

CONTENTS:

Page

-Technical data.....	1
-Circuit mode.....	1
-Dimensions RP80.....	2
-Dimensions RP60.....	3
-Lever mechanism.....	4
-Joystick control.....	5
-Service and auxiliary valves.....	5
-RP60 with on/off electrohydraulic control-internal pilot.....	6
-RP80 with on/off electrohydraulic control-internal pilot.....	7
-Spools/spool control.....	8
-Inlet cover/outlet cover.....	9
-Ordering code RP80.....	9
-Ordering code RP60.....	10
-Hydraulic circuit application.....	10
-Performance curve RP80.....	11
-Performance curve RP60.....	12
-Monoblock directional control valve type MRP70.....	13

SECTIONAL CONTROL VALVES RP80 & RP60

TECHNICAL DATA

Directional control valves RP80 and RP60 are sectional type , with manual operation. They provide parallel or tandem distribution of the working liquid and its direct flow to the tank without activating the sections. They consist of inlet cover with integrated relief valve , a combination of sections (up to 10pcs) and outlet cover.

STANDARD FEATURES:

1. Adjustable main relief valve
2. Internal load holding check valves integrated in each section
3. Adjustable auxiliary valves are available
4. Balanced interchangeable spool (provides minimum leakage , smooth operation)

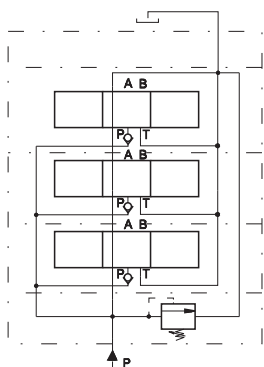
PARAMETERS	UNITS	RP80	RP60
Rated flow	l/min (US GPM)	80 (21.1)	60 (15.8)
Rated pressure	bar (PSI)	250 (3571)	320 (4570)
Max. back pressure	bar (PSI)	18 (257)	30 (428)
Spool leakage at: p=100 bar.; t=40°C and viscosity 36cSt	cm ³ /min (in ³ /min)	max 6 (0,36) min 2 (0,12)	
Max. number of section		10	
Working liquid - hydraulic oils with parameters:			
-viscosity	mm ² /sec (cSt)	15...300	
-recommended viscosity	mm ² /sec (cSt)	20...80	
-temperature	°C (°F)	-20...+80 (-4...+176)	
-degree of filtration	mm (in)	0.025 (9.8 10 ⁻⁴)	

CIRCUIT MODE

STANDARD PARALLEL CIRCUIT

The open center passage is closed off when spool is fully shifted and hydraulic oil will flow directly to the power core passage , making oil available to all work ports. The hydraulic oil can be divided so that it will flow to two or more functions by metering the spools. The parallel circuit is the most commonly used circuit in mobile equipment , because thanks to metering , more than one function can be operated at the same time at random in the valve bank assembly.

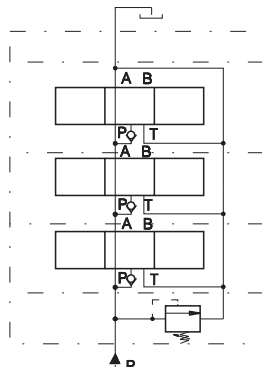
CODE P



TANDEM CIRCUIT

Hydraulic oil available to the work ports through the open center passage. When an upstream spool is fully shifted ,on oil is available to a downstream section in a tandem circuit. The upstream section has priority.

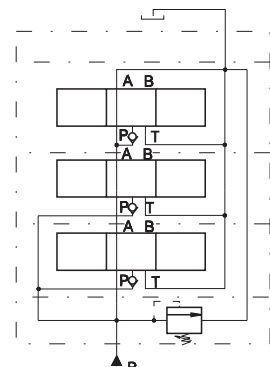
CODE T



COMBINATIONS OF PARALLEL AND TANDEM CIRCUIT

For realizing of combined acting first have to be arranged the section with parallel acting followed by those with tandem acting.

