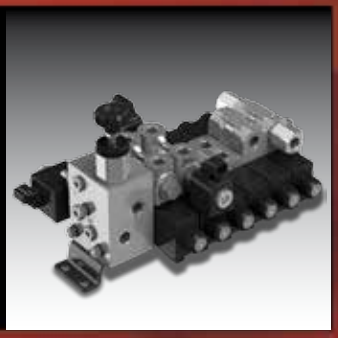
walvoil

SDE030 - SDE060

Bankable solenoid valves



TECHNICAL CATALOG

walvoil
FLUID POWER E|MOTION

A member of
INTERPUMP GROUP

General informations

Simple, compact and heavy duty designed sectional valves from 1 to 10 sections.

SDE030

- Aluminium alloy inlet sections, available in several configurations.
- Cast iron working sections
- Different types of spools.
- Optional check valves on workports.
- Available for parallel circuit.
- On/off solenoid controls.
- Emergency handlever available.

SDE060

- Steel inlet sections, available in several configurations.
- Cast iron working sections
- Different types of spools.
- Different options to be flanged on the workports side
- Available for parallel and series circuits.
- On/off solenoid controls.
- Emergency handlever available.

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.

6th edition December 2017

Index

Content

SDE030

SDE060

Working conditions

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

		SDE030	SDE060
Nominal flow rating		30 l/min - *7.9 US gpm*	30 l/min - 60 l/min *7.9 US gpm - 15.8 US gpm*
Operating pressure (max.)	*parallel circuit*	250 bar - *3600 psi*	315 bar - *4600 psi*
	series circuit	-	210 bar - *3050 psi*
Back pressure (max.)	*outlet port T*	210 bar - *3050 psi*	
	outlet port T, with lever control	30 bar - *435 psi*	
Internal leakage (max.) A(B)⇒T	*Δp = 100 bar - 1450 psi fluid and valve at 40°C - 104°F*	14 cm³/min - *0.85 in³/min*	
Fluid		Mineral based oil	
Fluid temperature	*with NBR (BUNA-N) seals*	from -20°C to 80°C - *from -4°F to 176°F*	
	with FPM (VITON) seals	rom -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 mm²s - *12 cSt*	
	max.	400 mm²s - *400 cSt*	
Max. contamination level		-/19/16 - ISO 4406 - *NAS 1638 - class 10*	
Ambient temperature for working conditions		from -20°C to 50°C - *from -4°F to 122°F*	

NOTE - For different conditions please contact Sales Dpt.

Standard threads

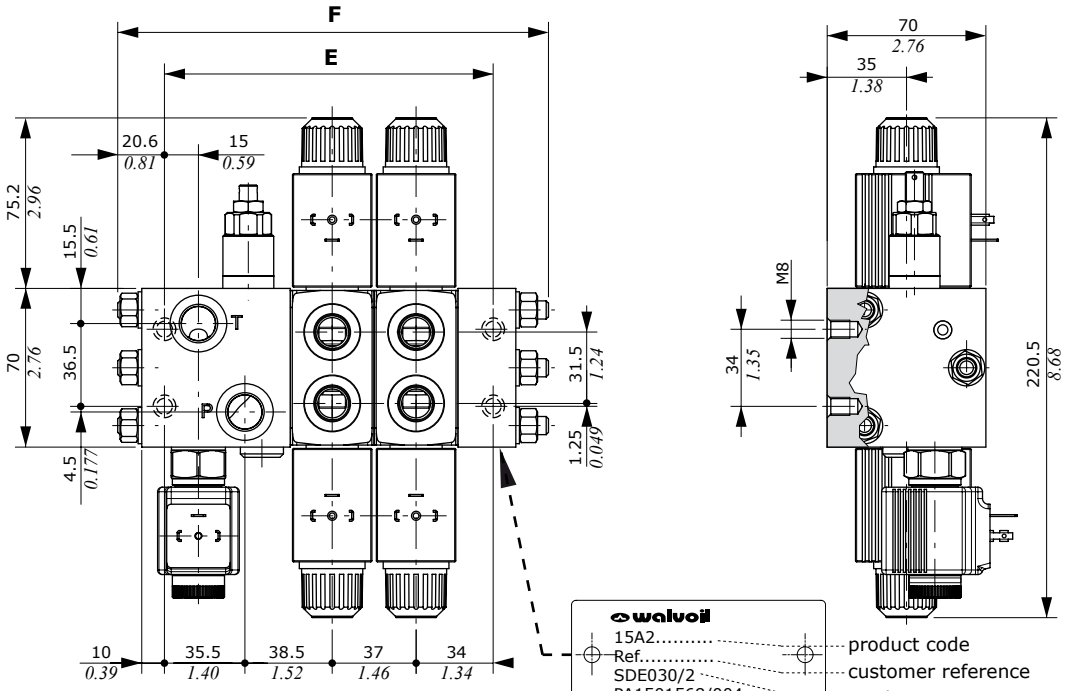
REFERENCE STANDARD		BSP	UN-UNF
THREAD ACCORDING TO		ISO 228/1	ISO 263
		BS 2779	ANSI B1.1 unified
CAVITY DIMENSION ACCORDING TO	ISO	1179	11926
	SAE		J11926
	DIN	3852-2 shape X or Y	

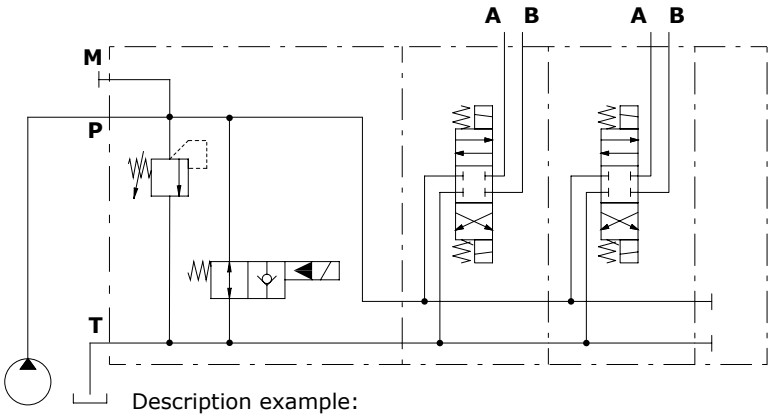
PORT THREADING	SDE030		SDE060			
			30 l/min *(7.9 US gpm)* sections		60 l/min *(15.8 US gpm)* sections	
	BSP	UN-UNF	BSP	UN-UNF	BSP	UN-UNF
Inlet **P** and outlet **T**	G 3/8	3/4-16 (SAE 8)	G 3/8	3/4-16 (SAE 8)	G 1/2	3/4-16 (SAE 8)
Working ports **A** and **B**	G 3/8	9/16-18 (SAE 6)	G 3/8	9/16-18 (SAE 6)	G 3/8	9/16-18 (SAE 6)
					G 1/2*	3/4-16 (SAE 8)*
Port **M**	G 1/4	9/16-18 (SAE 6)	G 1/4	7/16-20 (SAE 4) 9/16-18 (SAE 6)**	G 1/4	7/16-20 (SAE 4) 9/16-18 (SAE 6)**
Port **LS**	G 1/4	9/16-18 (SAE 6)	G 1/4	9/16-18 (SAE 6)	/	/

NOTE (*) Optional thread - (**) Only for type N inlet section

Dimensions

This drawing is referred to directional valve with 2 working sections and AN1 type inlet section.





Description example:
SDE030/2/AN1(JNG3-120)ELN/Q-18ES3B/Q-18ES3B/RF-12VDC

TYPE	AN type inlet section				AN1 type inlet section (see drawing)						AN2-AN6-AN7 type inlet sections			
	E		F		E		F		Weight		E		F	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*	Kg	*lb*	mm	*in*	mm	*in*
SDE030/1	71	*2.80*	116	*4.57*	108	*4.25*	153	*6.02*	3.80	*8.38*	108	*4.25*	153	*6.02*
SDE030/2	108	*4.25*	153	*6.02*	145	*5.71*	190	*7.48*	5.99	*13.21*	145	*5.71*	190	*7.48*
SDE030/3	145	*5.71*	190	*7.48*	182	*7.17*	227	*8.94*	8.10	*17.86*	182	*7.17*	227	*8.94*
SDE030/4	182	*7.17*	227	*8.94*	279	*10.98*	264	*10.39*	10.22	*22.53*	279	*8.62*	264	*10.39*
SDE030/5	219	*8.62*	264	*10.39*	256	*10.08*	301	*11.85*	12.33	*27.18*	256	*10.08*	301	*11.85*
SDE030/6	256	*10.08*	301	*11.85*	293	*11.54*	338	*13.31*	14.44	*31.83*	293	*11.54*	338	*13.31*
SDE030/7	293	*11.54*	338	*13.31*	330	*12.99*	375	*14.76*	16.56	*36.51*	330	*12.99*	375	*14.76*
SDE030/8	330	*12.99*	375	*14.76*	367	*14.45*	412	*16.22*	18.67	*41.16*	367	*14.45*	412	*16.22*
SDE030/9	367	*14.45*	412	*16.22*	404	*15.91*	449	*17.68*	20.78	*45.81*	404	*15.91*	449	*17.68*
SDE030/10	404	*15.91*	449	*17.68*	441	*17.36*	486	*19.13*	22.89	*50.46*	441	*17.36*	486	*19.13*

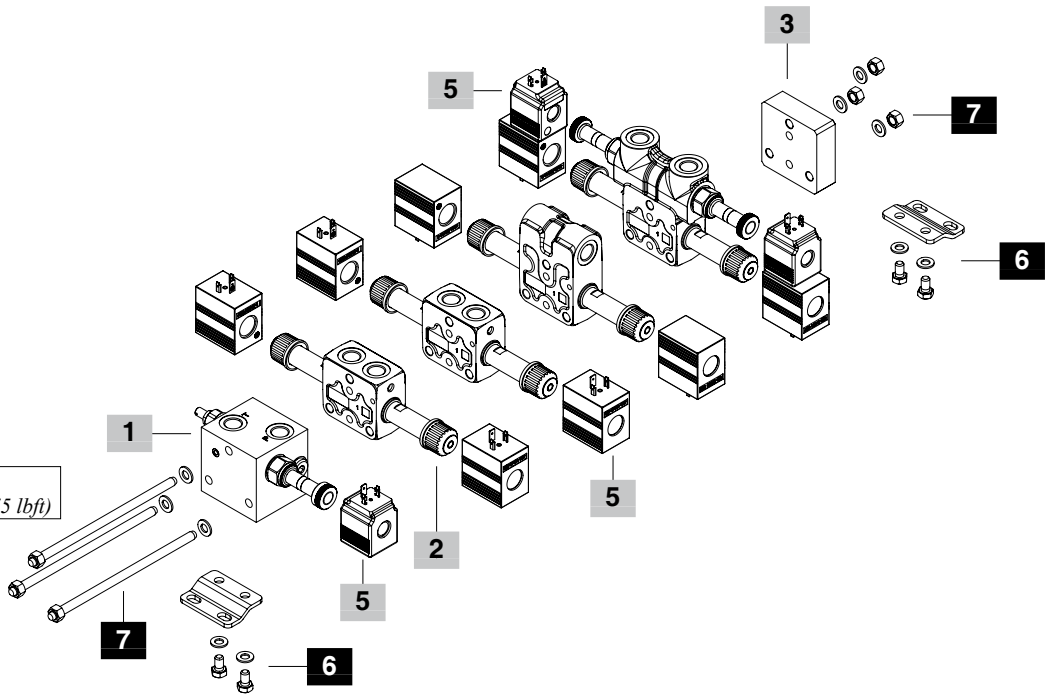
Complete section ordering codes

SDE030/4/ AN1(JNG3-120)ELN / Q-18ES3B / Q-18ES3B / QL-18ES3B /

Nr. of working sections — 1 — 2 — 2 — 2

QBPE-18ES3B.BPEN(NC)3 / RF - ..... - 12VDC

2 — 3 — 4 — 5



Tie rod tightening
wrench 13 - 20 Nm *(14.75 lbft)*

Complete section ordering codes

1 Complete inlet section * page 10

Section bodies are aluminium alloy made

TYPE: **AN-SAE** CODE: 6192G7000
DESCRIPTION: Without valves arrangement, P and T ports open
TYPE: **ANP-SAE** CODE: 6192G7001
DESCRIPTION: As AN, port P open and T plugged
TYPE: **ANT-SAE** CODE: 6192G7002
DESCRIPTION: As AN, port P plugged and T open
TYPE: **ANS-SAE** CODE: 6192G7003
DESCRIPTION: As AN, ports P and T plugged
TYPE: **AN1(JNG3-120)ELN-WC-SAE** CODE: Y61S3A7000
DESCRIPTION: Relief and unloader valves arrangement, P and T ports open
TYPE: **AN1P(JNG3-120)ELN-WC-SAE** CODE: Y61S3A7002
DESCRIPTION: As AN1, port P open and T plugged
TYPE: **AN2/PPXN1(JNG3-120)ELN-WC-SAE** CODE: Y61S3A7001
DESCRIPTION: Relief, unloader and flow control valves arrangement, P and T ports open
TYPE: **AN2P/PPXN1(JNG3-120)ELN-WC-SAE** CODE: Y61S3A7005
DESCRIPTION: As AN2, port P open and T plugged
TYPE: **AN6/EEXL1(VMP02TR-220)-SB10RC(C3)-WC-SAE**
CODE: Y61S3A7006
DESCRIPTION: With pressure relief valve and flow control valve, for Open Center circuit, compensator with 10 bar *(145 psi)* stand-by, P and T ports open
TYPE: **AN7/EEXN1(VMP02TR-200)-SB10RCV(C3)-WC-SAE**
CODE: Y61S3A7007
DESCRIPTION: As previous one, compensator with handwheel actuation for Open to Closed Center switching, P and T ports open.
TYPE: **AN11/EEXN1(VMP02TR-200)-SB10RCV(C3)-WC_SAE**
CODE: Y61S3A307008
DESCRIPTION: With pressure relief valve and flow control valve, for Closed Center Circuit with compensator blanking plug, P and T ports open.

2 Complete working section * page 16

Section bodies are cast iron made

TYPE: **Q-18ES3B-WC-SAE** CODE: Y63S3A7001
DESCRIPTION: Parallel circuit, type 1 double acting spool
TYPE: **Q-28ES3B-WC-SAE** CODE: Y63S3A7006
DESCRIPTION: Parallel circuit, type 2 double acting spool
TYPE: **QBP-18ES3B.BPC3-WC-SAE** CODE: Y63S3A7002
DESCRIPTION: Parallel circuit, type 1 double acting spool, check valves on workports
TYPE: **QBPE-18ES3B.BPEN(NC)3-WC-SAE** CODE: Y63S3A7005
DESCRIPTION: Parallel circuit, type 1 double acting spool, solenoid operated check valves on workports
TYPE: **PFL3(150)-18ES3B-WC-SAE** CODE: Y63S3A7011
DESCRIPTION: Parallel circuit, type 1 double acting spool and side relief valve with 150 bar *(2175 psi)*
TYPE: **QL-18ES3B-WC-SAE** CODE: Y63S3A7004
DESCRIPTION: Parallel circuit, side workports, type 1 double acting spool
TYPE: **QBPL-18ES3B.BPA3-WC-SAE** CODE: Y63S3A7003
DESCRIPTION: As previous one with check valves on workports

3 Complete outlet section* page 25

Section bodies are aluminium alloy made

TYPE	CODE	DESCRIPTION
RF	3FIA203000	Without ports
RS-SAE	6193A5200	P and T ports plugged
RP-SAE	6193A5100	P port open and T port plugged
RT-SAE	6193A5000	T port open and P port plugged

4 Valve threading

Specify threading always when it is different from BSP standard (see page 4).

5 Coils page 58

Coils voltage specification; for list of available coils see pages of related sections

6 Fixing bracket page 61

TYPE	CODE	DESCRIPTION
STAF	5STA148065	Brackets with fixing screws

7 Assembling kit

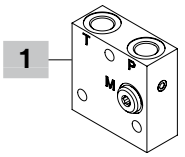
CODE	DESCRIPTION	CODE	DESCRIPTION
Per distributore con fiancata d'ingresso tipo AN			
5TIR108116	For 1 section valve	5TIR108305	For 6 sections valve
5TIR108154	For 2 sections valve	5TIR108341	For 7 sections valve
5TIR108194	For 3 sections valve	5TIR108377	For 8 sections valve
5TIR108227	For 4 sections valve	5TIR108412	For 9 sections valve
5TIR108264	For 5 sections valve	5TIR108449	For 10 sections valve
Per distributore con fiancate d'ingresso tipo AN1-AN2-AN6-AN7-AN11			
5TIR108154	For 1 section valve	5TIR108341	For 6 sections valve
5TIR108194	For 2 sections valve	5TIR108377	For 7 sections valve
5TIR108227	For 3 sections valve	5TIR108412	For 8 sections valve
5TIR108264	For 4 sections valve	5TIR108449	For 9 sections valve
5TIR108305	For 5 sections valve	5TIR108486	For 10 sections valve

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

Inlet section: part ordering codes

SDE030/AN-....

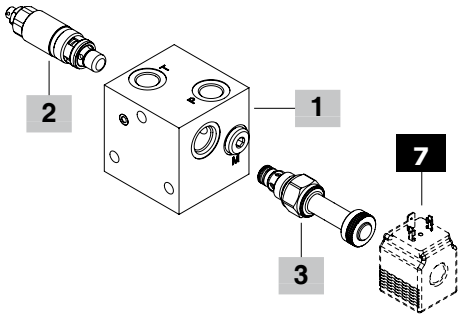
1 6



Valve setting (bar) — Without coil

SDE030/AN1(JNG3-120)ELN-WC-....

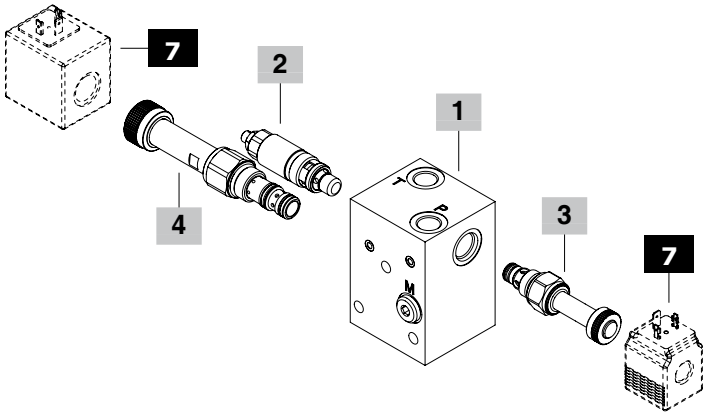
1 2 3 6



Valve setting (bar) — Without coil

SDE030/AN2/PPXN1(JNG3-120)ELN-WC-....

1 4 2 3 6



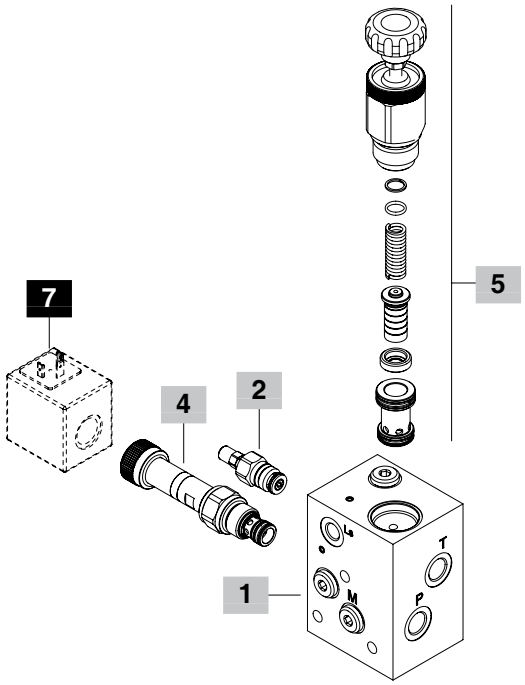
Valve setting (bar)

SDE030/AN6/EEXN1(VMP02TS-200)

1 4 2

SB10RCV(C3)-WC-....

5 — Without coil — 6



Inlet section: part ordering codes

1 Inlet section body kit * page 10

Section bodies are aluminium alloy made

TYPE	CODE	DESCRIPTION
AN-SAE	5FIA109703	Without valves arrangement, P and T ports open
ANP-SAE	5FIA109703PT	As AN, port P open and T plugged
ANT-SAE	5FIA109703PT	As AN, port P plugged and T open
ANS-SAE	5FIA109703S	As AN, ports P and T plugged
AN1-SAE	5FIA109700	Relief and unloader valves arrangement, P and T ports open
AN1P-SAE	5FIA109700P	As AN1, port P open and T plugged
AN2-SAE	5FIA109702	Relief, unloader and flow control valves arrangement, P and T open ports
AN2P-SAE	5FIA109702P	As AN2, port P open and T plugged
AN6-SAE	5FIA109701	For Open Center, relief and flow control valves arrangement, compensator, LS port plugged, P and T ports open
AN7-AN11-SAE	5FIA109704	As AN6, for Closed Center, with LS port open

2 Main relief valve page 13

TYPE	CODE	DESCRIPTION

For sections AN1-AN2 type

Valve standard setting is referred to 10 l/min *(2.6 US gpm)* flow, considering the valve mounted on inlet section.

(JNG2-63)	5KIT105512	Range 40-63 bar *(580-900 psi)* std setting 63 bar *(900 psi)*
(JNG3-120)	5KIT105513	Range 50-200 bar *(725-2900 psi)* std setting 120 bar *(1750 psi)*
(JNG4-220)	5KIT105514	Range 160-315 bar *(2300-4600 psi)* std setting 220 bar *(3200 psi)*
(JNH2-63)	5KIT105517	As type JNG2, set and locked
(JNH3-120)	5KIT105516	As type JNG3, set and locked
(JNH4-220)	5KIT105515	As type JNG4, set and locked
(JNZT2-63)	5KIT105562	As type JNG2, anti-tampering type
(JNZT3-120)	5KIT105563	As type JNG3, anti-tampering type
(JNZT4-220)	5KIT105564	As type JNG4, anti-tampering type
SV	XTAP623282	Relief valve blanking plug

For sections AN6-AN7-AN11 type

Valve standard setting is referred to 1 l/min *(0.26 US gpm)* flow, considering the valve mounted on inlet section.

(VMP02TV-50)	1100000100	Range 5-80 bar *(73-1160 psi)* std setting 50 bar *(725 psi)*
(VMP02TS-150)	1100000101	Range 50-220 bar *(725-3200 psi)* std setting 150 bar *(2200 psi)*
(VMP02TR-250)	1100000102	Range 180-350 bar *(2600-5100 psi)* std setting 250 bar *(3600 psi)*

3 Solenoid operated unloading valve page 14

TYPE	CODE	DESCRIPTION

For sections AN1-AN2 type

ELN	0EC08002031	Without emergency actuation
ELV	0EC08002034	With screw type emergency actuation
ELP	0EC08002033	With push-button emergency actuation
ELT	0EC08002035	With "twist & push" emergency actuation
LT	XTAP510320	Unloading valve blanking plug

4 Flow control valve page 14

TYPE	CODE	DESCRIPTION

For sections AN1-AN2 type

PPAL1	0PP10002000	Hand-wheel setting type
PPAV1	0PP10002005	Screw setting type
PPXN1	0PP10002031	Solenoid operated, without emergency
PPXV1	0PP10002033	Solenoid operated, screw emergency
PPXL1	0PP10002035	Solenoid operated, hand-wheel emergency
LT	3XTP3545700	Flow control valve blanking plug

For sections AN6-AN7-AN11 type

EEXN1	0EE10002009	Solenoid operated, without emergency
EEXL1	0EE10002008	Solenoid operated, hand-wheel emergency

5 Compensator kit page 15

TYPE	CODE	DESCRIPTION

For section AN6-AN7 type

SB10RCV(C3)	5KT6200227	With 10 bar *(145 psi)* stand-by, hand-wheel actuation for Open Center to Closed Center switching
SB10RC(C3)	5KT6200222	With 10 bar *(145 psi)* stand-by, for Open Center circuit

For section AN11 type

CL	X451810000	Compensator blanking plug, for Closed Center circuit

6 Section threading

Specify threading always when it is different from BSP standard (see page 4).

7 Optional coil pag. 58

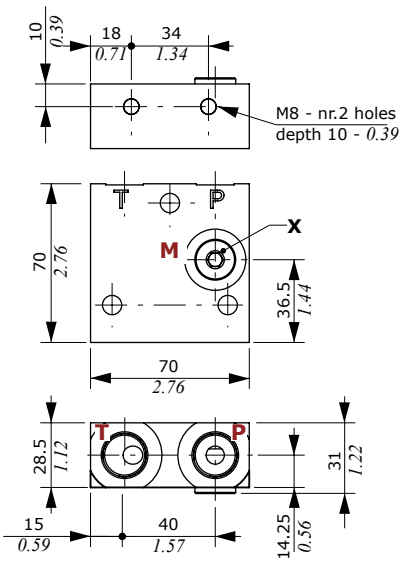
For list of available coils see pages of related section.

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

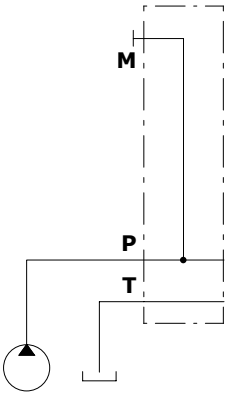
Inlet section: dimension and hydraulic circuit

AN inlet sections

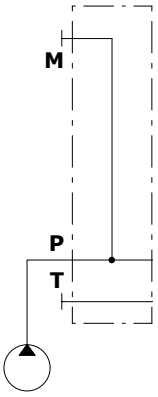
AN type
with P and T ports open



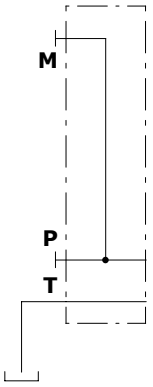
AN type
P and T ports open



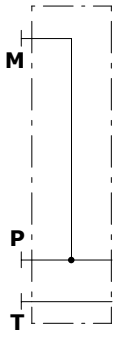
ANP type
P port open and
T port plugged



ANT type
P port plugged
and T port open



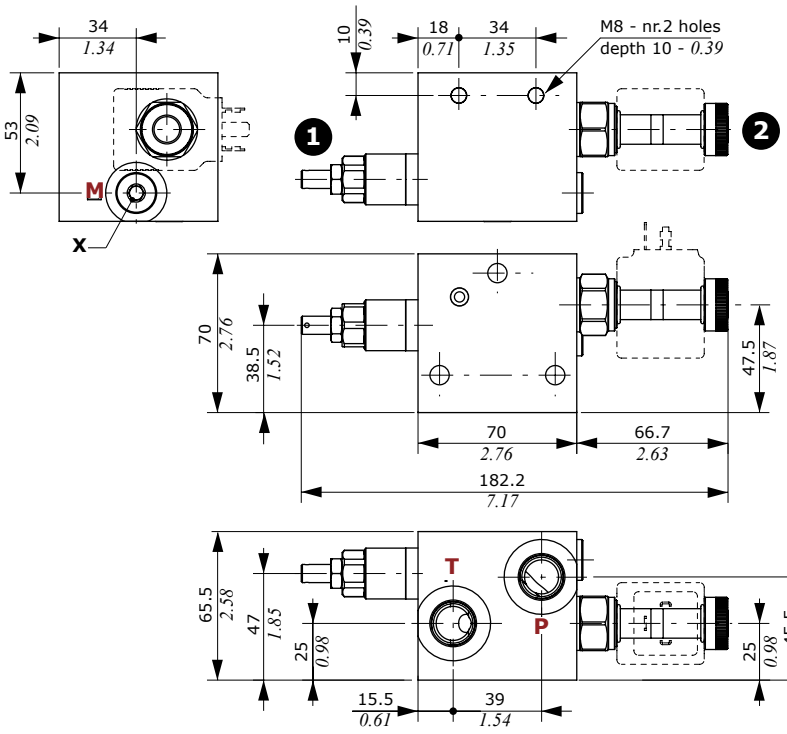
ANS type
P and T ports
plugged



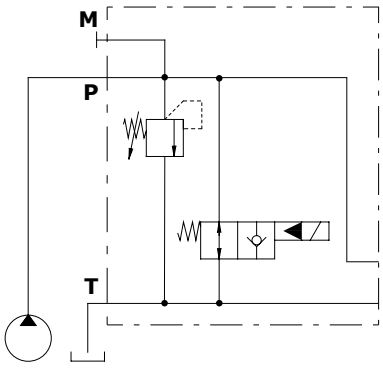
Wrenches and tightening torque
X = allen wrench 6 - 24 Nm *(17.7 lbft)*

AN1 inlet sections

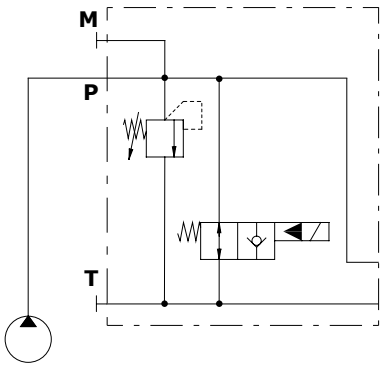
AN1 type with P and T ports open



AN1 types
P and T ports open



AN1P types
P port open and T port plugged



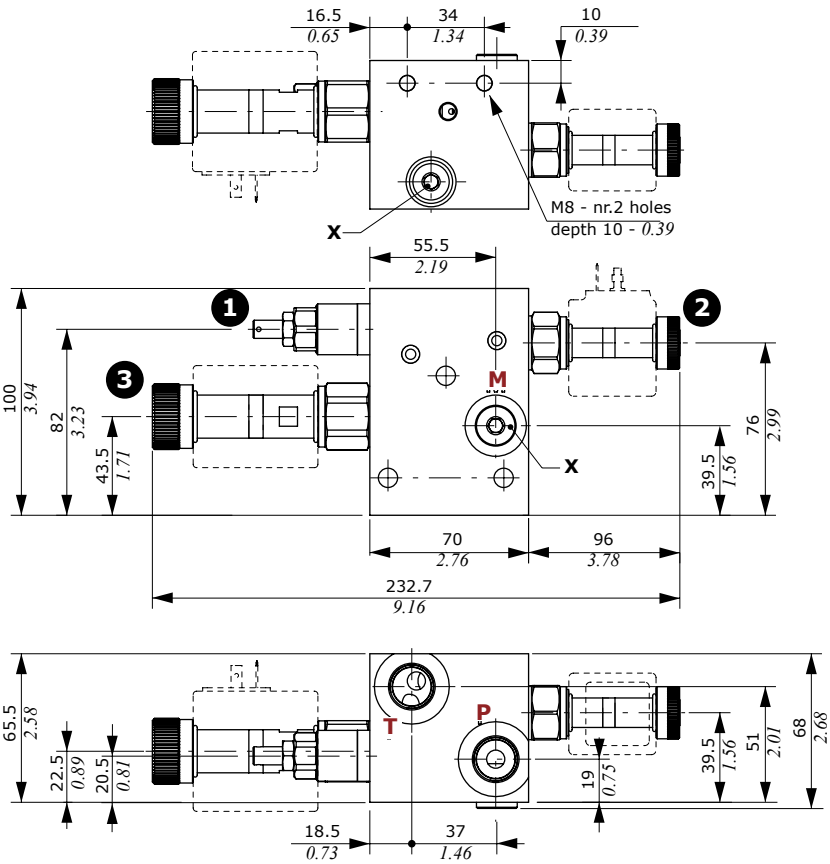
Wrenches and tightening torque
X = allen wrench 6 - 24 Nm *(17.7 lbft)*
NOTE: for valve wrench and torque see pages 13 and 14.

