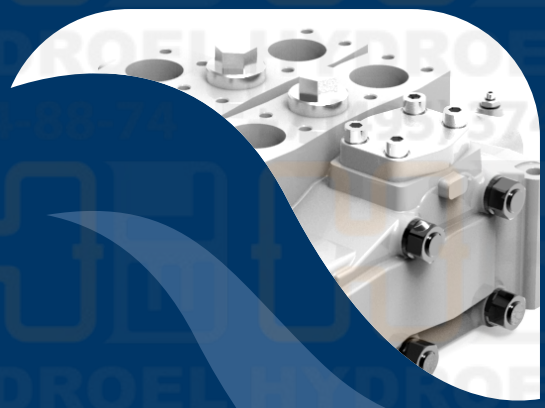

TECHNICAL CATALOGUE

D40

SECTIONAL VALVE

www.hydrocontrol-inc.com

hydro control

HYDROEL HYDROEL HYDROEL HYDROEL
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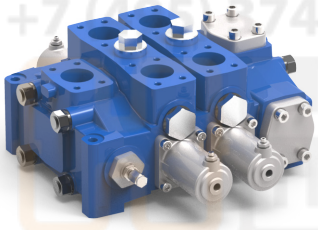
D40



Applications

The valve is available with manual and hydraulic remote controls.
Working sections have auxiliary valves and a broad range of interchangeable spools.
Suitable for applications including Wheel loaders, Truck cranes, Sea platform cranes, Drilling machines, Presses.

A member of
INTERPUMP GROUP

QUICK REFERENCE GUIDE

GENERAL SPECIFICATION	D9	D3M	DVS10	D4	D6	D16	D12	DVS20	D20	D25	D40
Working sections number	1-12	1-12	1-12	1-12	1-12	1-12	1-12	1-12	1-12	1-12	1-10
CIRCUIT											
Parallel	•	•	•	•	•	•	•	•	•	•	•
Series	•	•	•	•	•	•	•		•	•	
Tandem	•	•	•	•	•	•		•	•		
Parallel circuit stroke (mm)	6	5	6	6	7	7	9,5	9,5	9,5	12	15
Series circuit stroke (mm)	6	5	6	6	5	7	6,5		6,5	8,5	
Float spool extra stroke (mm)	5	5	5	5,5	6	7	7	7	7	9,5	10
Spools pitch (mm)	31	38	35	40	46	46	56	56	64	75	91
RATED FLOW											
Max recommended flow rate (l/min)	35	55	45	80	100	150	180	250	250	380	700
Max recommended flow rate (GPM)	10	15	12	22	27	40	48	67	67	100	185
RATED PRESSURE											
Max working pressure (bar)	350	350	350	350	350	350	350	250	350	350	350
Max working pressure (PSI)	5000	5000	5000	5000	5000	5000	5000	4000	5000	5000	5000

OPTION CHART	D9	D3M	DVS10	D4	D6	D16	D12	DVS20	D20	D25	D40
Direct acting pressure relief valve	•	•	•	•							
Pilot operated pressure relief valve		•		•	•	•	•	•	•	•	•
2 stage pilot operated relief valve		•		•	•	•	•		•	•	•
Externally piloted valve	•	•	•	•	•	•	•		•	•	•
Solenoid dump valve (12 Vdc)	•	•	•	•	•	•	•				
Solenoid dump valve (24 Vdc)	•	•	•	•	•	•	•				
Main anticavitation check valve		•		•	•	•	•	•	•	•	•
Clamping valve		•	•	•							
SPOOL ACTUATION											
Manual control	•	•	•	•	•	•	•	•	•	•	•
Without lever	•	•	•	•	•	•	•	•	•	•	•
90° joystick control		•	•	•	•	•					
Hydraulic control	•	•	•	•	•	•	•	•	•	•	•
Direct electric control (12-24 Vdc)		•		•							
SPOOL RETURN ACTION											
Spring return	•	•	•	•	•	•	•	•	•	•	•
Detent in A - in B - in A/B	•	•	•	•	•	•	•	•	•	•	•
Detent in 4th position	•	•	•	•	•	•	•	•	•	•	•
Arrangement for dual control	•	•		•	•	•	•		•		
Hydraulic load limit	•	•		•	•	•					
Pneumatic control ON - OFF		•	•	•	•	•	•	•	•		
Proportional pneumatic control		•	•	•	•	•	•	•	•		
Electrical load limit	•	•		•	•	•					
Electrohydraulic control ON-OFF (12-24 Vdc)		•	•	•	•	•	•	•	•		
Electrohydraulic control PROP. (12-24 Vdc)		•	•	•	•	•	•	•	•		
Electropneumatic control (12-24 Vdc)		•	•	•	•	•	•		•		
AUXILIARY VALVES											
Antishock valve	•	•	•	•	•	•	•	•	•	•	•
Anticavitation valve	•	•	•	•	•	•	•	•	•	•	•
Combined valve	•	•	•		•	•	•		•	•	•
Pilot combined valve						•		•	•	•	•

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The specifications detailed in this catalogue show standard products. Special applications are available to order subject to contacting our Engineering Department for an estimate. The data and specifications indicated are to be considered a guide only and Hydrocontrol S.p.A. reserves the right to introduce improvements and modifications without prior notice. Hydrocontrol is not responsible for any damage caused by an incorrect use of the product.