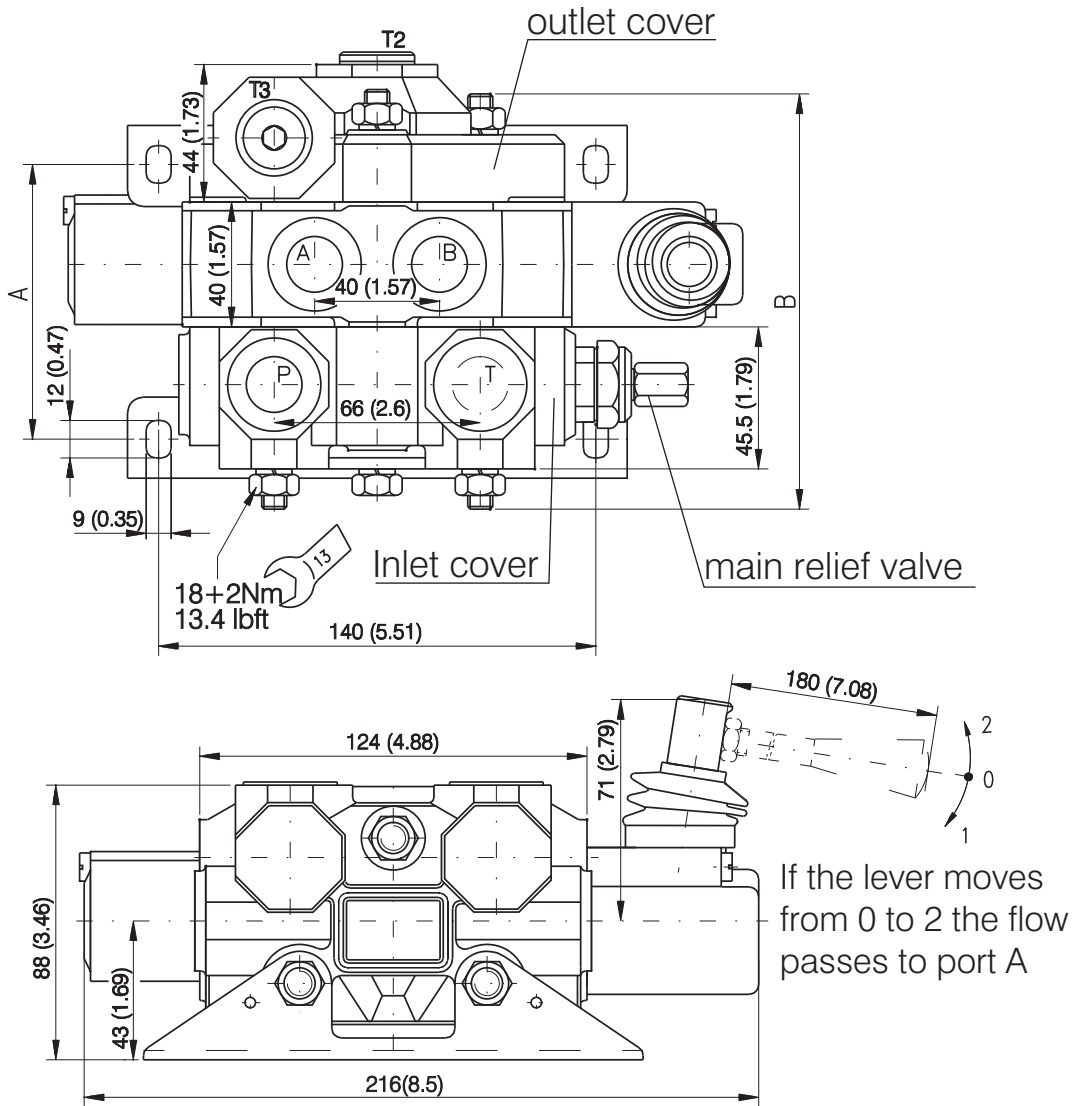
CODE C



SECTIONAL CONTROL VALVES RP80 & RP60

DIMENSIONS

RP60



N. of sections	Dimension A mm (in)	Dimension B mm (in)
1	74 (2.91)	126 (4.96)
2	114 (4.48)	166 (6.54)
3	154 (6.06)	206 (8.11)
4	194 (7.64)	246 (9.69)
5	234 (9.21)	286 (11.26)
6	274 (10.79)	326 (12.83)
7	314 (12.36)	366 (14.41)
8	354 (13.94)	406 (15.98)
9	394 (15.51)	446 (17.56)
10	434 (17.09)	486 (19.13)

Standard available port threads
P, T, A, B: G3/8, G1/2

NOTE: All dimensions are shown in mm (in)

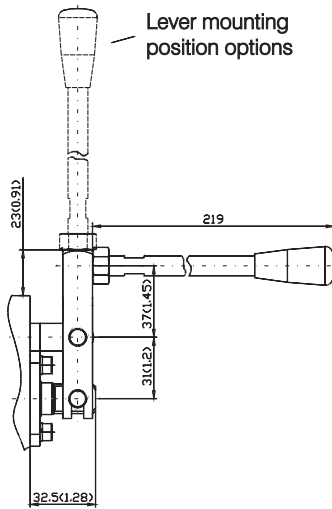
SECTIONAL CONTROL VALVES RP80 & RP60

LEVER MECHANISM

RP80

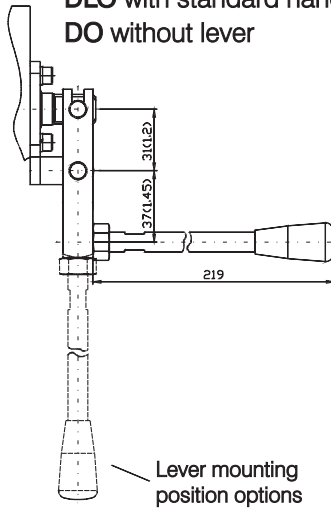
Code

DL with standard hand lever
D without lever



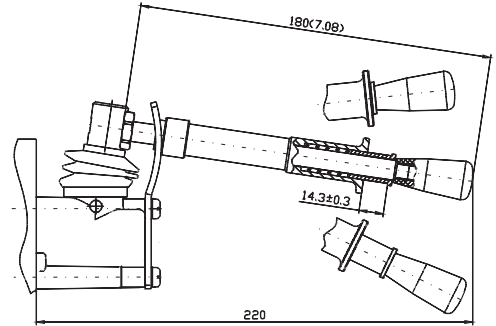
Code

DLO with standard hand lever
DO without lever



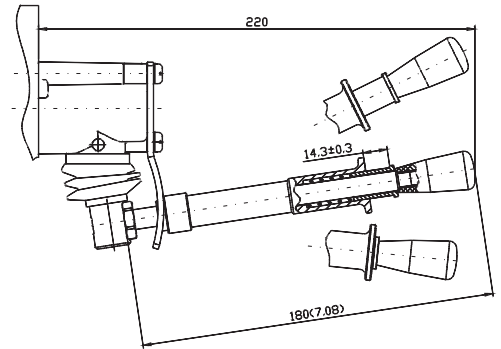
Code

SG safety lever with lock in neutral
(for RP60 only)



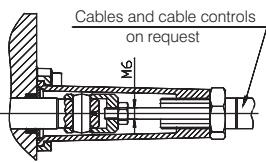
Code

SGO safety lever with lock in neutral
(for RP60 only)



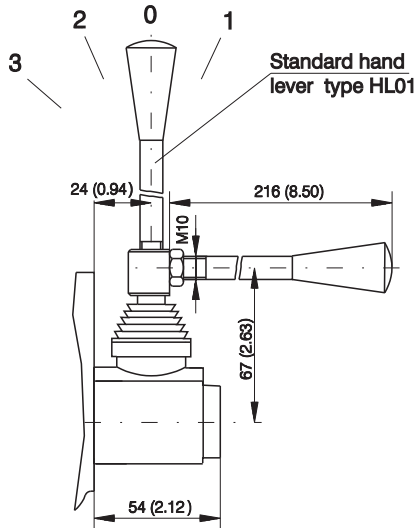
Code H

Cables and cable controls
on request

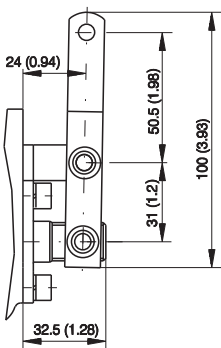


Code

EL with standard hand lever
E without lever

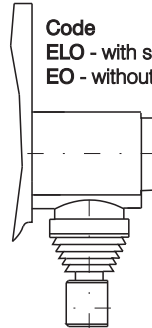


Code F

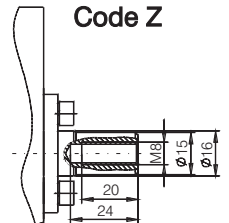


Code

ELO - with standard hand lever
EO - without lever



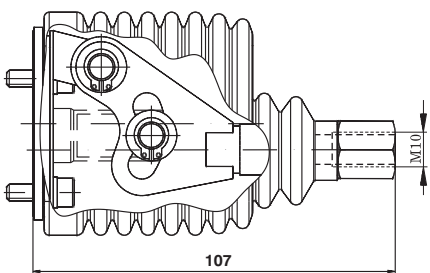
Code Z



RP80&RP60

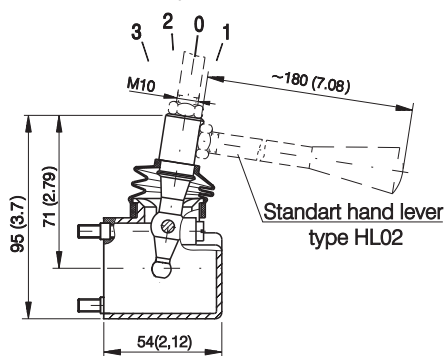
Lever mechanism
with standard lever
(200mm.)
Code RKL