Legenda
1: Pressure relief valve
2: Solenoid operated unloading valve

Inlet section: dimension and hydraulic circuit

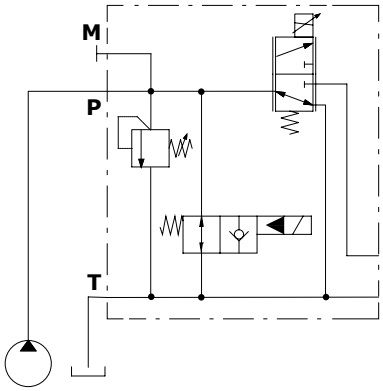
AN2 inlet sections

AN2 type with P and T ports open



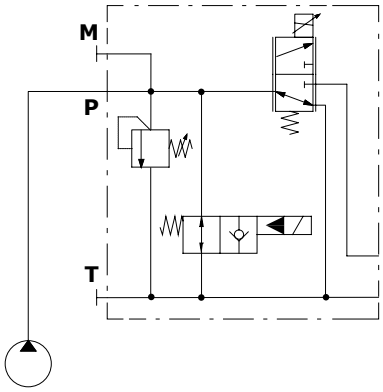
AN2 types

P and T ports open



AN2P types

P port open and T port plugged



Legenda

1: Pressure relief valve
2: Solenoid operated unloading valve
3: Pressure compensated flow control valve

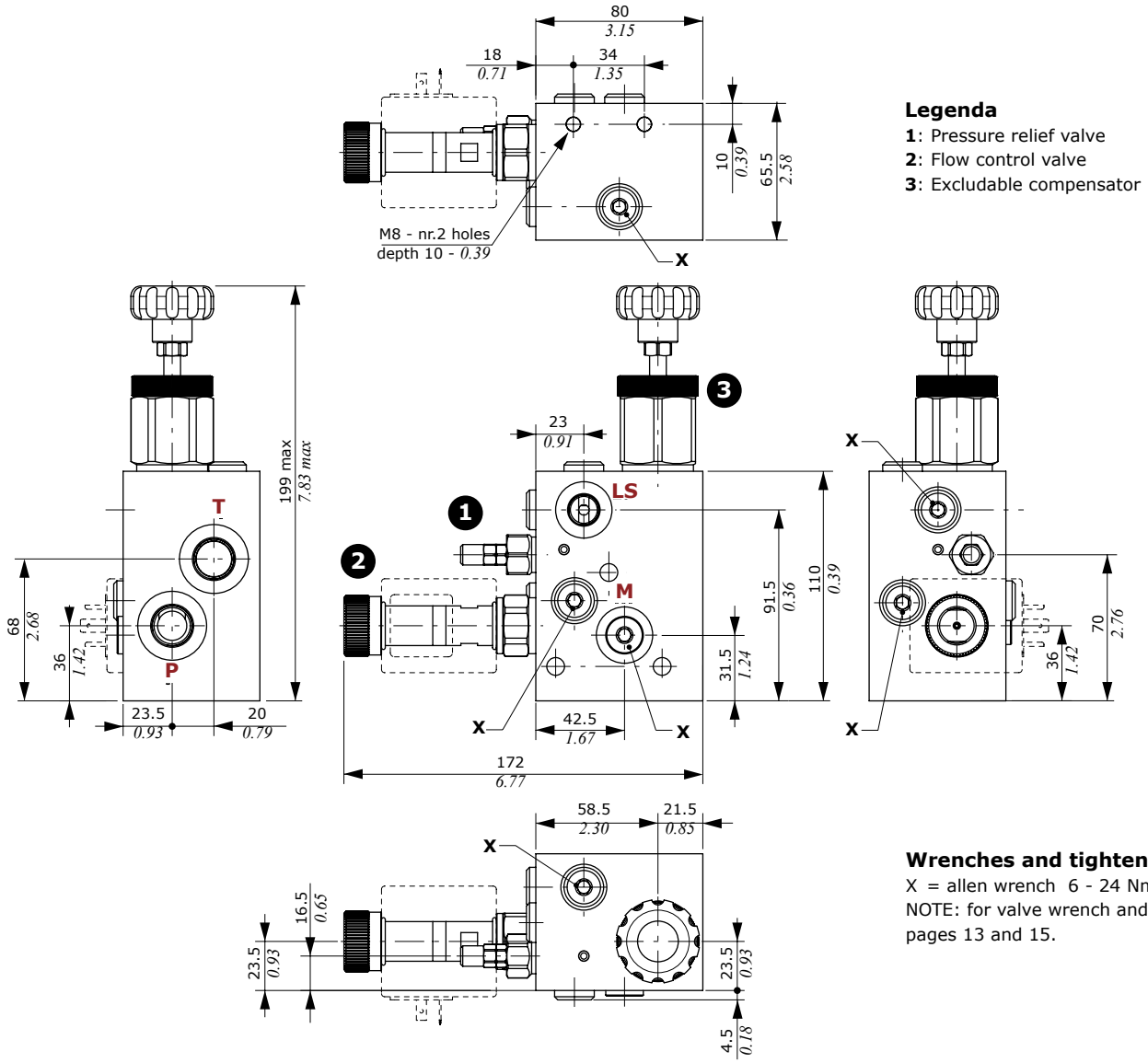
Wrenches and tightening torque

X = allen wrench 6 - 24 Nm *(17.7 lbft)*
NOTE: for valve wrench and torque see pages 13, 14.

Inlet section: dimension and hydraulic circuit

AN6-AN7-AN11 inlet sections

AN7 type; configuration for Open and Closed Center



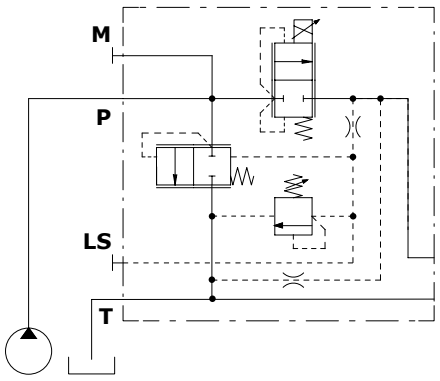
Legenda

1: Pressure relief valve
2: Flow control valve
3: Excludable compensator

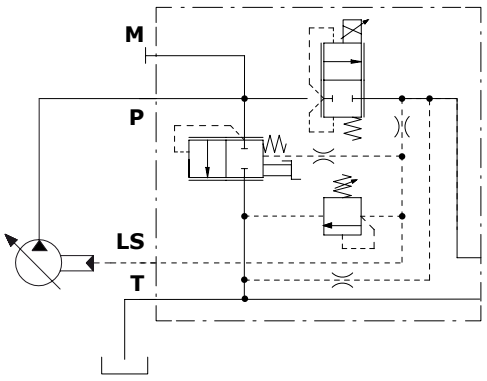
Wrenches and tightening torque

X = allen wrench 6 - 24 Nm *(17.7 lbft)*
NOTE: for valve wrench and torque see pages 13 and 15.

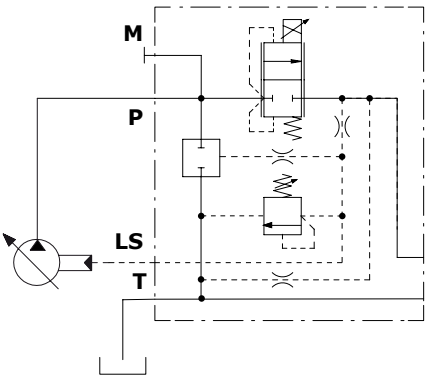
AN6 type
for Open Center circuit



AN7 type
for Closed and Open Center circuits



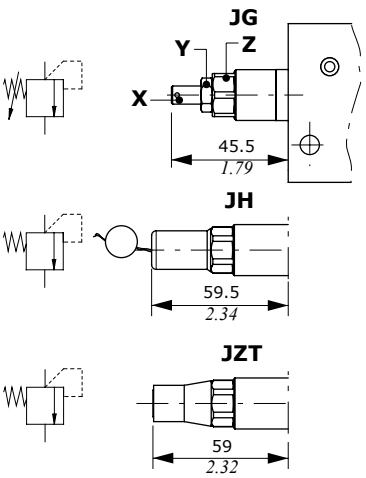
AN11 type
for Closed Center circuit



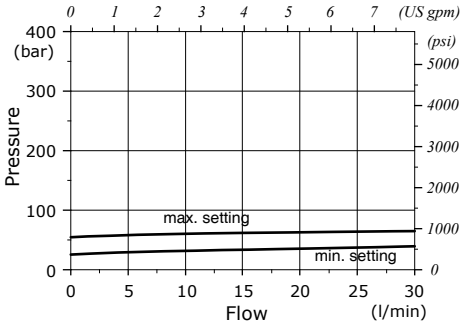
Main relief valve

For sections AN1 and AN2 type

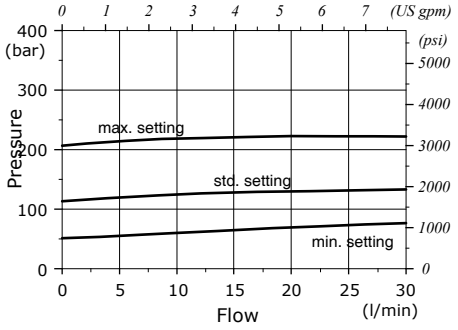
Setting types



Setting range: JNG2 type

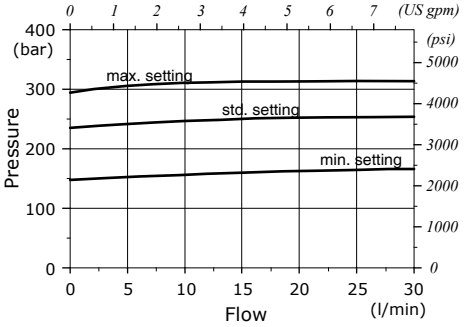


Setting range: JNG3 type



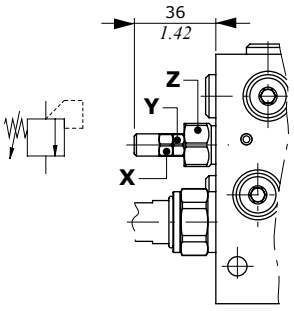
Legenda
JG: screw setting type
JH: valve set and locked
(cap code 3COP117260)
JZT: valve set and locked
(cap code 4COP120420)

Setting range: JNG4 type

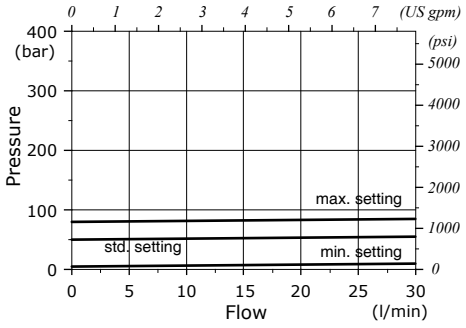


Wrenches and tightening torque
X = allen wrench 4
Y = wrench 13 - 24 Nm *(17.7 lbft)*
Z = wrench 19 - 24 Nm *(17.7 lbft)*

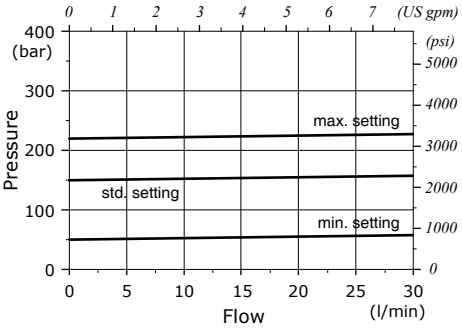
For sections AN6 and AN7 type



Setting range: VMP02TV type

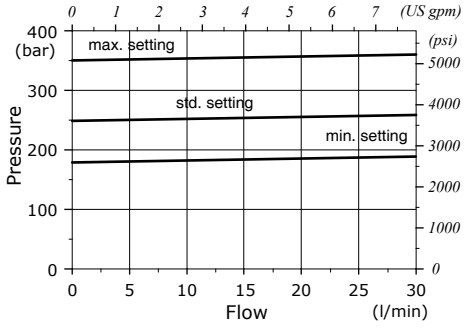


Setting range: VMP02TS type



Wrenches and tightening torque
X = wrench 10
Y = wrench 10 - 6.6 Nm *(4.9 lbft)*
Z = wrench 19 - 24 Nm *(17.7 lbft)*

Setting range: VMP02TR type

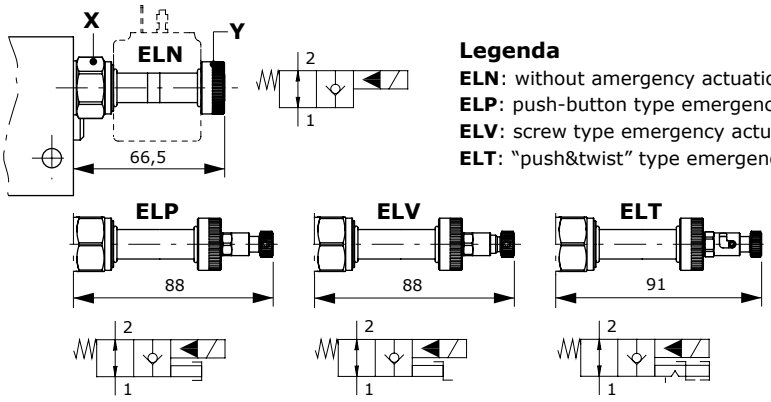


Inlet section: options

Unloading valve

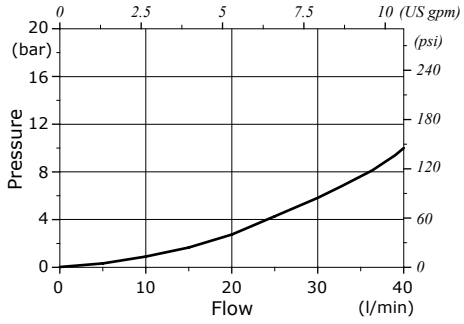
For sections AN1 and AN2 type

Emergency actuation types



Legenda
ELN: without amergency actuation
ELP: push-button type emergency actuation
ELV: screw type emergency actuation
ELT: "push&twist" type emergency actuation

Pressure drop diagram



Wrenches and tightening torque

X = wrench 24 - 30 Nm *(22 lbft)*
Y = 5 Nm *(3.7 lbft)*

Valve features

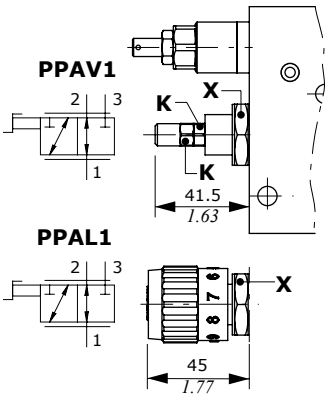
Max. flow . . . . . : 40 l/min *(10.6 US gpm)*
Max. pressure. . . . . : 380 bar *(5500 psi)*
Internal leakage . . . . . : 0.25 cm³/min @ 210 bar *(0.015 in3/min @ 3050 psi)*

For coil features and options see **BER** coil on pages 56 and 57.

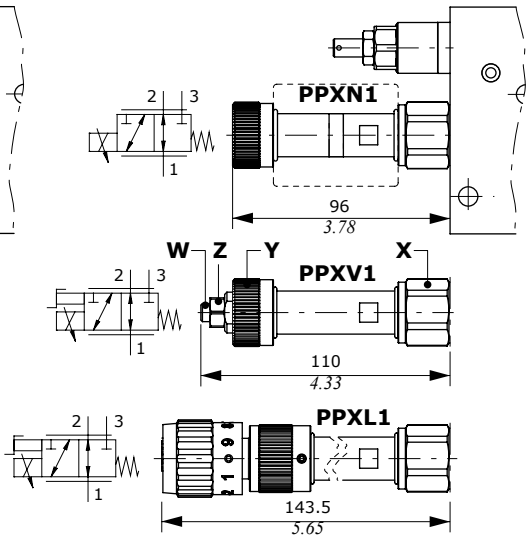
Pressure compensated flow control valve

For section AN2 type

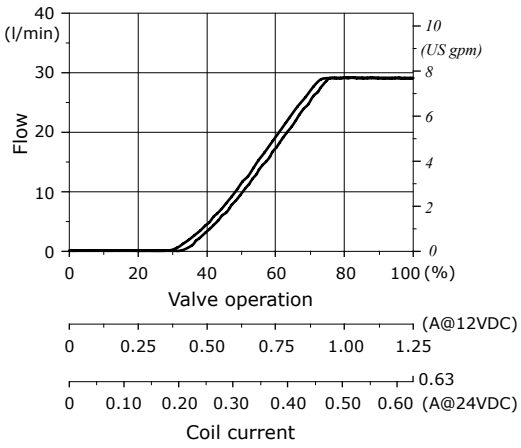
Manual operated



Solenoid operated



Flow regulation diagram



Legenda
PPAV1: screw setting type
PPAL1: hand-wheel setting type
PPXN1: without emergency actuation
PPXV1: screw type emergency actuation
PPXL1: hand-wheel emergency actuation

Wrenches and tightening torque

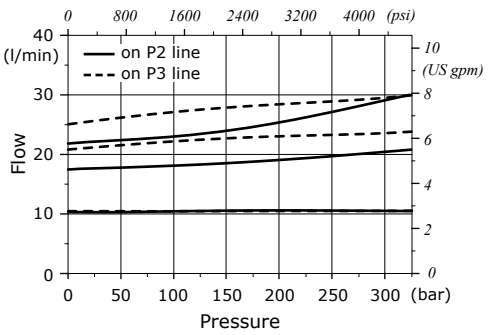
K = wrench 10 - 6.6 Nm *(4.9 lbft)*
X = wrench 27 - 50 Nm *(37 lbft)*
Y = 5 Nm *(3.7 lbft)*
W = allen wrench 4
Z = wrench 8 - 15 Nm *(11 lbft)*

Valve features

Max. inlet flow . . . . . : 50 l/min *(13.2 US gpm)*
Max. regulated flow. . . . . : 30 l/min *(7.9 US gpm)*
Inlet flow (PPX types) . . . . . : regulated flow +5%
Max. pressure. . . . . : 350 bar *(5100 psi)* - PPA types / 315 bar *(4600 psi)* - PPX types
Internal leakage (PPX types) : 150 cm³/min @ 210 bar *(9.1 in³/min @ 3050 psi)*

For coil features and options see **BQP19** or **BH** coils on pages 56 and 57.

Flow vs. Pressure diagram

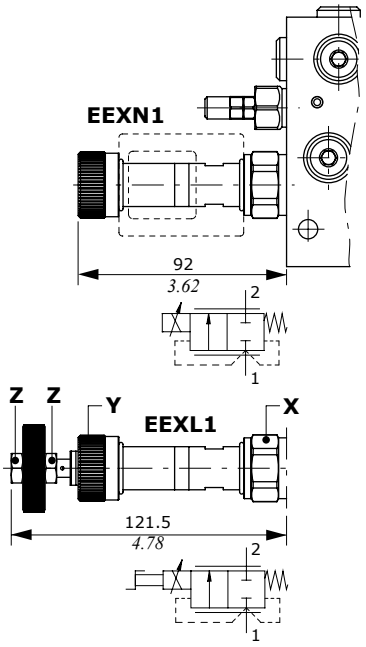


Inlet section: options

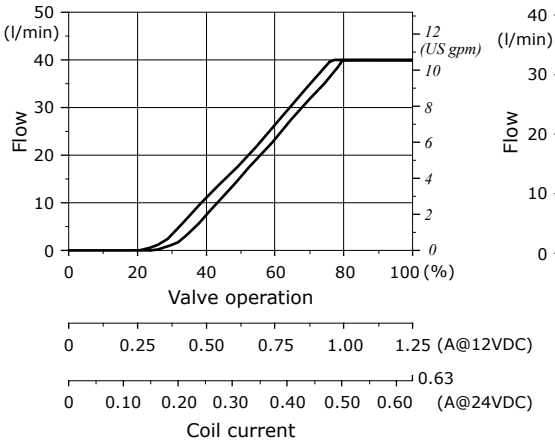
Pressure compensated flow control valve

For sections AN6-AN7-AN11 type

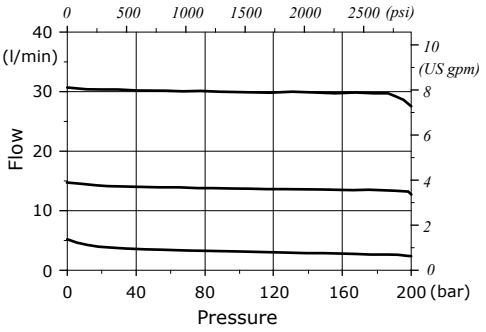
Curves are measured using the standard compensator mounted on section, with 10 bar *(145 psi)* stand-by.



Flow regulation diagram



Flow vs. Pressure diagram



Legenda

EEXN1: without emergency actuation
EEXL1: hand-wheel emergency actuation

Wrenches and tightening torque

K = wrench 10 - 6.6 Nm *(4.9 lbft)*
X = wrench 27 - 50 Nm *(37 lbft)*
Y = 5 Nm *(3.7 lbft)*
Z = wrench 13 - 9.8 Nm *(7.2 lbft)*

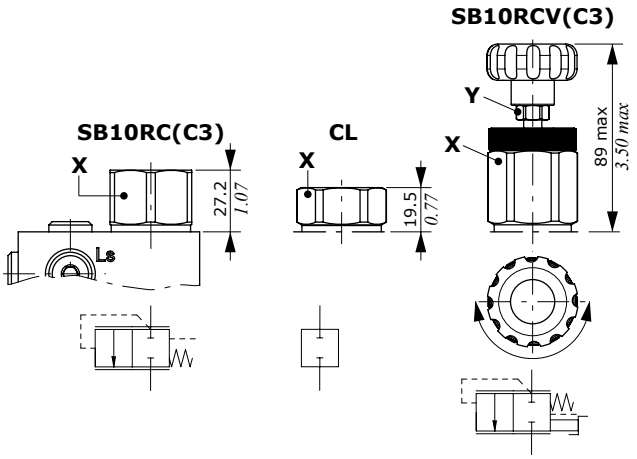
Valve features

Max. flow . . . . . .: 40 l/min *(10.6 US gpm)*
Max. pressure. . . . . .: 300 bar *(5500 psi)*
Internal leakages . . . . . .: 150 cm³/min @ 150 bar
(9.1 in³/min @ 2175 psi)

For coil features and options see **BQP19** or **BH** coils on pages 56 and 57.

Compensator kit

For sections AN6-AN7-AN11 type



Legenda

SB10RC(C3): compensator with 10 bar *(145 psi)* stand-by, for Open Center circuit
CL: compensator blanking plug, for Closed Center circuit (for AN11 type)
SB10RCV(C3): compensator with 10 bar *(145 psi)* stand-by, hand-wheel actuation for Open Center to Closed Center circuit switching

Wrenches and tightening torque

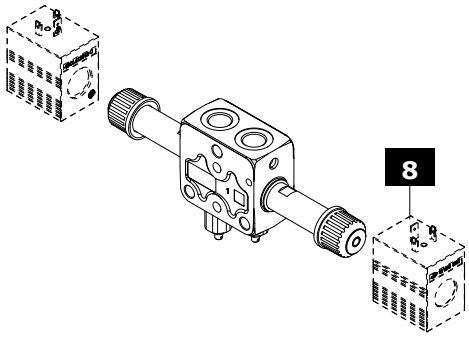
X = wrench 36 - 42 Nm *(31 lbft)*
Y = wrench 13 - 6.6 Nm *(4.9 lbft)*

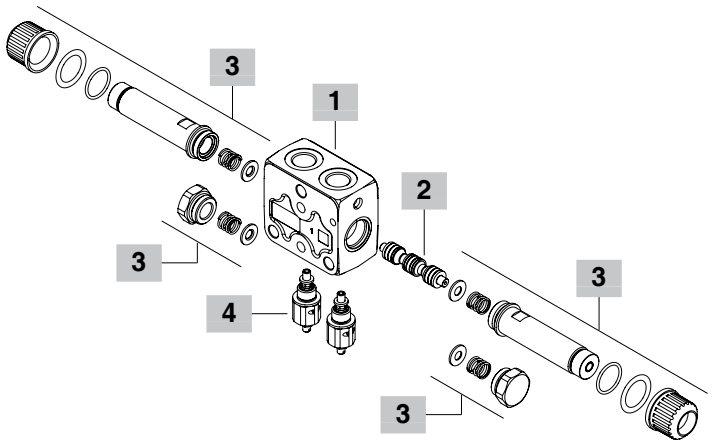
Working section: part ordering codes

Valve setting (bar)

SDE030/P - 1 8ES3B.P3(G3-100) - WC - .....

1 2 3 3 without coil 7

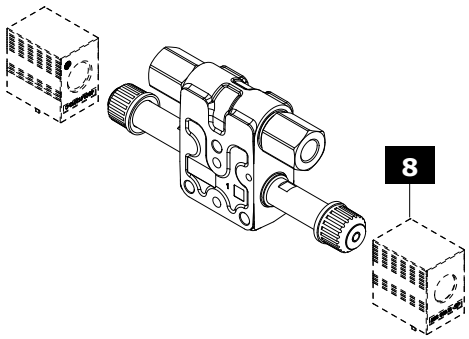


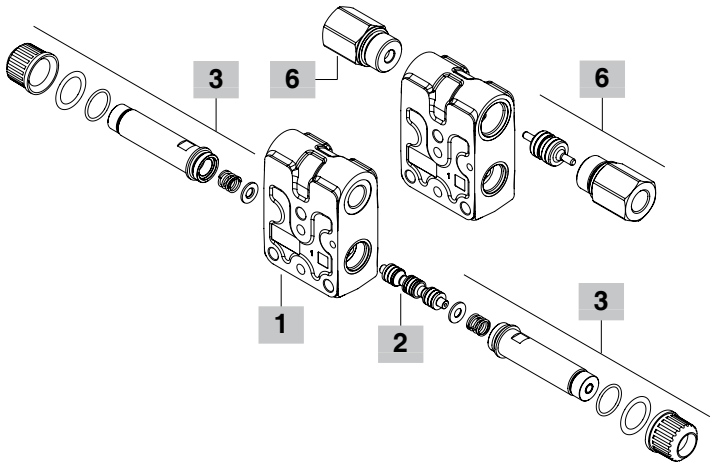


valve on port A - **1**
valve on port B - **2**
valve on ports A and B - **3**

SDE030/QBPL - 1 8ES3B.BPA 3 - WC - .....

1 2 3 6 without coil 7

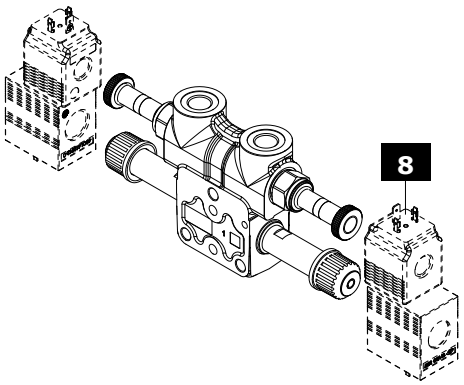


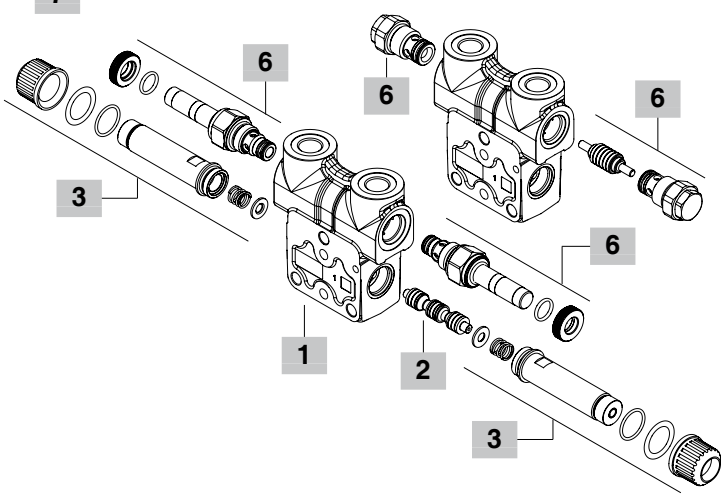


valve on port A - **1**
valve on port B - **2**
valve on ports A and B - **3**

SDE030/QBPE - 1 8ES3B.QBPEN3(NC) - WC - .....

1 2 3 6 without coil 7





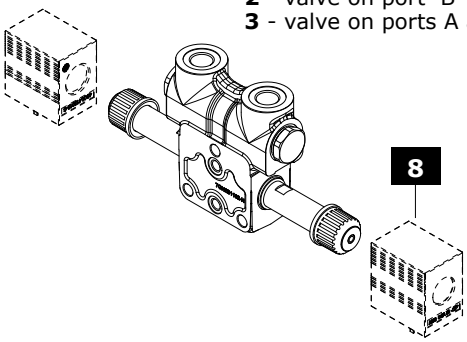
Working section: part ordering codes

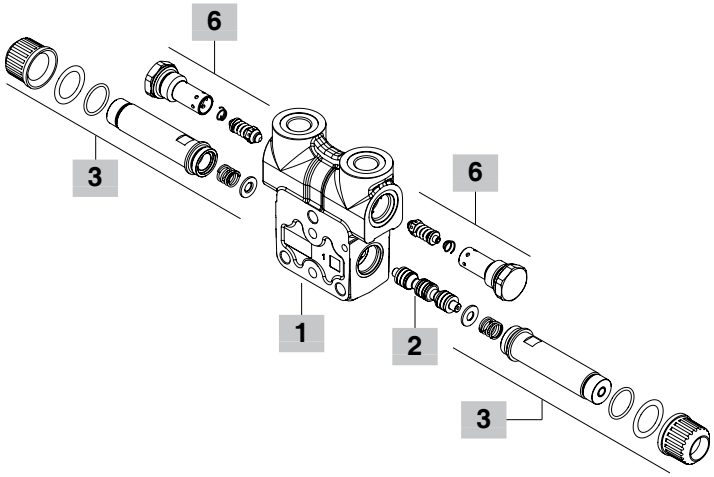
Valve setting (bar)

SDE030/PFL 3(150) - 1 8ES3B - WC - .....

1 | 5 | 2 | 3 | without coil | 7

1 - valve on port A
2 - valve on port B
3 - valve on ports A and B





1 Working section body kit * page 18

Section bodies are cast iron made

TYPE	CODE	DESCRIPTION
Working sections with upper ports		
Q-SAE	5EL1097000	Parallel type, lower port relief valve arrangement
P-SAE	5EL1097005	As type Q, lower port relief valve arrangement
QBP-SAE	5EL1097003	As type Q with check valve arrangement
QBPE-SAE	5EL1097004	As type Q with solenoid operated check valve arrangement
PFL-SAE	5EL1093006	As type Q, side port relief valve arrangement
Working sections with side ports		
QL-SAE	5EL1097002	Parallel type,
QBPL-SAE	5EL1097001	As type QL with check valve arrangement

2 Spool page 20

TYPE	CODE	DESCRIPTION
For ON/OFF solenoid control		
1	3CU9010102	Double acting, A and B closed in neutral pos.
1A	3CU9010103	Double acting, A to tank in neutral pos. For connect B to tank (type **1B**) is necessary to turn the spool
2	3CU9025100	Double acting, A and B to tank in neutral pos.
2H	3CU9025225	Double acting, A and B partially to tank in neutral position
For ON/OFF solenoid control with emergency lever operation		
1LHD	3CU9010300	As type 1
1ALHD	3CU9010303	As type 1A
2LHD	3CU9020300	As type 2
2HLHD	3CU9020310	As type 2H

3 On/off solenoid control page 21

TYPE	CODE	DESCRIPTION
8ES1B	5CAN08E114C	Single acting on port A
8ES2B	5CAN08E114C	Single acting on port B
8ES3B	5CAN08E115C	Double acting
8ES3BLHD	5CAN08E315	Double acting with emergency lever operation: **needs dedicated spools**

4 Lower port relief valves page 22

Standard setting is referred to 10 l/min *(2.6 US gpm)* flow.

TYPE	CODE	DESCRIPTION
P(G3-100)	5KIT060000	From 50 to 200 bar *(725 to 2900 psi)*, standard setting 100 bar *(1450 psi)*
P(G4-200)	5KIT060001	From 200 to 315 bar *(2900 to 4600 psi)*, standard setting 200 bar *(2900 psi)*
P3T	5KIT060100	A and B ports valve blanking plugs

5 Side port relief valve page 22

The codes are referred to parts with FPM o-ring seals

TYPE	CODE	DESCRIPTION
PT	5TAP324460	Valve blanking plug

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

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

SETTING:

40 bar *(580 psi)*	50 bar *(725 psi)*	60 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)*	

6 Check valve page 23

TYPE	CODE	DESCRIPTION
For arranged setions with upper ports, QBP type		
BPC3	5KIT430030	Valves kit for A and B ports
BPC1-BPC2	5KIT430012	Valve kit por single port
For arranged setions with upper ports, QBPE type		
TBP	3XTAP822150	Valve blanking plug
Normally closed circuit (NC)		
BPEN(NC)	0EC08002032	Without manual emergency
BPEV(NC)	0EC08002037	With screw type emergency
BPEP(NC)	0EC08002036	With pull-button emergency
BPET(NC)	0EC08002038	With "pull & twist" emergency
Normally open circuit (NO)		
BPEN(NA)	0EC08002031	Without manual emergency
BPEV(NA)	0EC08002034	With screw type emergency
BPEP(NA)	0EC08002033	With push-button emergency
BPET(NA)	0EC08002035	With "push & twist" emergency
For arranged setions with side ports, QBPL type		
BPA3-SAE	5KIT430230	Valves kit for A and B ports
BPA1-SAE	5KIT430212	Valve kit for A port
BPA2-SAE	5KIT430212	Valve kit for B port

7 Section threading

Specify threading always when it is different from BSP standard (see page 4).

8 Optional coils page 58

For list of available coils see pages of related section.

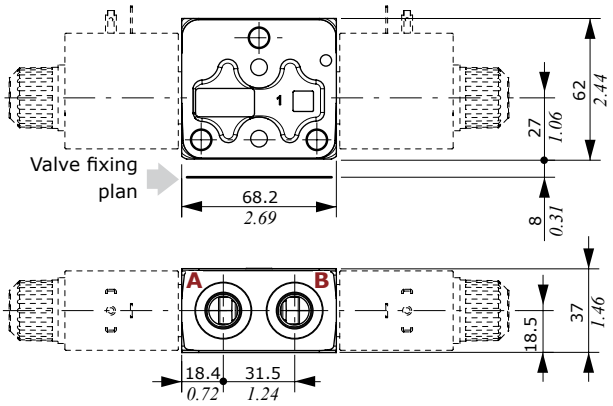
NOTE (*) – *Codes are referred to **UN-UNF** thread*.