GENERAL SPECIFICATIONS

Standard working conditions

Description	Value
Ambient operating temperature range	-40°C / +60°C
Kinematic viscosity range	10 ÷ 300 cSt
Max contamination level	9 (NAS 1638) - 20/18/15 (ISO 4406:1999)
Recommended filtration level	β10 > 75 (ISO 16889:2008)
Internal filter (on electroproportional valves pilot line)	30 µm

All information and diagrams in this catalogue refer to a mineral base oil VG46 at 50°C temperature (32 cSt kinematic viscosity)

Fluid options

Types of fluid (according to IS0 6743/4) Oil and Solutions	Temperature (°C)		Compatible gasket
	min	max	
Mineral Oil HL, HM (or HLP acc. to DIN 51524)	-25	+80	NBR
Oil in water emulsions HFA	+5	+55	NBR
Water in oil emulsions HFB	+5	+55	NBR
Polyglycol-based aqueous solution HFC	-10	+60	NBR

For special applications and different fluids, please call our Technical Department.

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ORDER EXAMPLE

D40/1:	IR 009 150 A G09	W001A H006 RP G09 04 PA 100 04 PB 100	TJ A G09

TYPE:
D40: product type
/1: working section number

1) INLET ARRANGEMENT: pag. 10

IR 009	inlet side and valve type
150	setting (bar)
A G09	inlet position and available thread type

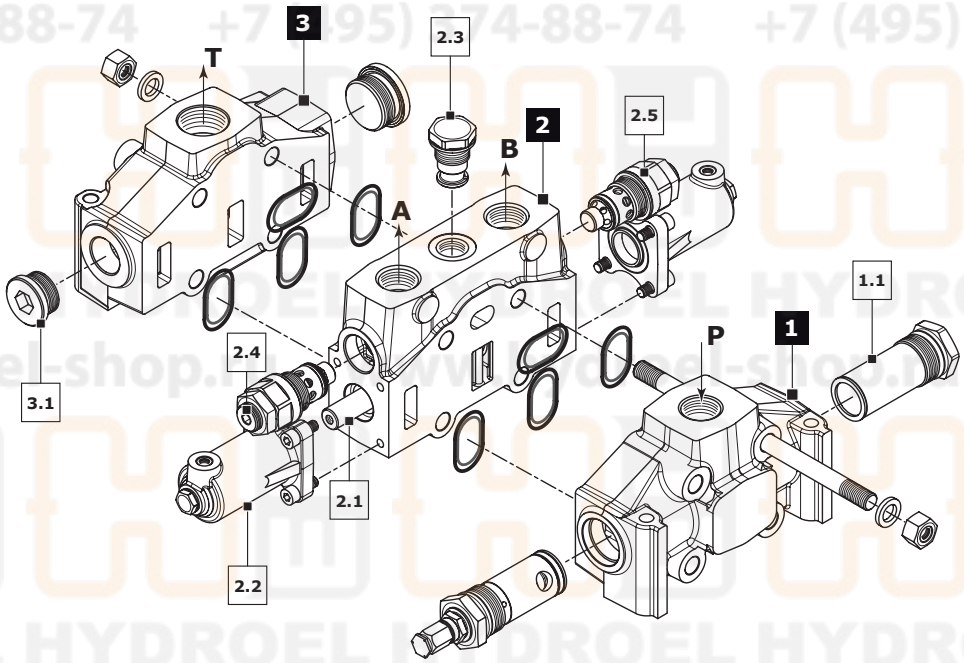
2) WORK SECTION ARRANGEMENT: pag. 14

W001A	spool type
H005	spool actuation type
RP G09	type and thread section
04 PA 100	auxiliary valve (port A)
04 PB 100	auxiliary valve (port B)

3) OUTLET ARRANGEMENT: pag. 25

TJ	outlet type
A G09	outlet position and available thread type

Ordering row 2 must be repeated for every work section



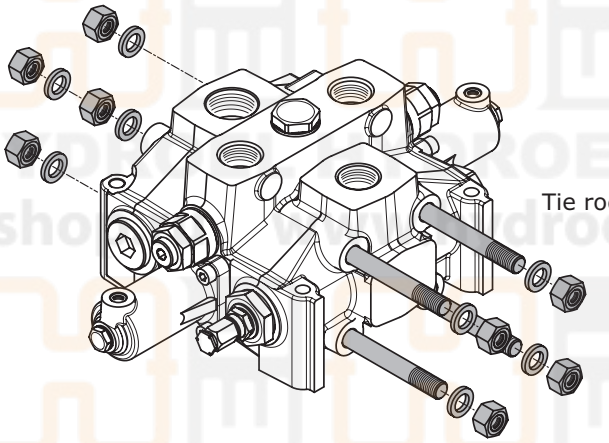
Standard thread

The connection ports size is indicated by an ordering code common for all Hydrocontrol products. Following table shows all available connections; for ordering code refer to table on page 32.