Lever mechanism without
standard lever
Code RK



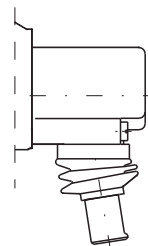
Code

SL with standard hand lever
S without lever
(for RP60 only)



Code

SLO with standard hand lever
SO without lever
(for RP60 only)

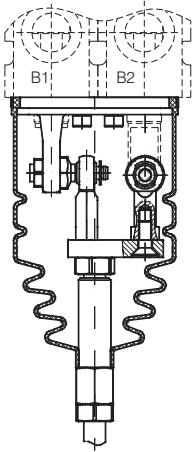
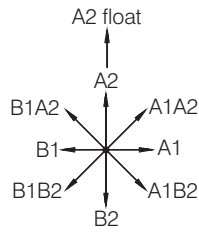
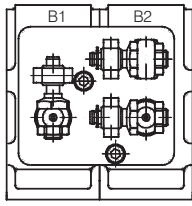
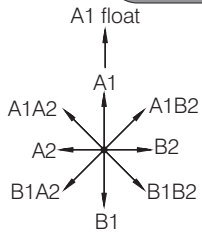
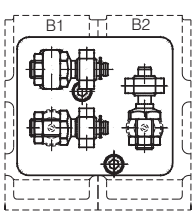


Note: For valve RP60 - RKL and RK option -
without dust cover.

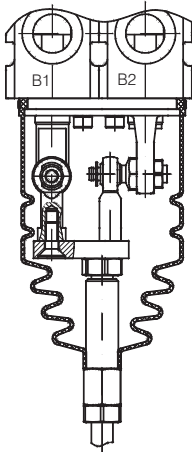
SECTIONAL CONTROL VALVES RP80 & RP60

JOYSTICK CONTROL

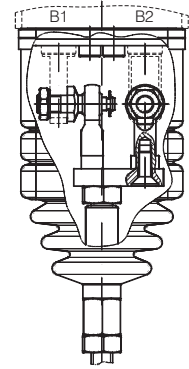
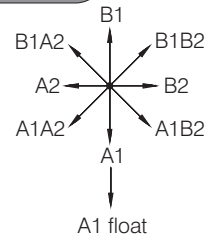
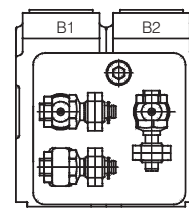
RP80



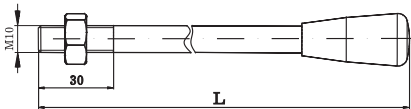
JK80 - without lever
JK80L - with standard lever (300mm.)



RP60



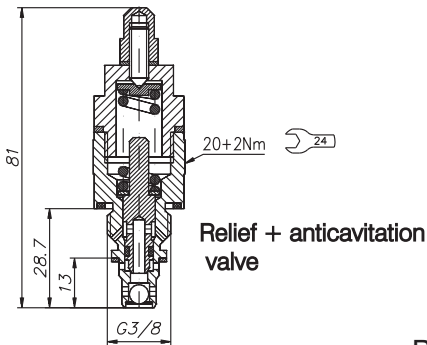
JK60 - without lever
JK60L - with standard lever (300mm.)



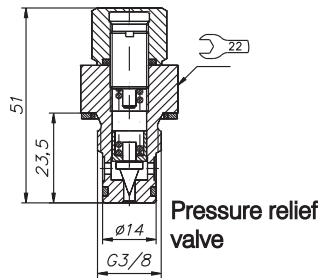
Different lever length L available on request.

SERVICE AND AUXILIARY VALVES

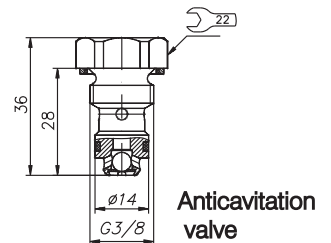
Code C



Code RV

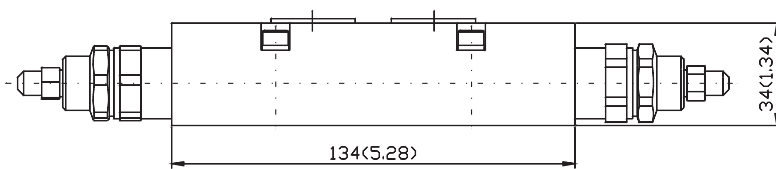


Code KA 3/8

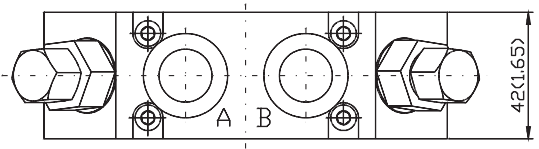
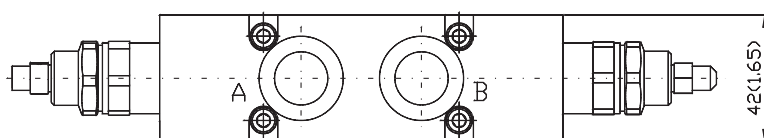
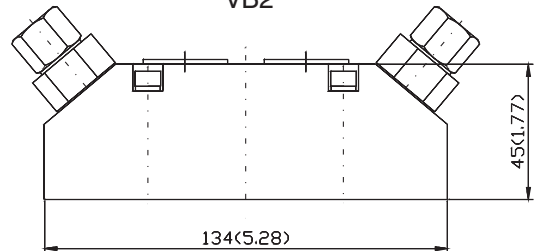


