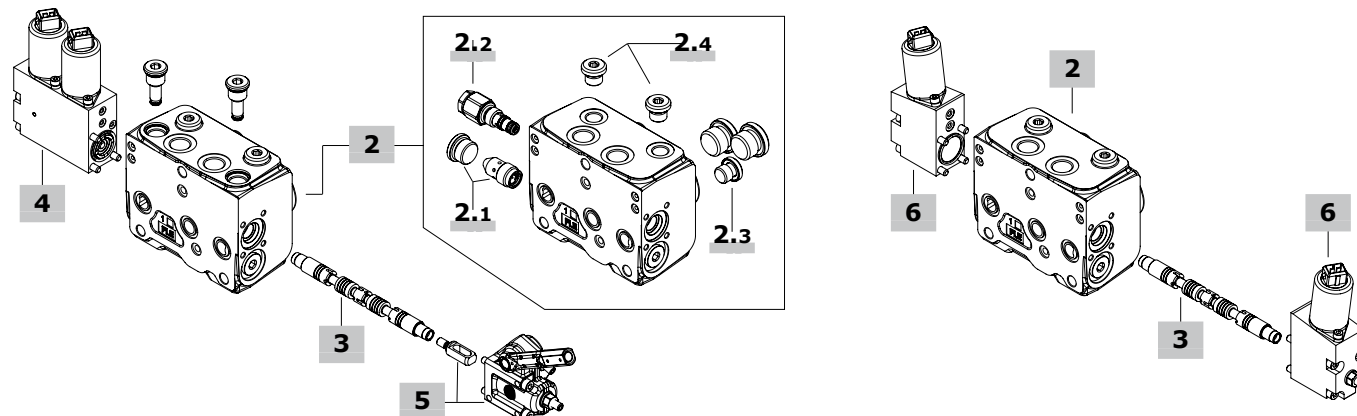


D DPX050 / RQZ - I104(40\40) - 8EZ3 LQF3 . U3T - (VBT \ RT) - F1 - NOTAP(VL) - - 12VDC

2 3 4 5 7 2.1 2.2 2.3 2.4 8 4

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

2 3 6 8 6



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

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

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

Working and outlet section part ordering codes (electrohydraulic)

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

Codes are referred to parts with FPM seals.

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

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

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

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

These controls must be coupled with "B" side options

TYPE	CODE	DESCRIPTION
8EZ3-12VDC	5V0810A780V	AMP connector
8EZ3-24VDC	5V0810A785V	AMP connector
8EZ3F2-12VDC	5V0810A781V	AMP conn., spool stroke limiter
8EZ3F2-24VDC	5V0810A782V	As previous one
8EZ34-12VDC	5V0810A786V	Deutsch connector
8EZ34-24VDC	5V0810A787V	Deutsch connector
8EZ34F2-12VDC	5V0810A783V	Deutsch conn., spool stroke limiter
8EZ34F2-24VDC	5V0810A784V	As previous one

For floating circuit (standard spool)

13EZ3P-12VDC	5V1310A780V	With Step, with AMP connector
13EZ3P-24VDC	5V1310A781V	As previous one
13EZ34P-12VDC	5V1310A782V	With Step, with Deutsch conn.
13EZ34P-24VDC	5V1310A783V	As previous one

With spool position sensor

8EZ3SPSD-12VDC	5V0810A790V	AMP connector and digital sensor
8EZ3SPSD-24VDC	5V0810A791V	As previous one

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

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

For floating circuit (standard spool)

13EB3P-12VDC	5IDR91A200V	With Step, AMP connector
13EB3P-24VDC	5IDR91A201V	As previous one
13EB34P-12VDC	5IDR91A202V	With Step, Deutsch connector
13EB34P-24VDC	5IDR91A203V	As previous one

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

For complete list see previous pages.

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

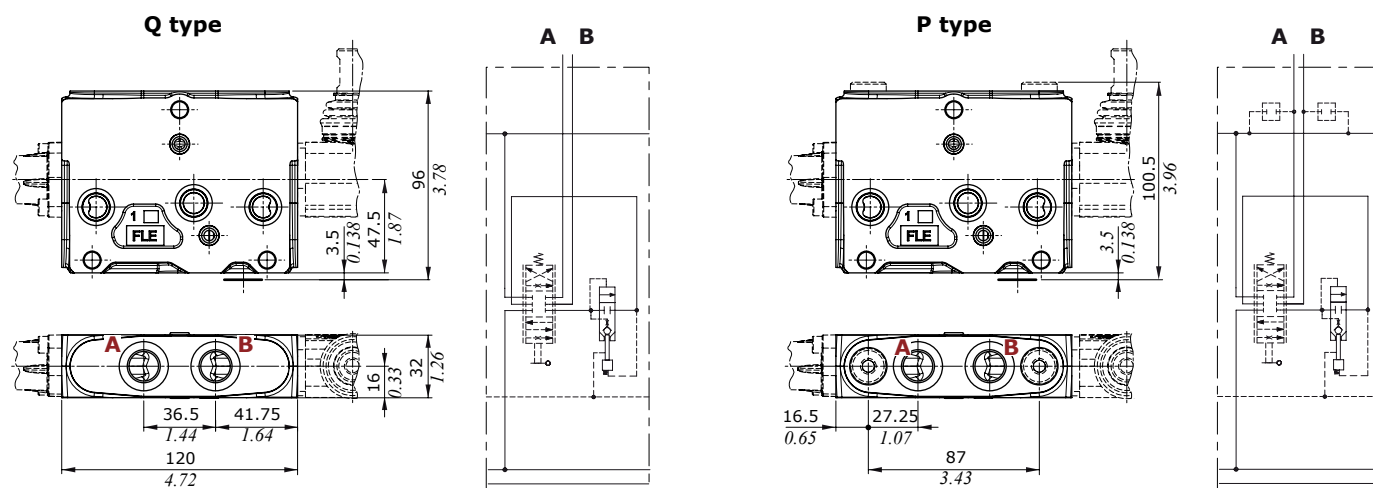
NOTE (*): Codes are referred to **BSP** thread.