ports	BSP (ISO-228)		SAE 3000 (ISO 6162-1)		SAE 6000 (ISO 6162-6)	
Inlet Port (P)	G 2"	G09	1"1/2 MA - 1"1/2 UNC 2" MA - 2" UNC	S09-S10 S11-S12	1"1/2 MA - 1"1/2 UNC	S39-S40
Ports (A - B)	G 2"	G09	1"1/2 MA - 1"1/2 UNC 2" MA - 2" UNC	S09-S10 S11-S12	1"1/2 MA - 1"1/2 UNC	S39-S40
Outlet (T)	G 2"	G09	2" MA - 2" UNC	S11-S12	-	
Carry over (HPCO)	G 2"	G09	2" MA - 2" UNC	S11-S12	1"1/2 MA - 1"1/2 UNC	S39-S40
Hydraulic Pilot	G 1/4	G02	-		-	
Pneumatic Pilot	G 1/8					

Tie-rod kit classification (appendix "A")

Tie rod kit allows the correct assembly of sectional valves. Tie rod's length depends on the number of sections; each valve is assembled with tie rod kits including a tie rod, two nuts and two washers. D40 requires 4 tie-rod kits.



Tie rod kits

Tie rod kit	Order Code	Lenght (mm)	Clamping Torque (Nm)	Quantity
D40/1	300110001	334	250	4
D40/2	300110002	425		
D40/3	300110003	516		
D40/4	300110004	607		
D40/5	300110005	698		
D40/6	300110006	789		
D40/7	300110007	880		
D40/8	300110008	971		
D40/9	300110009	1062		
D40/10	300110010	1153		

Painting

On request, all Hydrocontrol valves can be delivered painted (RAL 9005 black primer).

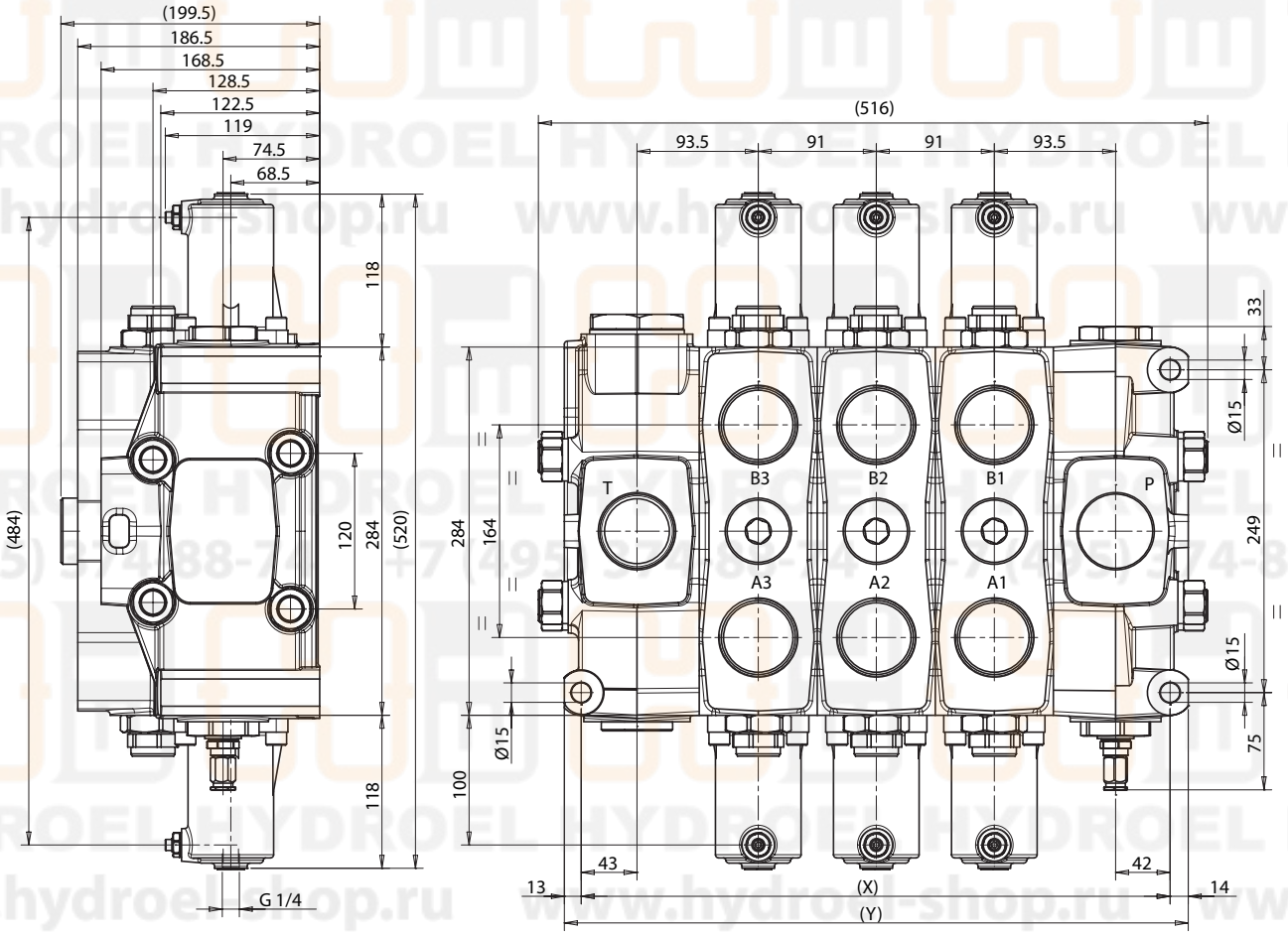
Order example of D40/1 painted:
D40/1
IR 009 150 A G09
W001A H005 RP G09 04 PA 100 04 PB 100
TJ A G09
P006/1 N10