RP80 - valve block modifications

VB1



VB2



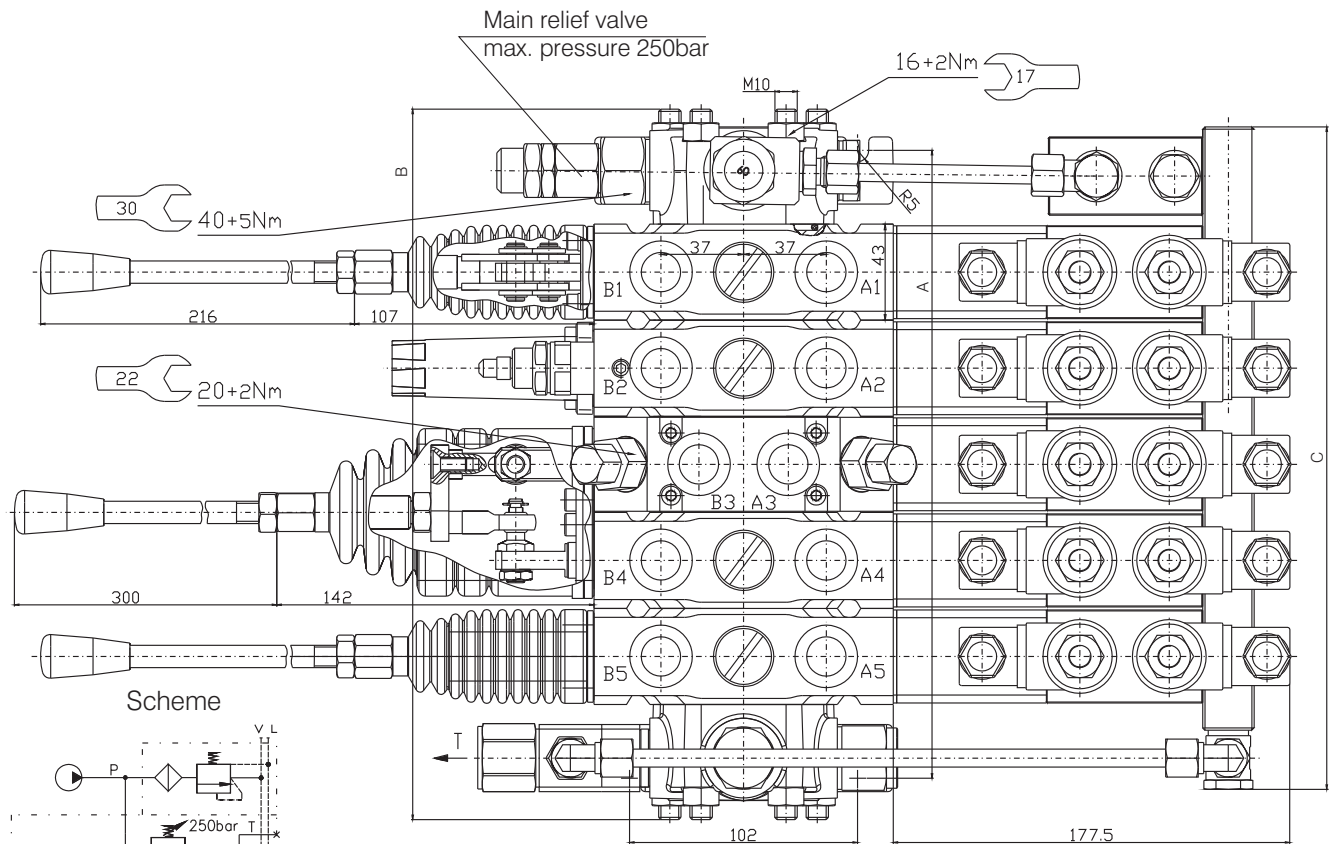
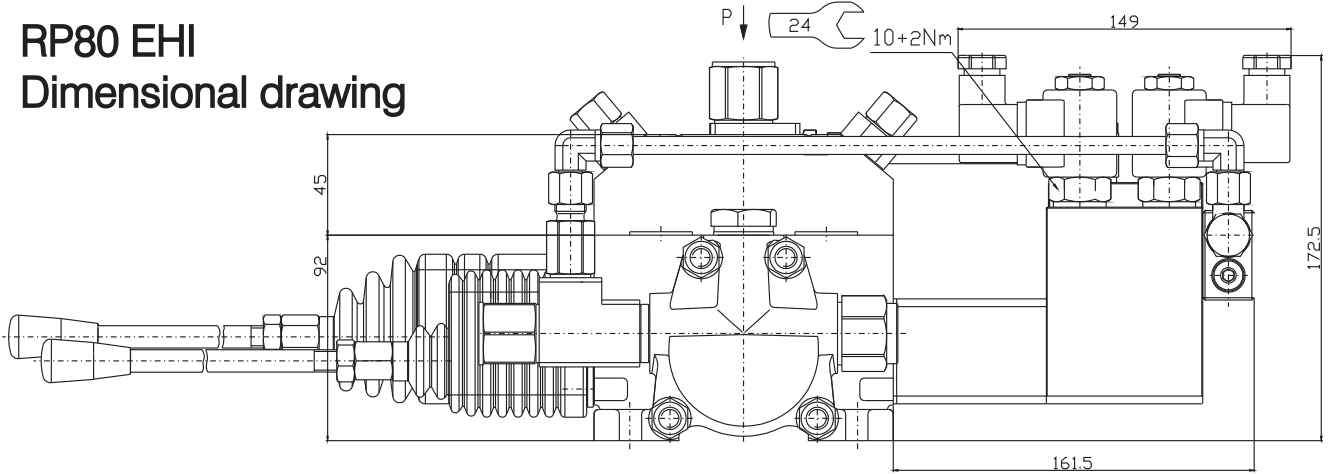
For RP60 auxiliary valves are mounted directly on section body.

SECTIONAL CONTROL VALVES RP80 & RP60

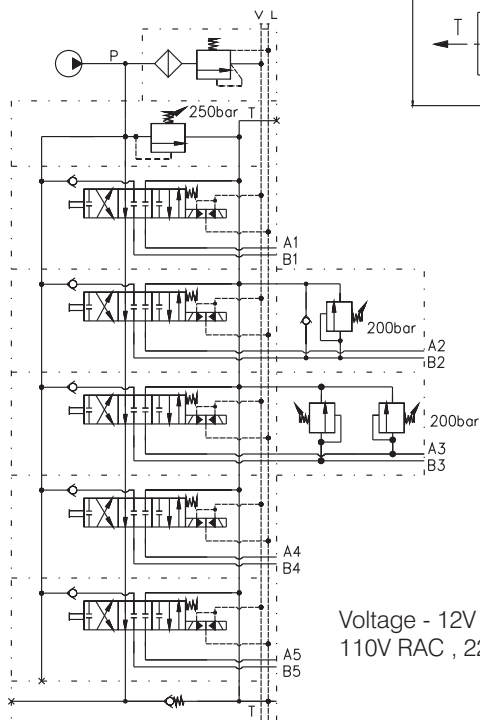
RP80 WITH ON/OFF ELECTROHYDRAULIC CONTROL - INTERNAL PILOT

RP80

RP80 EHI Dimensional drawing



Scheme



Voltage - 12V DC , 24V DC
110V RAC , 220V RAC

N. of sections	Dimension A mm (in)	Dimension B mm (in)	Dimension C mm (in)
1	109(4.29)	146(5.75)	125(4.92)
2	152(5.98)	189(7.44)	168(6.61)
3	195(7.68)	232(9.13)	211(8.31)
4	238(9.37)	275(10.83)	254(10)
5	281(11.06)	318(12.52)	297(11.69)

Internal pilot (EHI) consist of block with filter and pressure reducing valve , collector , back pressure valve (in the end cover) and pipes.
External pilot (EHE) operating features - max. flow 8l/min.
On/off electrohydraulic control operating features:
-pilot pressure min.10bar ; max. 50bar.
-max. flow 8l/min.
-filtration 25µm.