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

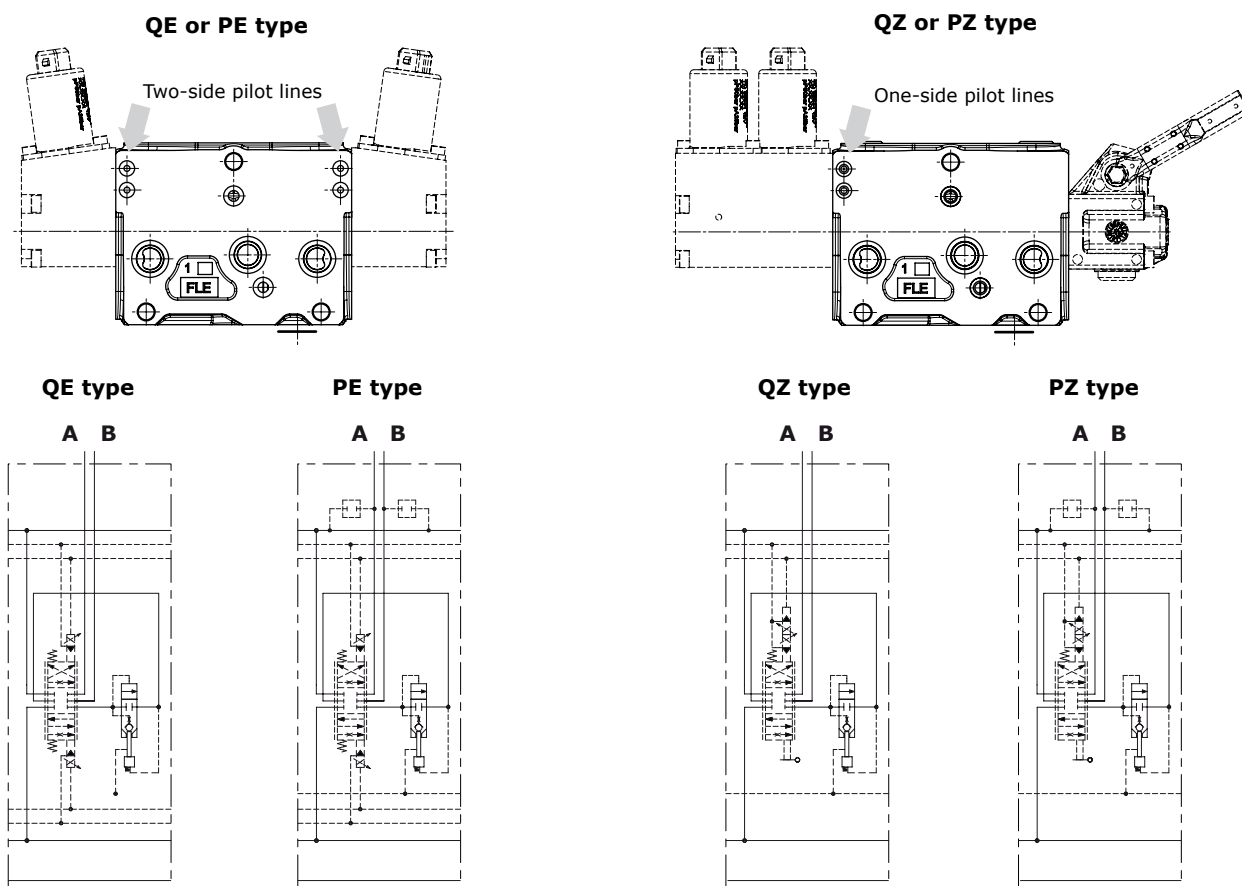
Working and outlet section

Dimensions and hydraulic circuit

Section for mechanical and hydraulic controls

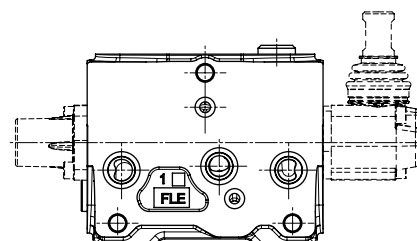
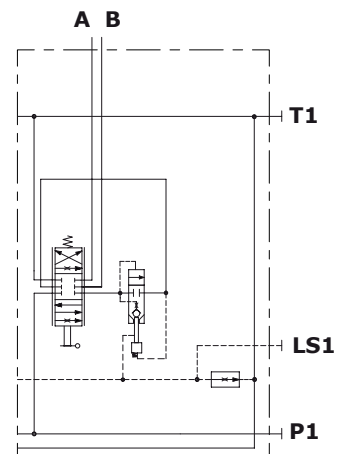
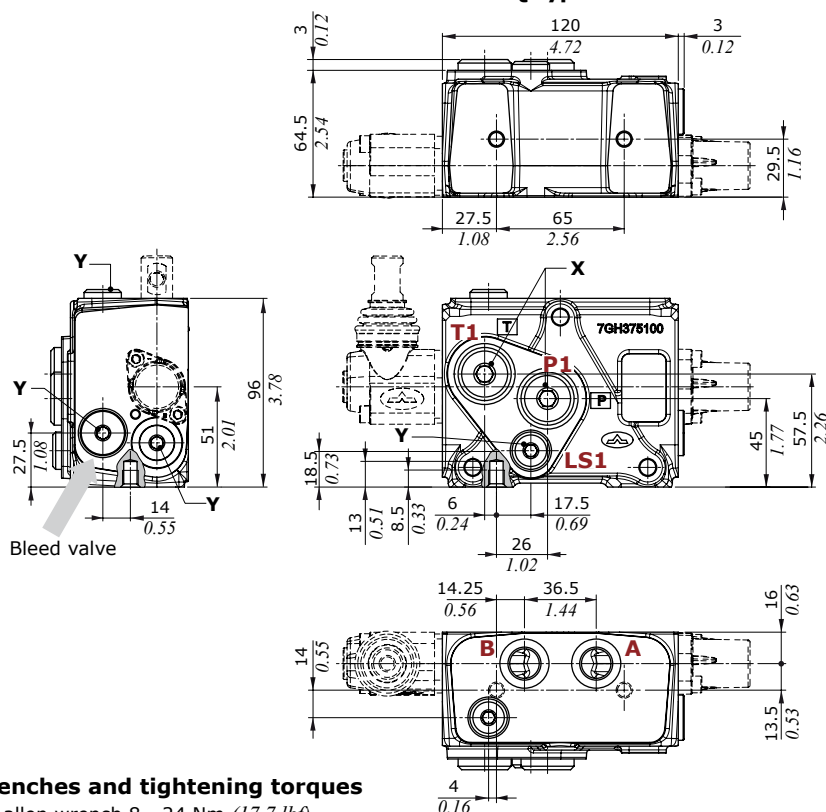


Section for electrohydraulic controls



Section with outlet for mechanical and hydraulic controls

RQ type

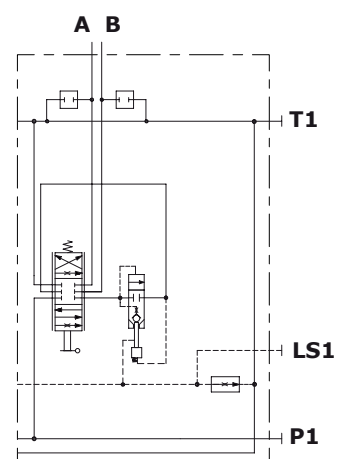
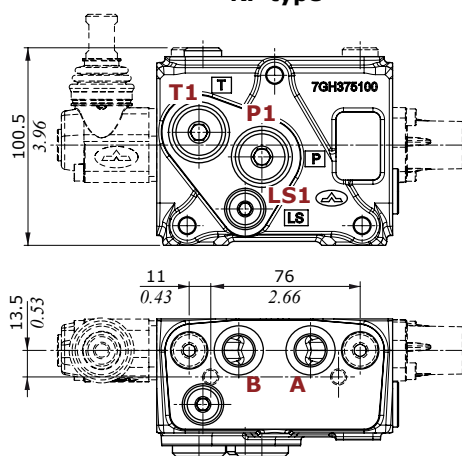


Wrenches and tightening torques

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

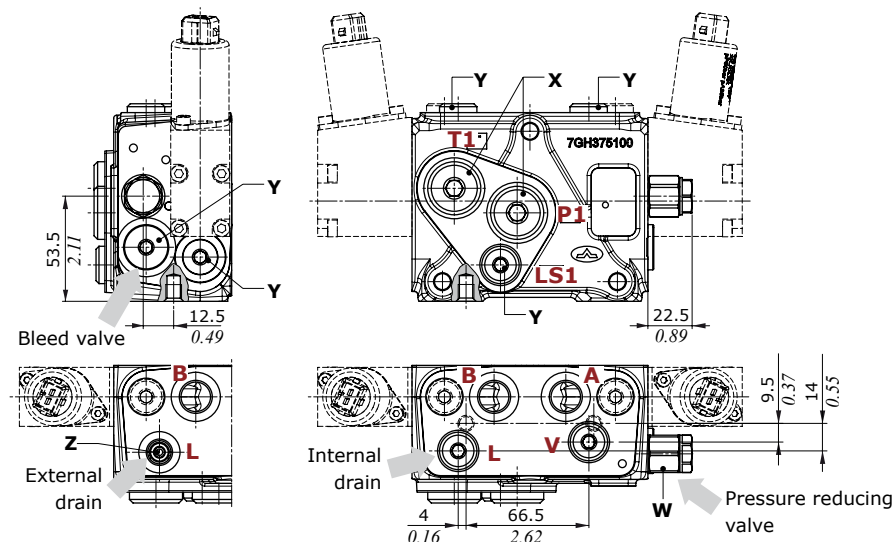
Y = allen wrench 6 - 24 Nm (17.7 lbf)

RP type



Working and outlet section

Section with outlet for electrohydraulic controls



Wrenches and tightening torques

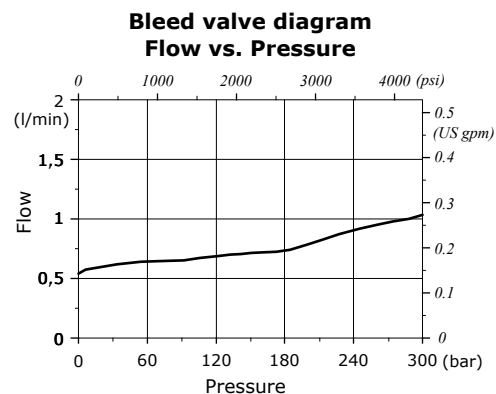
X = allen wrench 8 - 24 Nm (17.7 lbf)
 Y = allen wrench 6 - 24 Nm (17.7 lbf)
 Z = allen wrench 5 - 9.8 Nm (7.2 lbf)
 W = wrench 19 - 24 Nm (17.7 lbf)

Bleed valve features

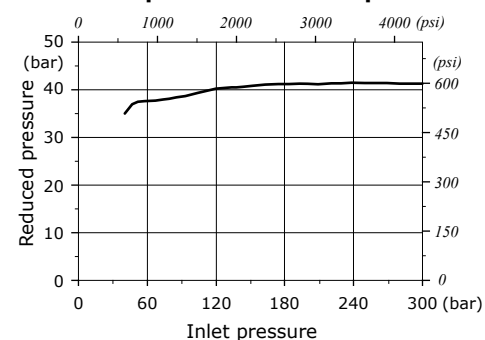
Max. inlet pressure . . : 300 bar (4350 psi)
 Max. back pressure . . : 25 bar (363 psi)

Pressure reducing valve features

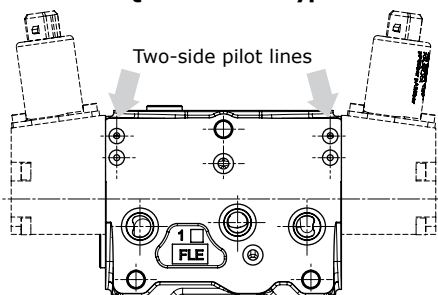
Max. inlet pressure . . : 380 bar (5500 psi)
 Reduced pressure . . . : 30-45 bar (435-650 psi)
 Max. back pressure . . : 25 bar (363 psi)



Pressure reducing valve diagram

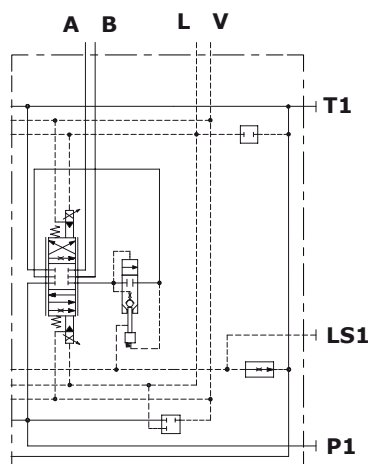


RQER or RPER type



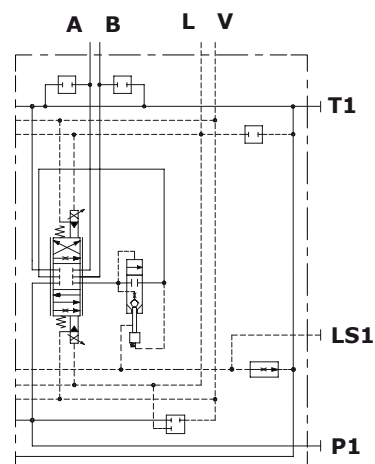
RQE type

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

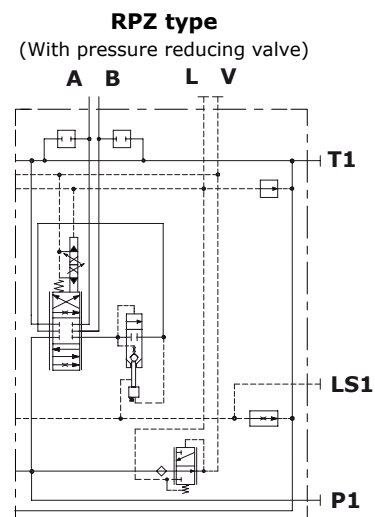
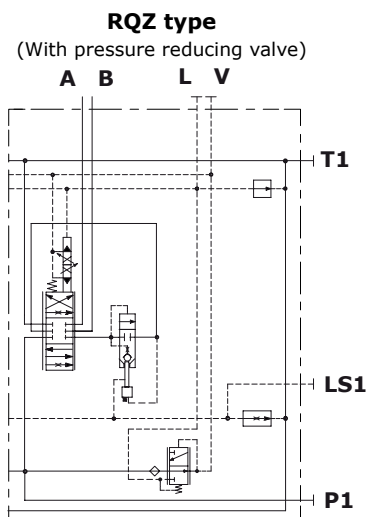
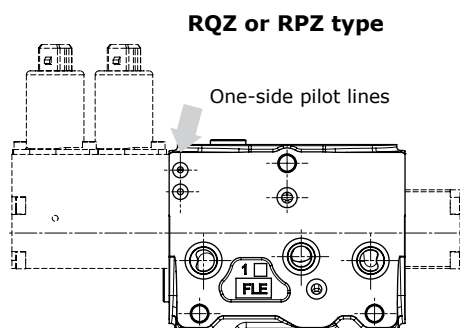