The painting is indicated with the following value:

P006 - /1 - N10

- N10 — Color black
- /1 — section number
- P006 — Painted

DIMENSIONS

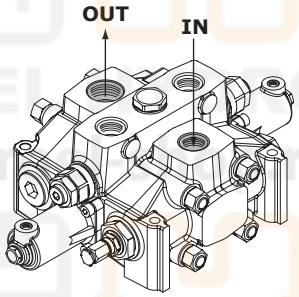


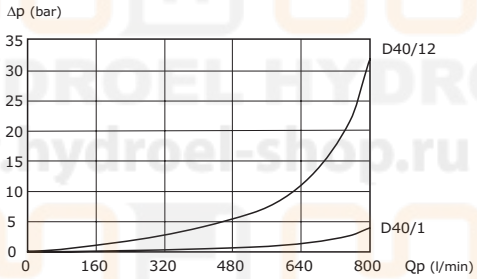
TYPE	/1	/2	/3	/4	/5	/6	/7	/8	/9	/10
X (mm)	272	363	454	545	636	727	818	909	1000	1091
Y (mm)	299	390	481	572	663	754	845	936	1027	1118
Weights (kg)	75	104	133	162	191	220	249	278	307	336

TYPICAL CURVES

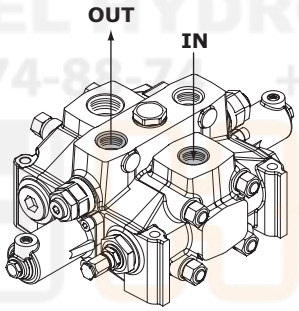
Indicated values have been tested with standard sectional valve and W001A spool.

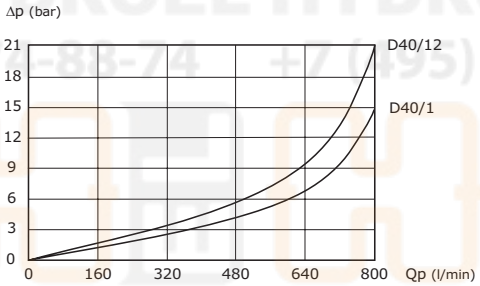
Pressure drop (P - T)



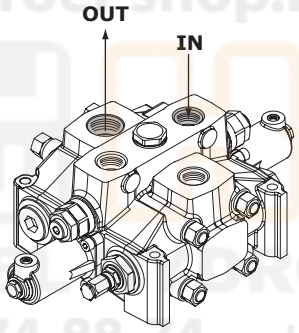


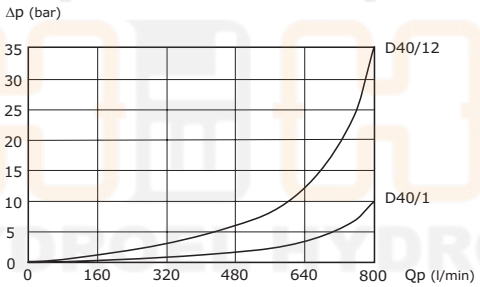
Pressure drop (P - A/B)





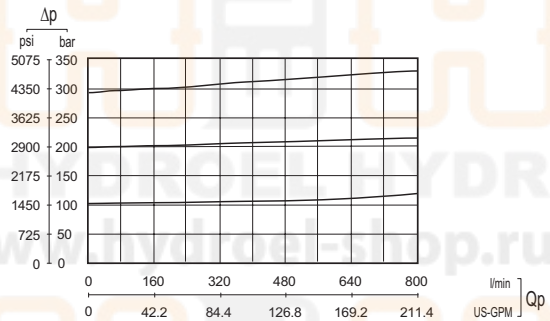
Pressure drop (A/B - T)