SECTIONAL CONTROL VALVES RP80 & RP60

SPOOLS

RP80&RP60

CODE	SCHEME	DESCRIPTION
1		Double acting , 3 position , 4 way A and B to tank in ②
2		Double acting , 3 position , 4 way A and B to tank in neutral
3		Double acting , 3 position , 4 way A and B blocked in neutral
4		Double acting , 4 position , 4 way A and B to tank in ③ (Float plunger)
5		Single acting on A , 3 position , 3 way , A blocked in neutral
6		Single acting on B , 3 position , 3 way , B blocked in neutral
7		Double acting , 3 position , 4 way A and B blocked in neutral. Series connection. Special spool required. Max. flow 30l/min. FOR RP60 ONLY
8		Double acting , 3 position , 4 way , B to T in neutral. P to A and B in ① . Special spool required. Max. flow 30l/min. FOR RP60 ONLY
9		Double acting , 3 position , 4 way , B to T in neutral. FOR RP60 ONLY

SPOOL CONTROL

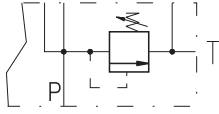
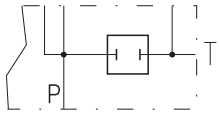
RP80&RP60

CODE	SCHEME	DESCRIPTION
1		Spring return to position 0
2		Detent in position 1 or 2. Spring return to neutral
6		Detent in position 3
7		Detent in three positions. Spring return to neutral.
8		Detent in three positions with kick-out to neutral from positions 1 , 2. Release pressure adjustable from 60 to 180bar. Special spool required. FOR RP80 ONLY
9		On/Off electropneumatic control - EPC spring return to neutral.
10		On/Off electrohydraulic control. Spring return to neutral.

SECTIONAL CONTROL VALVES RP80 & RP60


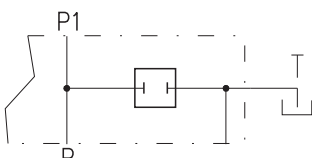
INLET COVER

RP80&RP60

CODE	SCHEME	DESCRIPTION
Q		Top inlet Pilot operated relief valve for RP80 Directly operated relief valve for RP60
K		Shut-off plug installed

OUTLET COVER

RP80&RP60

CODE	SCHEME	DESCRIPTION
R		Top outlet to tank
W		Shut-off plug installed

ORDERING CODE

RP80

RP 80 EHI / 3 / Q / M80 P 3 EL 10-12 B RVACB* / W / 2 / G N

Mechanical control - Omit
Electrohydraulic control internal pilot - EHI
Electrohydraulic control external pilot - EHE
Electropneumactical control - EPC

Number of operating sections 1...10

Inlet cover

Circuit
-parallel
-tandem
-combinations P+T

Spool type

Lever mechanism

Spool control type

Voltage:
for spool control type 9 ; 10

12V DC - 12
24V DC - 24
110V RAC - 11
220V RAC - 22

Lever position:
EHE , EHI - B port side only

Code
A-port side A
B-port side B

First section

Code
P
T
C

Application:
N - normal
T - tropic

Standard port threads:
G - BSP (ISO 228)
M - METRIC (ISO6149)
Special threads on request

Main relief valve setting-bar/psi

Code
1 30...320 (400...4570)
2 15...200 (210...2850)

Outlet cover

Code
RVA relief valve -port A
RVB -port B
RVAB -port A & B
CA combining port relief and anticavitation valve-port A
CB -port B
CAB -port A & B
KA anticavitation valve -port A
KB -port B
KAB -port A & B

Auxiliary valves:

* Repeat for each section
In case of identical section example
ordering code is:
RP80 / 5 / Q / 2x / / 3x / / W / 2 / G

SECTIONAL CONTROL VALVES RP80 & RP60

ORDERING CODE

RP60

RP 60 EHI / 3 / Q / M60 P 3 SL 10-12 B RVACB* / R / 2 / 1/2 N

Mechanical control - Omit
 Electrohydraulic control internal pilot - EHI
 Electrohydraulic control external pilot - EHE
 Electropneumal control - EPC

Number of operating sections 1...10

Inlet cover

Circuit Code
 -parallel P
 -tandem T
 -combinations P+T C

Spool type

Lever mechanism

Spool control type

Voltage: 12V DC - 12
 for spool control type 9 ; 10 24V DC - 24
 110V RAC - 11
 220V RAC - 22

Lever position: Code
 EHE , EHI - B port side only A-port side A
 B-port side B

Application:
 N - normal
 T - tropic

Standard port threads:
 P , T , A , B - 1/2" or 3/8"
 Special threads on request

Main relief valve setting -bar/psi

Standard setting:
 Omit - 96...210(1370...3000)
 1 211...320(3000...4570)
 2 30...100(400...1400)

Outlet cover

Auxiliary valves:
 Code
 RVA relief valve -port A
 RVB -port B
 RVAB -port A & B
 CA combining port relief and anticavitation valve-port A
 CB -port B
 CAB -port A & B
 KA anticavitation valve -port A
 KB -port B
 KAB -port A & B

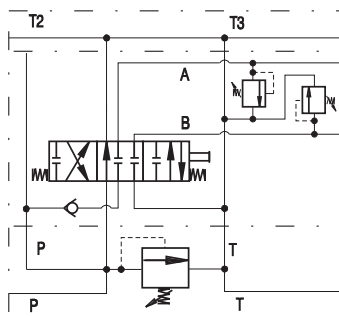
* Repeat for each section
 In case of identical section example ordering code is:

RP60 / 4 / Q / 2x / MP3SL1BRVA / 2x / MP3SL9B / R / 2 / G/12

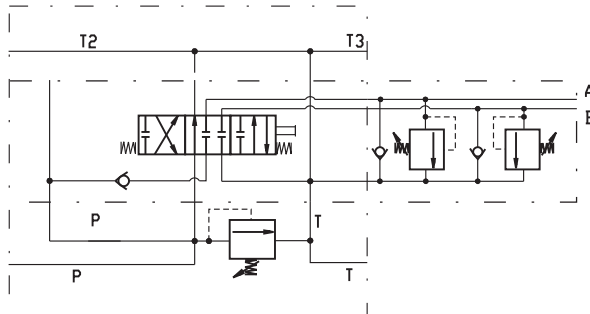
NOTE: Auxiliary valves build into sectional body.
 The valve pressure setting specify in order.