RPE type

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

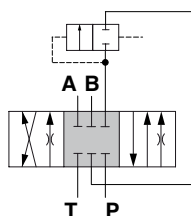


Working and outlet section



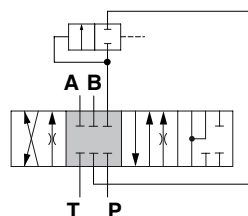
Type 1 (1../I1..) spool
A, B closed in neutral position
with 3 position control with 4 position control

1 0 2

**Spool stroke**

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

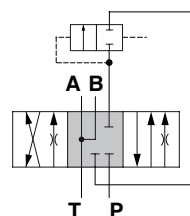
1 0 2 3

**Spool stroke**

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

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

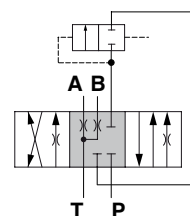
1 0 2

**Spool stroke**

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

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

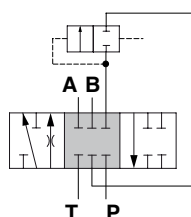
1 0 2

**Spool stroke**

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

Type 3 (3../I3..) spool
single acting on A

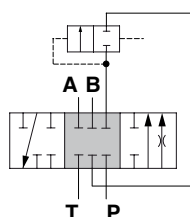
1 0 2

**Spool stroke**

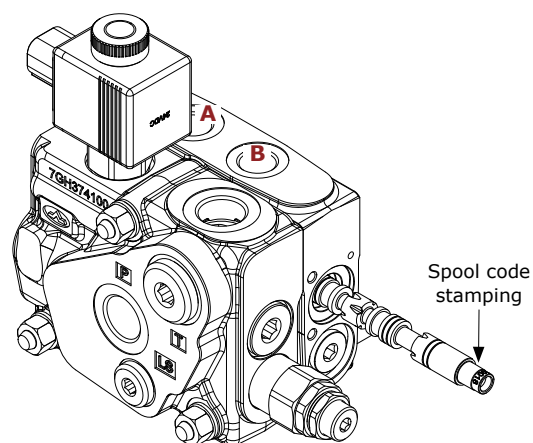
position 1: + 5.5 mm (- 0.22 in)
position 2: - 5.5 mm (+ 0.22 in)

Type 4 (4../I4..) spool
single acting on B

1 0 2

**Spool stroke**

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

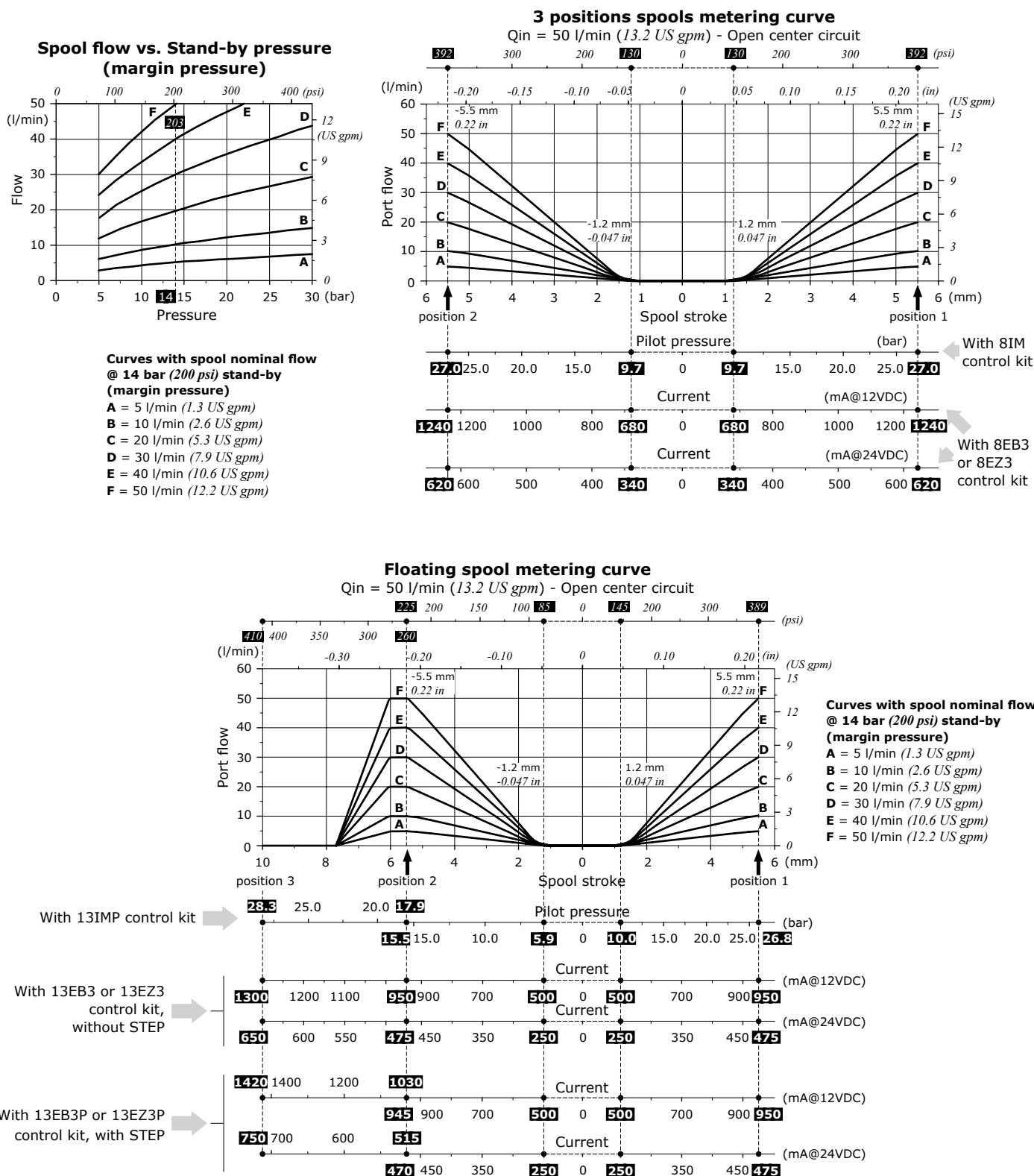


In case of spool replacement the code stamping must be oriented toward B port.

Working and outlet section

Spools

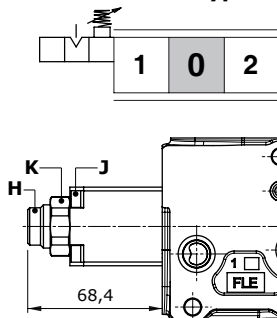
Following curves are detected with standard spools, connecting $P \Rightarrow A \Rightarrow B \Rightarrow T$ and $P \Rightarrow B \Rightarrow A \Rightarrow T$ ports without flow multiplication. Customized spools with backpressure or flow multiplication may require different force, pressure and pilot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



Working and outlet section

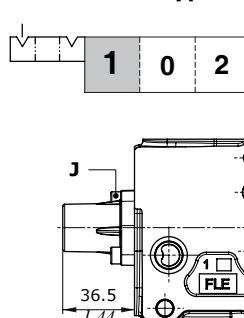
With friction and neutral position notch

7FT type



2 positions, with detent in position 1 and 2

12 type



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

Wrenches and tightening torques

J = allen wrench 4 - $6,6 \text{ Nm}$ (4.9 lbf)

H = allen wrench 4

K = wrench 28 - manual tightening

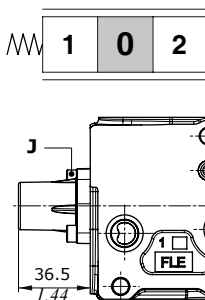
X = wrench 9

Y = wrench 13 - 24 Nm (17.7 lbf)

Z = allen wrench 4

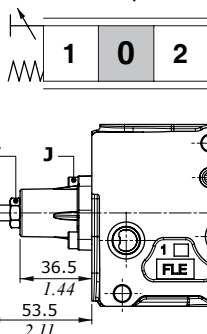
With spring return to neutral position

8 type



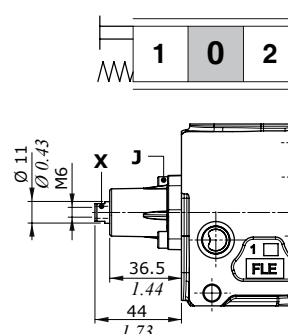
8F2 type

Spool stroke limiter
on B port



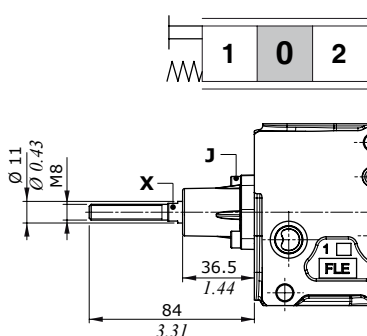
8D type

External pin with
M6 female thread

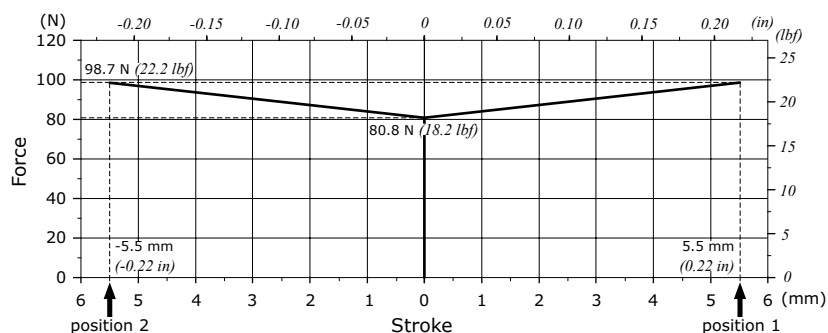


8D2 type

External pin with
M8 male thread



Force vs. Stroke diagram

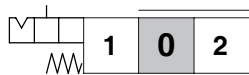


Working and outlet section.