Pilot operated relief valve curve

Setting ranges	
type	**pressure (bar)**
A	0 - 350

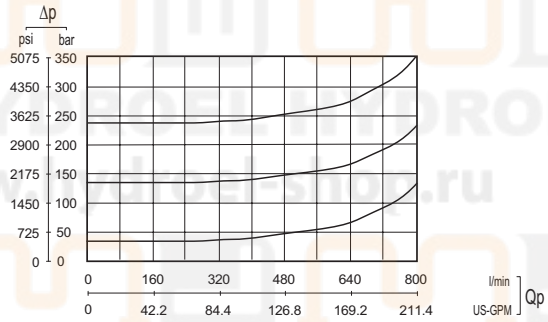


TYPICAL CURVES

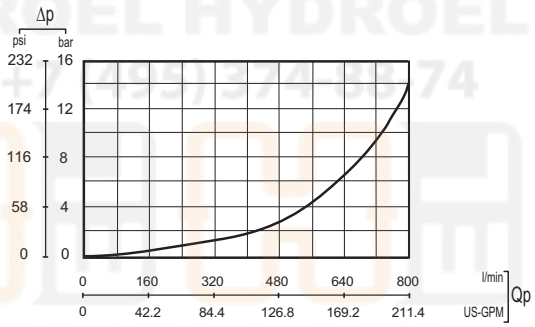
Indicated values have been tested with standard sectional valve and W001A spool.

Pilot combined valve curve

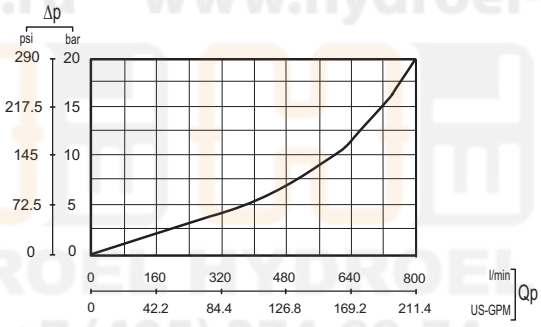
Setting ranges	
type	**pressure (bar)**
A	45 - 65
B	66 - 350



Main anticavitation check valve curve

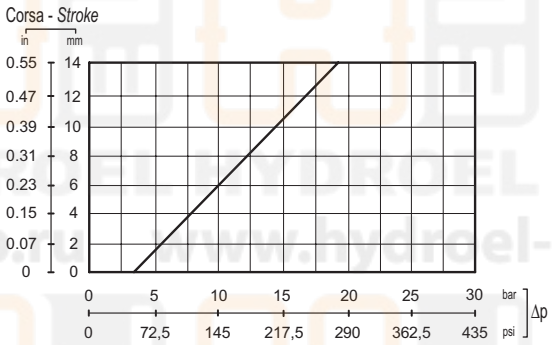


Anticavitation check valve curve



Hydraulic pilot control curve

The diagram shows the spool stroke as a function of the pressure operating.