HYDRAULIC CIRCUIT APPLICATIONS

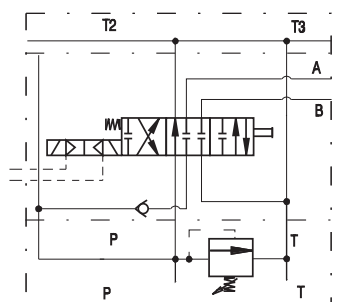
WITH PORT RELIEF VALVE



WITH COMBINED PORT RELIEF AND ANTICAVITATION VALVES



WITH ELECTRO-PNEUMATIC CONTROL



NOTE: Different applications of RP80 and RP60 are available on request. Consult factory for more technical data and performance curves

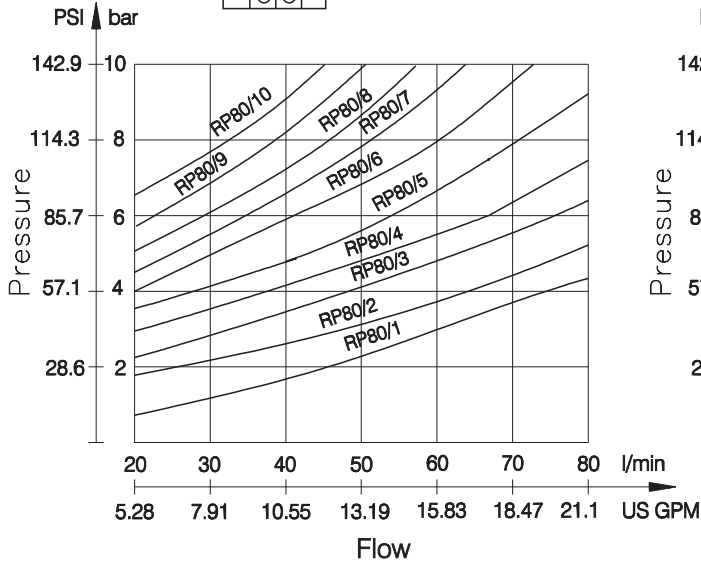
SECTIONAL CONTROL VALVES RP80 & RP60

PERFORMANCE CURVE

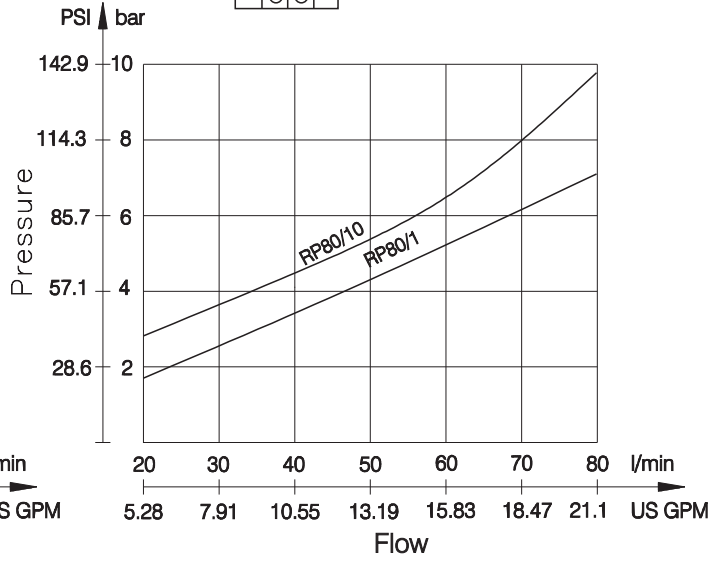
RP80

CONDITIONS:
 $\Delta P = f(Q)$
 36 cSt oil viscosity
 $T = 40^\circ\text{C} (104^\circ\text{F})$

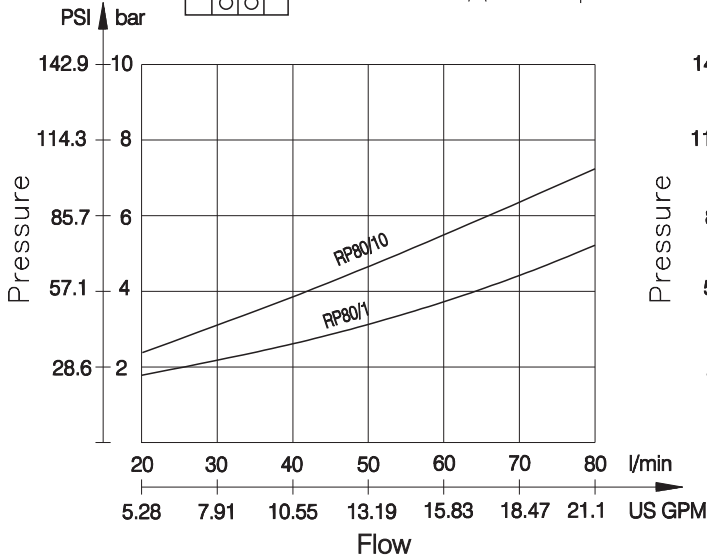
Pressure drop



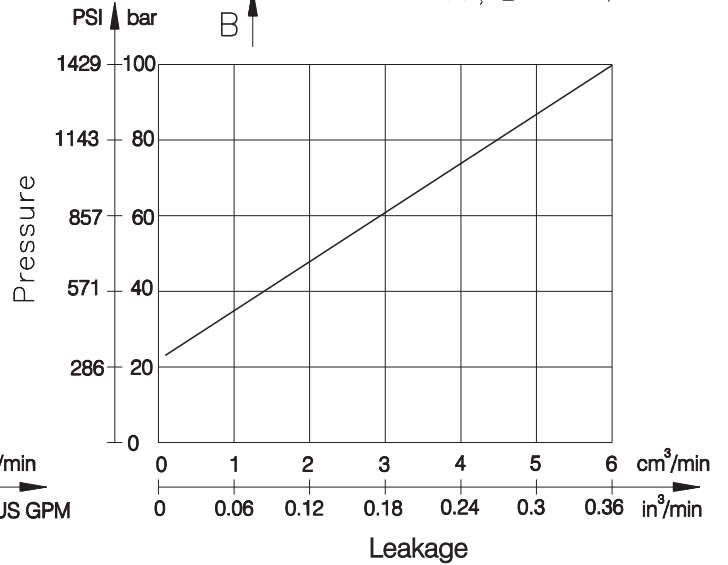
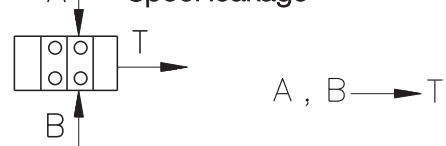
Pressure drop