"A" side spool positioners

With detent and spring return to neutral position from either directions

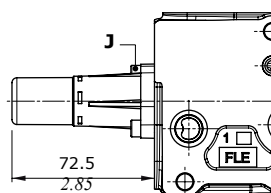
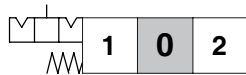
9BZ type
detent in position 1
(see A curve)



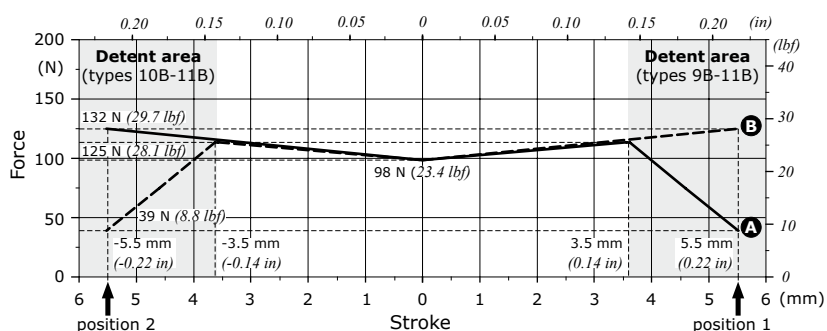
10BZ type
detent in position 2
(see B curve)



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

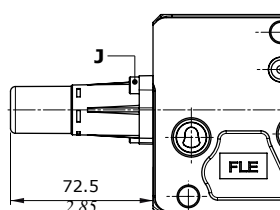
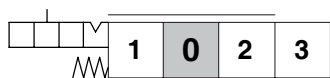


Force vs. Stroke diagram

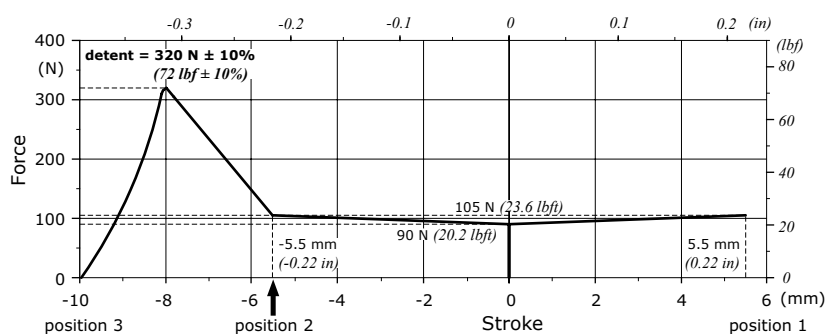


Release force 230 N $\pm$ 10% (51.7 lbf $\pm$ 10%)

For floating circuit, 13RZ type



Force vs. Stroke diagram



Release force from pos.3: 315 N $\pm$ 10% (71 lbf $\pm$ 10%)

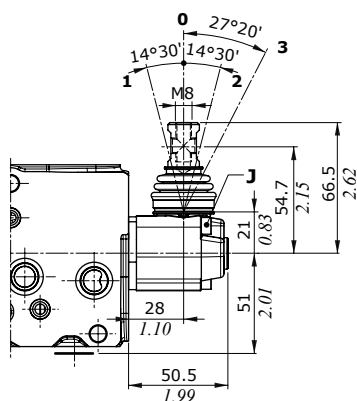
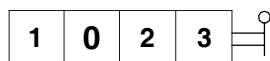
Wrenches and tightening torques

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

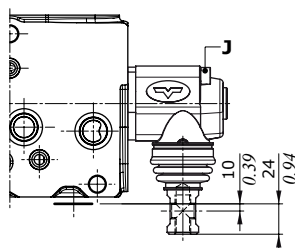
Working and outlet section

Lever boxes

L type

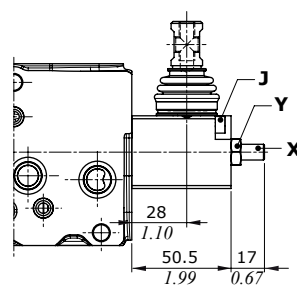
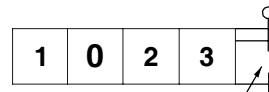


L180 type



LF1 type

Spool stroke limiter on A port



Wrenches and tightening torques

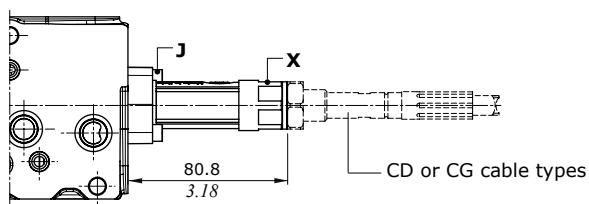
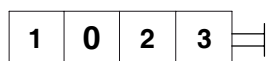
K = wrench 24 (17.7 lbf)

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

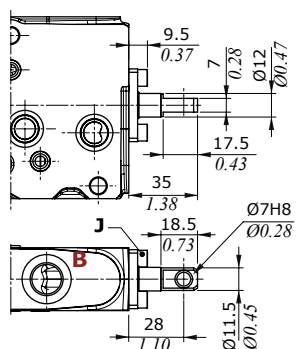
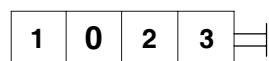
X = allen wrench 4

Y = wrench 13 - 24 Nm (17.7 lbf)

Flexible cable connection, TQ type

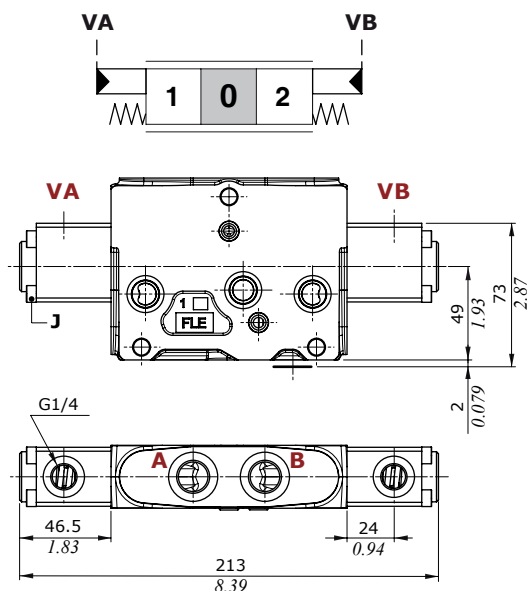


Dust-proof plate, SLP type



Working and outlet section.

8IM - 8IMX types

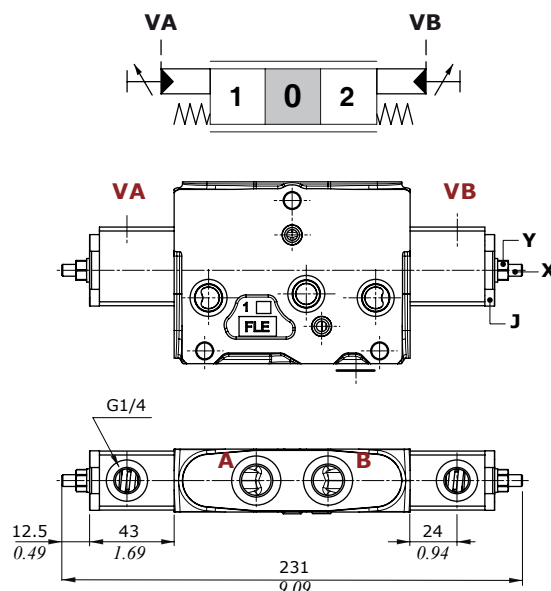


Features (all types)

Max. pressure.: 70 bar (1010 psi)

8IMF3 - 8IMXF3 types

With spool stroke limiter on A and B ports



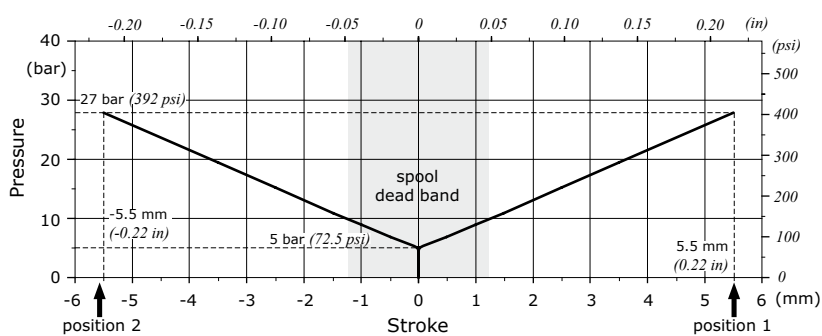
Wrenches and tightening torques

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

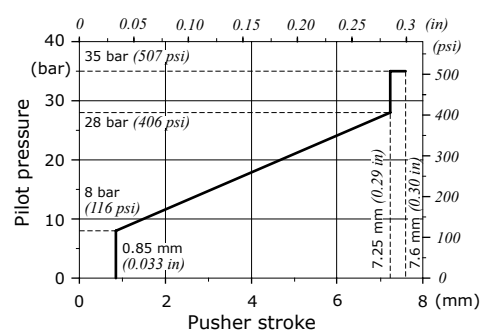
X = allen wrench 3

Y = wrench 10 - 9.8 Nm (7.2 lbf)