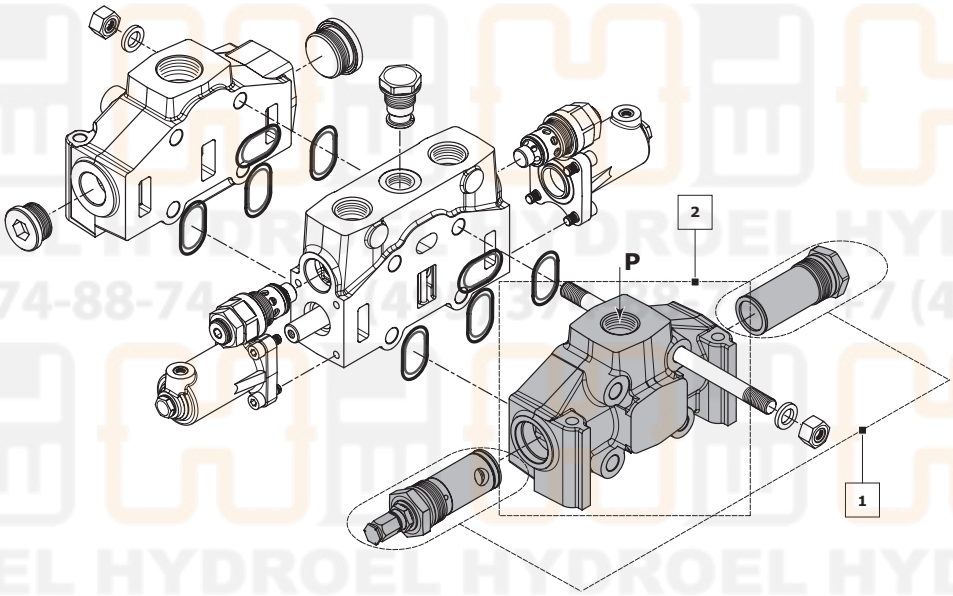


INLET SECTION

Order example

IR	009	150	A G09

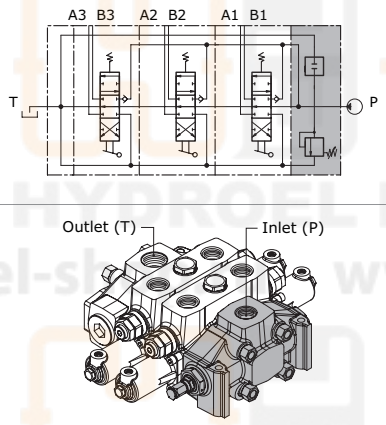
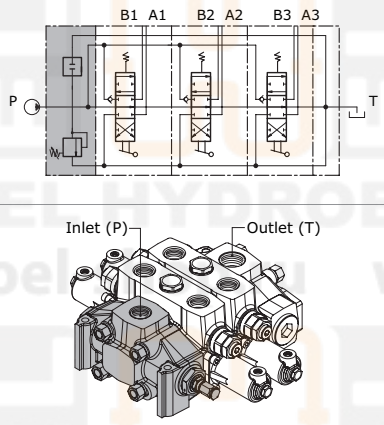
	IR	inlet side classification
1.	**009**	valve arrangement
	150	setting (bar)
2.	**A G09**	inlet position and available thread type



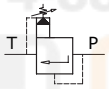
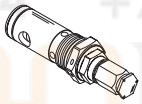
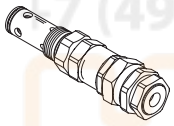
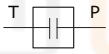
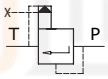
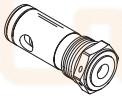
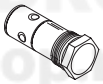
Rif.	Code	Description	Page
-	**IR**	Sectional valve with right inlet section	**11**
	IL	Sectional valve with left inlet section	
1	**009**	Pilot operated pressure relief valve	**12**
	010	Pilot operated pressure relief valve and Main anticavitation check valve	
	019	Without valves	
2	**A G09**	Upper inlet (thread G 2”)	**13**
	A S09	Upper inlet (thread SAE 3000 1”1/2 MA)	
	A S39	Upper inlet (thread SAE 6000 1”1/2 MA)	

NOTE: when ordering a relief valve it is necessary to specify factory setting (example 150).

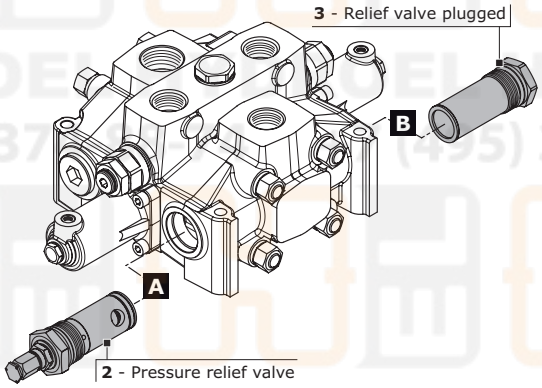
Inlet side classifications

	Sectional valve with **right inlet** section	Sectional valve with **right inlet** section
		
	IR	**IL**

Valve identification

type	schema	layout	description	type	schema	layout	description
2			Pilot operated pressure relief valve	**5**			2 stage pilot operated relief valve
3			Relief valve plugged	**6**			Externaly piloted valve
4			Main anticavitation check valve	**11**			Plug with pressure-gauge connection

Valve arrangement



Combination valve example: 009 = 2A - 3B

009 Combination valve
2A Pressure relief valve in port A
3B Relief valve plugged in port B

The code identifies:
with a number, the type of valve; with a letter its position on the inlet section.