Pressure drop



Spool leakage

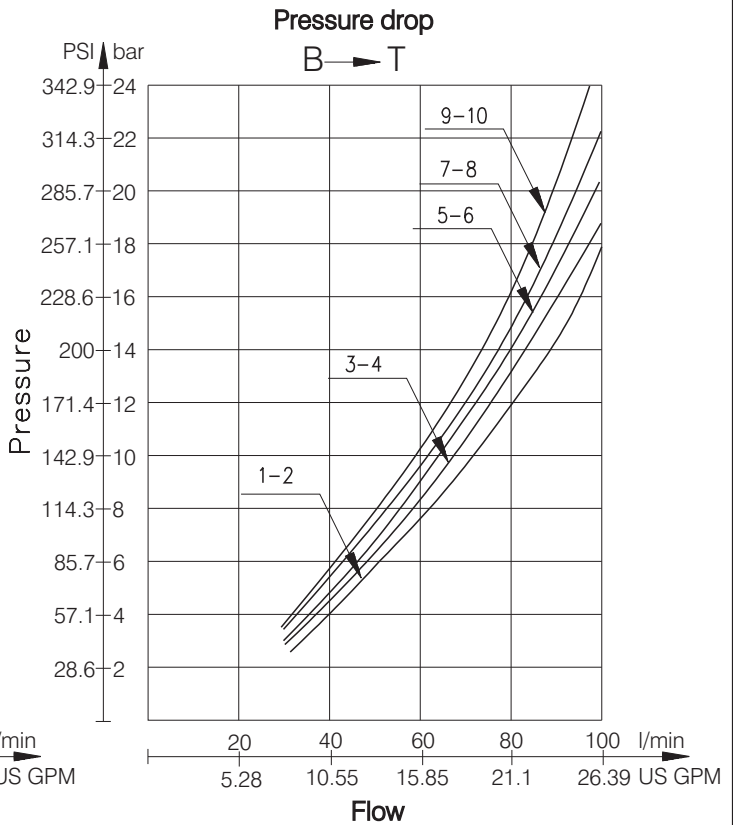
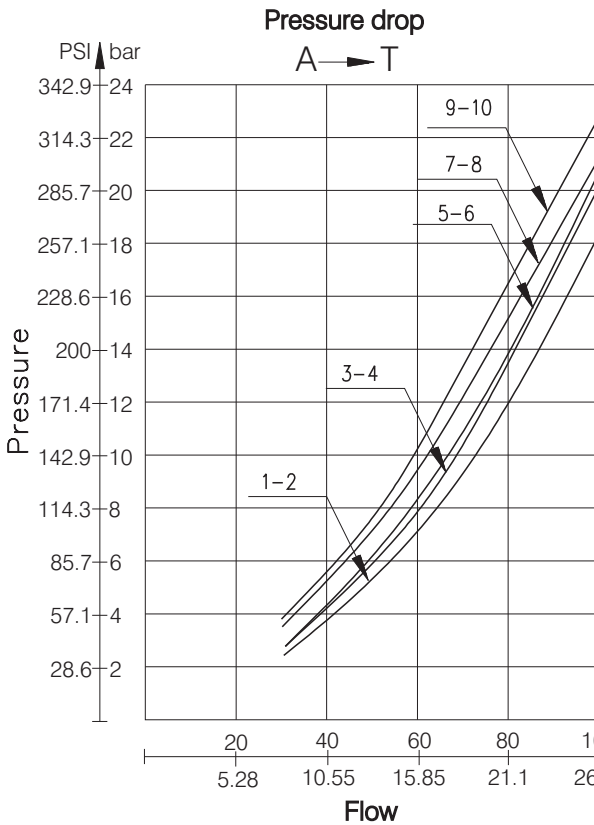
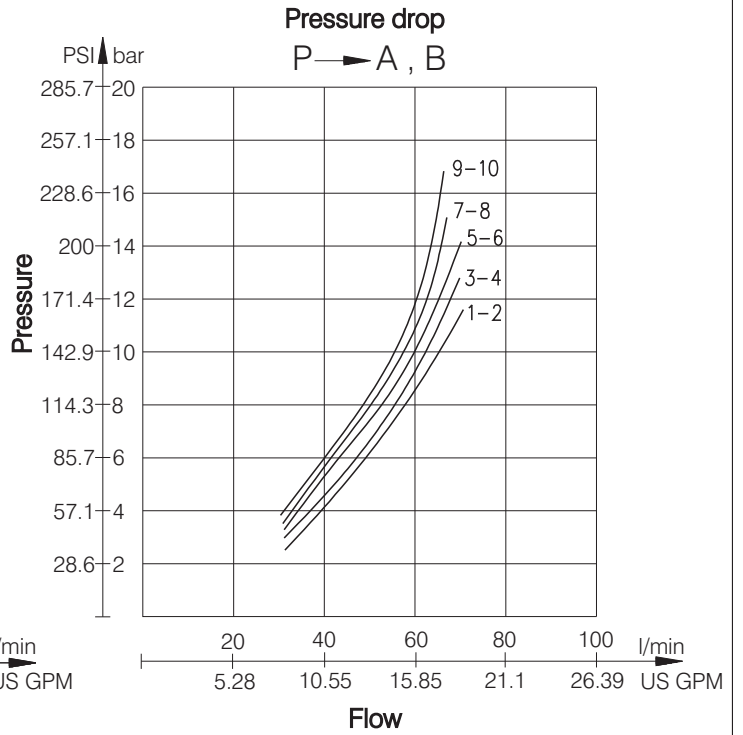
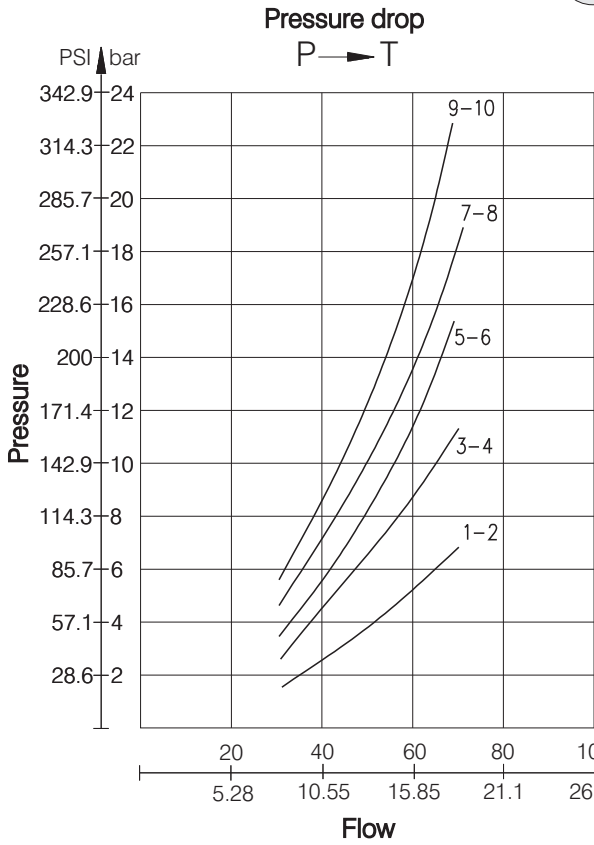