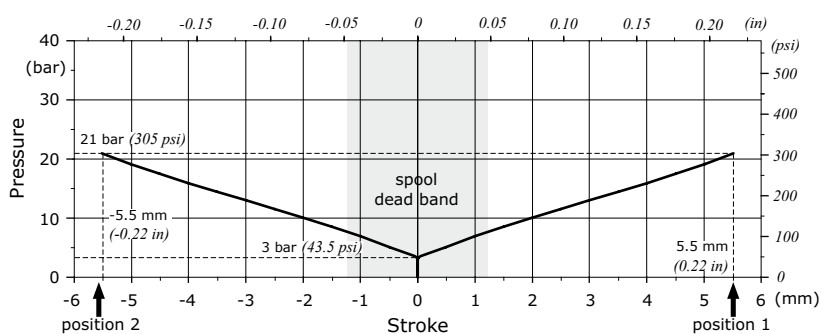
8IM-8IMF3 types: Stroke vs. Pressure diagram



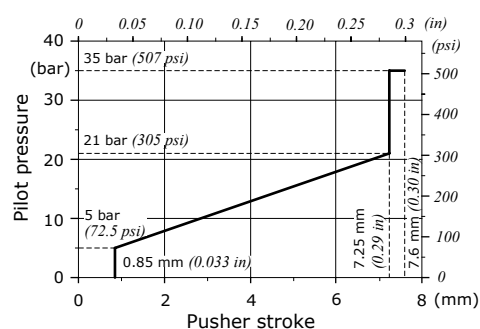
**Suggested pressure control curve:
089 type**



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



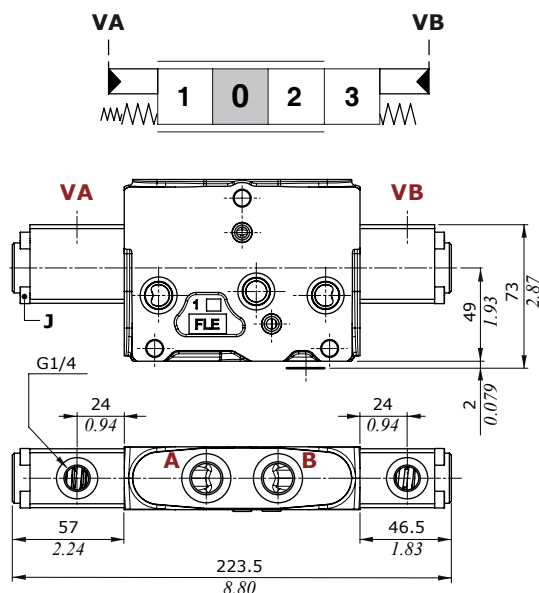
**Suggested pressure control curve:
028 type**



Working and outlet section

Proportional hydraulic control

For floating circuit, 13IMP type



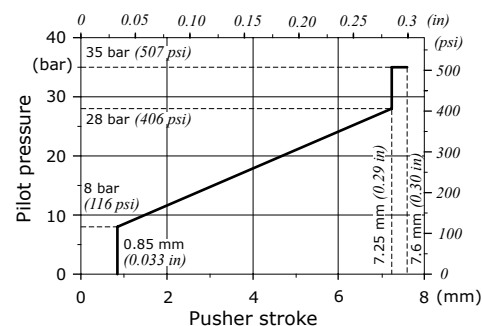
Wrenches and tightening torques

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

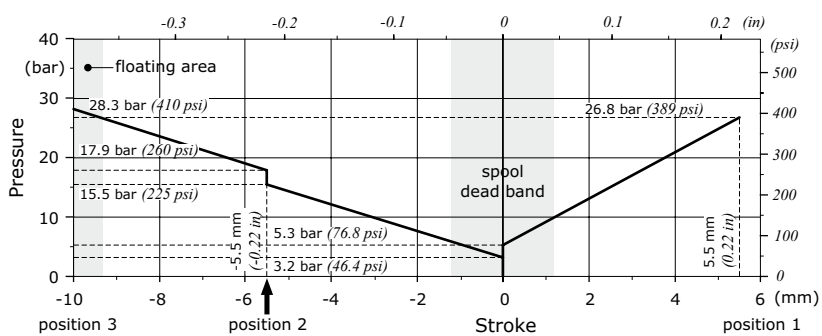
Features

Max. pressure. : 70 bar (1010 psi)

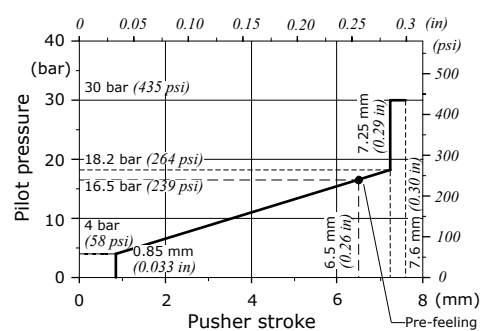
Suggested pressure control curve on VA port: 089 type



Stroke vs. Pressure diagram



Suggested pressure control curve on VB port: 086 type



Working and outlet section

Following specifications are measured with:

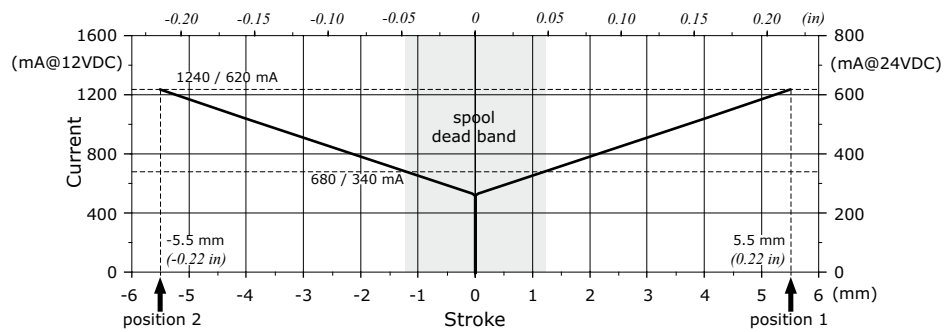
- mineral oil of 46 mm²/s - 46 cSt viscosity at 40°C - 104°F temperature,
- standard spools, connecting P⇒A⇒B⇒T ports without flow multiplication,
- 12 VDC and 24 VDC nominal voltage with ± 10% tolerance.

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

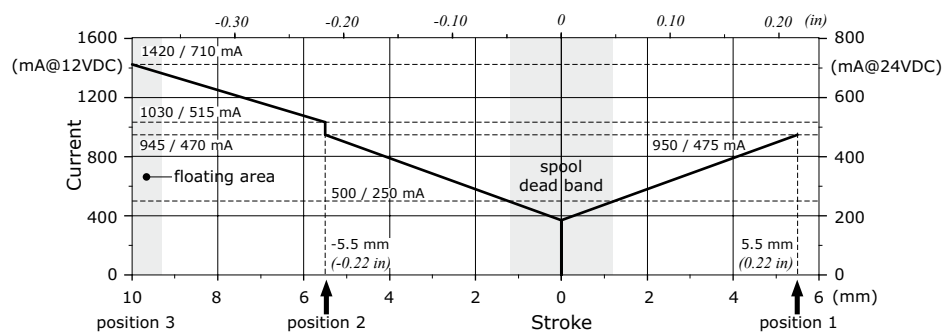
Specifications		Spool control type							
		8EB3	13EB3P	8EZ3	13EZ3P				
Electric specifications									
Coil impedance	12 VDC	4.72 Ω	4.72 Ω	4.72 Ω	4.72 Ω				
	24 VDC	20.8 Ω	20.8 Ω	20.8 Ω	20.8 Ω				
Max. operating current	12 VDC	1.5 A	1.5 A	1.5 A	1.5 A				
	24 VDC	0.75 A	0.75 A	0.75 A	0.75 A				
No load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

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



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



Working and outlet section

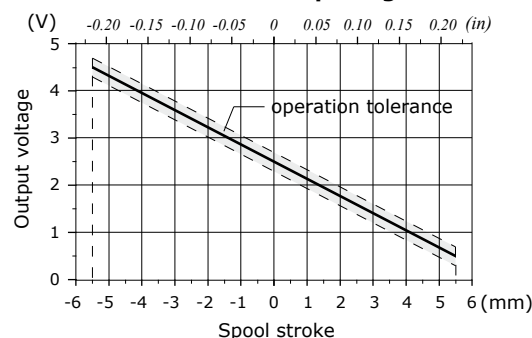
The sensor can be ordered exclusively through the EB and EZ type electrohydraulic controls; see page 23 for available control list.

SPSL sensor

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

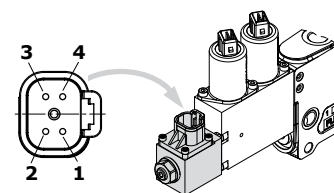
Working conditions		
Voltage supply		5 VDC
Current absorption		< 10 mA (no load)
Mechanical life		3x10 ⁶
Connector type		DT04-4P Deutsch
Weather protection		IP67 / IP69K
Working temperature		from -40°C to 105°C (from -40°F to 221°F)
Working pressure		350 bar (5100 psi)
Max. electrical stroke		±10 mm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

SPSL sensor output signal



Deutsch DT04-4P connector

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



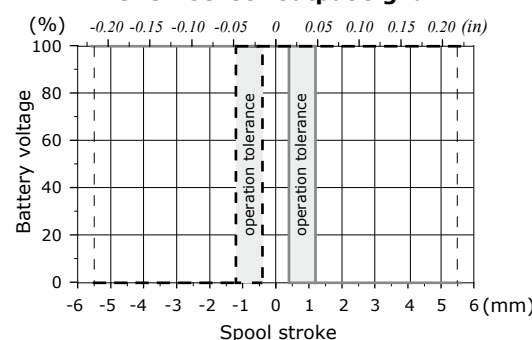
Deutsch DT06-4S mating connector, code 5CON140072