Working section

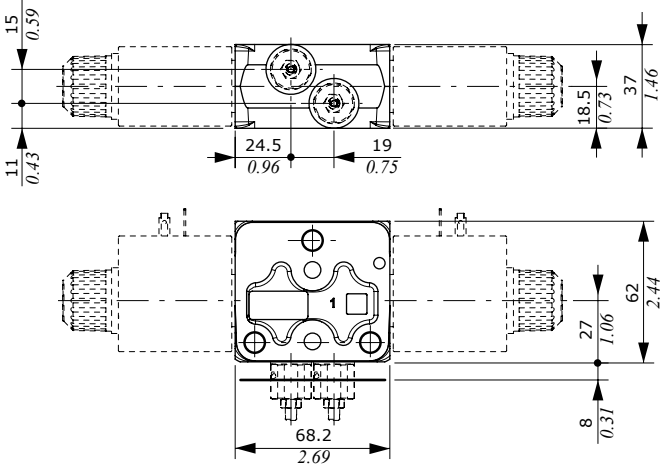
Dimension and hydraulic circuit

Working section Q type with upper ports

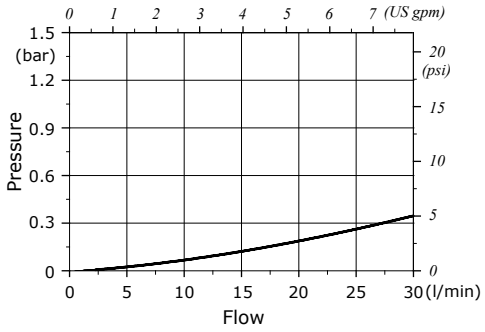
Q type



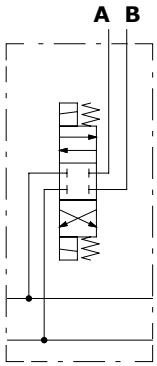
P type
with lower port relief valves arrangement



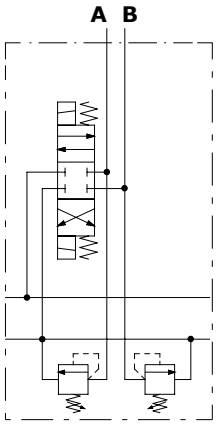
Flow through pressure drop



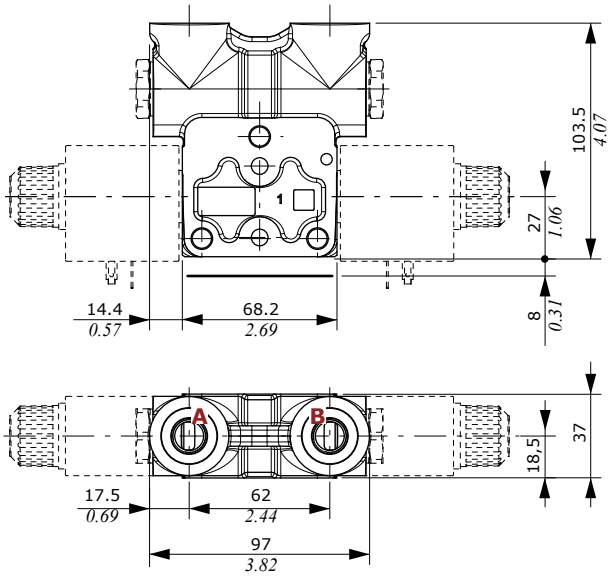
Q type example
(with spool 1)

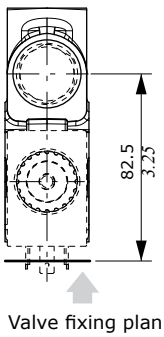


P type example
(with spool 1)

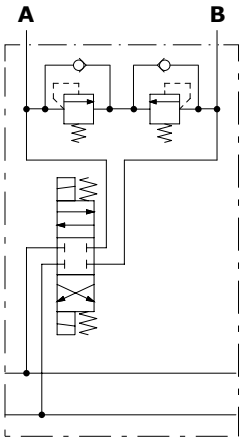


PFL type
with side port relief valves arrangement





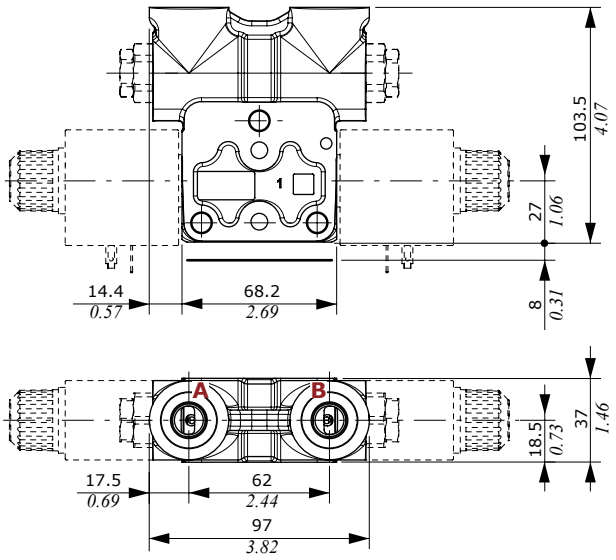
PFL type example
(with spool 1)

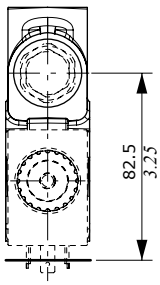


Spools

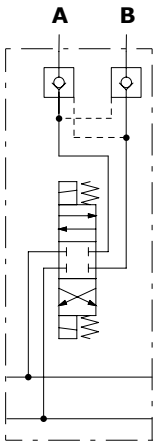
Working section with side ports

QBP - QBPE types
with check valve arrangement



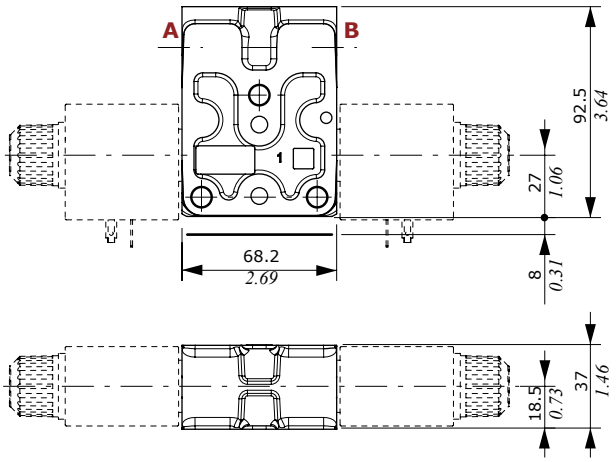


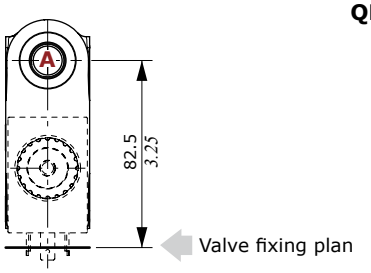
QBP type example
(with spool 1)



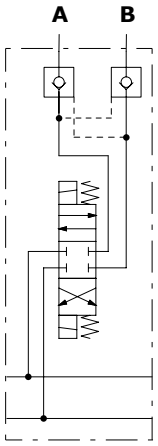
Working section with side ports

QL - QBPL types
with or without check valves arrangement





QBPL type example
(with spool 1)

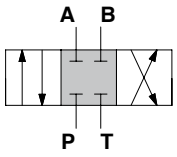


Working section

Spool

Types 1-1LHD
Double acting, A and B closed in neutral position

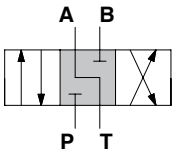
1 0 2



Stroke
position 1: + 3 mm *(+ 0.12 in)*
position 2: - 3 mm *(- 0.12 in)*

Types 1A-1ALHD
Double acting, A to tank in neutral position

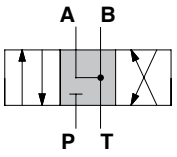
1 0 2



Stroke
position 1: + 3 mm *(+ 0.12 in)*
position 2: - 3 mm *(- 0.12 in)*

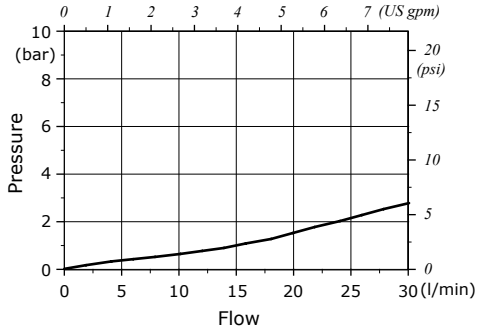
Types 2-2LHD
Double acting, A and B to tank in neutral position

1 0 2

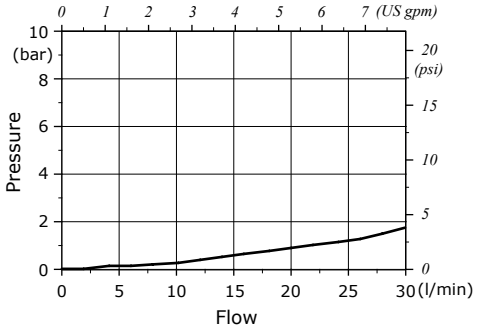


Stroke
position 1: + 3 mm *(+ 0.12 in)*
position 2: - 3 mm *(- 0.12 in)*

P⇒port - port⇒T pressure drops
(curves are matched)

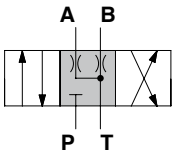


P⇒port - port⇒T pressure drops
(curves are matched)



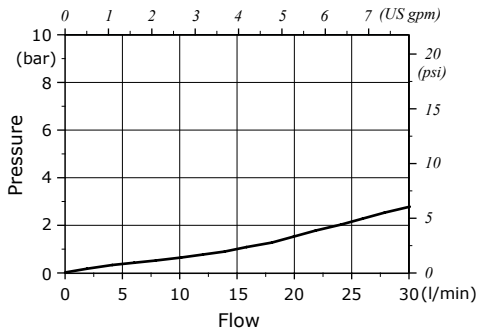
Types 2H-2HLHD
Double acting, A and B partially to tank in neutral position

1 0 2



Stroke
position 1: + 3 mm *(+ 0.12 in)*
position 2: - 3 mm *(- 0.12 in)*

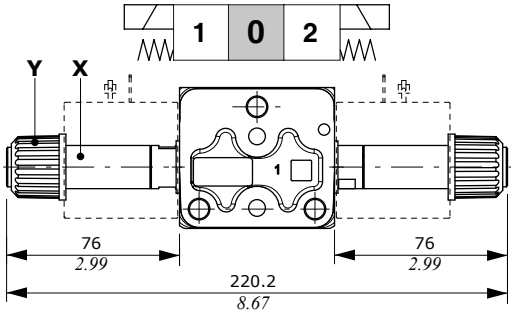
P⇒port - port⇒T pressure drops
(curves are matched)



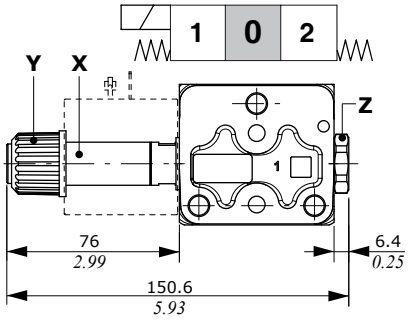
On/off solenoid control: 8ES3B - 8ES1B - 8ES2B types

When the section is configurated with check valves, the coils on control must be rotated 180°.

8ES3B: double acting control kit

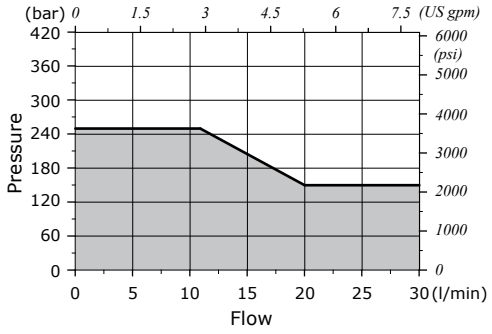


8ES1B: single acting on A control kit



Operating condition

(stroke 3 mm - *0.12 in*)

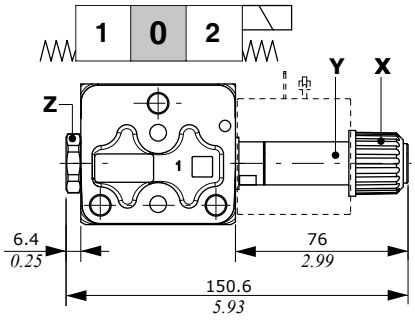


Wrenches and tightening torque

X = wrench 17 - 24 Nm *(17.7 lbft)*
Y = 6.6 Nm *(4.9 lbft)*
Z = wrench 24 - 24 Nm *(17.7 lbft)*

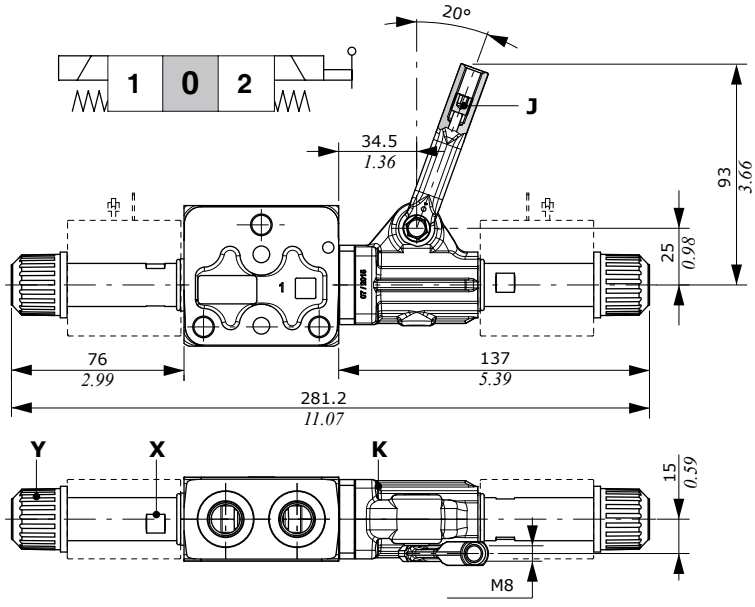
For coil features and options see **D12C** coil on pages 56 and 58.

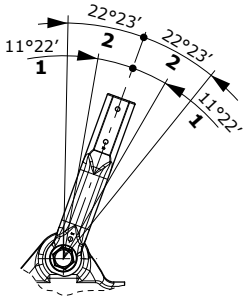
8ES2B: single acting on B control kit



On/off solenoid control with lever: 8ES3BLHD type

When the section is configured with side ports or with check valves, control and coils must be rotated 180°.
If the section is configured with solenoid check valves the control can't be used.
The control needs dedicated spools: see page 17 for list.
IMPORTANT: lever to be used only for emergency operation, not for continuative use.





1: idle stroke angles
2: total operation angles

Wrenches and tightening torque

J = wrench 4 - 9.8 Nm *(7.2 lbft)*
K = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = wrench 17 - 24 Nm *(17.7 lbft)*
Y = 6.6 Nm *(4.9 lbft)*

Control features

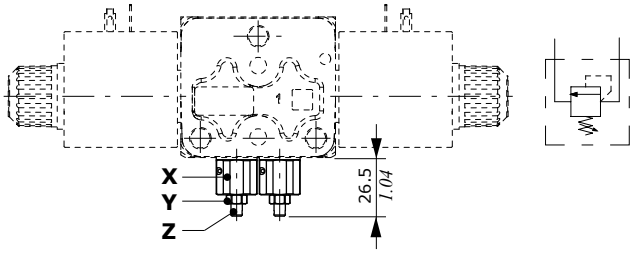
Max. back pressure on T .: 30 bar *(435 psi)*

For coil features and options see **D12C** coil on pages 56 and 58.

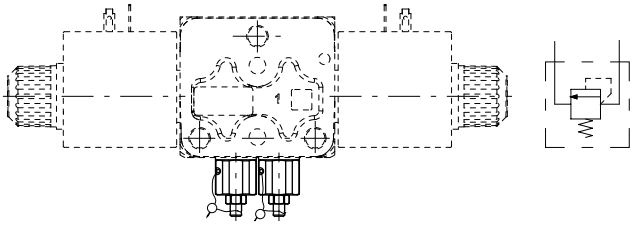
Working section

Lower port relief valves

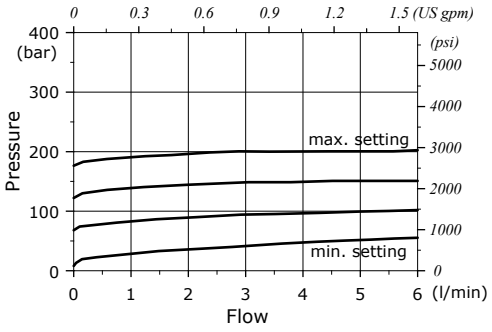
G type



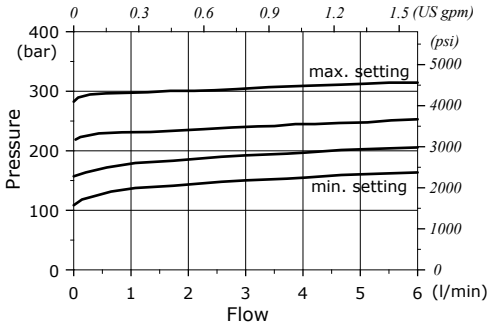
H type



Setting range: G3 type



Setting range: G4 type



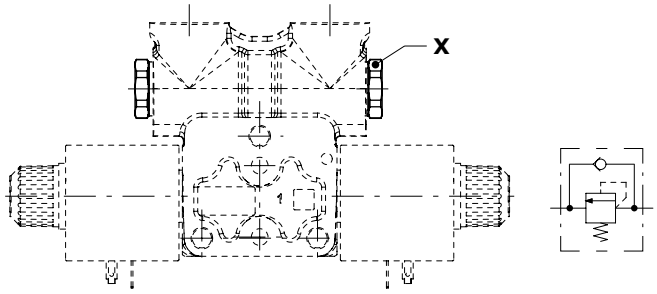
Legenda

G: screw setting type
H: valve set and locked

Wrenches and tightening torque

X = wrench 17 - 24 Nm *(17.7 lbft)*
Y = wrench 8 - 6.6 Nm *(4.9 lbft)*
Z = allen wrench 2.5

Side port relief valves

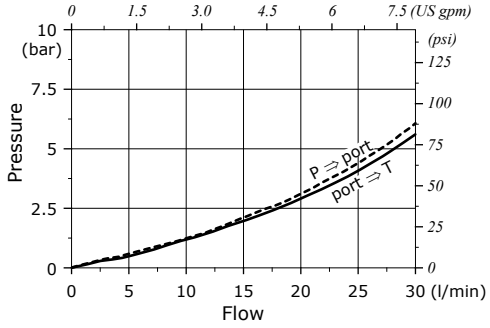


Wrenches and tightening torque

X = wrench 24 - 42 Nm *(31 lbft)*

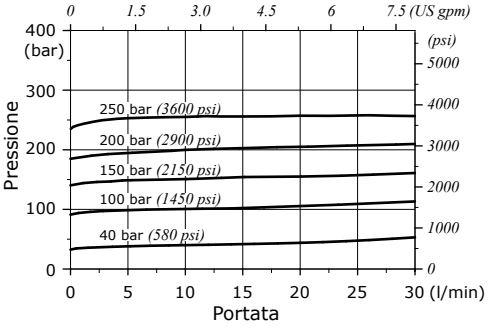
Pressure drop

(working section included



Setting example

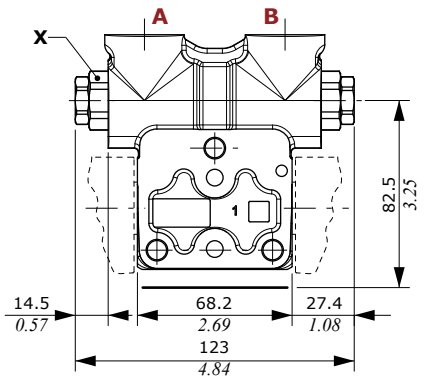
(10 l/min - *2.6 US gpm*)



Check valves

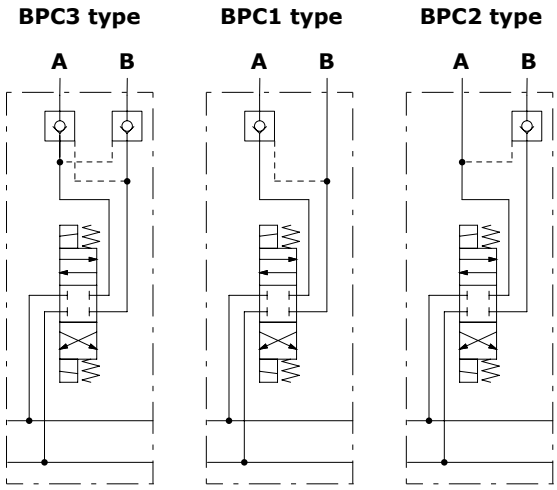
When the section is configurated with check valves, the coils on control must be rotated 180°.

For sections with upper ports



Wrenches and tightening torque

X = wrench 24 - 42 Nm *(31 lbft)*

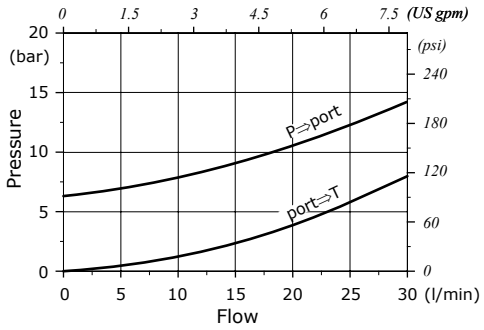


Parts ordering codes

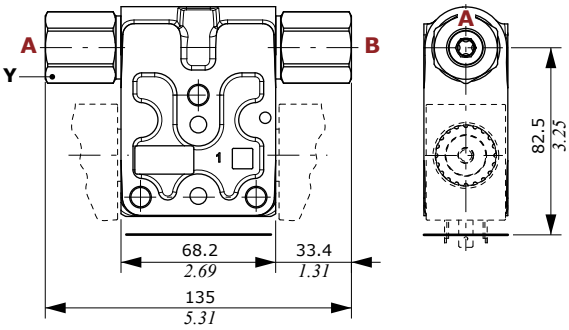
TYPE	CODE	DESCRIPTION
BP	1300020402	Check valve
TBP	XTAP627260	Valve blanking plug
-	3PIS214480	Piston

Pressure drop diagram

(working section included)



For sections with side ports

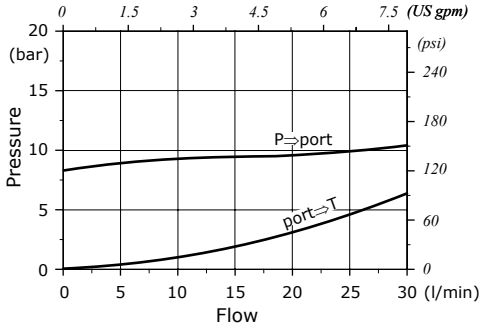


Wrenches and tightening torque

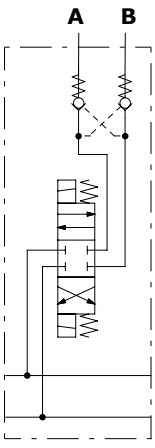
X = wrench 28 - 50 Nm *(37 lbft)*

Pressure drop diagram

(working section included)



BPA3 type



Parts ordering codes

TYPE	CODE	DESCRIPTION
BPA	3XCA0422802	Check valve
-	3PIS3180460	Piston

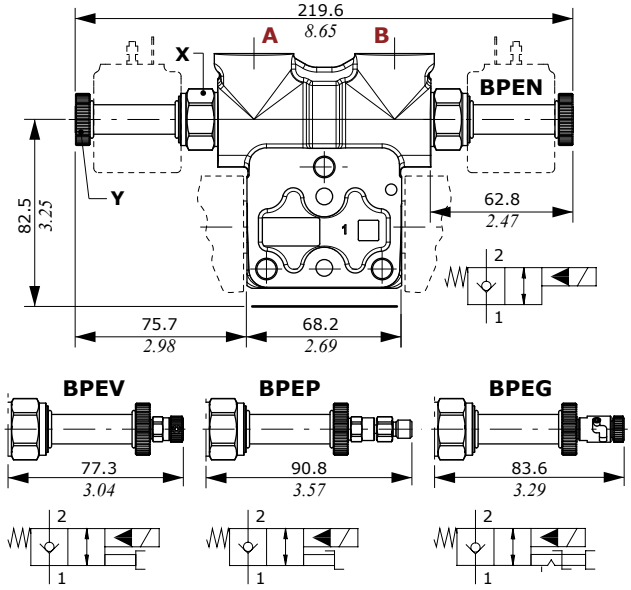
Working section

Solenoid operated check valves

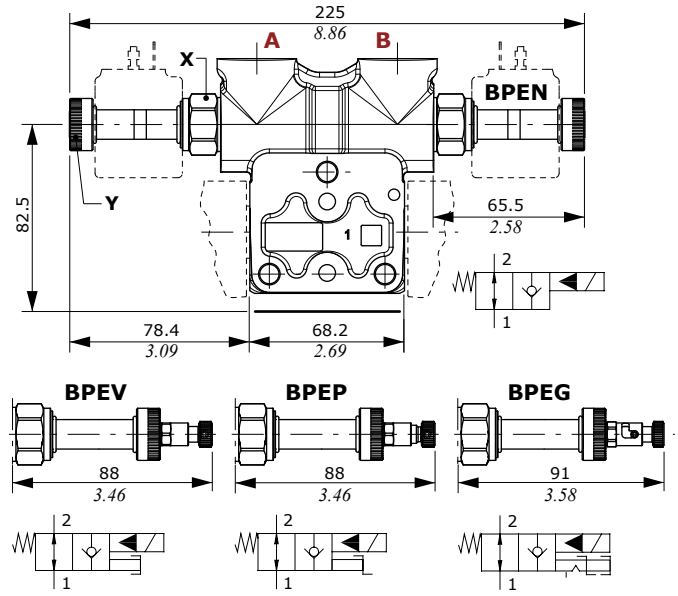
When the section is configurated with check valves, the coils on control must be rotated 180°.

For sections wiht upper ports

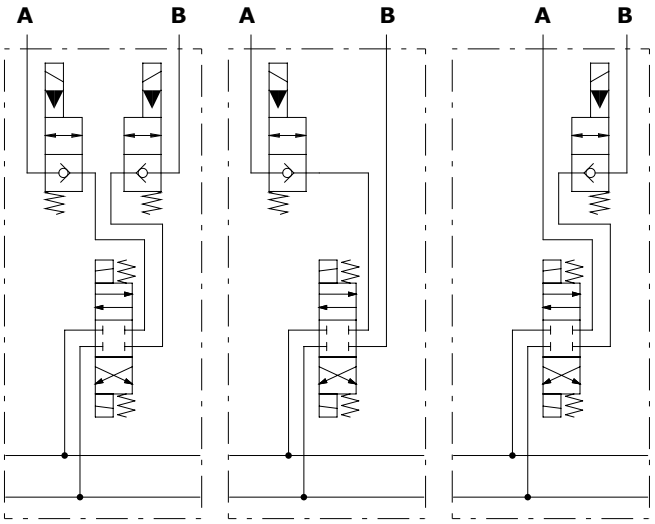
BPE(NC) type: normally closed circuit



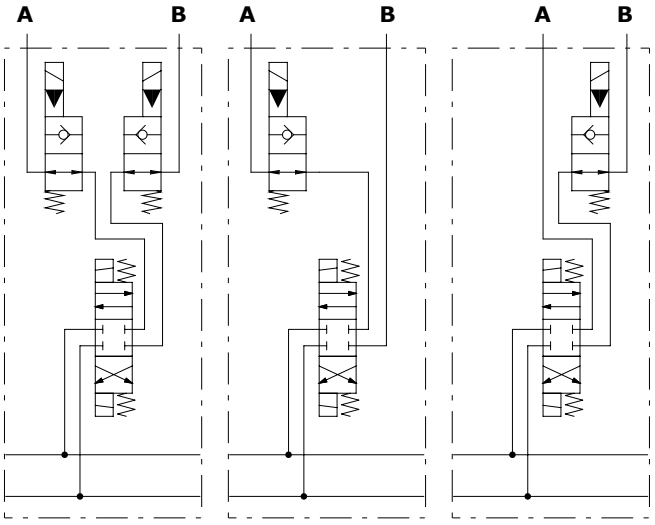
BPE(NA) type: normally open circuit



BPEN3(NC) type **BPEN1(NC) type** **BPEN2(NC) type**

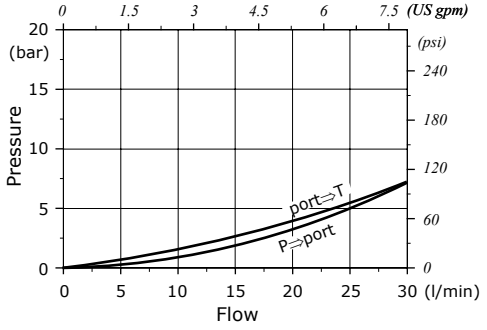


BPEN3(NA) type **BPEN1(NA) type** **BPEN2(NA) type**



Pressure drop diagram

(working section included)



Wrenches and tightening torque

X = wrench 24 - 30 Nm *(22 lbft)*

Y = 5 Nm *(3.7 lbft)*

Legenda

BPEN: without amergency actuation

BPEP: push-button type emergency actuation

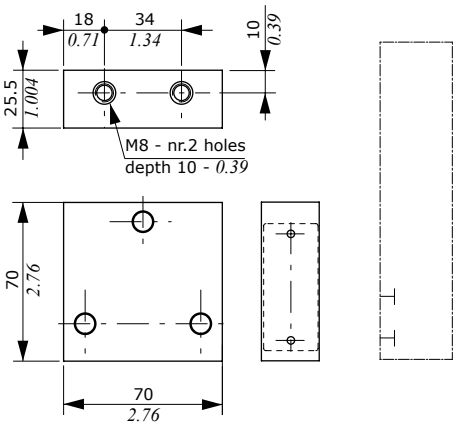
BPEV: screw type emergency actuation

BPET: "push&twist" type emergency actuation

Dimensions and hydraulic circuit

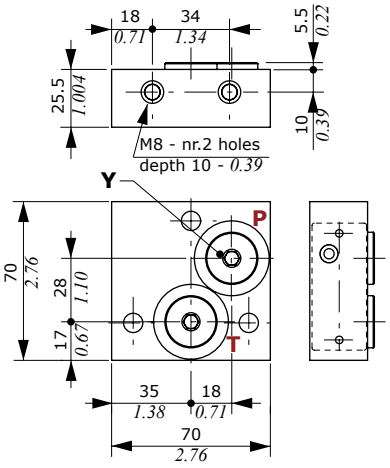
Without port arrangement

RF type



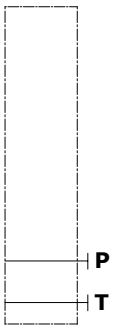
With port arrangement

RS - RP - RT types
drawing shows RS type



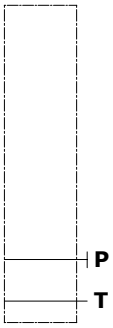
Wrenches and tightening torque
X = allen wrench 8 - 24 Nm *(17.7 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*

RS type
P and T ports plugged



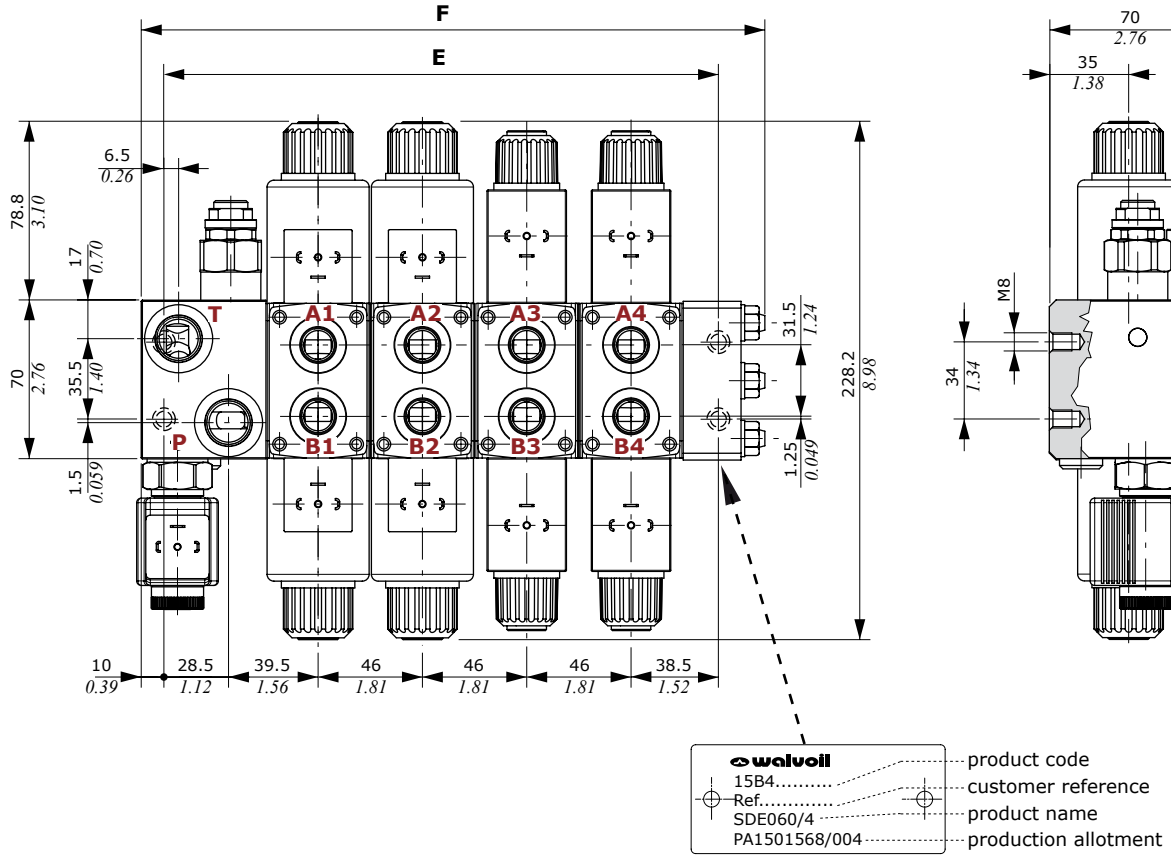
RP type
P open, T plugged

RT type
T open, P plugged



Dimensional data

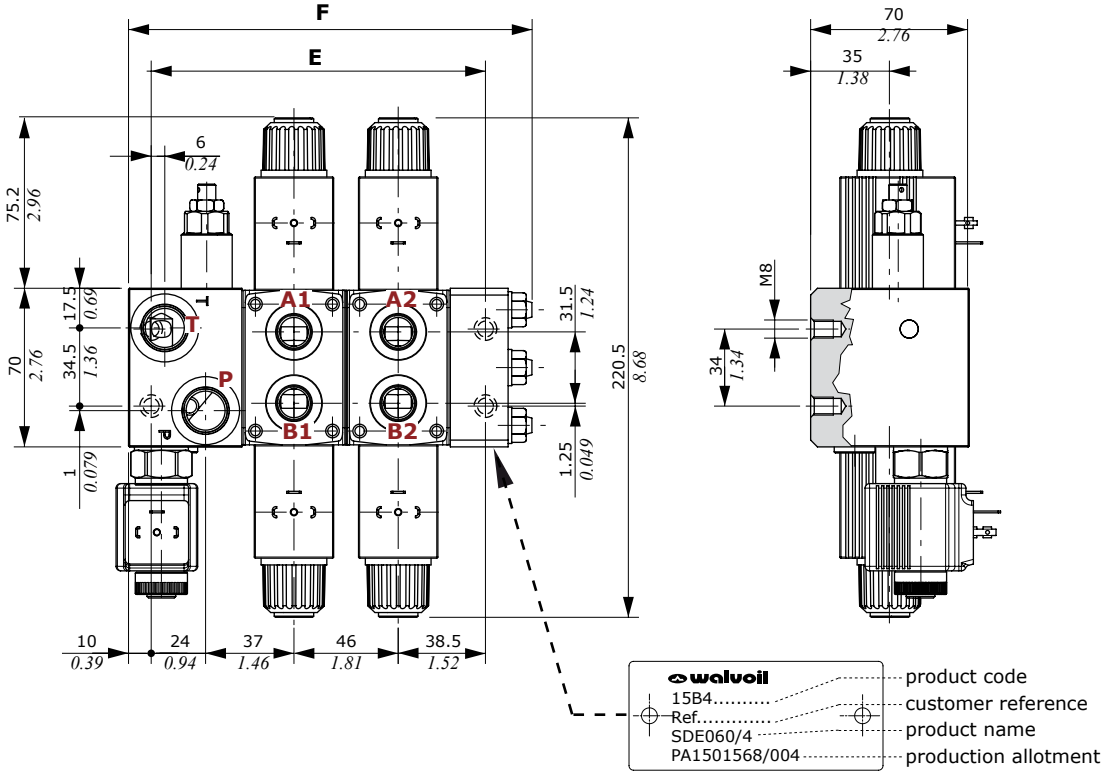
This drawing is referred to directional valve with mixed working sections (2 sections up 60 to l/min-*15.8 US gpm* and 2 sections up to 30 l/min-*7.9 US gpm*), and AN1 type inlet section.