SECTIONAL CONTROL VALVES RP80 & RP60

PERFORMANCE CURVE

RP60

CONDITIONS:
 $\Delta P = f(Q)$
 36 cSt oil viscosity
 $T = 40^{\circ}\text{C} (104^{\circ}\text{F})$

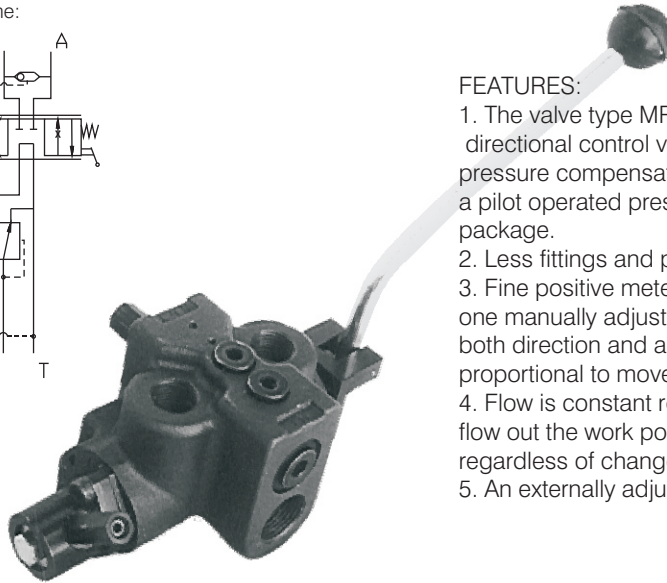
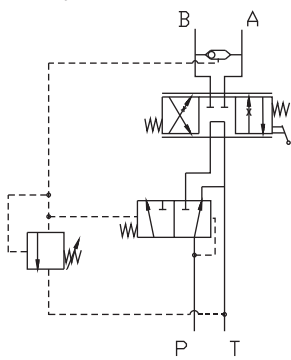


MONOBLOCK DIRECTIONAL CONTROL VALVE TYPE MRP 70

TECHNICAL DATA

DATA	UNIT	VALUE/RANGE
Rated flow	l/min (US GPM)	70 (18)
Rated pressure	bar (PSI)	210 (3000)
Standard port size: Inlet & outlet work ports A & B	BSP BSP	3/4" 1/2"
Working liquid - hydraulic oils with parameters: -viscosity -recommended viscosity -temperature -degree of filtration	mm ² /sec (cSt) mm ² /sec (cSt) °C (°F) mm (in)	15...300 20...80 -20...+80 (-4...+176) 0.025 (9.8 10 ⁻⁴)

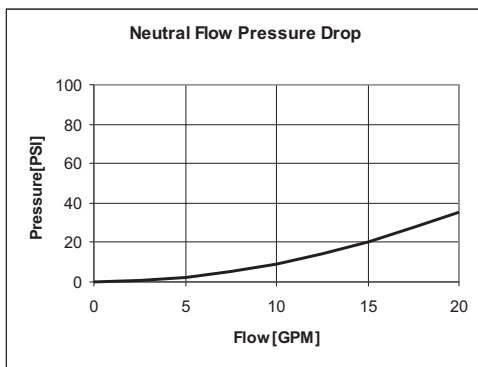
Hydraulic scheme:



FEATURES:

1. The valve type MRP 70 incorporates the features of a 4-way directional control valve, an adjustable full range pressure compensated by-pass type flow control valve and a pilot operated pressure relief valve all in one compact package.
2. Less fittings and plumbing, eliminates leakage points.
3. Fine positive metering is possible in either direction with one manually adjustable, infinitely variable lever controlling both direction and amount of flow. Amount of flow is proportional to movement of the lever.
4. Flow is constant regardless of pressure variations, thus flow out the work port remains smooth and constant regardless of changes in load conditions.
5. An externally adjustable pilot relief is standard.

PERFORMANCE CURVE

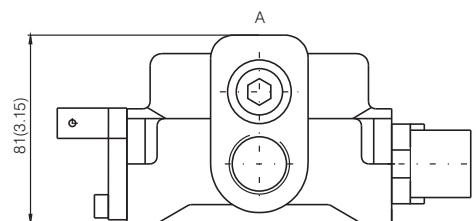
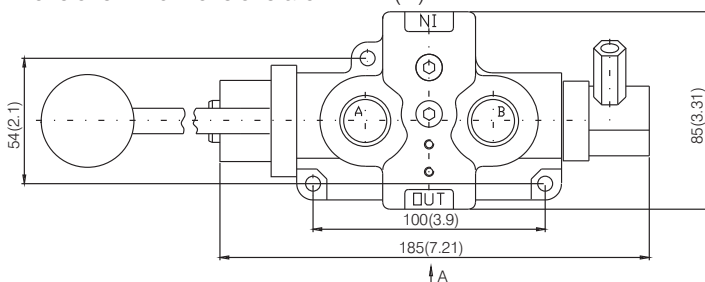


CONDITIONS:
 $\Delta P = f(Q)$
 36 cSt oil viscosity
 T = 40°C (104°F)

In this curve the pressure difference between the inlet and outlet is shown.

DIMENSIONS

Dimensions: All dimensions are in mm (in).



CONVERSION TABLE

Unit	≈	Factor	x	Unit
1 in	≈	25.4		mm
1 PSI	≈	0.07		bar
1 USGPM	≈	3.79		l/min
1 in ³	≈	16.66		cm ³
1 cSt	≈	1		mm ² /s
1 lbft	≈	1.347		Nm
5(°F-32)/9	≈	1		°C

ADDITIONAL INFORMATION

Different options and modifications are possible on request.

For additional information contact factory.

July 2010



BULGARIA , 6100 KAZANLAK , 45 STOLETOV STR.
TEL.:+359/431/62 229 , +359/431/6132 ,
FAX:+359/431/62 230 , +359/431/63 134
E-MAIL:CAPRONI@CAPRONI.BG , WEB:HTTP://WWW.CAPRONI.BG