SPSD sensor

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

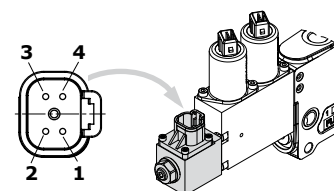
Working conditions		
Voltage supply		from 9 to 32 VDC
Current absorption		< 10 mA (no load)
Mechanical life		3x10 ⁶
Connector type		DT04-4P Deutsch
Weather protection		IP67 / IP69K
Working temperature		from -40°C to 105°C (from -40°F to 221°F)
Working pressure		350 bar (5100 psi)
Max. electrical stroke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

SPSD sensor output signal



Deutsch DT04-4P connector

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

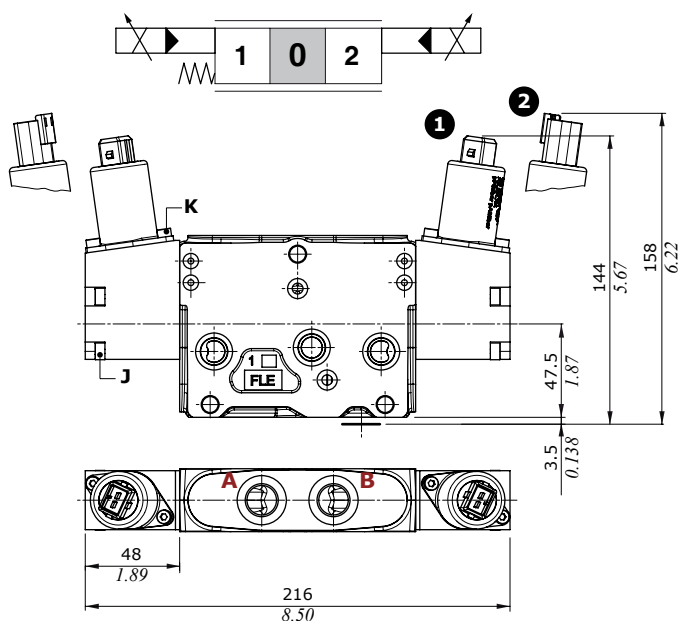


Deutsch DT06-4S mating connector, code 5CON140072

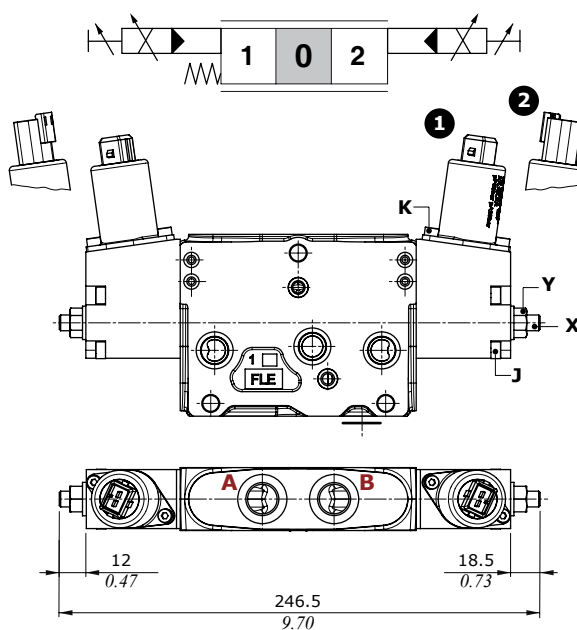
Control Types

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

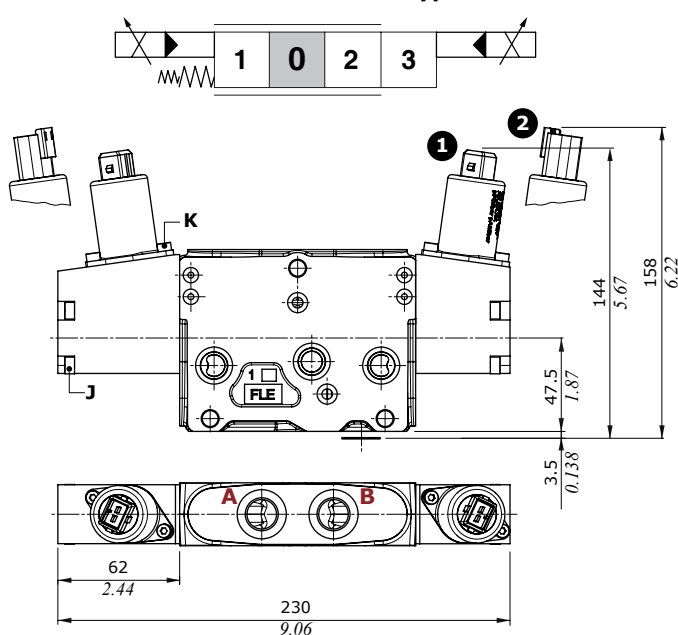
8EB3 - 8EB34 types



8EB3F3 - 8EB34F3 types



13EB3P - 13EB34P types



Wrenches and tightening torques

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

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

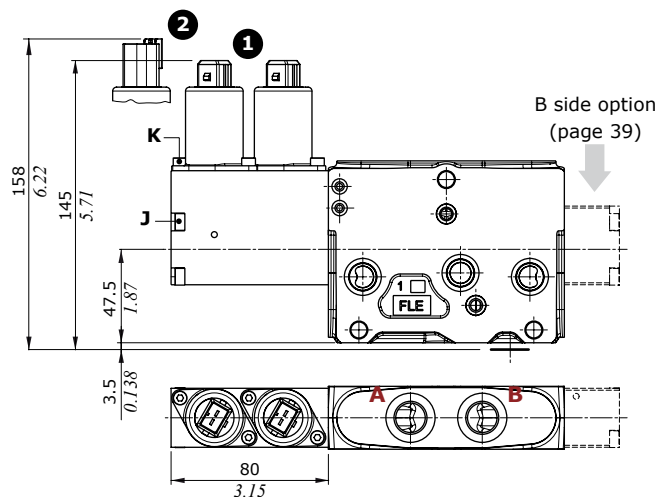
X = allen wrench 4

Y = wrench 13 - 24 Nm (17.7 lbf)

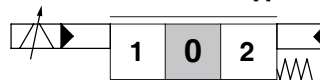
Working and outlet section

Control Types

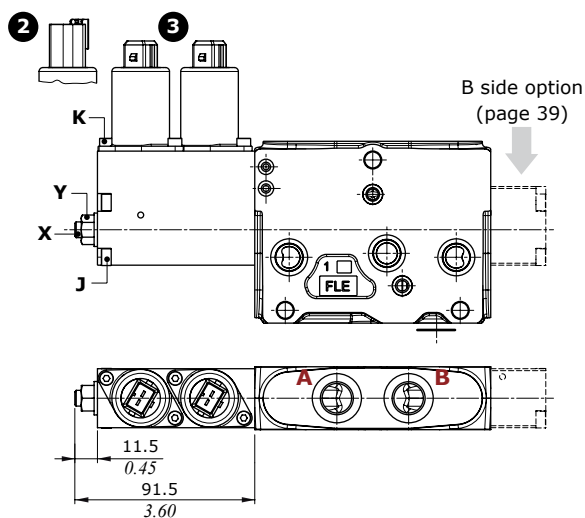
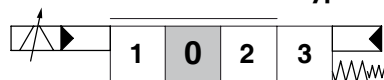
- 1 : With AMP JPT connector - AMP JPT mating connector, code: 5CON003
- 2 : With Deutsch DT04 connector - Deutsch DT06-2S mating connector code: 5CON140031



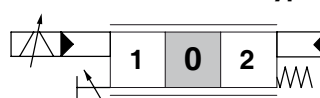
8EZ3 - 8EZ34 types



13EZ3P - 13EZ34P types



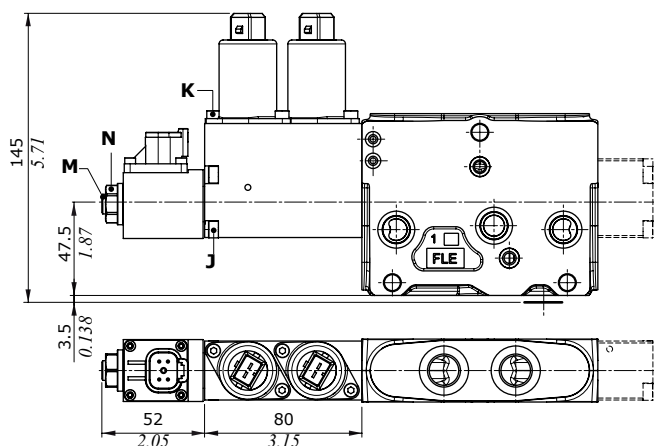
8EZ3F2 - 8EZ34F2 types



Wrenches and tightening torques

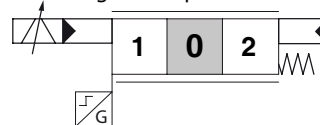
- J = allen wrench 4 - 6.6 Nm (4.9 lbf)
- K = allen wrench 3 - 5 Nm (3.7 lbf)
- X = allen wrench 4
- Y = wrench 13 - 24 Nm (17.7 lbf)
- M = allen wrench 4 - 9.8 Nm (7.2 lbf)
- N = wrench 17 - 9.8 Nm (7.2 lbf)

With SPSP spool position sensor



8EZ3SPSD type

Digital output sensor

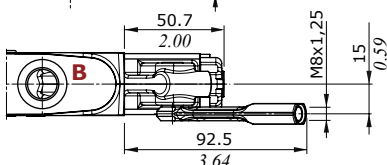
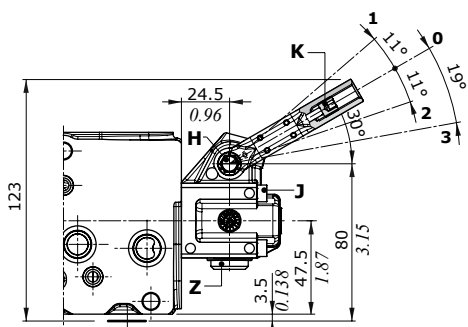
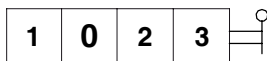


Working and outlet section

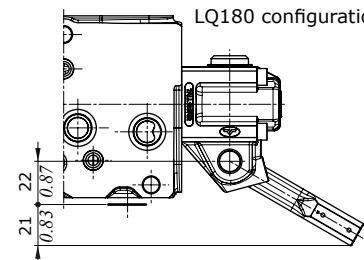
These options are available for one-side electrohydraulic controls only.