(A) = spool action side
(B) = spool return action side

NOTE: when ordering a main relief valve it is necessary to specify setting

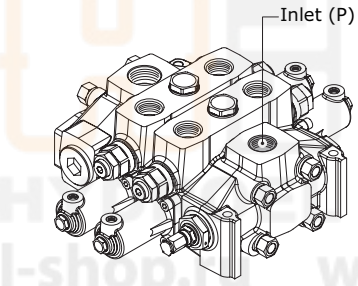
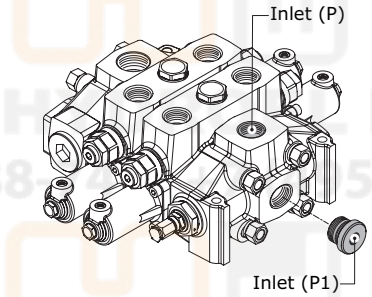
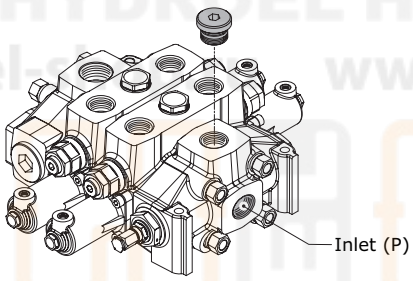
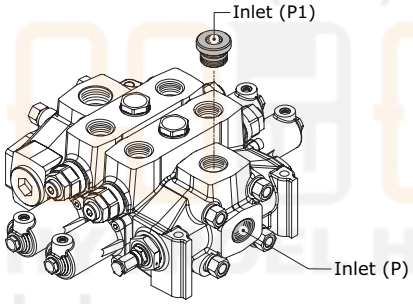
VALVE COMBINATION INLET SECTION		Valve type on port B					
		2	3	4	5	6	11
Valve type on port A	2		009	010		011	016
	3	018	019	020	021	022	027
	4	029	030		031	032	037
	5		038				
	6	047	048				
	11	085					

NOTE: Valve combinations 021, and 038 requires double setting (see example).

Order example for inlet section: IR **038 200*280** A G05

038 valve combination
200*380 double range setting (bar)

Inlet combination and thread available

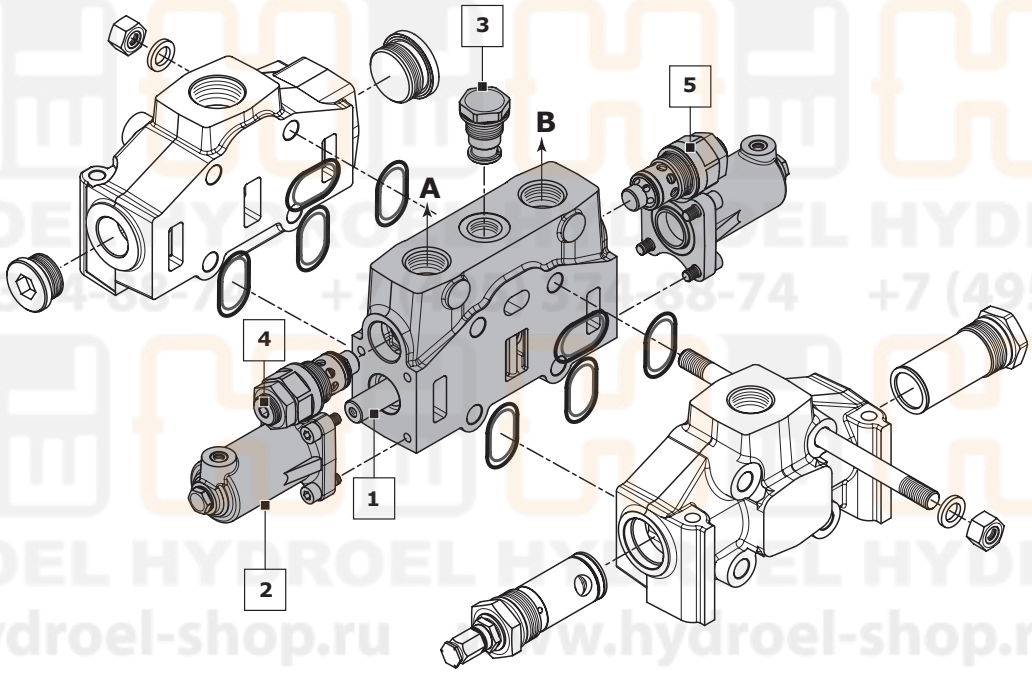
A G09		Upper inlet (thread G 2”)
A S09		Upper inlet (thread SAE 3000 - 1”1/2 MA)
A S10		Upper inlet (thread SAE 3000 - 1”1/2 UNC)
A S11		Upper inlet (thread SAE 3000 - 2” MA)
A S12		Upper inlet (thread SAE 3000 - 2” UNC)
A S39		Upper inlet (thread SAE 6000 - 1”1/2 MA)
A S40		Upper inlet (thread SAE 6000 - 1”1/2 UNC)
B G09		Upper inlet P1 with pressure-gauge connection G 1/4 (thread G 2”)
B S09		Upper inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 1”1/2 MA)
B S10		Upper inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 1”1/2 UNC)
B S11		Upper inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 2” MA)
B S12		Upper inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 2” UNC)
B S39		Upper inlet P1 with pressure-gauge connection G 1/4 (thread SAE 6000 - 1”1/2 MA)
B S40		Upper inlet P1 with pressure-gauge connection G 1/4 (thread SAE 6000 - 1”1/2 UNC)
C G09		Central side inlet (thread G 2”)
C S09		Central side inlet (thread SAE 3000 - 1”1/2 MA)
C S10		Central side inlet (thread SAE 3000 - 1”1/2 UNC)
C S11		Central side inlet (thread SAE 3000 - 2” MA)
C S12		Central side inlet (thread SAE 3000 - 2” UNC)
C S39		Central side inlet (thread SAE 6000 - 1”1/2 MA)
C S40		Central side inlet (thread SAE 6000 - 1”1/2 UNC)
D G09		Central side inlet P1 with pressure-gauge connection G 1/4 (thread G 2”)
D S09		Central side inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 1”1/2 MA)
D S10		Central side inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 1”1/2 UNC)
D S11		Central side inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 2” MA)
D S12		Central side inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 2” UNC)
D S39		Central side inlet P1 with pressure-gauge connection G 1/4 (thread SAE 6000 - 1”1/2 MA)
D S40		Central side inlet P1 with pressure-gauge connection G 1/4 (thread SAE 6000 - 1”1/2 UNC)