TYPE	AN type inlet section				AN1 type inlet section (see drawing)						AN2 type inlet section			
	E		F		E		F		Weight		E		F	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*	Kg	*lb*	mm	*in*	mm	*in*
SDE060/1	83.5	*3.26*	116.5	*4.59*	106.5	*4.19*	139.5	*5.49*	5.08	*11.20*	137	*5.12*	170	*6.69*
SDE060/2	129.5	*5.10*	162.5	*6.40*	152.5	*6.00*	185.5	*7.30*	7.43	*16.38*	183	*7.21*	216	*8.50*
SDE060/3	175.5	*6.91*	208.5	*8.21*	198.5	*7.82*	231.5	*9.11*	9.78	*21.56*	229	*9.02*	262	*10.31*
SDE060/4	221.5	*8.72*	254.5	*10.02*	244.5	*9.63*	277.5	*10.93*	12.13	*26.74*	275	*10.83*	308	*12.13*
SDE060/5	267.5	*10.53*	300.5	*11.83*	290.5	*11.44*	323.5	*12.74*	14.48	*31.92*	321	*12.64*	354	*13.94*
SDE060/6	313.5	*12.34*	346.5	*13.64*	336.5	*13.26*	369.5	*14.55*	16.83	*37.10*	367	*14.45*	400	*15.75*
SDE060/7	359.5	*14.15*	392.5	*15.45*	382.5	*15.06*	415.5	*16.36*	19.18	*42.28*	413	*16.26*	446	*17.56*
SDE060/8	405.5	*15.96*	438.5	*17.26*	428.5	*16.87*	461.5	*18.17*	21.53	*47.47*	459	*18.07*	492	*19.37*
SDE060/9	451.5	*17.78*	484.5	*19.07*	474.5	*18.68*	507.5	*19.98*	23.88	*52.65*	505	*19.88*	538	*21.18*
SDE060/10	497.5	*19.59*	530.5	*20.89*	520.5	*20.49*	553.5	*21.79*	26.23	*57.83*	551	*21.69*	584	*22.99*

Dimensional data

This drawing is referred to directional valve with all working sections up to 30 l/min (*up to 7.9 US gpm*), and N1B type inlet section.

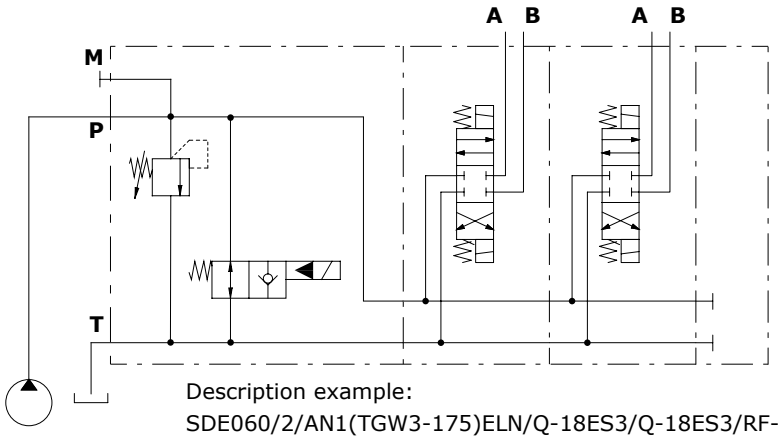


TYPE	ANB type inlet section E mm	E in	F mm	F in	AN1B type inlet section (see drawing) E mm	E in	F mm	F in	Weight Kg	Weight lb
SDE060/1	83.5	*3.26*	116.5	*4.59*	103.5	*4.07*	136.5	*5.37*	4.58	*10.10*
SDE060/2	129.5	*5.10*	162.5	*6.40*	149.5	*5.89*	182.5	*7.19*	6.61	*14.57*
SDE060/3	175.5	*6.91*	208.5	*8.21*	195.5	*7.70*	228.5	*9.00*	8.64	*19.05*
SDE060/4	221.5	*8.72*	254.5	*10.02*	241.5	*9.51*	274.5	*10.81*	10.67	*23.52*
SDE060/5	267.5	*10.53*	300.5	*11.83*	287.5	*11.32*	320.5	*12.62*	12.70	*28.00*
SDE060/6	313.5	*12.34*	346.5	*13.64*	333.5	*13.13*	366.5	*14.43*	14.73	*32.47*
SDE060/7	359.5	*14.15*	392.5	*15.45*	379.5	*14.94*	412.5	*16.24*	16.76	*36.95*
SDE060/8	405.5	*15.96*	438.5	*17.26*	425.5	*16.75*	458.5	*18.05*	18.79	*41.42*
SDE060/9	451.5	*17.78*	484.5	*19.07*	471.5	*18.56*	504.5	*19.86*	20.82	*45.90*
SDE060/10	497.5	*19.59*	530.5	*20.89*	517.5	*20.37*	550.5	*21.67*	22.85	*50.38*

TYPE	AN2B type inlet section E mm	E in	F mm	F in	AN6B-AN7B type inlet sections E mm	E in	F mm	F in
SDE060/1	128	*5.04*	161	*6.34*	120.5	*4.74*	153.5	*6.04*
SDE060/2	174	*6.85*	207	*8.15*	166.5	*6.56*	199.5	*7.85*
SDE060/3	220	*8.66*	253	*9.96*	212.5	*8.37*	245.5	*9.67*
SDE060/4	266	*10.47*	299	*11.77*	258.5	*10.18*	291.5	*11.48*
SDE060/5	312	*12.28*	345	*13.58*	304.5	*11.99*	337.5	*13.29*
SDE060/6	358	*14.09*	391	*15.39*	350.5	*13.80*	383.5	*15.10*
SDE060/7	404	*15.91*	437	*17.20*	396.5	*15.61*	429.5	*16.91*
SDE060/8	450	*17.72*	483	*19.02*	442.5	*17.42*	475.5	*18.72*
SDE060/9	496	*19.53*	529	*20.83*	488.5	*19.23*	521.5	*20.53*
SDE060/10	542	*21.34*	575	*22.64*	534.5	*21.04*	567.5	*22.34*

Parallel circuit

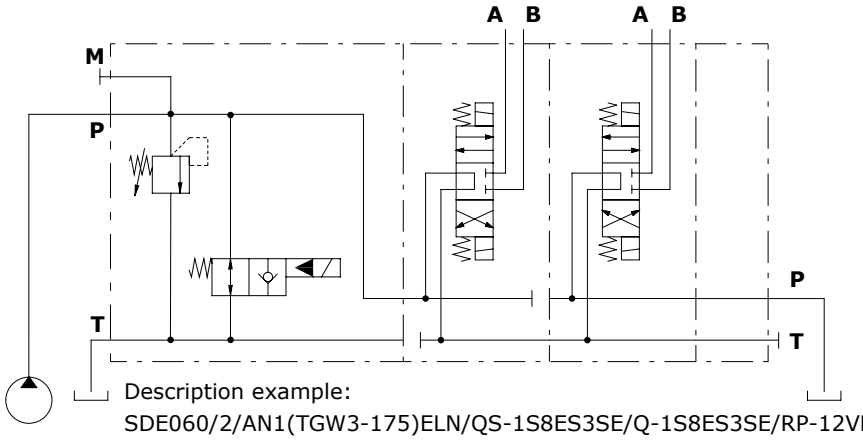
A parallel circuit can be composed using P or Q working sections.
The outlet section can be with or without port arrangement.



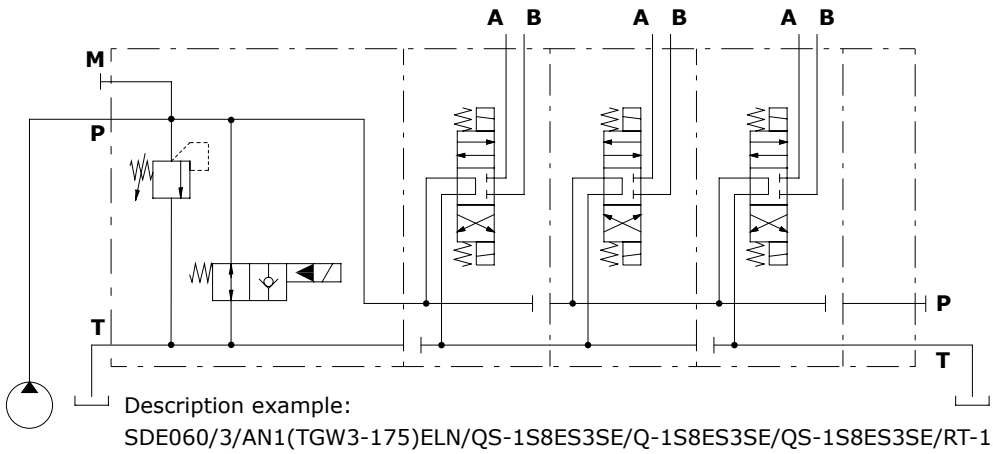
Description example:
SDE060/2/AN1(TGW3-175)ELN/Q-18ES3/Q-18ES3/RF-12VDC

Series circuit: only for 60 l/min *(15.8 US gpm)* sections

The series circuit is composed using alternately QS and Q working sections, both with 1S series spool.
The circuit starts always with QS working section.
The outlet section depends on total number of working sections: if it is even, the outlet section must have P port open, if it is odd, the outlet section must have T port open.



Description example:
SDE060/2/AN1(TGW3-175)ELN/QS-1S8ES3SE/Q-1S8ES3SE/RP-12VDC



Description example:
SDE060/3/AN1(TGW3-175)ELN/QS-1S8ES3SE/Q-1S8ES3SE/QS-1S8ES3SE/RT-12VDC

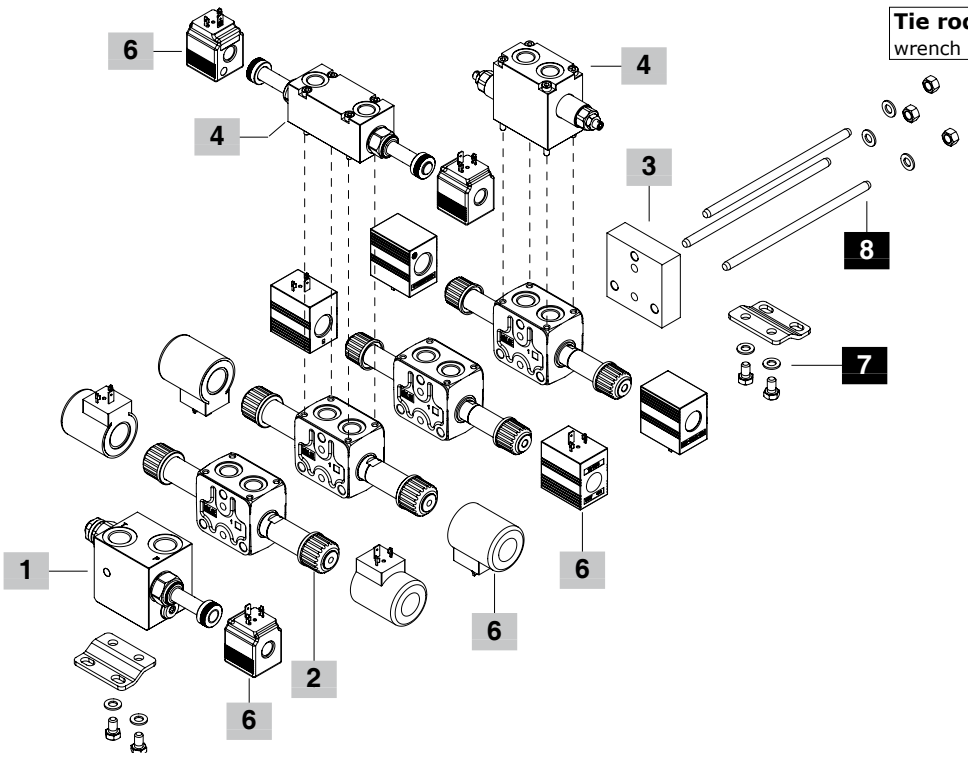
Complete section ordering codes

SDE060/4/AN1(TGW3-120)ELN/Q-18ES3/Q-18ES3.BPEN3/Q-18ES3B/

Nr. of working sections: 1 | 2 | 2 | 4 | 2

Q-18ES3B.PS3(DC3-100)/RF-.....-12VDC

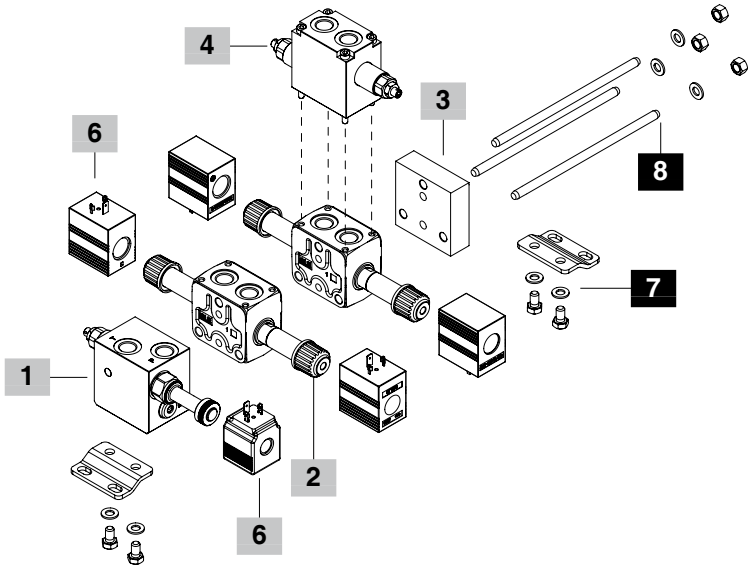
2 | 4 | 3 | 5 | 6



Tie rod tightening
wrench 13 - 20 Nm *(14.75 lbft)*

SDE060/2/AN1B(JNG3-120)ELN/Q-18ES3B/Q-18ES3B.PS3(DC3-100)/RF-.....-12VDC

Nr. of working sections: 1 | 2 | 2 | 4 | 3 | 5 | 6



Tie rod tightening
wrench 13 - 20 Nm *(14.75 lbft)*

Complete section ordering codes

1 Complete inlet section * page 32

Section bodies are steel made

TYPE: **AN-SAE** CODE: 5FIA103706
DESCRIPTION: Without valves arrangement, SAE8 ports, P and T open
TYPE: **ANP-SAE** CODE: 5FIA103702
DESCRIPTION: As type AN, port P open and T plugged
TYPE: **ANT-SAE** CODE: 5FIA103702
DESCRIPTION: As type AN, port P plugged and T open
TYPE: **ANS-SAE** CODE: 5FIA103705
DESCRIPTION: As type AN, ports P and T plugged
TYPE: **AN1(TGW3-175)ELN-WC-SAE** CODE: Y61S607000
DESCRIPTION: With pressure relief valve and solenoid operated unloading valve, SAE8 ports, P and T open
TYPE: **AN1B(JNG3-120)ELN-WC-SAE** CODE: Y61S307000
DESCRIPTION: As previous one, up to 30 l/min *(7.9 US gpm)*
TYPE: **AN1P(TGW3-175)ELN-WC-SAE** CODE: Y61S607003
DESCRIPTION: As type AN1 port P open and T plugged
TYPE: **AN1PB(JNG3-120)ELN-WC-SAE** CODE: Y61S307002
DESCRIPTION: As previous one, up to 30 l/min *(7.9 US gpm)*
TYPE: **AN2/PPXN1(TGW3-175)ELN-WC-SAE** CODE: Y61S607001
DESCRIPTION: With pressure relief valve, solenoid operated unloading valve and pressure compensated flow control valve, SAE8 ports, P and T open
TYPE: **AN2B/PPXN1(JNG3-120)ELN-WC-SAE** CODE: Y61S307001
DESCRIPTION: As previous, up to 30 l/min *(7.9 US gpm)*
TYPE: **AN2P/PPXN1(TGW3-175)ELN-WC-SAE** CODE: Y61S607006
DESCRIPTION: As type AN2, port P open and T plugged
TYPE: **AN2PB/PPXN1(JNG3-120)ELN-WC-SAE** CODE: Y61S307005
DESCRIPTION: As previous one, up to 30 l/min *(7.9 US gpm)*
TYPE: **AN6/EEXL1(VMP02TR-220)-SB7RC(C5)-WC-SAE**
CODE:Y61S607010
DESCRIPTION: With pressure relief valve and flow control valve, for Open Center circuit, compensator with 7 bar *(100 psi)* stand-by, SAE8 ports, P and T open
TYPE: **AN6B/EEXL1(VMP02TR-220)-SB10RC(C3)-WC-SAE**
CODE: Y61S307006
DESCRIPTION: With pressure relief valve and flow control valve, for Open Center circuit, compensator with 10 bar *(145 psi)* stand-by, SAE8 ports, P and T open, up to 30 l/min *(7.9 US gpm)*
TYPE: **AN7/EEXN1(VMP02TR-200)-SB7RCV(C5)-WC-SAE**
CODE:Y61S607011
DESCRIPTION: As AN6, compensator with handwheel actuation for Open to Closed Center switching, SAE8 ports P and T open.
TYPE: **AN7B/EEXN1(VMP02TR-200)-SB10RCV(C3)-WC-SAE**
CODE: Y61S307007
DESCRIPTION: As AN6B, compensator with handwheel actuation for Open to Closed Center switching, SAE8 ports P and T open, up to 30 l/min *(7.9 US gpm)*
TYPE: **AN11-EEXN1(VMP02TR-200)-CL-WC-SAE**
CODE: Y61S607008
DESCRIPTION: As AN6, for Closed Center circuit, compensator blanking plug, G3/8 ports P and T open
TYPE: **AN11B-EEXN1(VMP02TR-200)-CL-WC-SAE**
CODE: Y61S307008
DESCRIPTION: As AN6B, for Closed Center circuit, compensator blanking plug, G3/8 ports P and T open, up to 30 l/min *(7.9 US gpm)*

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

2 Complete working section * page 46

Section bodies are cast iron made
Sections are arranged for flangeable valve blocks

TYPE	CODE	DESCRIPTION
Q-18ES3-WC-SAE	Y63S607001C	Parallel circuit, SAE6 ports, type 1 double acting spool
Q-18ES3B-WC-SAE	Y63S307001C	As previous, one up to 30 l/min *(7.9 US gpm)*
Q-28ES3-WC-SAE	Y63S607002C	Parallel circuit, SAE6 ports, type 2 double acting spool
Q-28ES3B-WC-SAE	Y63S307002C	As previous, one up to 30 l/min *(7.9 US gpm)*
QS-1S8ES3SE-WC-SAE	Y63S607003C	Series circuit, SAE6 ports, type 1S double acting series spool
Q-1S8ES3SE-WC-SAE	Y63S607005C	Parallel circuit, SAE6 ports, type 1S double acting series spool: **placed after QS series section only**

3 Complete outlet section* page 57

Unless otherwise stated, outlet section bodies are steel made.

TYPE	CODE	DESCRIPTION
RF	3FIA203000	Without ports, aluminium alloy body
RS-SAE	619305200	With SAE 8 ports, P and T plugged
RP-SAE	619305100	As previous one, P open and T plugged
RT-SAE	619305000	As previous one, T open and P plugged

4 Complete flangeable valve block

5 Valve threading

Specify threading always when it is different from BSP standard (see page 4).

6 Coils page 58

Coils voltage specification; for list of available coils see pages of related sections

7 Fixing bracket page 61

TYPE	CODE	DESCRIPTION
STAF	5STA148065	Brackets with fixing screws

8 Assembling kit

CODE	DESCRIPTION	CODE	DESCRIPTION
5TIR108099	For 1 section valve	5TIR108329	For 6 sections valve
5TIR108144	For 2 sections valve	5TIR108375	For 7 sections valve
5TIR108191	For 3 sections valve	5TIR108420	For 8 sections valve
5TIR108236	For 4 sections valve	5TIR108466	For 9 sections valve
5TIR108282	For 5 sections valve	5TIR108512	For 10 sections valve

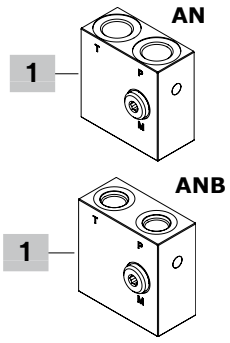
Inlet section: part ordering codes

SDE060/AN-....-SAE

1 6

SDE060/ANB-....

1 6



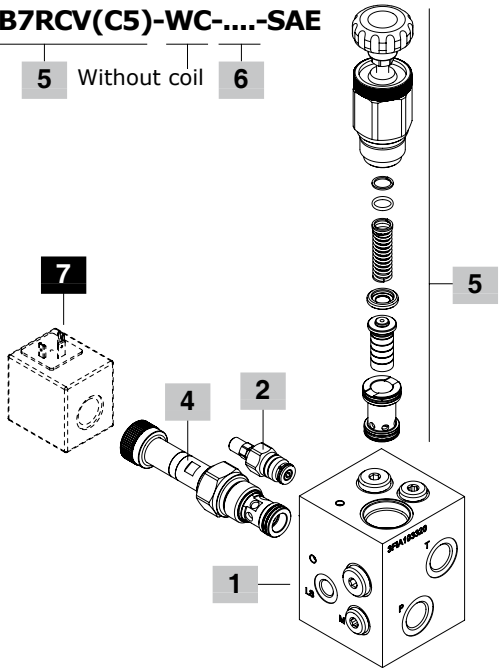
Valve setting (bar)

SDE060/AN7/EEXN1(VMP02TS-200)

1 4 2

SB7RCV(C5)-WC-....-SAE

5 Without coil 6



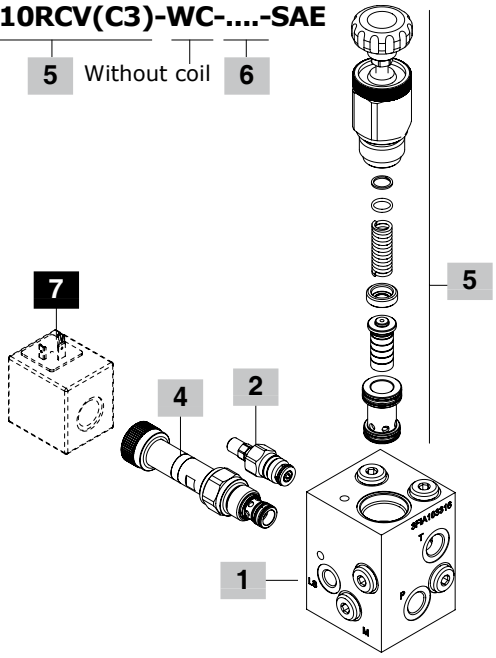
Valve setting (bar)

SDE060/AN7B/EEXN1(VMP02TS-200)

1 4 2

SB10RCV(C3)-WC-....-SAE

5 Without coil 6



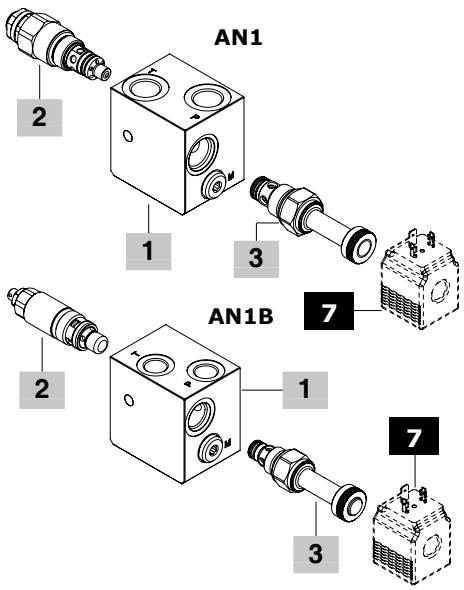
Valve setting (bar) Without coil

SDE060/AN1(TGW3-175)ELN-WC-....-SAE

1 2 3 6

SDE060/AN1B(JNG3-120)ELN-WC-....-SAE

1 2 3 6



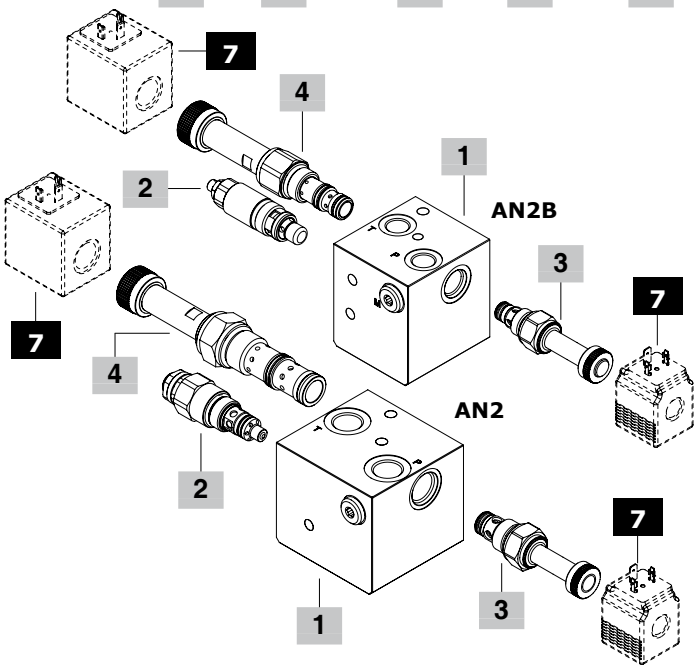
Valve setting (bar) Without coil

SDE060/AN2/PPXN1(TGW3-175)ELN-WC-....-SAE

1 4 2 3 6

SDE060/AN2B/PPXN1(JNG3-120)ELN-WC-....-SAE

1 4 2 3 6



Inlet section: part ordering codes

1 Inlet section body kit * page 34

Section bodies are steel made

TYPE	CODE	DESCRIPTION
AN-SAE	5FIA103706	Without valves arrangement, SAE8 ports, P and T open
ANP-SAE	5FIA103702	As AN, port P open and T plugged
ANT-SAE	5FIA103702	As AN, port P plugged and T open
ANS-SAE	5FIA103705	As AN, ports P and T plugged
AN1-SAE	5FIA103703	Relief and unloader valves arrangement, SAE8 ports, P and T open
AN1P-SAE	5FIA103709	As previous one, port P open and T plugged
AN1B-SAE	5FIA103700	As AN1, up to 30 l/min *(7.9 US gpm)*
AN1PB-SAE	5FIA103707	As AN1P, up to 30 l/min *(7.9 US gpm)*
AN2-SAE	5FIA103704	Relief, unloader and flow control valves arrangement, SAE8 ports, P and T open
AN2P-SAE	5FIA103710	As previous one, port P open and T plugged
AN2B-SAE	5FIA103701	As AN2, up to 30 l/min *(7.9 US gpm)*
AN2PB-SAE	5FIA103708	As AN2P, up to 30 l/min *(7.9 US gpm)*
AN6-SAE	5FIA103720	For Open Center, relief and flow control valves arrangement, compensator, LS port plugged, SAE8 ports, P and T open
AN6B-SAE	5FIA103716	For Open Center, relief and flow control valves arrangement, compensator, LS port plugged, SAE8 ports, P and T open, up to 30 l/min *(7.9 US gpm)*
AN7/AN11-SAE	5FIA103720A	As AN6, for Closed Center, with LS port open
AN7B/AN11B-SAE	5FIA103717	As AN6B, for Closed Center, with LS port open, up to 30 l/min *(7.9 US gpm)*

2 Main relief valve page 39

TYPE	CODE	DESCRIPTION
For sections AN1-AN2 type		
Valve standard setting is referred to 5 l/min *(1.3 US gpm)* flow.		
(TGW2-80)	0MC10002023	Range 10-120 bar *(145-1750 psi)* std setting 80 bar *(1160 psi)*
(TGW3-175)	0MC10002024	Range 40-200 bar *(580-2900 psi)* std setting 175 bar *(2550 psi)*
(TGW4-250)	0MC10002025	Range 200-350 bar *(2900-5100 psi)* std setting 250 bar *(3600 psi)*
SV	XTAP526360	Relief valve blanking plug
For sections AN1B-AN2B type		
Valve standard setting is referred to 10 l/min *(2.6 US gpm)* flow, considering the valve mounted on inlet section.		
(JNG2-63)	5KIT105512	Range 40-63 bar *(580-900 psi)* std setting 63 bar *(900 psi)*
(JNG3-120)	5KIT105513	Range 50-200 bar *(725-2900 psi)* std setting 120 bar *(1750 psi)*
(JNG4-220)	5KIT105514	Range 160-315 bar *(2300-4600 psi)* std setting 220 bar *(3200 psi)*
(JNH2-63)	5KIT105517	As type JNG2, set and locked
(JNH3-120)	5KIT105516	As type JNG3, set and locked
(JNH4-220)	5KIT105515	As type JNG4, set and locked
(JNZT2-63)	5KIT105562	As type JNG2, anti-tampering type
(JNZT3-120)	5KIT105563	As type JNG3, anti-tampering type
(JNZT4-220)	5KIT105564	As type JNG4, anti-tampering type
SV	XTAP623282	Relief valve blanking plug
For sections AN6-AN7-AN6B-AN7B-AN11-AN11B type		
Valve standard setting is referred to 1 l/min *(0.26 US gpm)* flow, considering the valve mounted on inlet section.		
(VMP02TV-50)	1100000100	Range 5-80 bar *(73-1160 psi)* std setting 50 bar *(725 psi)*
(VMP02TS-150)	1100000101	Range 50-220 bar *(725-3200 psi)* std setting 150 bar *(2200 psi)*
(VMP02TR-250)	1100000102	Range 180-350 bar *(2600-5100 psi)* std setting 250 bar *(3600 psi)*

3 Solenoid operated unloading valve page 41

TYPE	CODE	DESCRIPTION
For sections AN1-AN2 type		
ELN	0EC10002012	Without emergency override
ELV	0EC10002015	With screw type emergency override
ELP	0EC10002014	With push-button emergency override
ELT	0EC10002016	With "twist & push" emergency override
LT	3XTP3544200	Unloading valve blanking plug
For sections AN1B-AN2B type		
ELN	0EC08002031	Without emergency actuation
ELV	0EC08002034	With screw type emergency actuation
ELP	0EC08002033	With push-button emergency actuation
ELT	0EC08002035	With "twist & push" emergency actuation
LT	XTAP510320	Unloading valve blanking plug

4 Flow control valve page 42

TYPE	CODE	DESCRIPTION
For sections AN1-AN2 type		
PPAL1	0PP12002000	Hand-wheel setting type
PPAV1	0PP12002004	Screw setting type
PPXN1	0PP12002037	Solenoid operated, without emergency
PPXV1	0PP12002039	Solenoid operated, screw emergency
PPXL1	0PP12002041	Solenoid operated, hand-wheel emergency
LT	3XTP3558200	Flow control valve blanking plug
For sections AN1B-AN2B type		
PPAL1	0PP10002000	Hand-wheel setting type
PPAV1	0PP10002005	Screw setting type
PPXN1	0PP10002031	Solenoid operated, without emergency
PPXV1	0PP10002033	Solenoid operated, screw emergency
PPXL1	0PP10002035	Solenoid operated, hand-wheel emergency
LT	3XTP3545700	Flow control valve blanking plug
For sections AN6-AN7-AN11 type		
EEXN1	0EE12002007	Solenoid operated, without emergency
EEXL1	0EE12002009	Solenoid operated, hand-wheel emergency
For sections AN6B-AN7B-AN11B type		
EEXN1	0EE10002009	Solenoid operated, without emergency
EEXL1	0EE10002008	Solenoid operated, hand-wheel emergency

5 Compensator kit page 44

TYPE	CODE	DESCRIPTION
For section type AN6		
SB7RC(C5)	5KT6200230	With 7 bar *(100 psi)* stand-by, for Open Center circuit
For section type AN7		
SB7RCV(C5)	5KT6200231	With 7 bar *(100 psi)* stand-by, hand-wheel actuation for Open Center to Closed Center switching
For section type AN6B		
SB10RC(C3)	5KT6200222	With 10 bar *(145 psi)* stand-by, for Open Center circuit
For section type AN7B		
SB10RCV(C3)	5KT6200227	With 10 bar *(145 psi)* stand-by, hand-wheel actuation for Open Center to Closed Center switching
For section type AN11-AN11B		
CL	X451810000	Compensator blanking plug, for Closed Center circuit

6 Section threading

Specify threading always when it is different from BSP standard (see page 4).