Lever boxes

LQ - LQ180 types

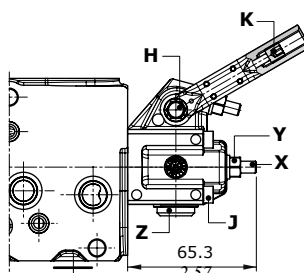


LQ180 configuration

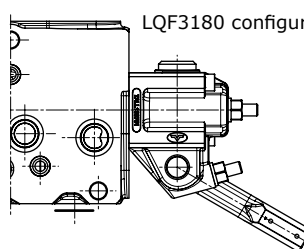


LQF3 - LQF3180 types

With stroke limiters on A and B ports



LQF3180 configuration



Wrenches and tightening torques

H = wrench 8

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

K = allen wrench 4 - 9.8 Nm (7.2 lbf)

M = allen wrench 4

N = wrench 13 - 24 Nm (17.7 lbf)

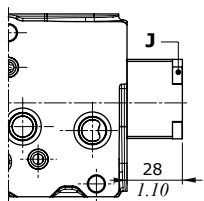
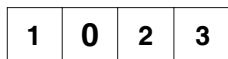
X = allen wrench 3

Y = wrench 10 - 9.8 Nm (7.2 lbf)

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

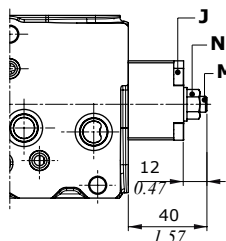
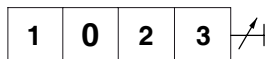
Endcaps

SLC type



SLCF1 type

spool stroke limiter
on A port



Working and outlet section

Port valves

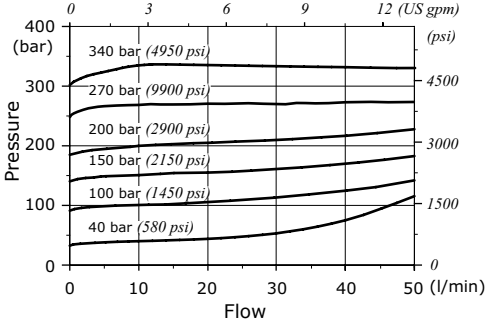
U type valve:
antishock valves with prefill



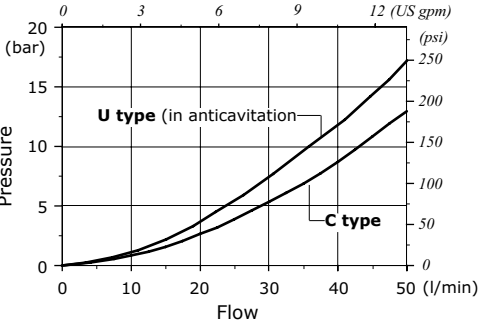
C type valve:
anticavitation



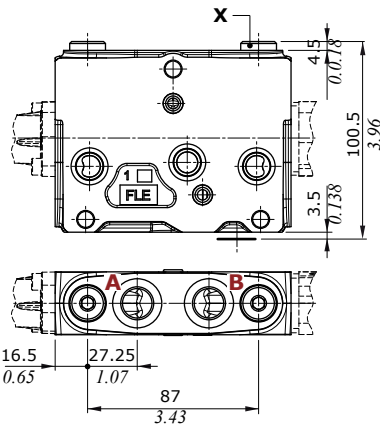
U type: setting example
(10 l/min - 2.6 Us gpm)



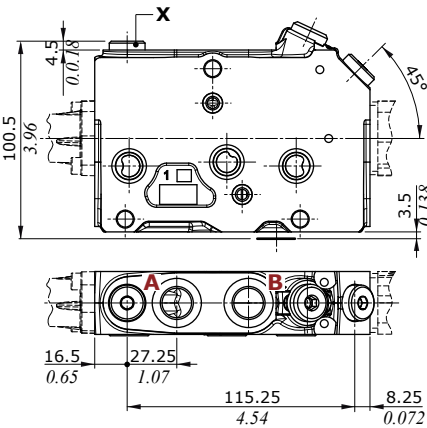
U and C types: pressure drops



On standard section



On Low Leak section



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

Complete section ordering codes

A Mechanical and hydraulic controls configuration:

└─Nr. of working sections

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



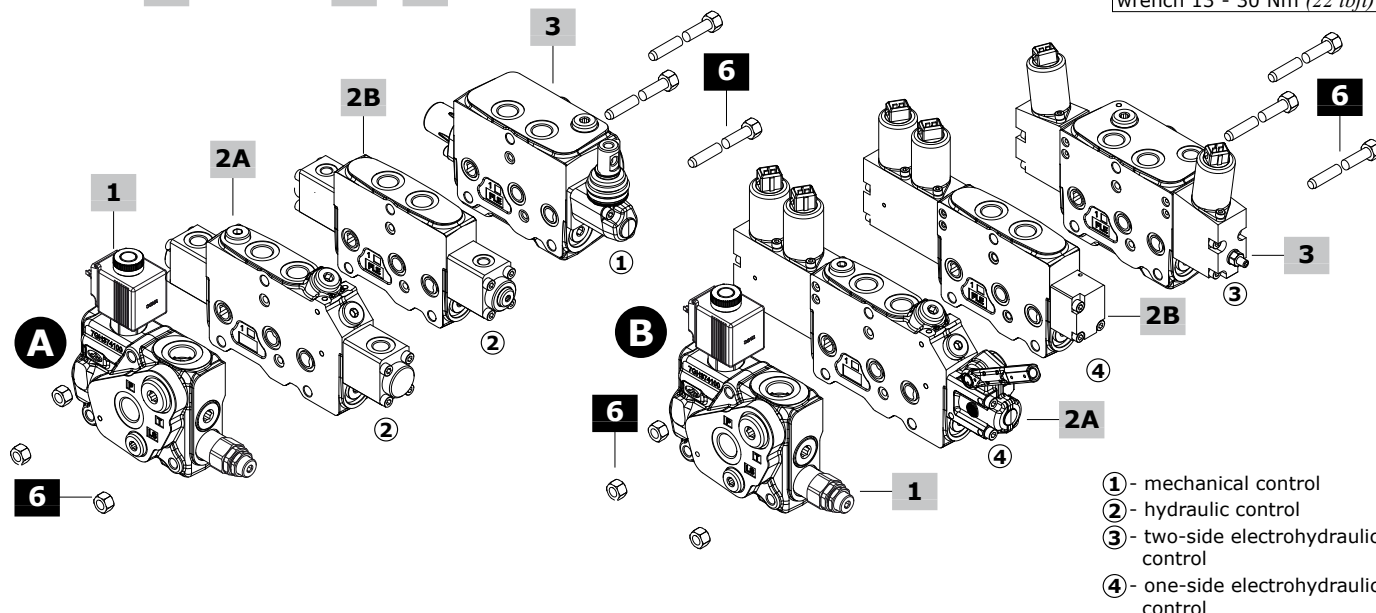
DPX050: For working conditions and guide to mixed (Low Leak and Standard sections both) configuration see pages 5, 6, 12, 13.

B Electrohydraulic controls configuration:

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



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

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

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

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)-8EZ3FLQF3.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.

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

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

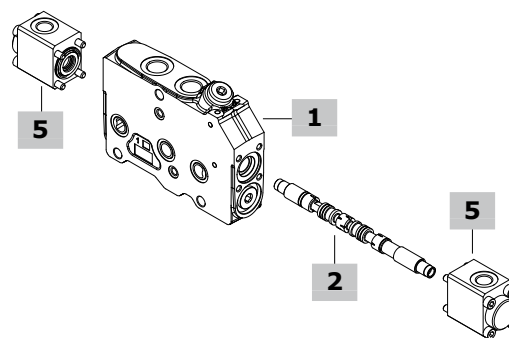
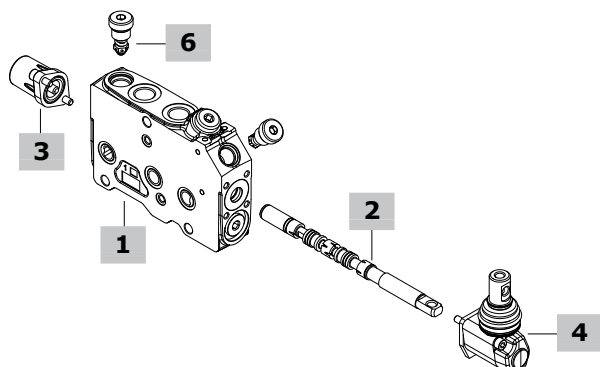
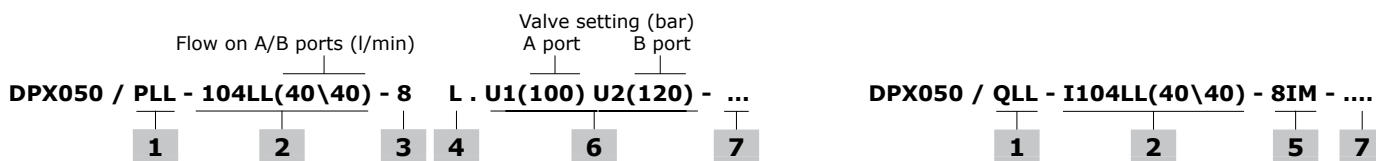
Specify the voltage of electric devices.