7 Optional coil page 58

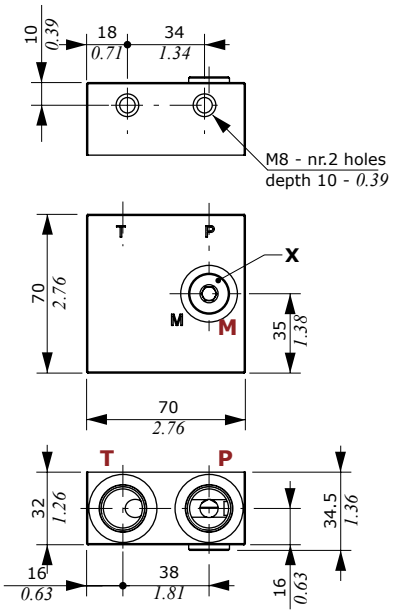
For list of available coils see pages of related section.

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

Inlet section: dimension and hydraulic circuit

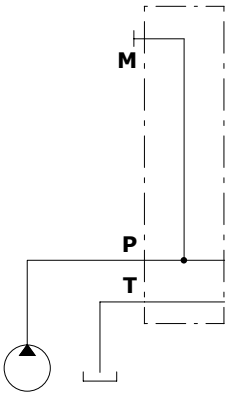
AN inlet section

AN type
with P and T ports open

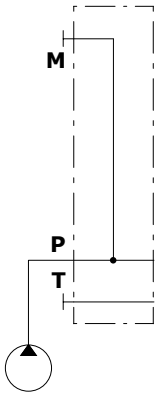


Wrenches and tightening torque
X = allen wrench 6 - 24 Nm *(17.7 lbft)*

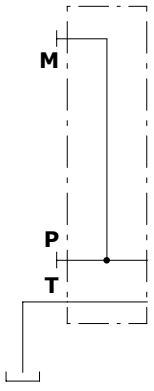
AN-ANB type
P and T ports open



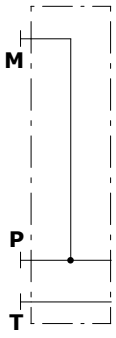
ANP-ANPB type
P port open and T port plugged



ANT-ANTB type
P port plugged and T port open



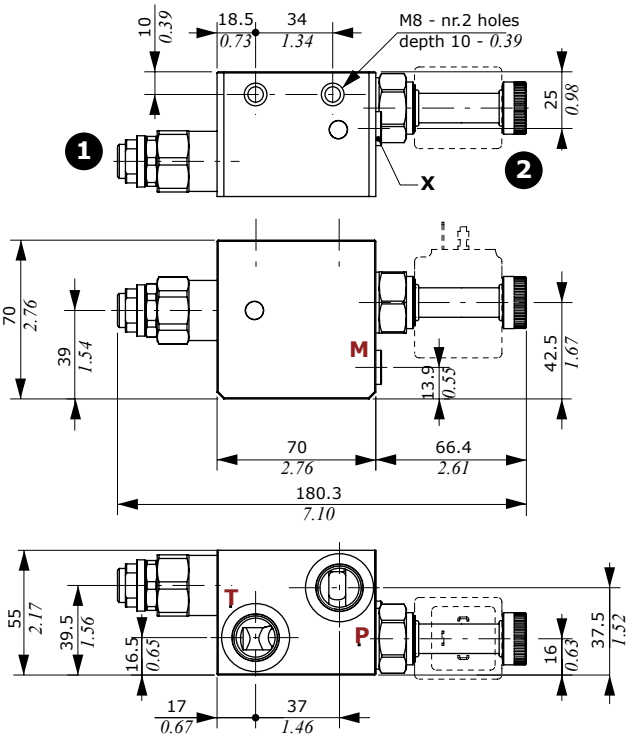
ANS-ANSB type
P and T ports plugged



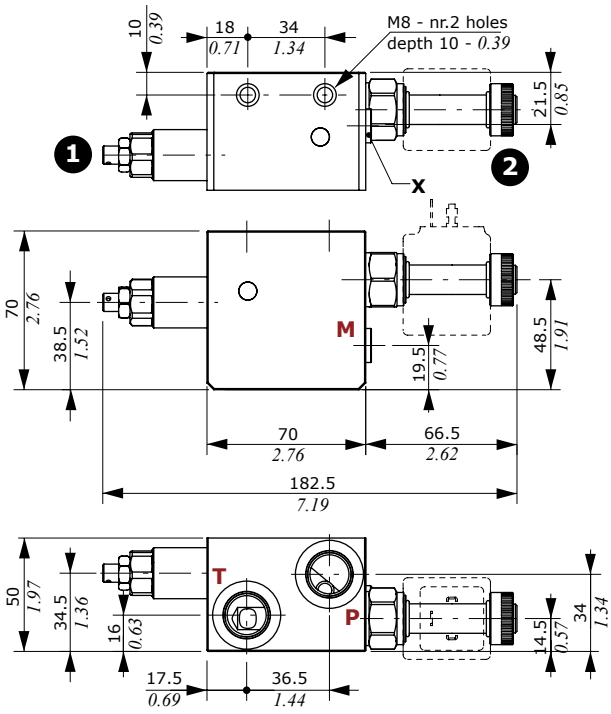
Inlet section: dimension and hydraulic circuit

AN1-AN1B inlet sections

AN1 type with P and T ports open



AN1B type with P and T ports open



Legenda

1: Pressure relief valve

2: Solenoid operated unloading valve

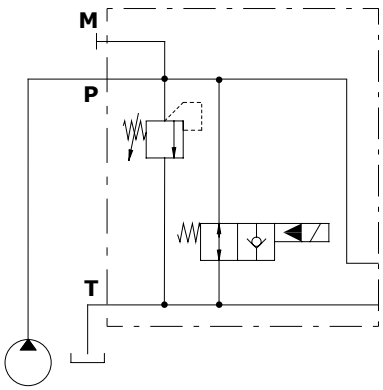
Wrenches and tightening torque

X = allen wrench 5 - 9.8 Nm *(7.2 lbf)*

NOTE: for valve wrench and torque see pages 39 and 41.

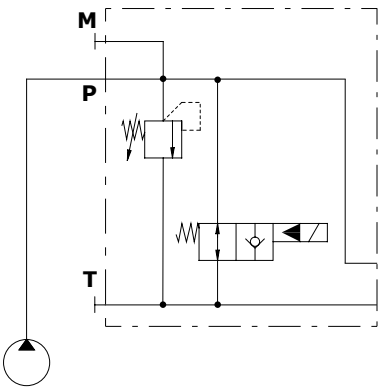
AN1-AN1B types

P and T ports open



AN1P-AN1PB types

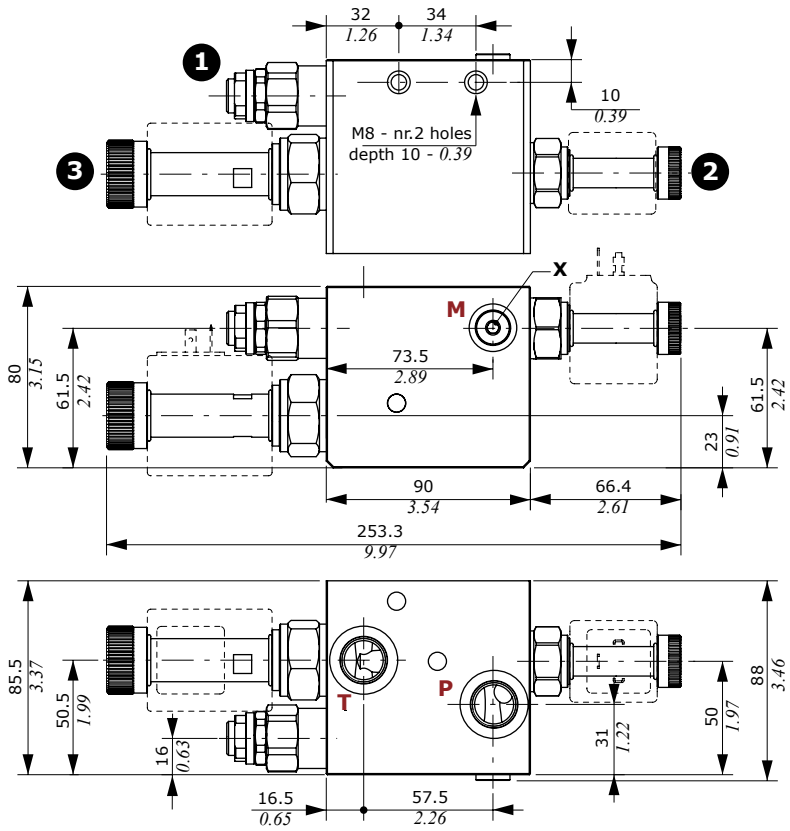
P port open and T port plugged



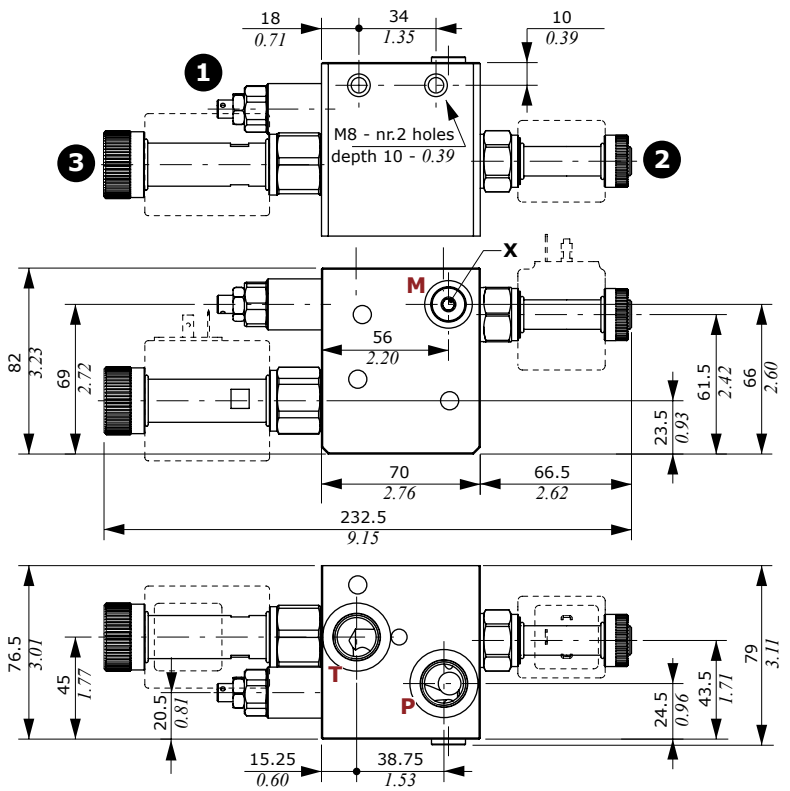
Inlet section: dimension and hydraulic circuit

AN2-AN2B inlet sections

AN2 type with P and T ports open



AN2B type with P and T ports open



Legenda

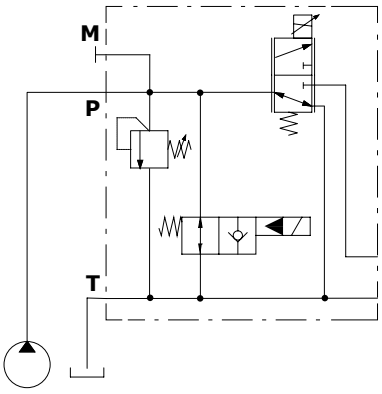
1: Pressure relief valve
2: Solenoid operated unloading valve
3: Pressure compensated flow control valve

Wrenches and tightening torque

X = allen wrench 5 - 9.8 Nm *(7.2 lbf)*
NOTE: for valve wrench and torque see pages from 39 to 45.

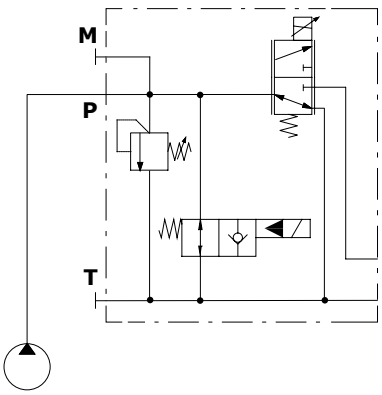
AN2-AN2B types

P and T ports open



AN2P-AN2PB types

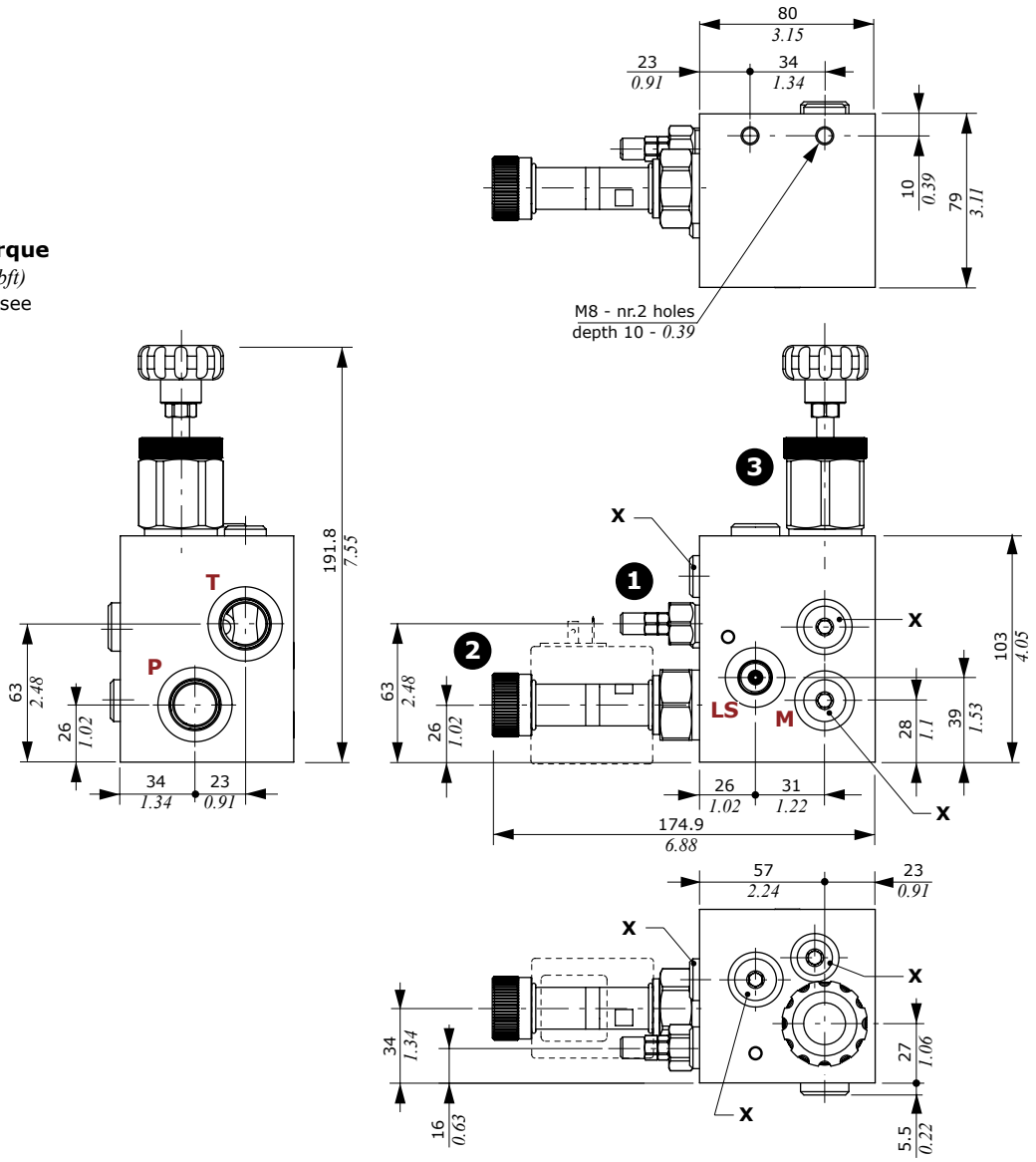
P port open and T port plugged



Inlet section: dimension and hydraulic circuit

AN6-AN7-AN11 inlet sections

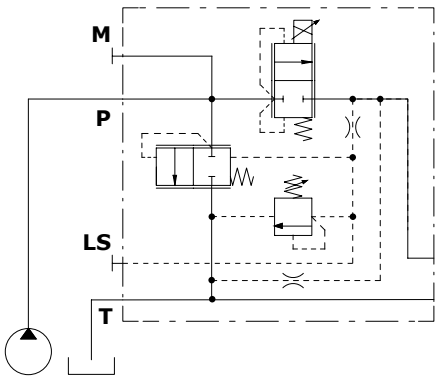
AN7 type; configuration for Open and Closed Center



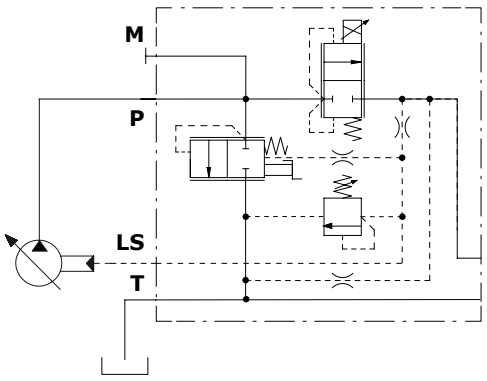
Legenda
1: Pressure relief valve
2: Flow control valve
3: Excludable compensator

Wrenches and tightening torque
X = allen wrench 6 - 24 Nm *(17.7 lbft)*
NOTE: for valve wrench and torque see pages 40 and 44.

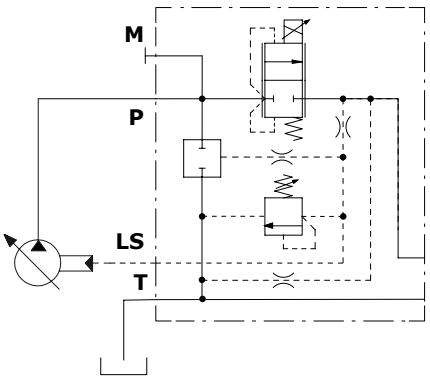
AN6 type
for Open Center circuit



AN7 type
for Closed and Open Center circuits



AN11 type
for Closed Center circuit



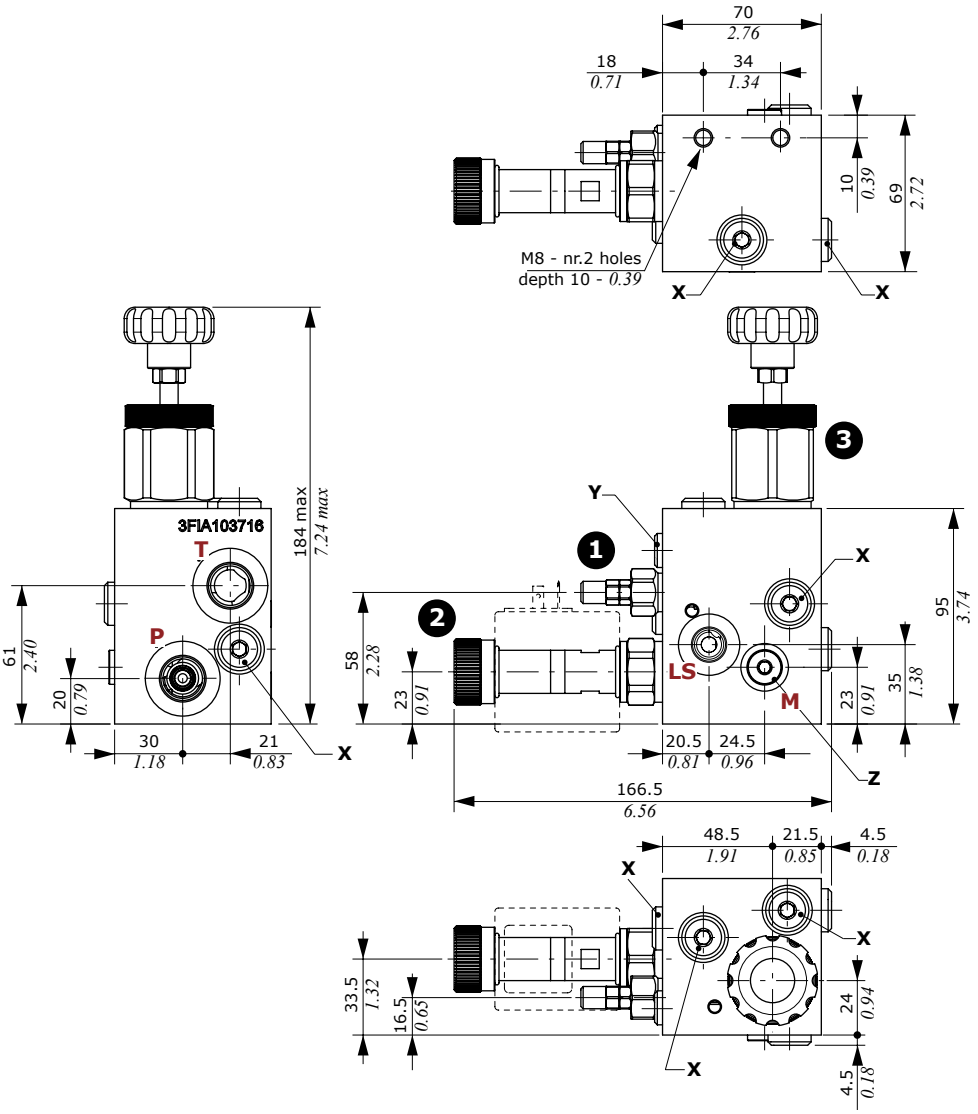
Inlet section: dimension and hydraulic circuit

AN6B-AN7B-AN11B inlet sections

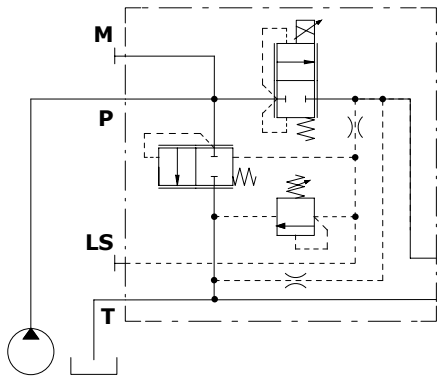
AN7B type; configuration for Open and Closed Center

Legenda
1: Pressure relief valve
2: Flow control valve
3: Excludable compensator

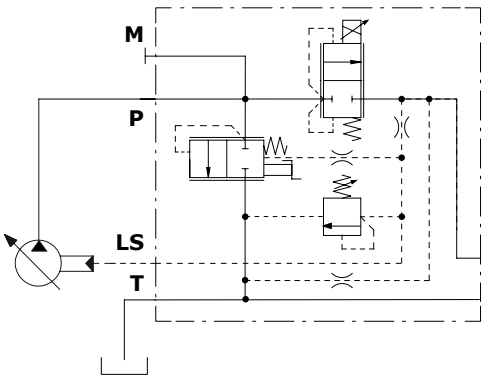
Wrenches and tightening torque
X = allen wrench 6 - 24 Nm *(17.7 lbft)*
Y = allen wrench 4 - 9.8 Nm *(7.2 lbf)*
Z = allen wrench 5 - 9.8 Nm *(7.2 lbf)*
NOTE: for valve wrench and torque see pages 40 and 45.



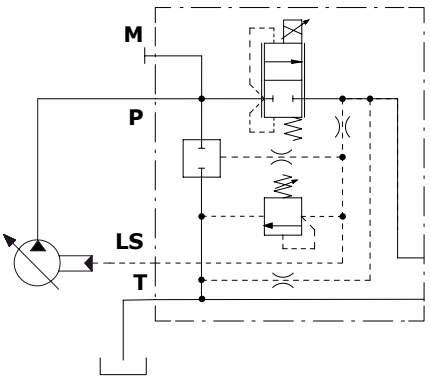
AN6B type
for Open Center circuit



AN7B type
for Closed and Open Center circuits



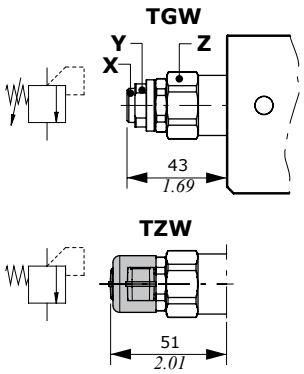
AN11B type
for Closed Center circuit



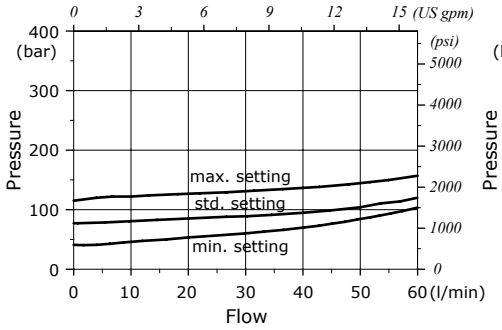
Main relief valve

For sections AN1 and AN2 type

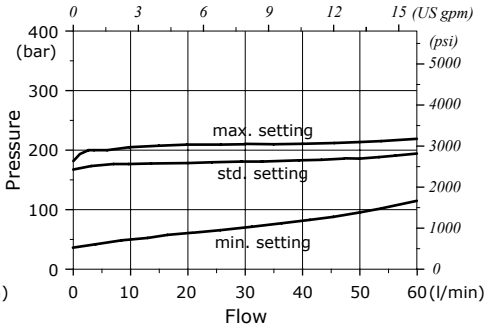
Setting types



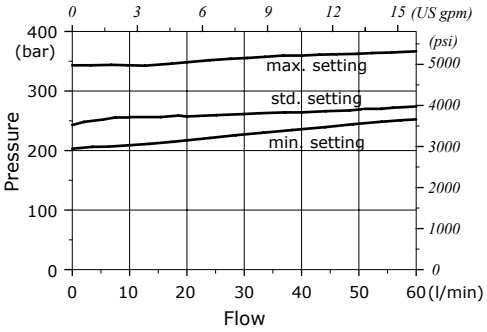
Setting range: TGW2 type



Setting range: TGW3 type



Setting range: TGW4 type

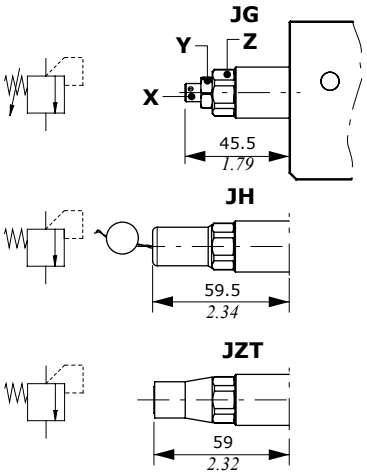


Legenda
TGW: screw setting type
TZW: with anti-tampering cap
(cap code 4COP126300, nr. 2 pcs)

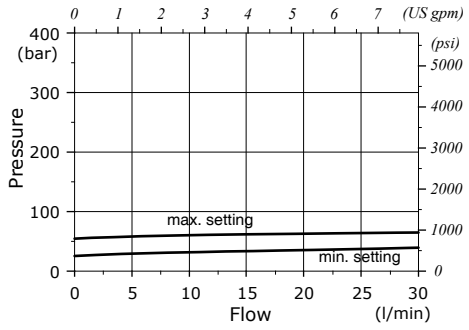
Wrenches and tightening torque
X = allen wrench 5
Y = wrench 19 - 20 Nm *(14.8 lbft)*
Z = wrench 27 - 50 Nm *(37 lbft)*

For sections AN1B and AN2B type

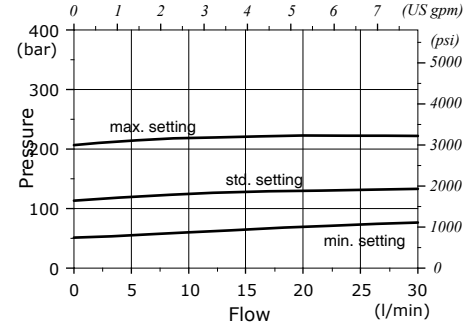
Setting types



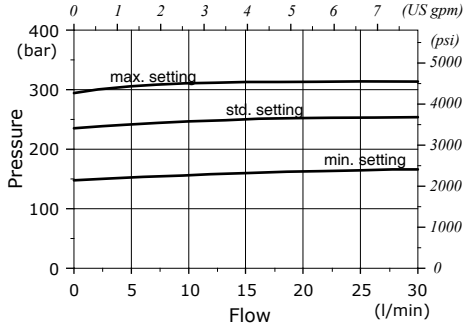
Setting range: JNG2 type



Setting range: JNG3 type



Setting range: JNG4 type



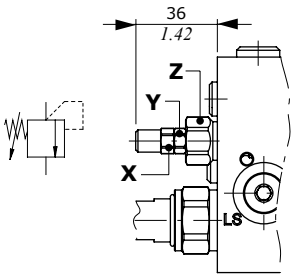
Legenda
JG: screw setting type
JH: valve set and locked
(cap code 3COP117260)
JZT: valve set and locked
(cap code 4COP120420)

Wrenches and tightening torque
X = allen wrench 4
Y = wrench 13 - 24 Nm *(17.7 lbft)*
Z = wrench 19 - 24 Nm *(17.7 lbft)*

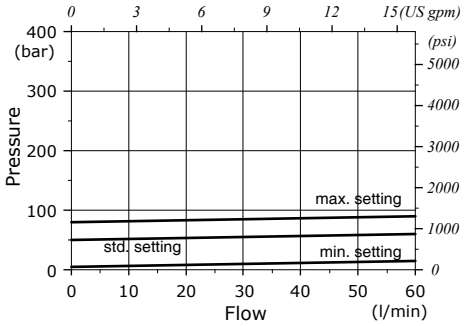
Inlet section: options

Main relief valve

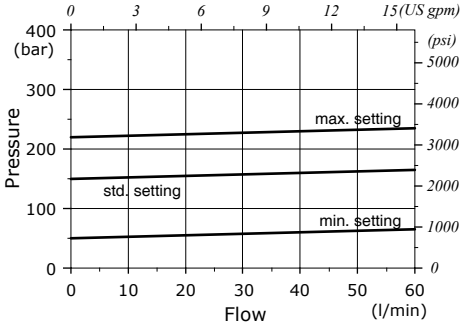
For sections AN6 - AN7 - AN11 - AN6B - AN7B and AN11B type



Setting range: VMP02TV type



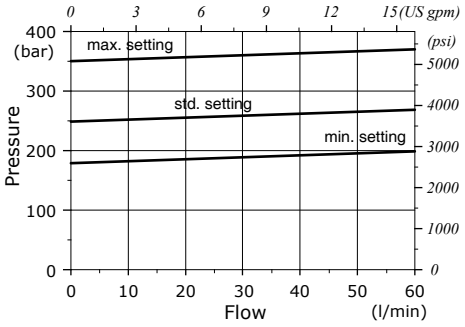
Setting range: VMP02TS type



Wrenches and tightening torque

X = wrench 10
Y = wrench 10 - 6.6 Nm *(4.9 lbft)*
Z = wrench 19 - 24 Nm *(17.7 lbft)*

Setting range: VMP02TR type

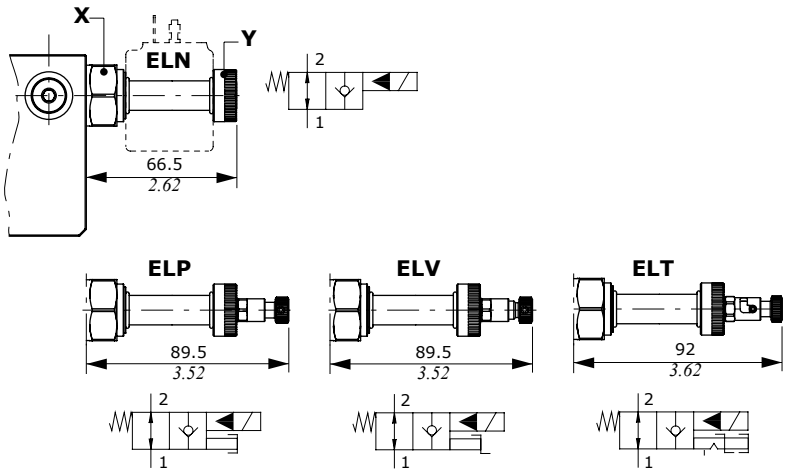


Inlet section: options

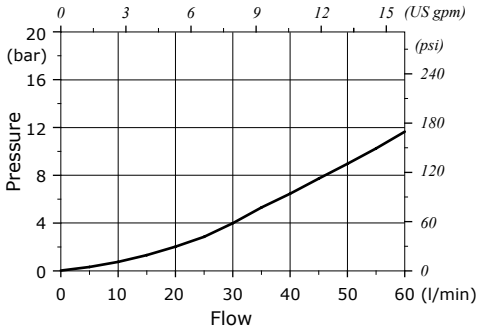
Unloading valve

For sections AN1 and AN2 type

Emergency actuation types



Pressure drop diagram



Legenda

ELN: without amergency actuation
ELP: push-button type emergency actuation
ELV: screw type emergency actuation
ELT: "push&twist" type emergency actuation

Wrenches and tightening torque

X = wrench 27 - 50 Nm *(37 lbft)*
Y = 5 Nm *(3.7 lbft)*

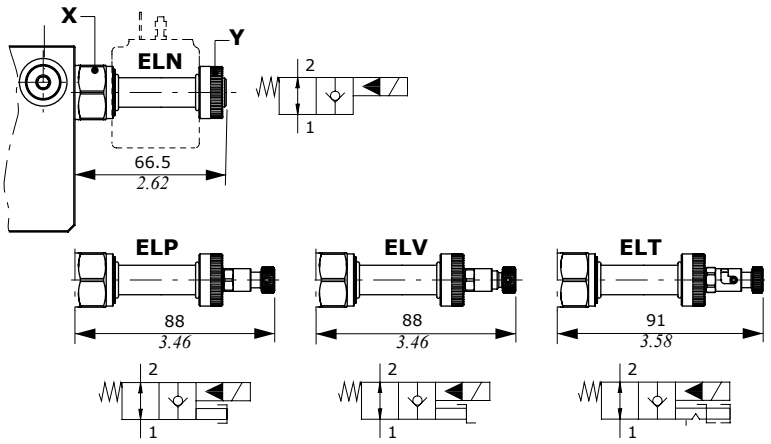
Valve features

Max. flow . . . . . : 60 l/min *(15.8 US gpm)*
Max. pressure. . . . . : 380 bar *(5500 psi)*
Internal leakage . . . . . : 0.25 cm³/min @ 210 bar
(0.015 in³/min @ 3050 psi)

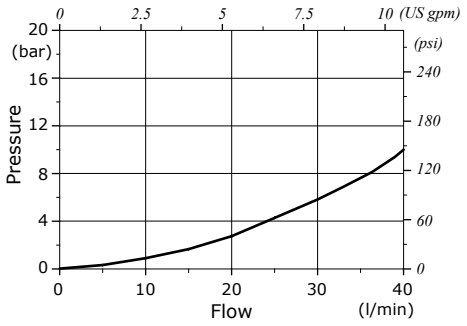
For coil features and options see **BER** coil on pages 58 and 59

For sections AN1B and AN2B type

Emergency actuation types



Pressure drop diagram



Legenda

ELN: without amergency actuation
ELP: push-button type emergency actuation
ELV: screw type emergency actuation
ELT: "push&twist" type emergency actuation

Wrenches and tightening torque

X = wrench 24 - 30 Nm *(22 lbft)*
Y = 5 Nm *(3.7 lbft)*

Valve 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)

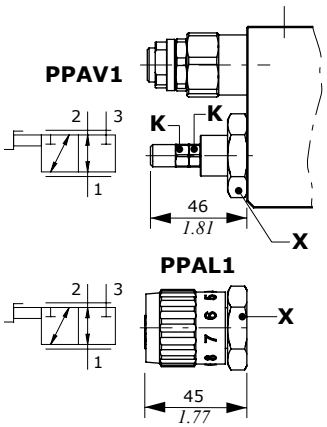
For coil features and options see **BER** coil on pages 58 and 59

Inlet section: options

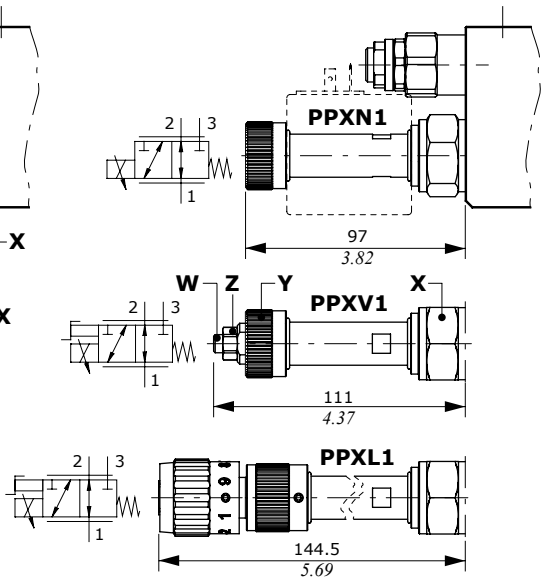
Pressure compensated flow control valve

For section AN2 type

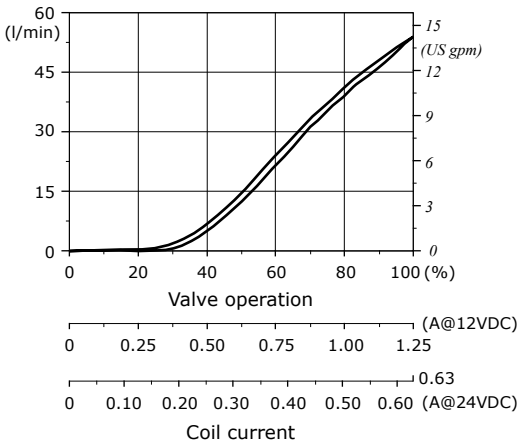
Manual operated



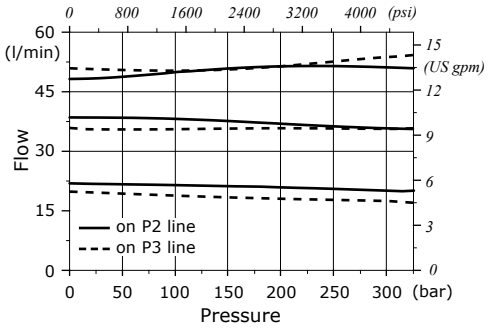
Solenoid operated



Flow regulation diagram



Flow vs. Pressure diagram



Legenda

PPAV1: screw setting type
PPAL1: hand-wheel setting type
PPXN1: without emergency actuation
PPXV1: screw type emergency actuation
PPXL1: hand-wheel emergency actuation

Wrenches and tightening torque

K = wrench 10 - 6.6 Nm *(4.9 lbft)*
X = wrench 32 - 80 Nm *(59 lbft)*
Y = 5 Nm *(3.7 lbft)*
W = allen wrench 4
Z = wrench 8 - 15 Nm *(11 lbft)*

Valve features

Max. inlet flow . . . . . : 90 l/min *(23.8 US gpm)*
Max. regulated flow. . . . . : 50 l/min *(13.2 US gpm)* - PPA types
60 l/min *(16 US gpm)* - PPX types
Inlet flow (PPX types) . . . . . : regulated flow +15%
Max. pressure. . . . . : 350 bar *(5100 psi)* - PPA types
315 bar *(4600 psi)* - PPX types
Internal leakage (PPX types) . . : 250 cm^3/min a 210 bar
(15.3 in^3/min @ 3050 psi)

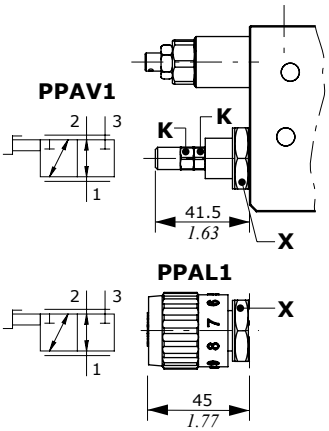
For coil features and options see **BQP19** or **BH** coils on pages 58 and 59.

Inlet section: options

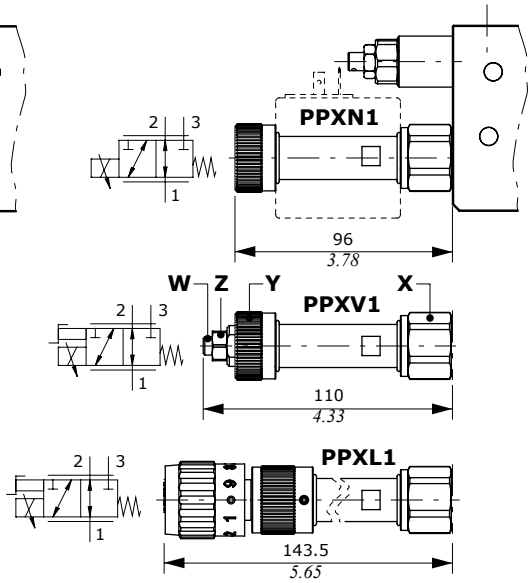
Pressure compensated flow control valve

For section AN2B type

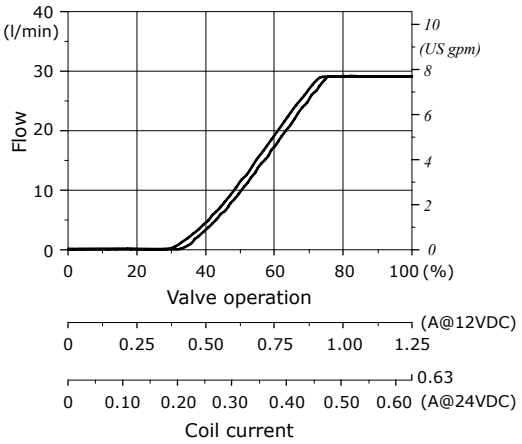
Manual operated



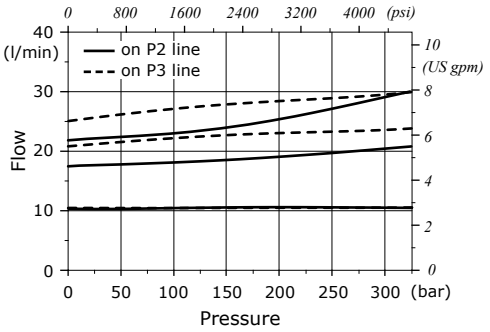
Solenoid operated



Flow regulation diagram



Flow vs. Pressure diagram



Legenda

PPAV1: screw setting type
PPAL1: hand-wheel setting type
PPXN1: without emergency actuation
PPXV1: screw type emergency actuation
PPXL1: hand-wheel emergency actuation

Wrenches and tightening torque

K = wrench 10 - 6.6 Nm *(4.9 lbft)*
X = wrench 27 - 50 Nm *(37 lbft)*
Y = 5 Nm *(3.7 lbft)*
W = allen wrench 4
Z = wrench 8 - 15 Nm *(11 lbft)*

Valve features

Max. inlet flow . . . . . : 50 l/min *(13.2 US gpm)*
Max. regulated flow. . . . . : 30 l/min *(7.9 US gpm)*
Inlet flow (PPX types) . . . . . : regulated flow +5%
Max. pressure. . . . . : 350 bar *(5100 psi)* - PPA types
315 bar *(4600 psi)* - PPX types
Internal leakage (PPX types) . . : 150 cm^3/min @ 210 bar
(9.1 in^3/min @ 3050 psi)

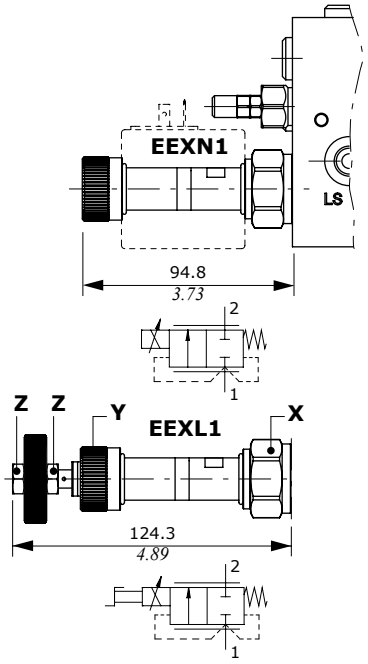
For coil features and options see **BQP19** or **BH** coils on pages 58 and 59.

Inlet section: options

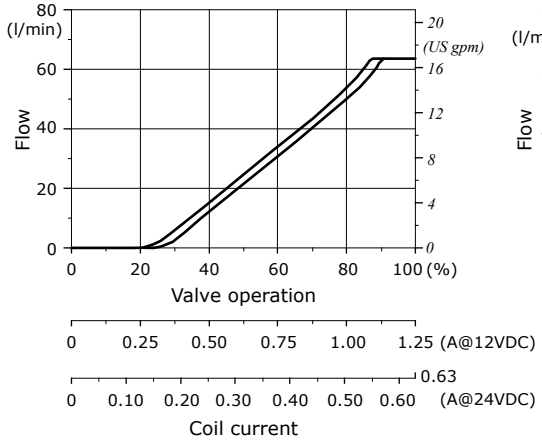
Pressure compensated flow control valve

For sections AN6-AN7-AN11 type

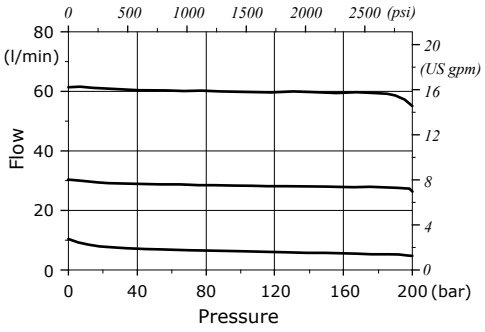
Curves are measured using the standard compensator mounted on section, with 7 bar *(100 psi)* stand-by.



Flow regulation diagram



Flow vs. Pressure diagram



Legenda

EEXN1: without emergency actuation
EEXL1: hand-wheel emergency actuation

Wrenches and tightening torque

K = wrench 10 - 6.6 Nm *(4.9 lbft)*
X = wrench 32 - 80 Nm *(59 lbft)*
Y = 5 Nm *(3.7 lbft)*
Z = wrench 13 - 9.8 Nm *(7.2 lbft)*

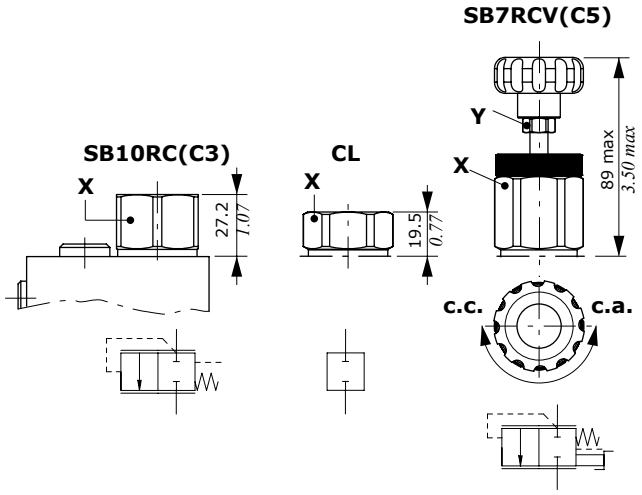
Valve features

Max. flow . . . . . : 60 l/min *(15.8 US gpm)*
Max. pressure. . . . . : 315 bar *(4560 psi)*
Internal leakages . . . . . : 200 cm³/min @ 150 bar
(12.2 in³/min @ 2175 psi)

For coil features and options see **BQP19** or **BH** coils on pages 58 and 59.

Compensator kit

For sections AN6-AN7-AN11 type



Legenda

SB7RC(C5): compensator with 7 bar *(100 psi)* stand-by, for Open Center circuit
CL: compensator blanking plug, for Closed Center circuit (for AN11 type)
SB7RCV(C5): compensator with 7 bar *(100 psi)* stand-by, hand-wheel actuation for Open Center to Closed Center circuit switching

Wrenches and tightening torque

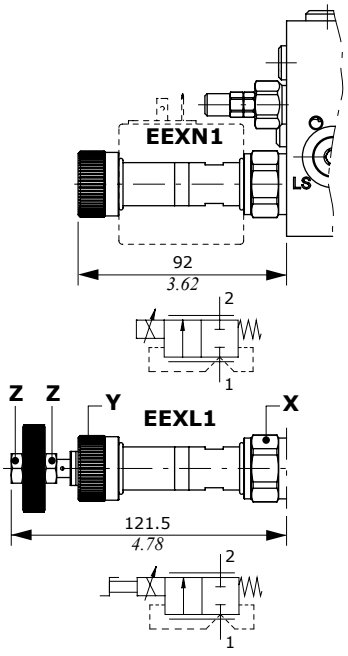
X = wrench 36 - 42 Nm *(31 lbft)*
Y = wrench 13 - 6.6 Nm *(4.9 lbft)*

Inlet section: options

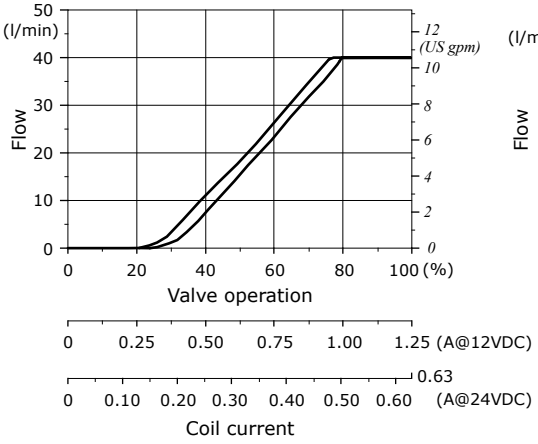
Pressure compensated flow control valve

For sections AN6B-AN7B-AN11B type

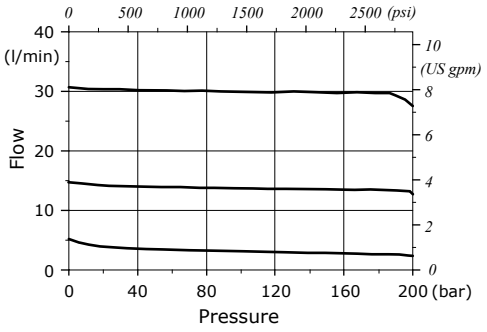
Curves are measured using the standard compensator mounted on section, with 10 bar *(145 psi)* stand-by.



Flow regulation diagram



Flow vs. Pressure diagram



Legenda

EEXN1: without emergency actuation
EEXL1: hand-wheel emergency actuation

Wrenches and tightening torque

K = wrench 10 - 6.6 Nm *(4.9 lbft)*
X = wrench 27 - 50 Nm *(37 lbft)*
Y = 5 Nm *(3.7 lbft)*
Z = wrench 13 - 9.8 Nm *(7.2 lbft)*

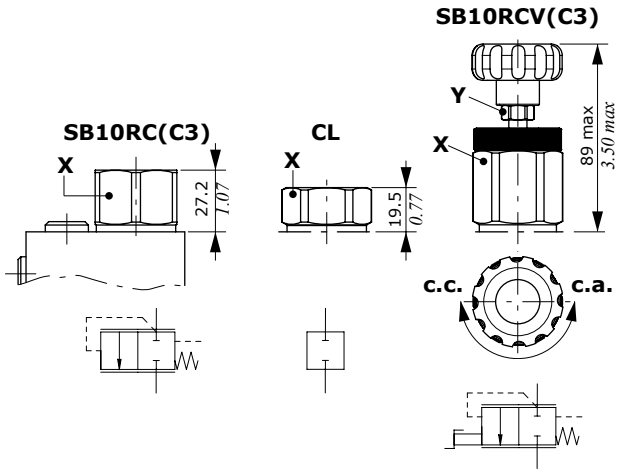
Valve features

Max. flow . . . . . : 40 l/min *(10.6 US gpm)*
Max. pressure. . . . . : 300 bar *(5500 psi)*
Internal leakages . . . . . : 150 cm³/min @ 150 bar
(9.1 in³/min @ 2175 psi)

For coil features and options see **BQP19** or **BH** coils on pages 58 and 59.

Compensator kit

For sections AN6B-AN7B-AN11B type



Legenda

SB10RC(C3): compensator with 10 bar *(145 psi)* stand-by, for Open Center circuit
CL: compensator blanking plug, for Closed Center circuit (for AN11B type)
SB10RCV(C3): compensator with 10 bar *(145 psi)* stand-by, hand-wheel actuation for Open Center to Closed Center circuit switching

Wrenches and tightening torque

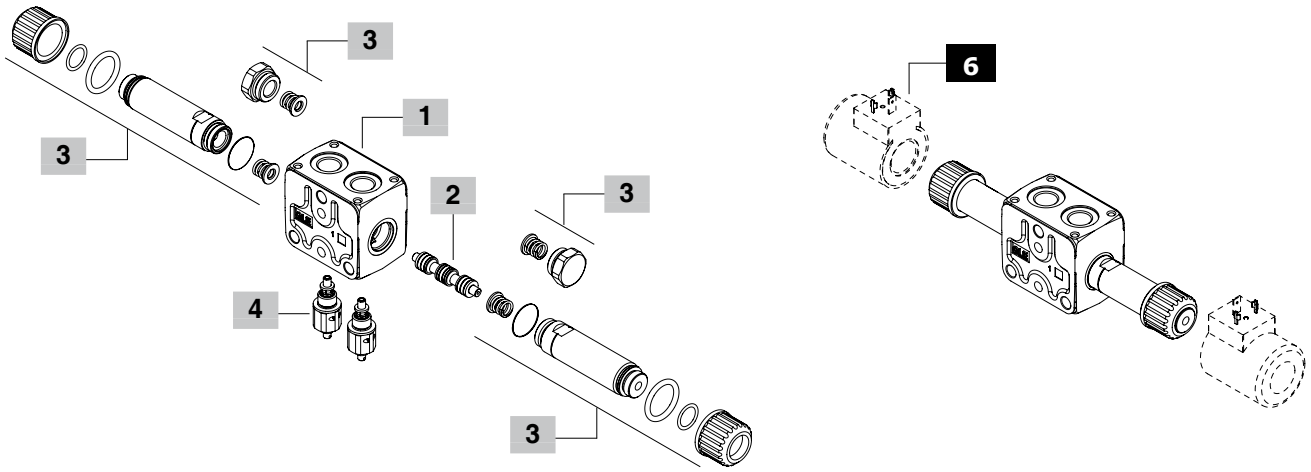
X = wrench 36 - 42 Nm *(31 lbft)*
Y = wrench 13 - 6.6 Nm *(4.9 lbft)*

Working section: part ordering codes

Valve setting (bar)

SDE060 / P - 1 8ES3 . P3(G3-100) - WC - .....

1 2 3 4 without coil 5



1 Working section body kit * page 47

Section bodies are cast iron made

TYPE	CODE	DESCRIPTION
Sections with standard threads: SAE6		
Q-SAE	5EL1037000	Parallel type, with arrangement for upper flangeable valve block
QS-SAE	5EL2037000	As type Q, for series circuit: **need spool type 1S#. Only for section up to 60 l/min** *(15.8 US gpm)*
Q(8)-SAE	5EL1037510	As type Q, for regenerative circuit on port A: **need spool type 8**
P-SAE	5EL1037010	As type Q, with arrangement for secondary relief valve
Sections with increased threads: SAE8		
NF-SAE8	5EL1038010	Parallel type, without arrangement for upper flangeable valve block
QSNF-SAE8	5EL1038011	As type Q, for series circuit: **needs spool type 1S#. Only for SDE060 valve**
QNF(8)-SAE8	5EL1038500	As type Q, for regenerative circuit on port A: **needs spool type 8**
PNF-SAE8	5EL1038000	As type Q, with arrangement for secondary port valves

3 On/off solenoid control page 50

TYPE	CODE	DESCRIPTION
For section up to 60 l/min *(15.8 US gpm)*		
8ES1	5CAN08E110C	Single acting on port A
8ES2	5CAN08E110C	Single acting on port B
8ES3	5CAN08E111C	Double acting
8ES3LHD	5CAN08E311	Double acting with emergency lever operation: **needs dedicated spools**
8ES3SE	5CAN08E116C	Double acting: **for spool type 1S#**
For section up to 30 l/min *(7.9 US gpm)*		
8ES1B	5CAN08E114C	Single acting on port A
8ES2B	5CAN08E114C	Single acting on port B
8ES3B	5CAN08E115C	Double acting
8ES3BLHD	5CAN08E315	Double acting with emergency lever operation: **needs dedicated spools**

2 Spool page 49

TYPE	CODE	DESCRIPTION
For ON/OFF solenoid control		
1	3CU9010102	Double acting, A and B closed in neutral pos.
1A	3CU9010103	Double acting, A to tank in neutral pos. For connect B to tank (type **1B**) is necessary to turn the spool
2	3CU9025100	Double acting, A and B to tank in neutral pos.
2H	3CU9025225	Double acting, A and B partially to tank in neutral position
1S	3CU9010101	Double acting, for series circuit: **needs control type 8ES3SE and section type QS-QSNF#**
8	3CU9080100	Double acting, for regenerative circuit, for 30 l/min *(7.9 US gpm)*: **needs section type Q8**
For ON/OFF solenoid control with manual lever operation		
1LHD	3CU9010300	As type 1
1ALHD	3CU9010303	As type 1A
2LHD	3CU9020300	As type 2
2HLHD	3CU9020310	As type 2H

4 Port relief valves page 48

Standard setting is referred to 10 l/min *(2.6 US gpm)* flow.

TYPE	CODE	DESCRIPTION
P(G3-100)	5KIT060000	From 50 to 200 bar *(725 to 2900 psi)*, standard setting 100 bar *(1450 psi)*
P(G4-200)	5KIT060001	From 200 to 315 bar *(2900 to 4600 psi)*, standard setting 200 bar *(2900 psi)*
P3T	5KIT060100	A and B ports valve blanking plugs

5 Section threading

Specify threading always when it is different from BSP standard (see page 4).

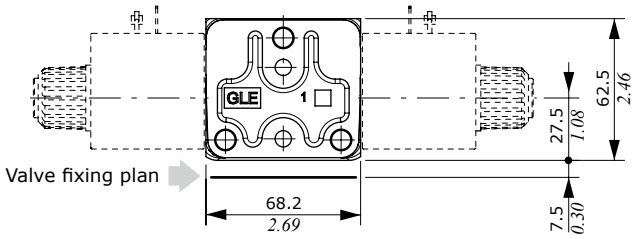
6 Optional coils page 58

For list of available coils see pages of related sections

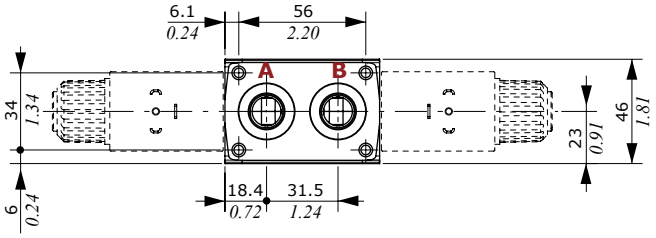
NOTES (**#**) – *For Series circuit configuration rules see page 29*.
(*) – *Codes are referred to **UN-UNF** thread*.

Dimensions and hydraulic circuit

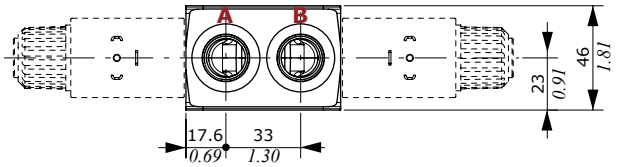
Working section Q type



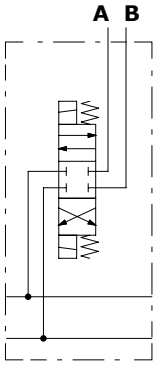
Standard port thread: SAE6
with arrangement for valve blocks



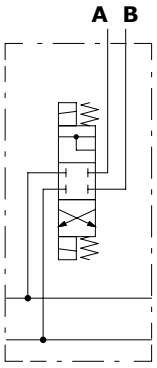
Increased port thread: SAE8
without arrangement for valve blocks (NF type)



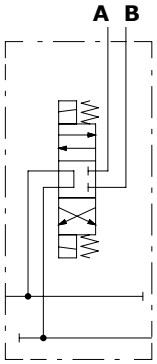
Q type: parallel circuit
(with spool type 1)



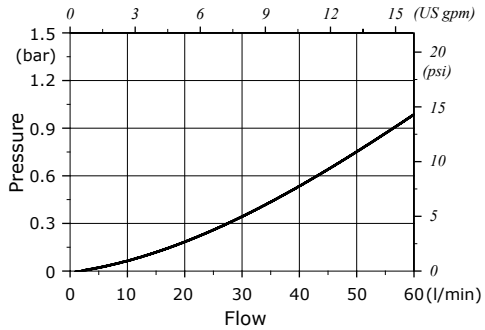
Q8 type: regenerative circuit
(needs spool type 8)



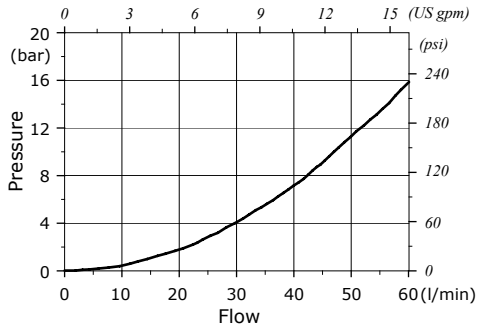
QS type for series circuit
(needs spool type 1S)



Flow through pressure drop
(parallel and regenerative circuits)



Flow through pressure drop
(QS series section with 1S spool)



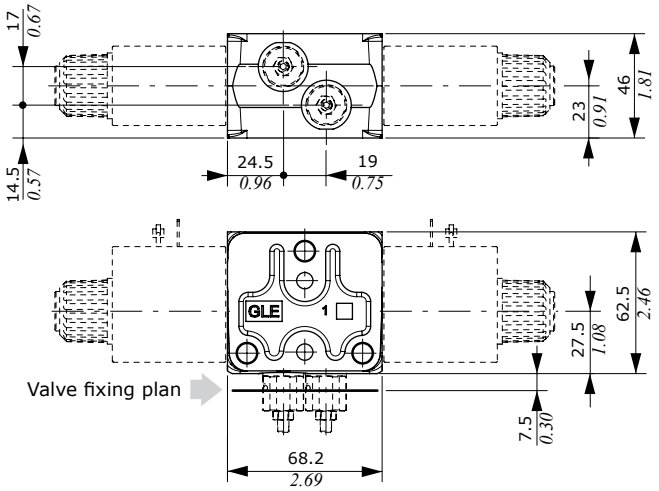
Working section

Dimension and hydraulic circuit

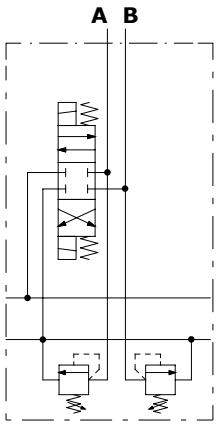
Working section Q type

With arrangement for secondary port valves.

P type section is available also with increased port threads (G1/2): see Q type section for dimensional data.