6

Need standard tie rods; see page 15

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

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



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 hydraulic control

TYPE: **DPX050/QLL-IM-FPM** CODE: 5EL10A3021ALV

DESCRIPTION: Without port valve arrangement

TYPE: **DPX050/PLL-IM-FPM** CODE: 5EL10A3004V

DESCRIPTION: With port valve arrangement

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

TYPE CODE DESCRIPTION

For mechanical control

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

105LL(50)	3CUA110005L	50 l/min (13 US gpm) flow
104LL(40)	3CUA110004L	40 l/min (10.5 US gpm) flow
103LL(30)	3CUA110003L	30 l/min (7.9 US gpm) flow
102LL(20)	3CUA110002L	20 l/min (5.3 US gpm) flow
101LL(10)	3CUA110001L	10 l/min (2.6 US gpm) flow
106LL(5)	3CUA110006L	5 l/min (1.3 US gpm) flow

For hydraulic control

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

I105LL(50)	3CUA310005L	50 l/min (13 US gpm) flow
I104LL(40)	3CUA310004L	40 l/min (10.5 US gpm) flow
I103LL(30)	3CUA310003L	30 l/min (7.9 US gpm) flow
I102LL(20)	3CUA310002L	20 l/min (5.3 US gpm) flow
I101LL(10)	3CUA310001L	10 l/min (2.6 US gpm) flow
I106LL(5)	3CUA310006L	5 l/min (1.3 US gpm) flow

TYPE CODE DESCRIPTION

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

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

TYPE CODE DESCRIPTION

8IM	5IDR20A300V	Range 8-27 bar (116-392 psi)
8IMX	5IDR20A301V	Range 3.5-20 bar (51-290 psi)
8IMF3	5IDR20A302V	Range 8-27 bar (116-392 psi), with spool stroke limiter on A and B ports
8IMXF3	5IDR20A303V	Range 3.5-20 bar (51-290 psi), with spool stroke limiter on A and B ports
For floating circuit (standard spool)		
13IMP	5IDR20A310V	Range 4-16.5-28 bar (58-239-406 psi)

TYPE CODE DESCRIPTION

U040	5KIT308040	Setting: 40 bar (580 psi)
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For complete list see page 21.

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

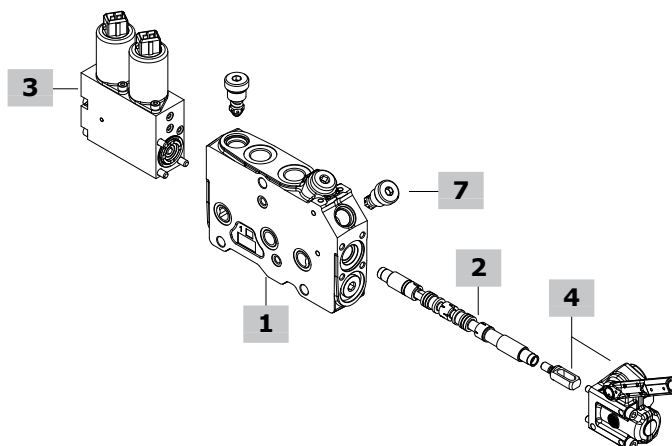
Da specificare solo se è differente da BSP standard (vedi pag. 7)

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

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

**For one-side electrohydraulic control**

TYPE: **DPX050/QZLL-FPM** CODE: 5EL10A3216V
DESCRIPTION: Senza predisposizione valvole ausiliarie
TYPE: **DPX050/PZLL-FPM** CODE: 5EL10A3006V
DESCRIZIONE: Con predisposizione valvole ausiliarie

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

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

For complete list see page 21.

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

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

These controls must be coupled with "B" side options

TYPE	CODE	DESCRIPTION
8EZ3-12VDC	5V0810A780V	AMP connector
8EZ3-24VDC	5V0810A785V	AMP connector
8EZ3F2-12VDC	5V0810A781V	AMP connector, with spool stroke limiter
8EZ3F2-24VDC	5V0810A782V	As previous one
8EZ34-12VDC	5V0810A786V	Deutsch connector
8EZ34-24VDC	5V0810A787V	Deutsch connector
8EZ34F2-12VDC	5V0810A783V	Deutsch connector, with spool stroke limiter
8EZ34F2-24VDC	5V0810A784V	As previous one

For floating circuit (standard spool).

13EZ3P-12VDC	5V1310A780V	With Step, with AMP connector
13EZ3P-24VDC	5V1310A781V	As previous one
13EZ34P-12VDC	5V1310A782V	With Step, with Deutsch connector
13EZ34P-24VDC	5V1310A783V	As previous one

With spool position sensor

8EZ3SPSD-12VDC	5V0810A790V	AMP connector and digital sensor
8EZ3SPSD-24VDC	5V0810A791V	As previous one

These options must be coupled with "A" side controls

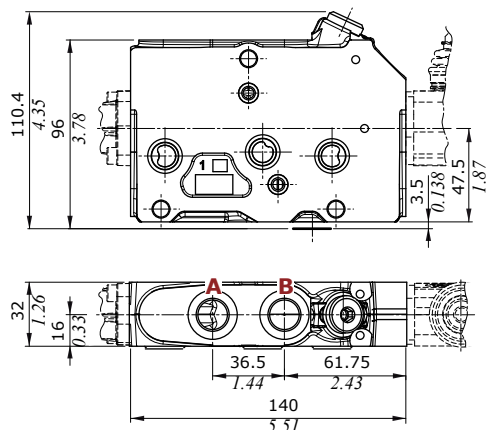
TYPE	CODE	DESCRIPTION
LQ	5LEV10A005V	Lever control
LQ180	5LEV10A006V	As previous one, turned of 180°
LQF3	5LEV10A004V	As LQ, spool stroke limiter on A, B ports
LQF3180	5LEV10A003V	As previous one, turned of 180°
SLC	5COP150010V	Endcap
SLCF1	5COP150011V	Endcap with spool stroke limiter

Low Leak working section

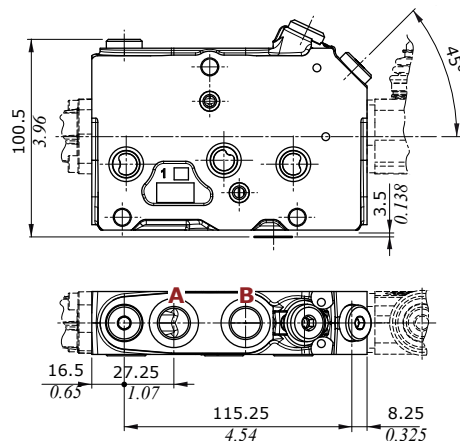
Dimensions and hydraulic circuit

Section for mechanical and hydraulic controls

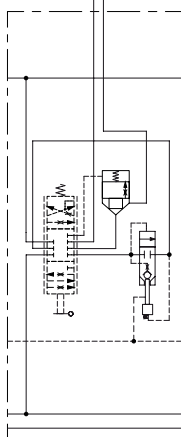
QLL type



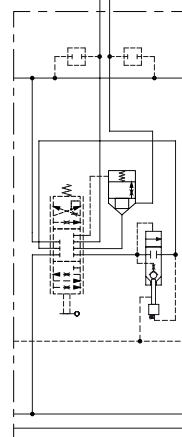
PLL type



A B

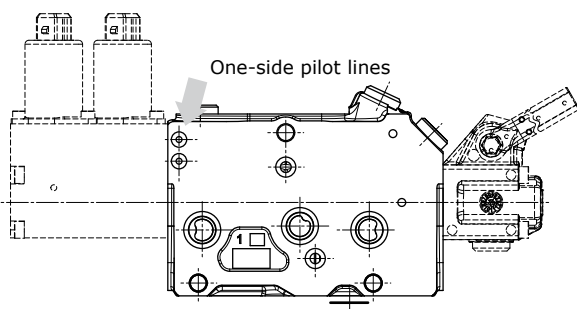


A B



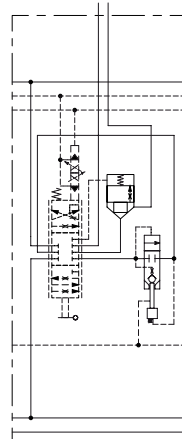
Section for electrohydraulic controls

QZLL or PZLL types



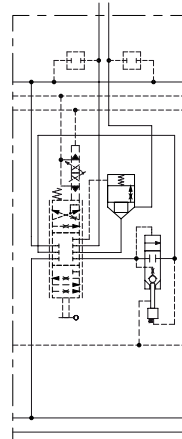
QZLL type

A B



PZLL type

A B



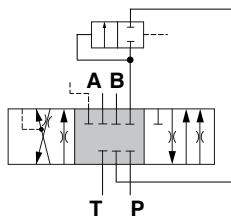
Low Leak spool metering curves are the same as the standard spools; see page 28

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

A, B closed in neutral position

with 3 position control

1 0 2

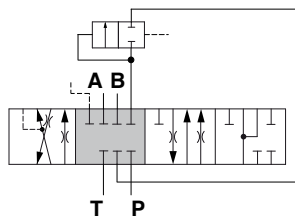


Spool stroke

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

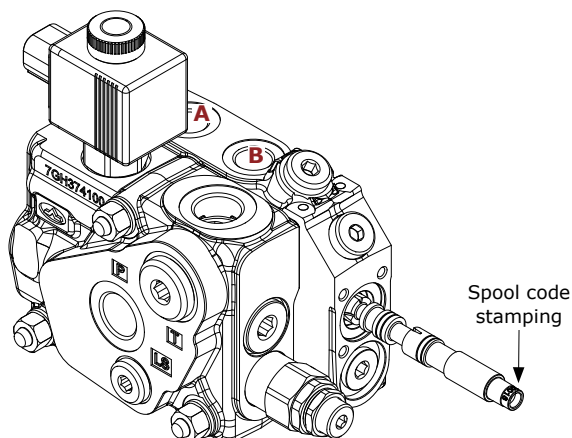
with 4 position control

1 0 2 3



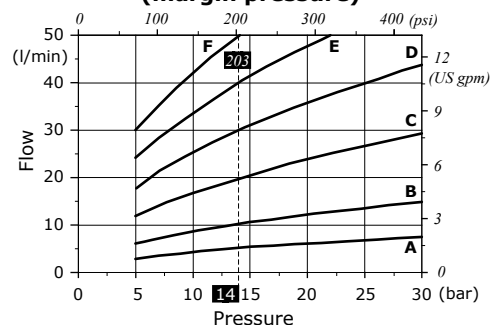
Spool stroke

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



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

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



Curves with spool nominal flow

@ 14 bar (200 psi) stand-by (margin pressure)

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