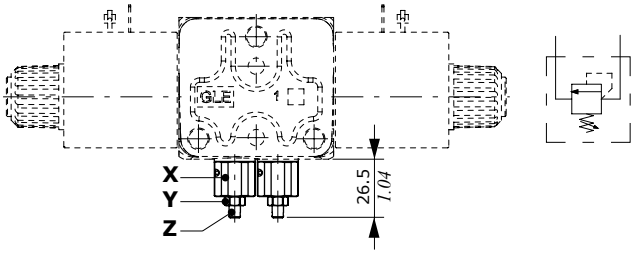


P type: parallel circuit
(with spool type 1)

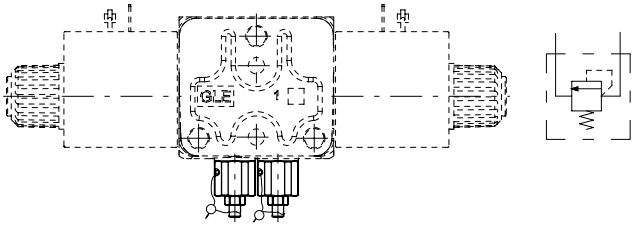


Port relief valves

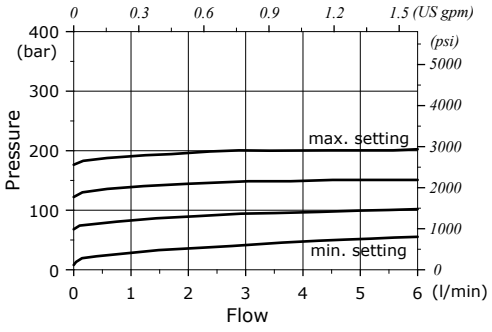
G type



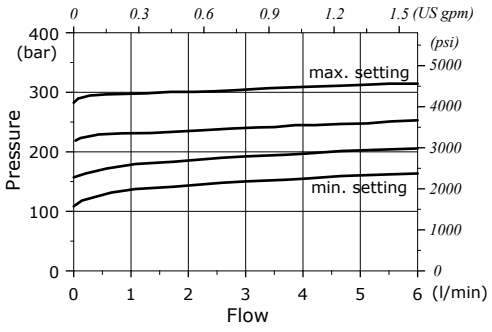
H type



Setting range: G3 type



Setting range: G4 type



Legenda

G: screw setting type

H: valve set and locked

Wrenches and tightening torque

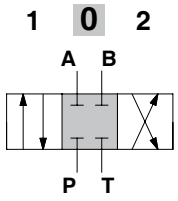
X = wrench 17 - 24 Nm *(17.7 lbft)*

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

Z = allen wrench 2.5

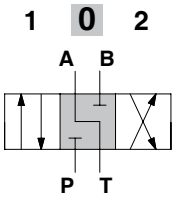
Spools

Types 1-1LHD
Double acting, A and B closed in neutral position



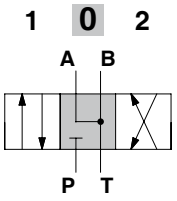
Stroke
position 1: + 3 mm *(+ 0.12 in)*
position 2: - 3 mm *(- 0.12 in)*

Types 1A-1ALHD
Double acting, A to tank in neutral position



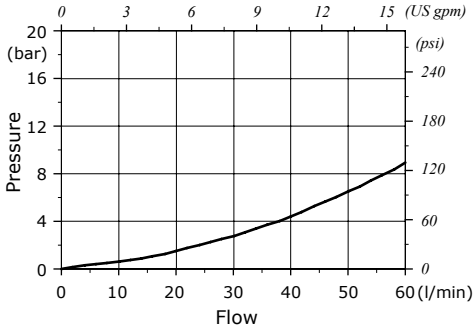
Stroke
position 1: + 3 mm *(+ 0.12 in)*
position 2: - 3 mm *(- 0.12 in)*

Types 2-2LHD
Double acting, A and B to tank in neutral position

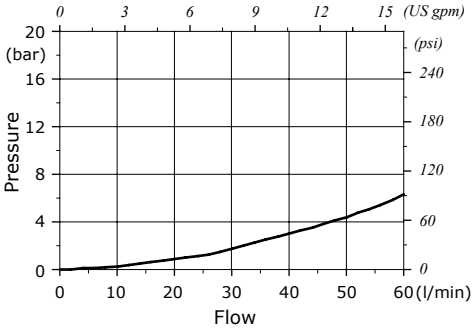


Stroke
position 1: + 3 mm *(+ 0.12 in)*
position 2: - 3 mm *(- 0.12 in)*

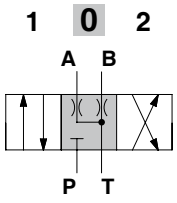
P⇒port - port⇒T pressure drops
(curves are matched)



P⇒port - port⇒T pressure drops
(curves are matched)

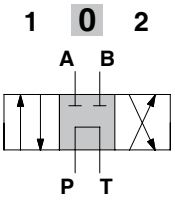


Types 2H-2HLHD
Double acting, A and B partially to tank in neutral position



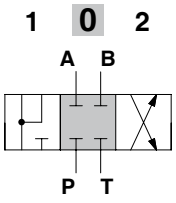
Stroke
position 1: + 3 mm *(+ 0.12 in)*
position 2: - 3 mm *(- 0.12 in)*

Types 1S
Double acting, for series circuit



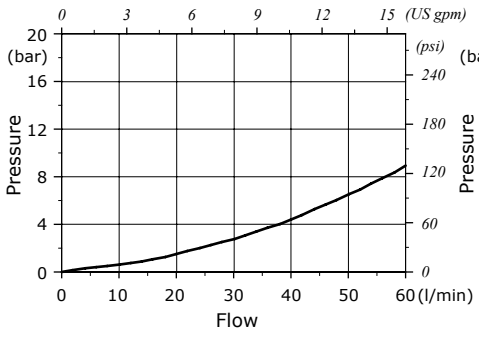
Stroke
position 1: + 3 mm *(+ 0.12 in)*
position 2: - 3 mm *(- 0.12 in)*

Types 8-8LHD
Double acting, for regenerative circuit

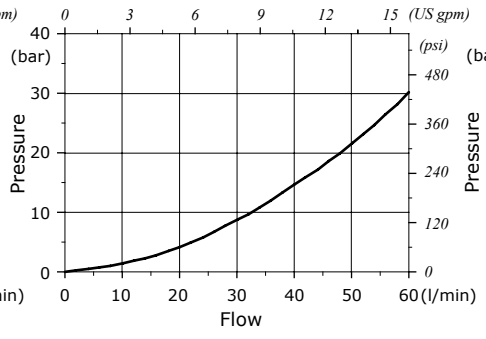


Stroke
position 1: + 3 mm *(+ 0.12 in)*
position 2: - 3 mm *(- 0.12 in)*

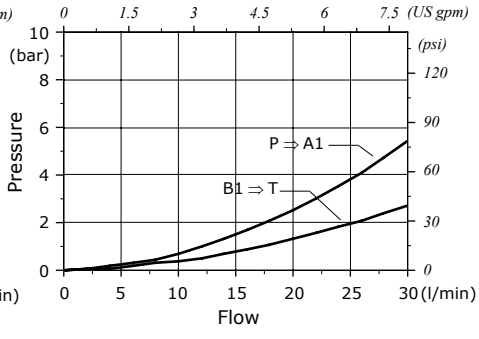
P⇒port - port⇒T pressure drops
(curves are matched)



P⇒port - port⇒T pressure drops
(curves are matched)



P⇒port - port⇒T pressure drops
indicated for 30 l/min *(7.9 US gpm)* max

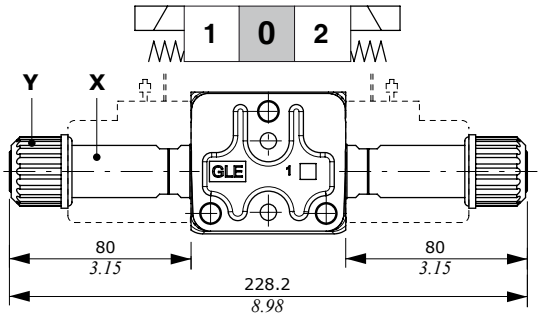


Working section

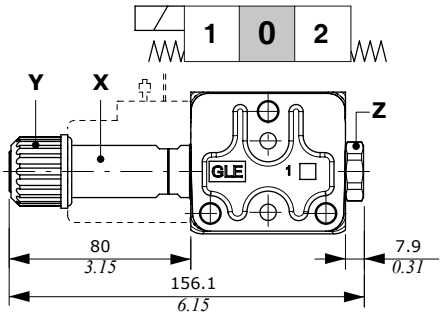
On/off solenoid control: 8ES3 - 8ES1 - 8ES2 - 8ES3SE types

For section configuration up to 60 l/min *(15.8 US gpm)* flow rate.
When the section is configurated with flangeable valve block, the coils on control must be rotated 180°

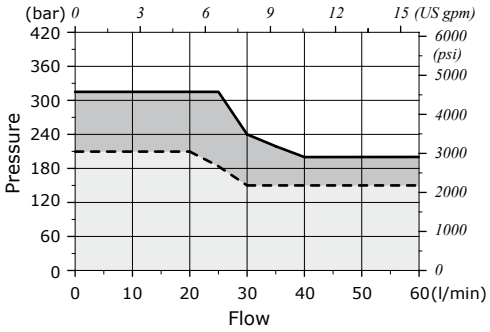
8ES3 - 8ES3SE: double acting control kit



8ES1: single acting on A control kit



Operating condition
(stroke 3 mm - *0.12 in*)

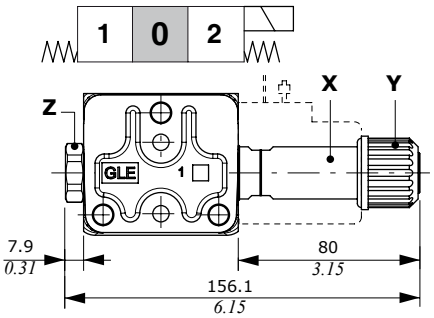


Wrenches and tightening torque
X = wrench 20 - 24 Nm *(17.7 lbft)*
Y = 15 Nm *(11 lbft)*
Z = wrench 24 - 24 Nm *(17.7 lbft)*

For coil options and features see **D15C** coil on pages 58 and 60.

—— SDE060 with 8ES3 control kit; parallel circuit
- - - SDE060 with 8ES3SE control kit; series circuit

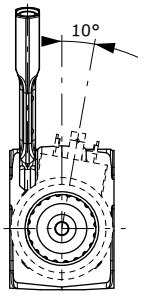
8ES2: single acting on B control kit

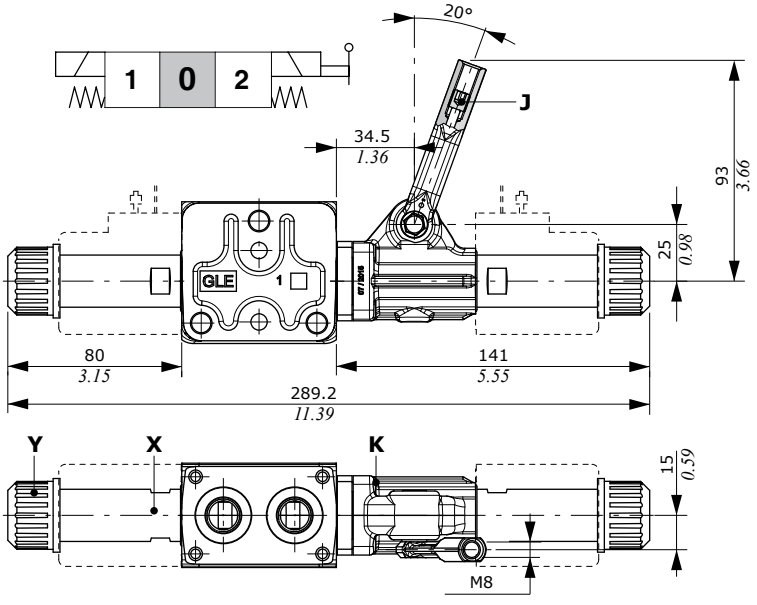


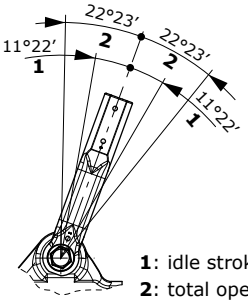
On/off solenoid control with lever: type 8ES3LHD

For section configuration up to 60 l/min *(15.8 US gpm)* flow rate; this control is not suitable for series circuit.
To properly operation the coil on lever side must be rotated 10° (figure A).
When the section is configurated with flangeable valve block, the control (with coil) must be rotated 180°.
The control needs dedicated spools: see page 44 for list.
IMPORTANT: lever to be used only for emergency operation, not for continuative use.

figure A







1: idle stroke angles
2: total operation angles

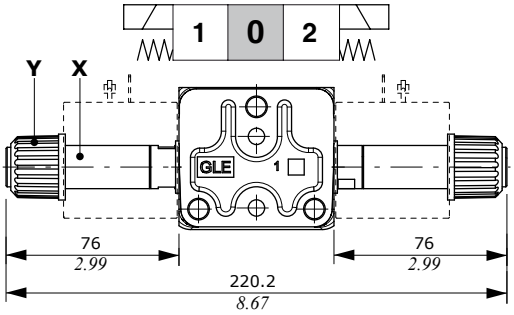
Wrenches and tightening torque
J = wrench 4 - 9.8 Nm *(7.2 lbft)*
K = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = wrench 20 - 24 Nm *(17.7 lbft)*
Y = 15 Nm *(11 lbft)*

Control features
Max. back pressure on T .: 30 bar *(435 psi)*
For coil options and features see **D15C** coil on pages 58 and 60.

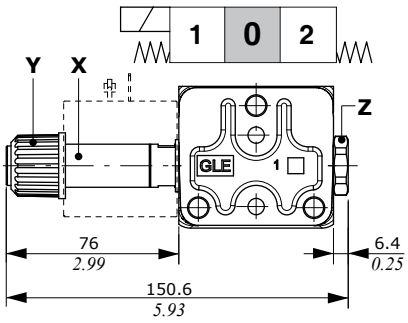
On/off solenoid control: 8ES3B - 8ES1B - 8ES2B types

For section configuration up to 30 l/min *(7.9 US gpm)* flow rate; control is not suitable for series circuit
When the section is configurated with flangeable valve block, the coils on control must be rotated 180°

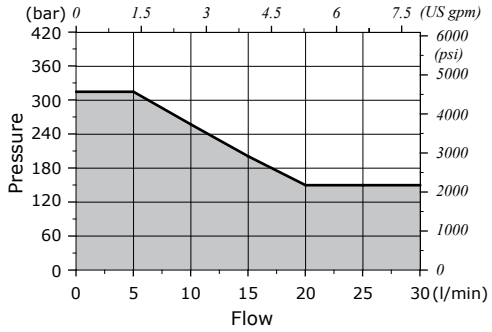
8ES3B: double acting control kit



8ES1B: single acting on A control kit



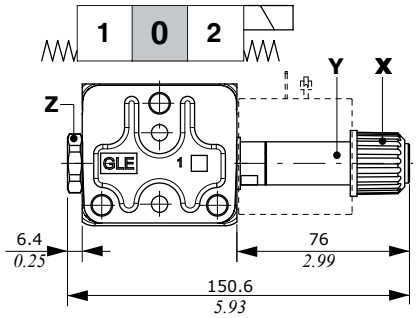
Operating condition
(stroke 3 mm - *0.12 in*)



Wrenches and tightening torque
X = wrench 17 - 24 Nm *(17.7 lbft)*
Y = 6.6 Nm *(4.9 lbft)*
Z = wrench 24 - 24 Nm *(17.7 lbft)*

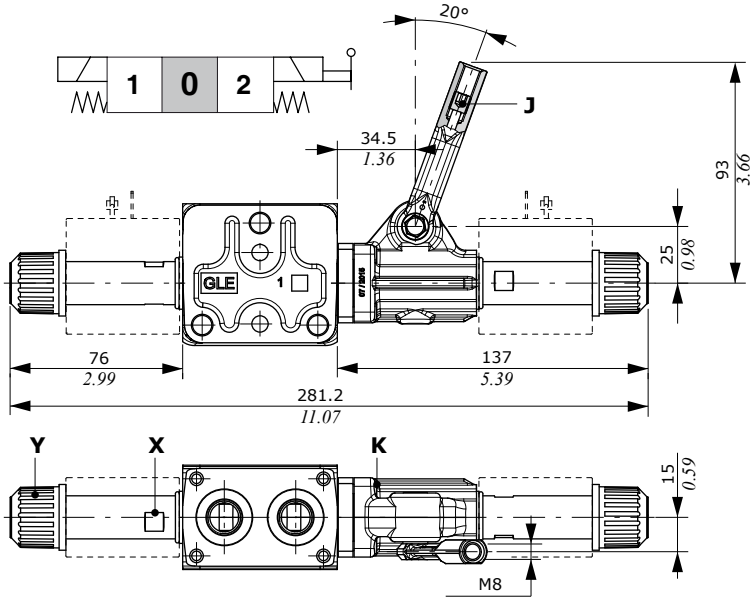
For coil options and features see **D12C** coil on pages 58 and 60.

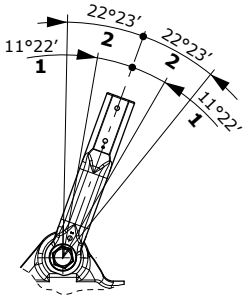
8ES2B: single acting on B control kit



On/off solenoid control with lever: 8ES3BLHD type

For section configuration up to 30 l/min *(7.9 US gpm)* flow rate; this control is not suitable for series circuit
When the section is configurated with flangeable valve block, the control (with coil) must be rotated 180°.
The control needs dedicated spools: see page 44 for list.
IMPORTANT: lever to be used only for emergency operation, not for continuative use.





1: idle stroke angles
2: total operation angles

Wrenches and tightening torque
J = wrench 4 - 9.8 Nm *(7.2 lbft)*
K = allen wrench 4 - 6.6 Nm *(4.9 lbft)*
X = wrench 17 - 24 Nm *(17.7 lbft)*
Y = 6.6 Nm *(4.9 lbft)*

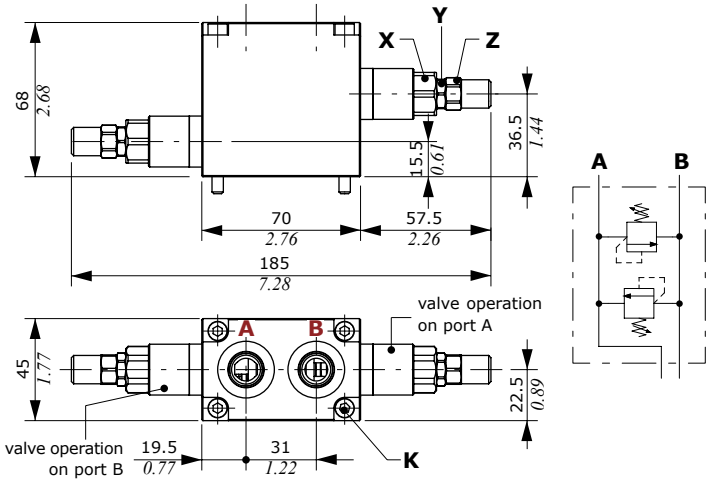
Control features
Max. back pressure on T .: 30 bar *(435 psi)*
For coil options and features see **D12C** coil on pages 58 and 60.

Flangeable valve blocks

Antishock valves with cross operation

8ES on/off solenoid controls (with or without lever operation) must be rotated 180°.

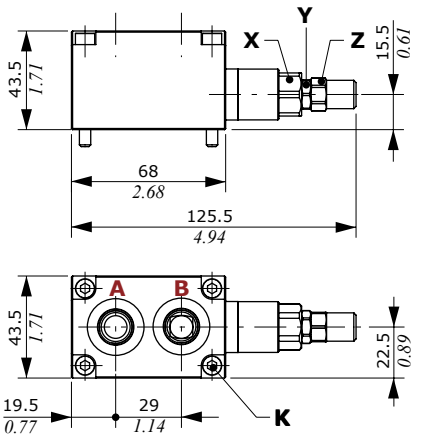
PS3 type: valves on both ports



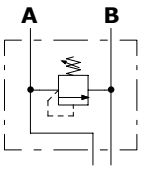
NOTE: for valve block assembly direction refer to ports name

PS1 or PS2 types: valve on single port

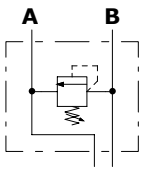
(PS1 type is drawn: PS2 type has the valve mounted on the opposite side and the same dimensions)



PS1 type



PS2 type

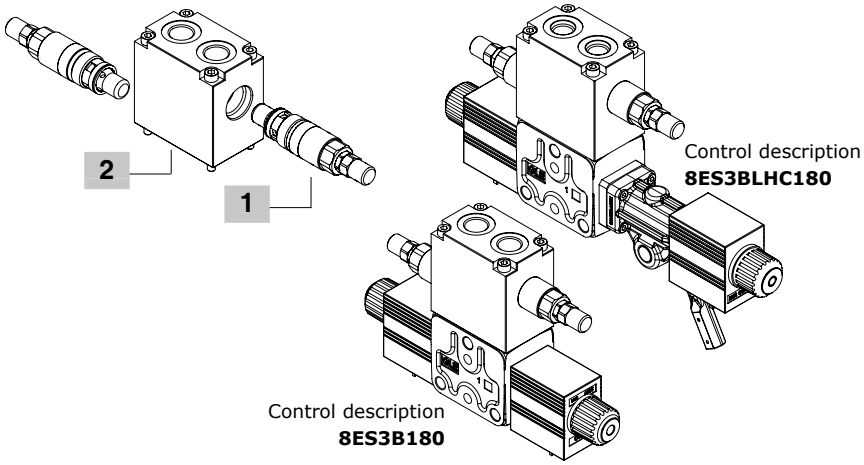


Wrenches and tightening torque

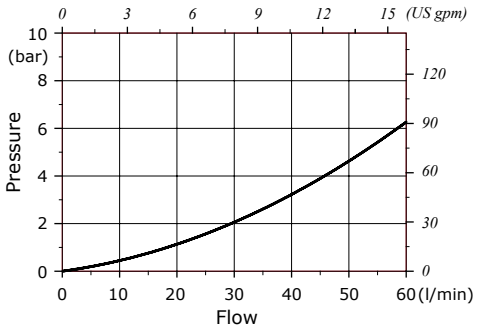
K = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
X = wrench 19 - 42 Nm *(31 lbft)*
Y = wrench 13 - 24 Nm *(17.7 lbft)*
Z = wrench 13 - 6.6 Nm *(4.9 lbft)*

Ordering codes

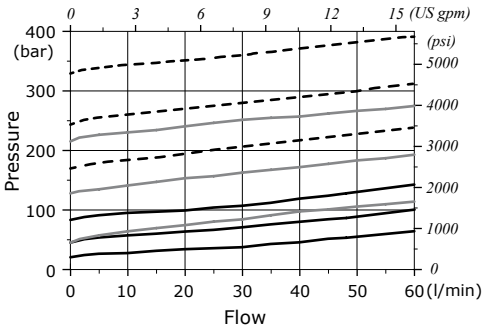
TYPE	CODE	DESCRIPTION
Complete antishock valves		
PS1(DC3-160)-SAE	619001001	Valve with operation on port A
PS2(DC3-160)-SAE	619001001	Valve with operation on port B
PS3(DC3-160\DC4-200)-SAE		
	619001104	Valves with operation on port A (160) and B (200)
Part #1: Valve kit		
Valve standard setting is referred to 5 l/min *(1.3 US gpm)* flow, considering the valve mounted on block.		
(DC2-60)	1100520460	Range 20-80 bar *(290-1150 psi)* std setting 60 bar *(870 psi)*
(DC3-160)	1100520408	Range 50-220 bar *(725-3200 psi)* std setting 160 bar *(2300 psi)*
(DC4-280)	1100520414	Range 180-350 bar *(2600-5100 psi)* std setting 280 bar *(4050 psi)*
PST	XTAP623282	Valve blanking plug
Part #2: Block body kit		
PS1-PS2-SAE	5COR245683	For single valve on port A or B
PS3-SAE	5COR245681	For valves on port A and B



Antishock valve pressure drops
P⇒port - port⇒T
(curves are matched)



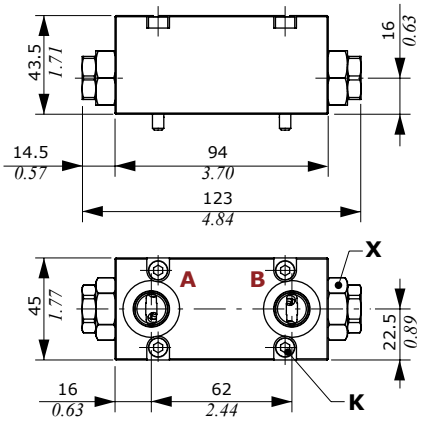
Setting range

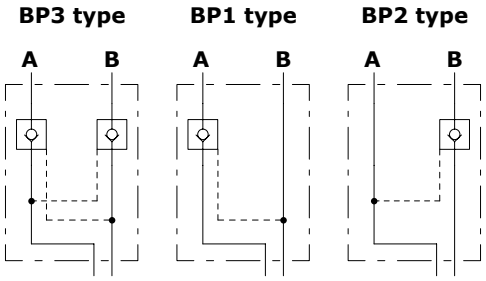


Valve type DC2
Valve type DC3
Valve type DC4

Check valves

8ES on/off solenoid controls (with or without lever operation) must be rotated 180°.





Wrenches and tightening torque

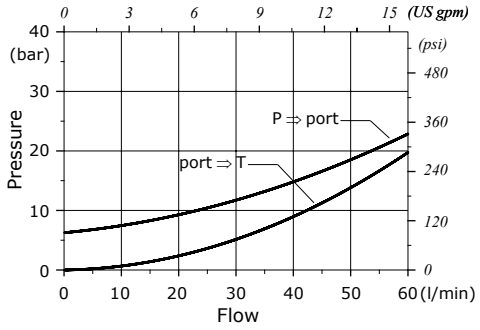
K = allen wrench 4 - 9.8 Nm *(7.2 lbft)*

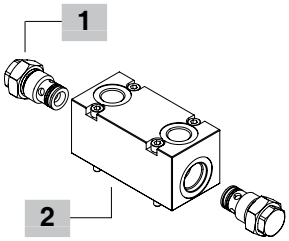
X = wrench 29 - 42 Nm *(31 lbft)*

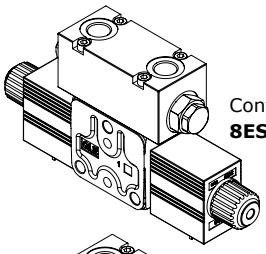
Ordering codes

TYPE	CODE	DESCRIPTION
Complete valve block		
BP1-SAE	619002001	Valve on port A
BP2-SAE	619002001	Valve on port B
BP3-SAE	619002101	Valves on ports A and B
Part #1: Valve kit		
BP	1300020402	Check valve
TBP	XTAP627260	Valve blanking plug
Part #2: Body kit and piston		
	5COR245891	Block body kit
	3PIS214480	Piston

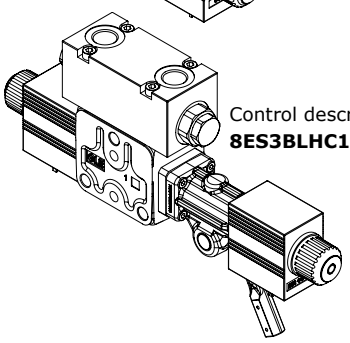
Check valve pressure drop







Control description
8ES3B180



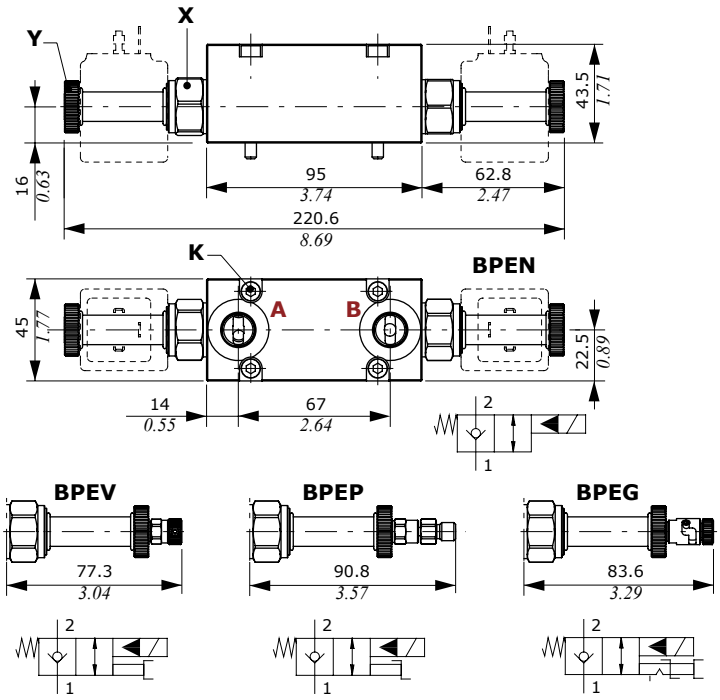
Control description
8ES3BLHC180

Flangeable valve blocks

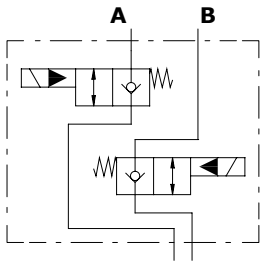
Solenoid operated check valves

8ES on/off solenoid controls (with or without lever operation) must be rotated 180°.

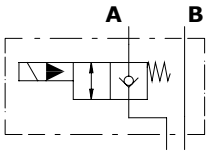
BPE(NC) type: normally closed circuit



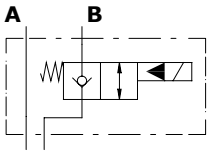
BPEN3(NC) type



BPEN1(NC) type



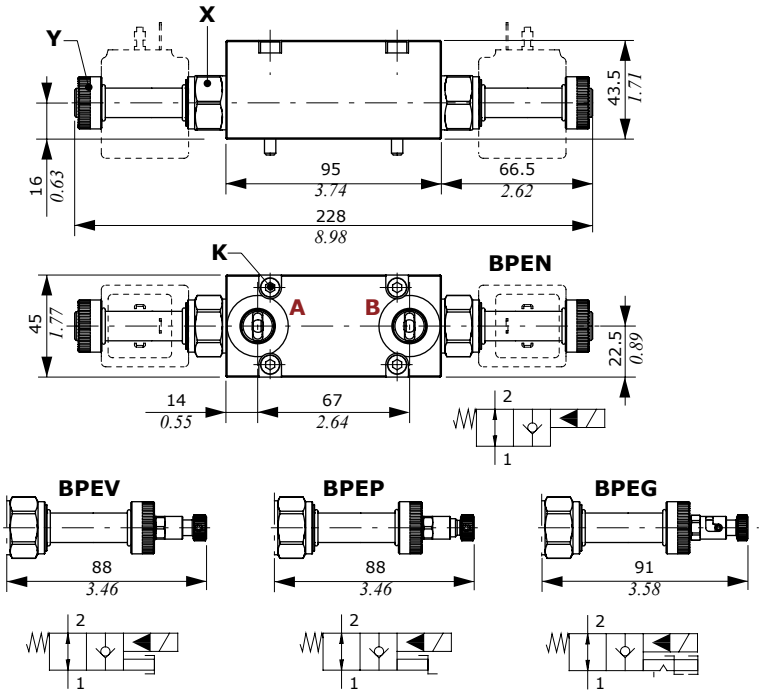
BPEN2(NC) type



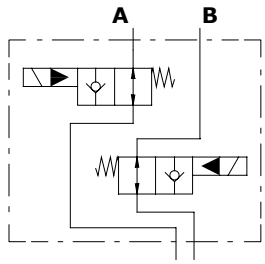
Wrenches and tightening torque

K = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
X = wrench 24 - 30 Nm *(22 lbft)*
Y = 5 Nm *(3.7 lbft)*

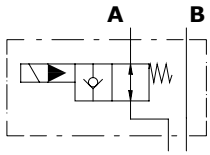
BPE(NA) type: normally open circuit



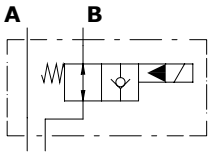
BPEN3(NA) type



BPEN3(NA) type

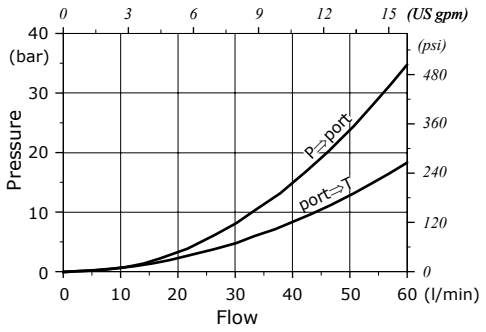


BPEN3(NA) type



Solenoid operated check valves

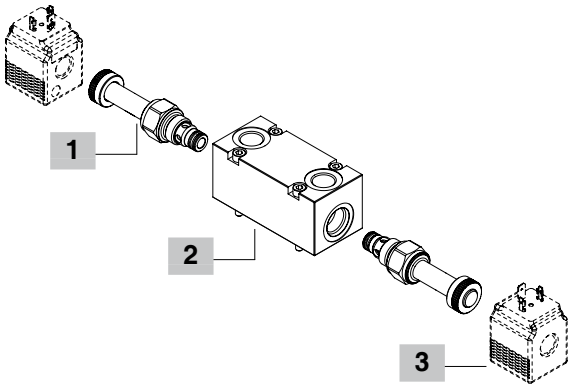
Check valve pressure drop
(curves without section)

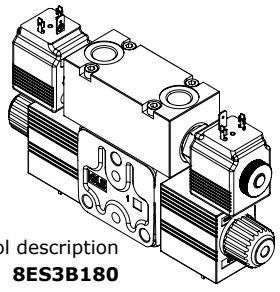


Ordering codes

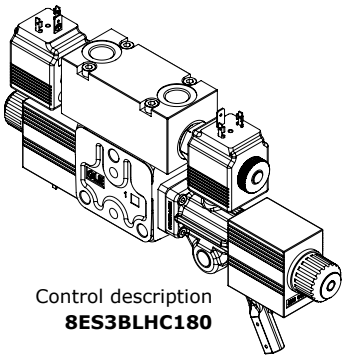
TYPE	CODE	DESCRIPTION
Complete valve block, without coil		
BPEN1(NC)-WC-SAE	Y64S367001	On ports A, NC circuit, without manual emergency
BPEN2(NC)-WC-SAE	Y64S367001	As previous, on port B
BPEN3(NC)-WC-SAE	Y64S367000	As previous, on ports A and B
Part #1: Valve kit		
TBPE	3XTAP822150	Valve blanking plug
Normally closed circuit		
BPEN(NC)	0EC08002032	Without manual emergency
BPEV(NC)	0EC08002037	With screw type emergency
BPEP(NC)	0EC08002036	With pull-button emergency
BPET(NC)	0EC08002038	With "pull & twist" emergency
Normally open circuit		
BPEN(NA)	0EC08002031	Without manual emergency
BPEV(NA)	0EC08002034	With screw type emergency
BPEP(NA)	0EC08002033	With push-button emergency
BPET(NA)	0EC08002035	With "push & twist" emerg.
Part #2: Block body kit		
BPE3-SAE	5COR245951	Block body kit
Part #3: Coil		

Valves needs type BER coil, see page 58.





Control description
8ES3B180



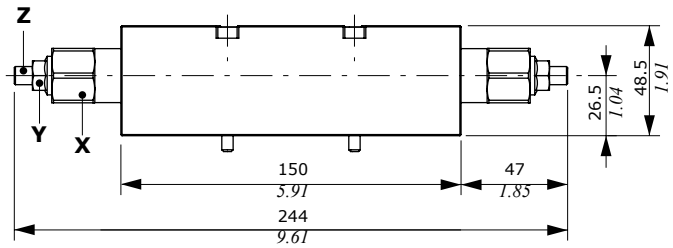
Control description
8ES3BLHC180

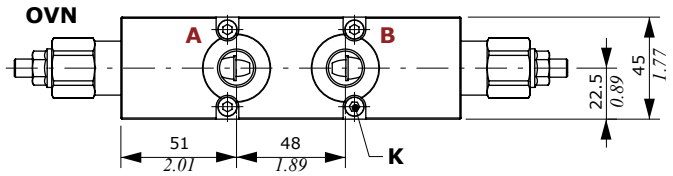
Flangeable valve blocks

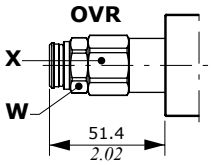
Counterbalance valves

8ES on/off solenoid controls (with or without lever operation) must be rotated 180°.

Double acting valve



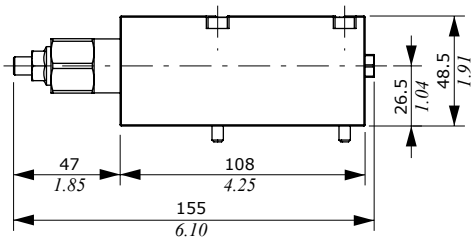


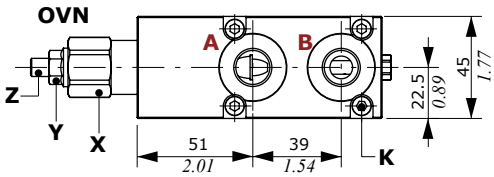


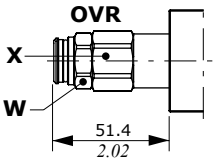
Wrenches and tightening torque

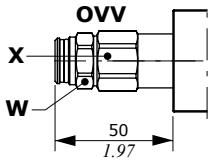
K = allen wrench 4 - 9.8 Nm *(7.2 lbft)*
X = allen wrench 24 - 50 Nm *(37 lbft)*
Y = wrench 13 - 15 Nm *(11 lbft)*
Z = allen wrench 4
W = wrench 22 - 35 Nm *(25.8 lbft)*

Single acting valve

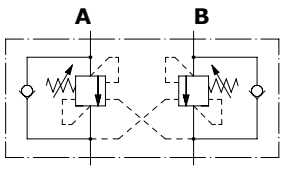




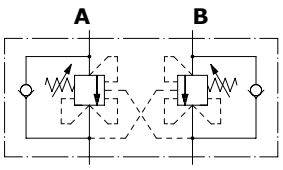




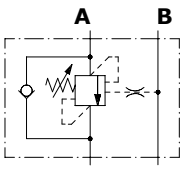
OVN301 type



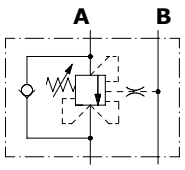
OVR301 type



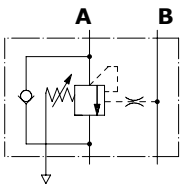
OVR101 type



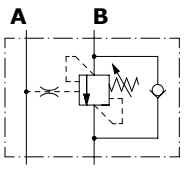
OVR101 type



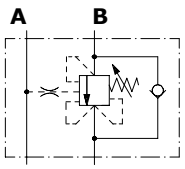
OVV101 type



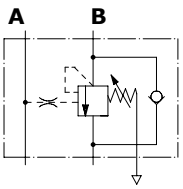
OVN201 type



OVR201 type

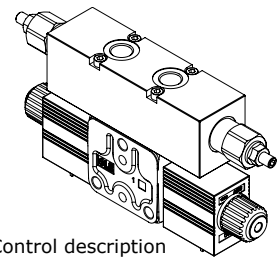


OVV201 type

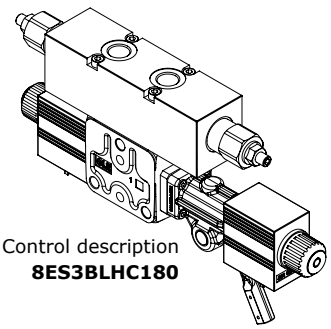


Ordering codes

TYPE	CODE	DESCRIPTION
Single counterbalance valves		
OVN101-SAE	1515322200	On port A, load sensitive, pilot ratio = 4
OVN201-SAE	1515322200	As previous, on ports B
OVR101-SAE	1515422200	On port A, relief comp., pilot ratio = 4
OVR201-SAE	1515422200	As previous, on ports B
OVV101-SAE	1515522200	On port A, vented type, pilot ratio = 4
OVV201-SAE	1515522200	As previous, on port B
Double counterbalance valves		
OVN301-SAE	1555222200	Load sensitive, pilot ratio = 4
OVR301-SAE	1555322200	Relief compensated, pilot ratio = 4

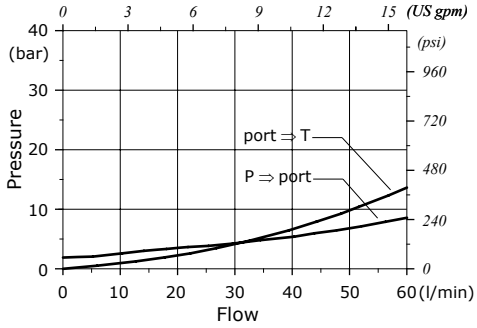


Control description
8ES3B180



Control description
8ES3BLHC180

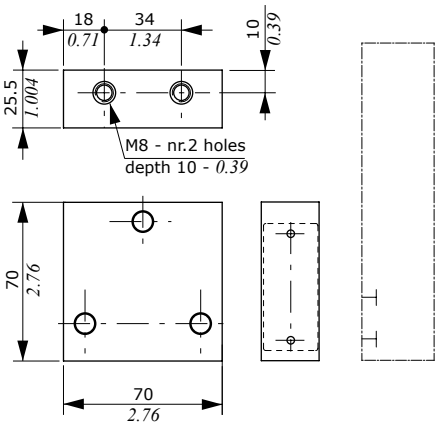
Counterbalance valves pressure drop



Dimensions and hydraulic circuit

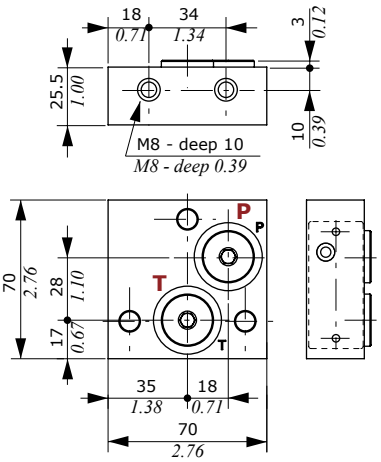
Without port arrangement

RF type



With ports arrangement

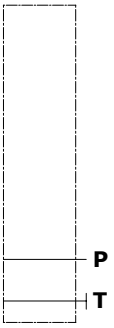
RS - RP - RT types
drawing shows type RS



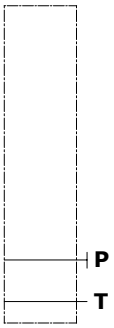
Wrenches and tightening torque
X = allen wrench 8 - 24 Nm *(17.7 lbft)*
Y = allen wrench 6 - 24 Nm *(17.7 lbft)*

RS-RSB types
P and T ports plugged

RP-RPB types
P open, T plugged



RT-RTB types
T open, P plugged



Accessories

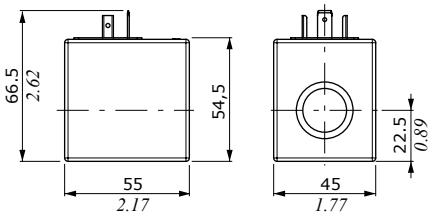
Coils and connectors

Application on	Coil type	Voltage	Connectors					
			ISO4400	Deutsch DT	AMP JPT	Packard Weatherpack	Packard Metri-pack	Flying leads (without connector)
Solenoid operated unloading valve Solenoid operated check valve	BER	**10 VDC**	4SLE001000A	-	-	-	-	-
		12 VDC	4SLE001200A 4SLE001217A(3)	4SLE001201A(5) 4SLE001209A(3-4) 4SLE001202A(5) 4SLE001216A(3-5) 4SLE001206A(2)	4SLE001203A(4) 4SLE001211A(3-4)	4SLE001210A(2)	4SLE001214A(2)	4SLE001207A
		14 VDC	-	4SLE001400A(5) 4SLE001401A(3-5) 4SLE001402A(3-4)	4SLE001403A(3-4)	-	-	-
		24 VDC	4SLE002400A 4SLE002408A(3) 4SLE302400A(1)	4SLE002401A(4) 4SLE002407A(3-4) 4SLE002402A(5)	4SLE002403A(4)	-	-	4SLE002404A
		28 VDC	-	4SLE002802A(5)	4SLE002800A(4)	-	-	-
		48 VDC	4SLE004800A 4SLE304800A(1)	-	-	-	-	-
		110VDC	4SLE011000A 4SLE311000A(1)	-	-	-	-	-
		220 VDC	4SLE022000A 4SLE322000A(1)	-	-	-	-	-
Pressure compensated flow control valve	**BQP19**	**12VDC**	4SL5000126A	4SL5000125A(5)	4SL5000129A(4)	-	-	-
		24VDC	4SL5000245A	4SL5000244A(5)	4SL5000248A(4)	-	-	-
	BH	**12VDC**	4SLD001200A	4SLD001201A(5)	4SLD001202A(4)	-	-	4SLD001203A
		24VDC	4SLD002400A	4SLD002401A(5)	4SLD002402A(4)	-	-	4SLD002403A
Controls	**D12C**	**10,5VDC**	4SOL412011-C	-	-	-	-	-
		12VDC	4SOL412012-C	4SOL412013-C(5) 4SOL412112-C(2)	4SOL412014-C(4)	-	-	4SOL412019-C
		24VDC	4SOL412024-C	4SOL412025-C(5)	4SOL412026-C(5)	-	-	-
	D15C	**12VDC**	4SOL515012-C	4SOL515014-C (3-5)	-	-	-	4SOL515019-C 4SOL515020-C(3)
		14VDC	-	-	4SOL515016A-C(4)	-	-	-
		24VDC	4SOL515024-C	4SOL515025-C (3-5)	-	-	-	-

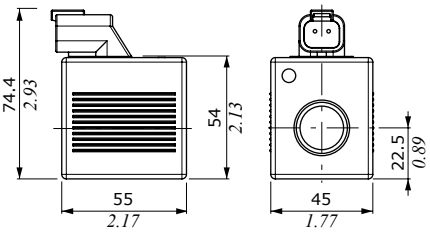
Notes: (1) supply with AC and use only with rectifier connector - (2) with flying leads - (3) with bidirectional diode - (4) integrated perpendicular type - (5) integrated parallel type

BQP19 type

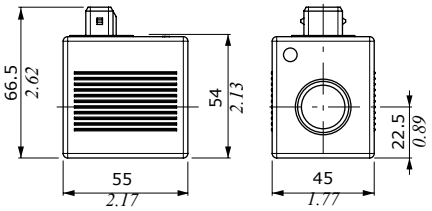
ISO4400 connector



DEUTSCH DT04 connector



AMP JPT connector



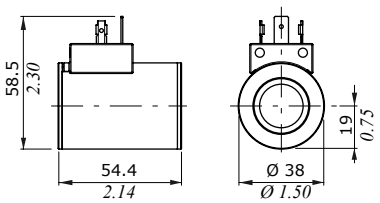
Features

Nominal voltage tolerance : ±10%
Power rating . . . . . : 15 W @ 12 VDC
: 15 W @ 24 VDC
Max. operating current . . : 1.25 A @ 12 VDC
: 0.63 A @ 24VDC
Coil insulance . . . . . : Class H
(180°C - *356°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
Insertion . . . . . : 100%

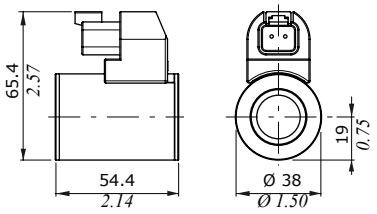
Coils and connectors

BH type

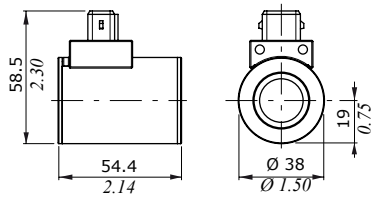
ISO4400 connector



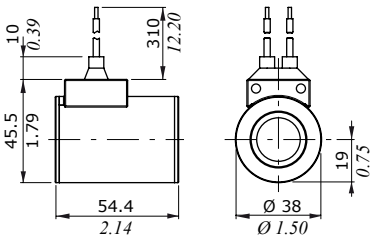
DEUTSCH DT04 connector



AMP JPT connector



Flying leads

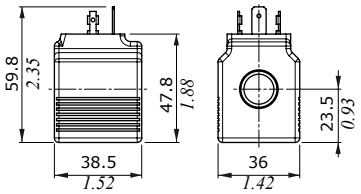


Features

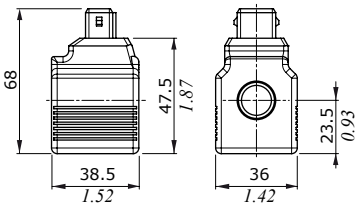
Nominal voltage tolerance . : ±10%
Power rating . . . . . : 33 W - 12/24 VDC
Max. oper. current (on/off). : 2.75 A - 12 VDC
: 1.38 A - 24 VDC
Max. prop. control current . : 1.7 A - 12 VDC
: 0.85 A - 24 VDC
Coil insulance . . . . . : Class H
(180°C - *356°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K -Deutsch DT
: IP65 - AMP JPT
Insertion . . . . . : 100%

BER type

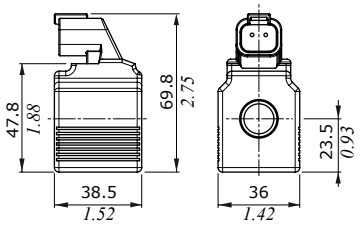
ISO4400 connector



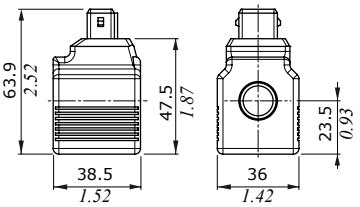
DEUTSCH DT04 connector
(perpendicular type)



DEUTSCH DT04 connector
(parallel type)



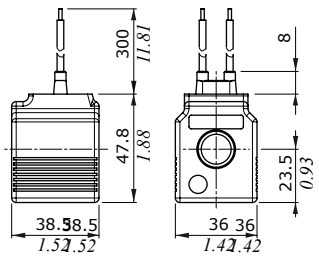
AMP JPT connector



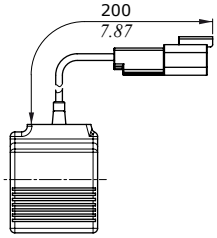
Features

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

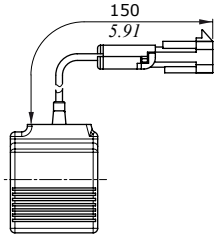
Flying leads



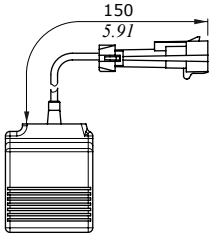
Flying leads with DEUTSCH DT04 connector



Flying leads with PACKARD WEATHER-PACK connector



Flying leads with PACKARD METRI-PACK connector

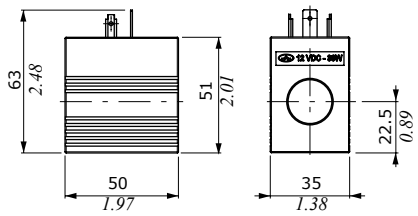


Accessories

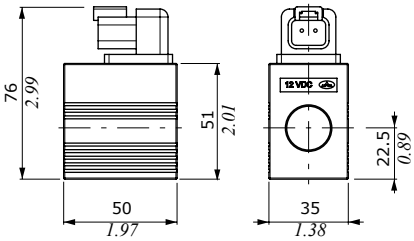
Coils and connectors

D12C type

ISO4400 connector



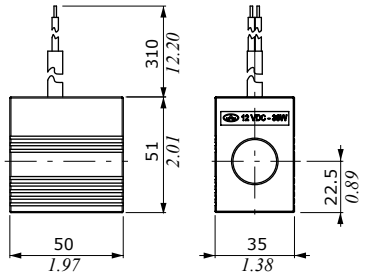
DEUTSCH DT04 connector



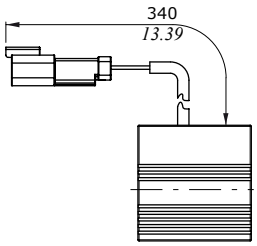
Features

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%

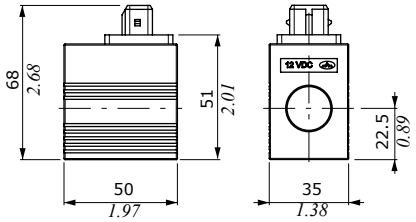
Flying leads



Flying leads with DEUTSCH DT04 connector

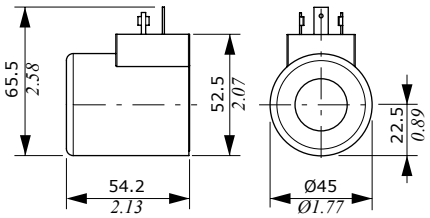


AMP JPT connector

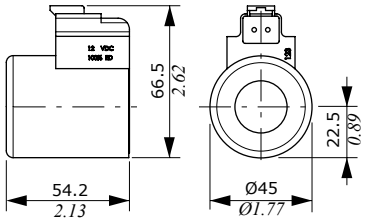


D15C type

ISO4400 connector



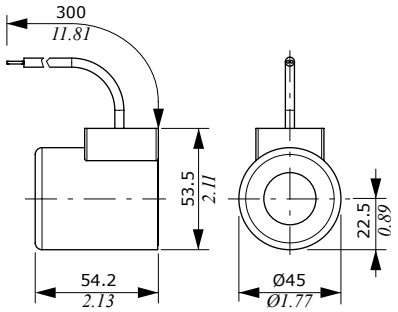
DEUTSCH DT04 connector



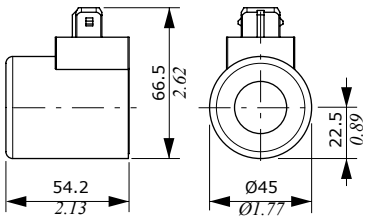
Features

Nominal voltage tolerance : ±10%
Power rating. . . . . : 38 W @
12/14/24/ VDC
Max. operating current . . : 3.16 A @ 12 VDC
: 2.75 A @ 14VDC
: 1.58 A @ 24VDC
Coil insulance . . . . . : Class H
(180°C - *356°F*)
Weather protection . . . . . : IP65 - ISO4400
: IP69K - Deutsch DT
: IP65 - AMP JPT
Insertion . . . . . : 100%

Flying leads



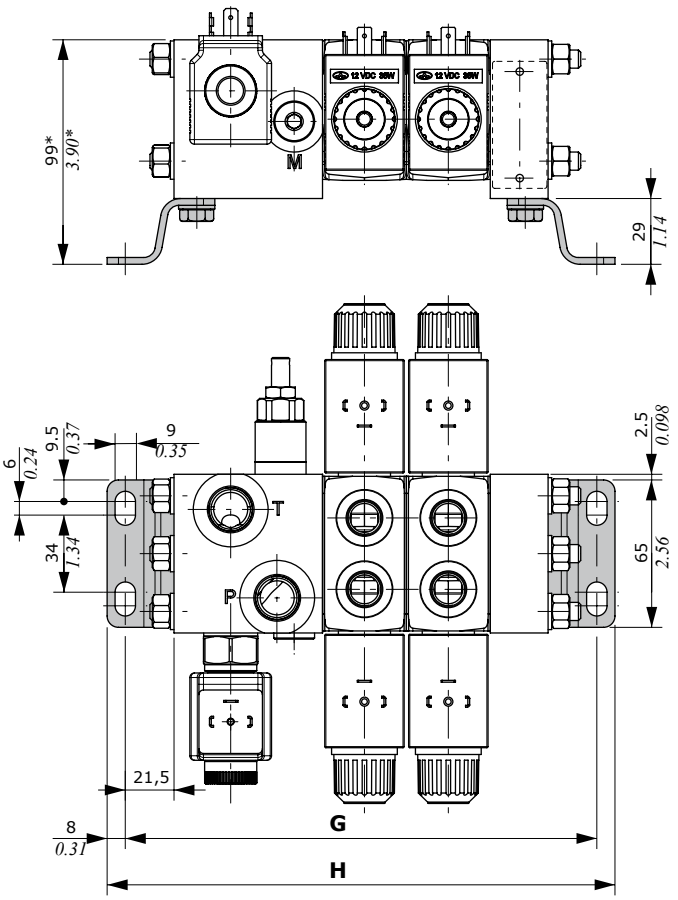
AMP JPT connector



Fixing brackets

SDE030

Dimensions (*) are referred to directional valve with N1 type inlet section.



TYPE	with section N type				with sections N1-N2-N6-N7 type			
	G		H		G		H	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*
SDE030/1	134	*5.28*	150	*5.91*	171	*6.73*	187	*7.36*
SDE030/2	171	*6.73*	187	*7.36*	208	*8.19*	224	*8.82*
SDE030/3	208	*8.19*	224	*8.82*	245	*9.65*	261	*10.28*
SDE030/4	245	*9.65*	261	*10.28*	282	*11.10*	298	*11.73*
SDE030/5	282	*11.10*	298	*11.73*	319	*12.56*	335	*13.19*
SDE030/6	319	*12.56*	335	*13.19*	356	*14.02*	372	*14.65*
SDE030/7	356	*14.02*	372	*14.65*	393	*15.47*	409	*16.10*
SDE030/8	393	*15.47*	409	*16.10*	430	*16.93*	446	*17.56*
SDE030/9	430	*16.93*	446	*17.56*	467	*18.39*	483	*19.02*
SDE030/10	467	*18.39*	483	*19.02*	504	*19.84*	520	*20.47*

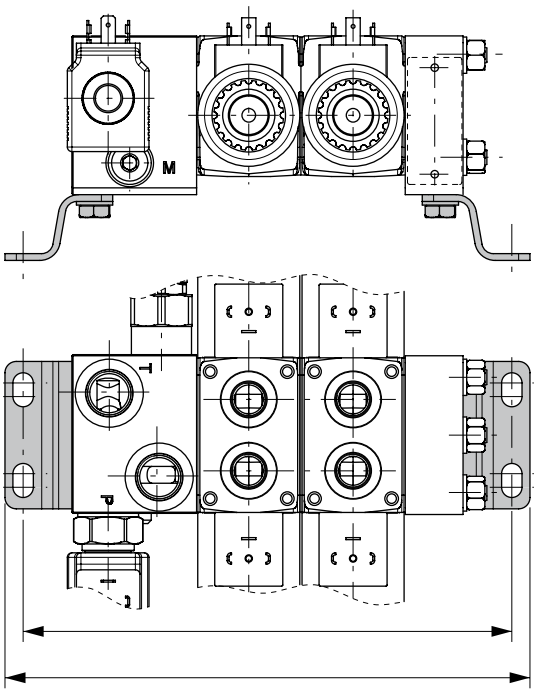
Accessories

Fixing brackets

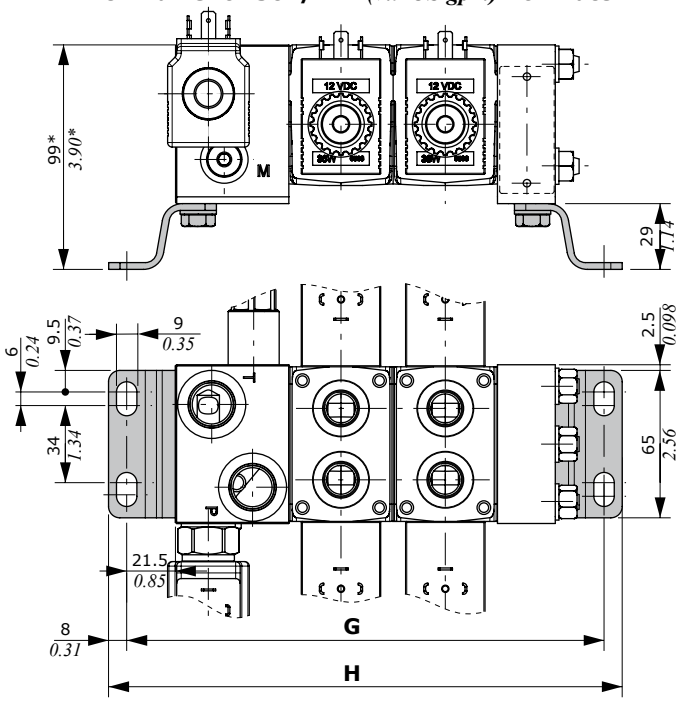
SDE060

Dimensions (*) are referred to directional valve with N1 type inlet section.

On valve for 60 l/min *(15.8 US gpm)* flow rate



On valve for 30 l/min *(7.9 US gpm)* flow rate



Valve for 60 l/min *(15.8 US gpm)* flow rate

TYPE	with section N type				with section N1 type				with section N2 type			
	G		H		G		H		G		H	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*	mm	*in*	mm	*in*
SDE060/1	146.5	*5.77*	162.5	*6.40*	169.5	*6.67*	185.5	*7.30*	200	*7.87*	216	*8.50*
SDE060/2	192.5	*7.58*	208.5	*8.21*	215.5	*8.48*	231.5	*9.11*	246	*9.69*	262	*10.31*
SDE060/3	238.5	*9.39*	254.5	*10.02*	261.5	*10.29*	277.5	*10.93*	292	*11.50*	308	*12.13*
SDE060/4	284.5	*11.20*	300.5	*11.83*	307.5	*12.11*	323.5	*12.74*	338	*13.31*	354	*13.94*
SDE060/5	330.5	*13.01*	346.5	*13.64*	353.5	*13.92*	369.5	*14.55*	384	*15.12*	400	*15.75*
SDE060/6	376.5	*14.82*	392.5	*15.45*	399.5	*15.73*	415.5	*16.36*	430	*16.93*	446	*17.56*
SDE060/7	422.5	*16.63*	441.5	*17.38*	445.5	*17.54*	461.5	*18.17*	476	*18.74*	492	*19.37*
SDE060/8	468.5	*18.44*	484.5	*19.07*	491.5	*19.35*	507.5	*19.98*	522	*20.55*	538	*21.18*
SDE060/9	514.5	*20.26*	530.5	*20.89*	537.5	*21.16*	553.5	*21.79*	568	*22.36*	584	*22.99*
SDE060/10	560.5	*22.07*	575.5	*22.66*	583.5	*22.97*	599.5	*23.60*	614	*24.17*	630	*24.80*

Valve for 30 l/min *(7.9 US gpm)* flow rate

TYPE	with section NB type				with section N1B type				with section N2B type				with sections N6B-N7B type			
	G		H		G		H		G		H		G		H	
	mm	*in*	mm	*in*	mm	*in*	mm	*in*	mm	*in*	mm	*in*	mm	*in*	mm	*in*
SDE060/1	146.5	*5.77*	162.5	*6.40*	162.5	*6.40*	178.5	*7.03*	191	*7.52*	207	*8.15*	183.5	*7.22*	199.5	*7.85*
SDE060/2	192.5	*7.58*	208.5	*8.21*	208.5	*8.21*	224.5	*8.34*	237	*9.33*	253	*9.96*	229.5	*9.04*	245.5	*9.66*
SDE060/3	238.5	*9.39*	254.5	*10.02*	254.5	*10.02*	270.5	*10.65*	283	*11.14*	299	*11.77*	275.5	*10.85*	291.5	*11.48*
SDE060/4	284.5	*11.20*	300.5	*11.83*	300.5	*11.83*	316.5	*12.46*	329	*12.95*	345	*13.58*	321.5	*12.66*	337.5	*13.29*
SDE060/5	330.5	*13.01*	346.5	*13.64*	346.5	*13.64*	362.5	*14.27*	375	*14.76*	391	*15.39*	367.5	*14.47*	383.5	*15.10*
SDE060/6	376.5	*14.82*	392.5	*15.45*	392.5	*15.45*	408.5	*16.08*	421	*16.57*	437	*17.20*	413.5	*16.28*	429.5	*16.91*
SDE060/7	422.5	*16.63*	441.5	*17.38*	438.5	*17.26*	454.5	*17.89*	467	*18.39*	483	*19.02*	459.5	*18.09*	475.5	*18.72*
SDE060/8	468.5	*18.44*	484.5	*19.07*	484.5	*19.07*	500.5	*19.70*	513	*20.20*	529	*20.83*	505.5	*19.90*	521.5	*20.53*
SDE060/9	514.5	*20.26*	530.5	*20.89*	530.5	*20.89*	546.5	*21.52*	559	*22.01*	575	*22.64*	551.5	*21.71*	567.5	*22.34*
SDE060/10	560.5	*22.07*	575.5	*22.66*	576.5	*22.70*	592.5	*23.33*	605	*23.82*	621	*24.45*	597.5	*23.52*	613.5	*24.15*

Installation and maintenance

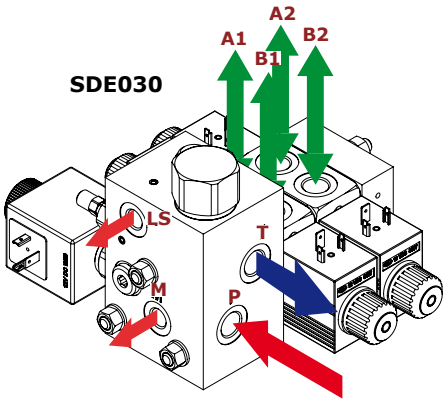
The SDE060-SDE030 valves are assembled and tested as per the technical specifications of this catalogue.
Before the final installation on your equipment, kindly follow the recommendations below:

- the valves can be assembled in any position; in order to prevent body deformation and spool sticking, mount the products on a flat surface;
- In order to prevent the possibility of water entering into the spool control kit, do not use high pressure wash down directly on the valves;
- Before painting, ensure plastic port plugs are tightly in their place.

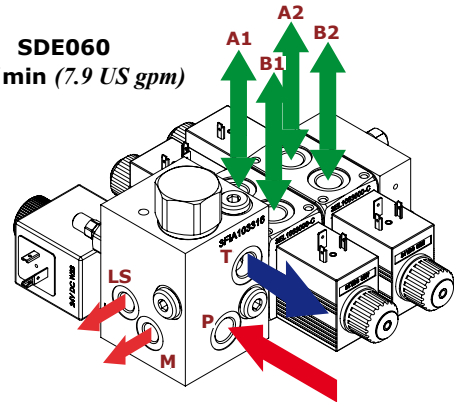
Fittings tightening torque (Nm-*lbft*)

SDE030			
THREAD TYPE	**P-T ports**	**A-B ports**	**M-LS ports**
BSP	G 3/8	G 3/8	G 1/4
With O-Ring seal	35 - *25.8*	35 - *25.8*	25 - *18.4*
With copper washer	40 - *29.5*	40 - *29.5*	30 - *22*
With steel and rubber washer	30 - *22*	30 - *22*	16 - *11.8*
UN-UNF	3/4-16 (SAE 8)	9/16-18 (SAE 6)	7/16-20(SAE 4) 9/16-18 (SAE 6)**
With O-Ring seal	35 - *25.8*	30 - *22*	18-*13.3* • 30**-*22***

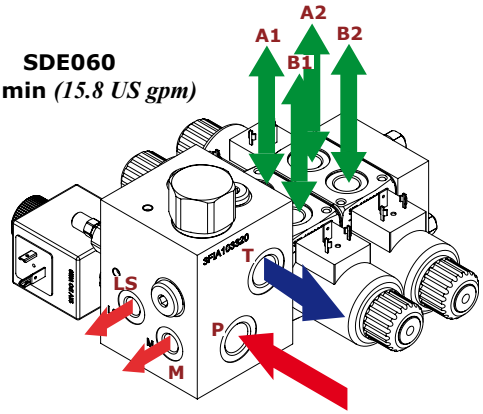
SDE030



SDE060
30 l/min ***(7.9 US gpm)***



SDE060
60 l/min ***(15.8 US gpm)***



SDE060						
THREAD TYPE	**Section for 30 l/min** ***(7.9 US gpm)***			**Section for 60 l/min** ***(15.8 US gpm)***		
	P-T ports	**A-B ports**	**M-LS ports**	**P-T ports**	**A-B ports**	**M-LS ports**
BSP	G 3/8	G 3/8	G 1/4	G 1/2	G 3/8 • G 1/2*	G 1/4
With O-Ring seal	35 - *25.8*	35 - *25.8*	25 - *18.4*	50 - *37*	35-*25.8* • 50*-*37**	25 - *18.4*
With copper washer	40 - *29.5*	40 - *29.5*	30 - *22*	60 - *44.3*	40-*29.5* • 60*-*44.3**	30 - *22*
With steel and rubber washer	30 - *22*	30 - *22*	16 - *11.8*	60 - *44.3*	30-*22* • 60*-*44.3**	16 - *11.8*
UN-UNF	3/4-16 (SAE 8)	9/16-18 (SAE 6)	7/16-20(SAE 4) 9/16-18 (SAE 6)**	3/4-16 (SAE 8)	9/16-18 (SAE 6) 3/4-16 (SAE 8)**	7/16-20 (SAE 4) 9/16-18 (SAE 6)**
With O-Ring seal	35 - *25.8*	30 - *22*	18-*13.3* • 30**-*22***	35 - *25.8*	30-*22* • 35**-*25.8***	18-*13.3* • 30**-*22***

NOTE – *These torques are recommended. Assembly tightening torque depends on many factors, including lubrication, coating and surface finishing. The manufacturer must be consulted.*

Malfunction	Cause	Remedy
External leakage from electric control	Control spool seal due to mechanical wear.	Replace the seal.
Excessive internal leakage on A and B ports.	Increase clearance between spools and body due to high wear.	Replace the directional control valve and check the oil contamination level.
Inability to build pressure on A and B	Main pressure relief valve blocked open.	Remove, clean or replace the main relief valve.
	Port relief valve open.	Remove, clean or replace the port relief valve.
	Low pump pressure and flow.	Check the pump and the circuit.

Innovation · Continuity · Integration

It is Power

walvoil

FLUID POWER E|MOTION

walvoil hydro control Galtech

D1WWEB04A
6th edition December 2017

Walvoil S.P.A. • 42124 Reggio Emilia • Italy • Via Adige, 13/D • Tel.+39.0522.932411 • Fax +39.0522.300984
www.walvoil.com