WORKING SECTION

Order example:

W001A	H005	RP G09	04 PA 100	04 PB 100

1.	**W001A**	spool type
2.	**H005**	spool actuation type
3.	**RP G09**	section and thread type
4.	**04 PA 100**	auxiliaty valve (port A - handle side)
5.	**04 PB 100**	auxiliaty valve (port B - cap side)



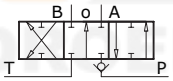
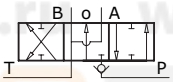
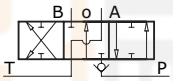
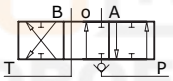
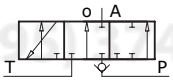
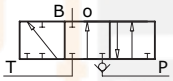
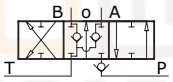
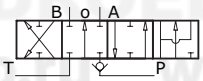
Rif.	Code	Description	Page
1	**W001**	3 positions double-acting	**15**
	W002	3 positions double-acting A-B to tank	
2	**H101**	Unprotected lever	**16**
	H005*	hydraulic actuation	
3	**RP G09**	Parallel circuit (thread G 2”)	
	RP S09	Parallel circuit (thread SAE 3000 1”1/2 MA)	
	RP S39	Parallel circuit (thread SAE 6000 1”1/2 MA)	
4	**04 PA 100**	Pilot combined valve (port A)	**18**
	05 PA	Prearrangement for auxiliary valve (port A)	
5	**04 PB 100**	Pilot combine valve (port B)	
	05 PB	Prearrangement for auxiliary valve (port B)	

NOTE: (*) Leave out the spool return action code when choosing H005.
Sections designed to house auxiliary valve option require double choice on work ports A and B.
Always indicate setting value when using Pilot combined valve: **04 PA (100)**

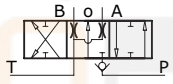
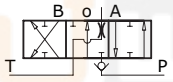
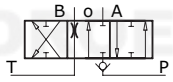
Spool identification

order example of spool: **W001 A J10**

W001	spool schema	3 positions double-acting
A	spool type	standard spool
J10	restricted service ports	restriction on diameter (0,10 mm in A and B)

W001	3 positions double-acting	
W002	3 positions double-acting A and B to tank	
W003	3 positions double-acting A to tank B blocked	
W004	3 positions double-acting A blocked B to tank	
W005	3 positions single - acting on A	
W006	3 positions single - acting on B	
W009	3 positions double-acting with anticavitation valves	
W012	4 positions double-acting with float in the 4th position	

spools with restricted service ports

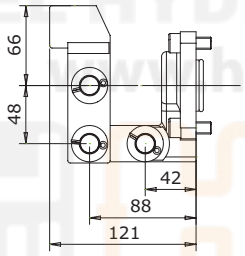
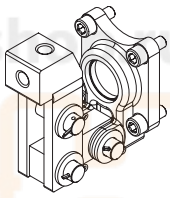
code	circuit	restriction on diameter (mm)	section (mm²)	hydraulic schema
J10	A-B IN T	0,10	5,65	
K10	A IN T	0,10	5,65	
Y10	B IN T	0,10	5,65	

CODE	spool type available STANDARD A	METERED B
W001	W001A	W001B
W002	W002A	W002B
W003	W003A	W003B
W004	W004A	W004B
W005	W005A	
W006	W006A	
W009	W009A	
W012	W012A	

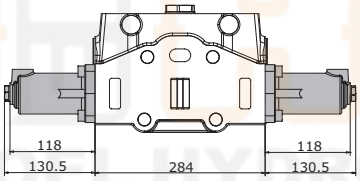
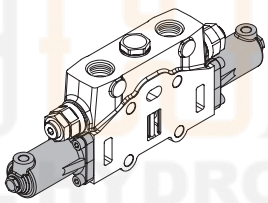
NOTE:
- W012 spool need a special machining on the valve body.
- Float spool (W012) need special detent kit (F005).
- Different spools are available on request.

Plaese contact our Sales department for more information.

Spool actuation classification for manual control

code	description	dimensions	configuration
H101	Unprotected lever		
H102	Unprotected lever rotated 180°		

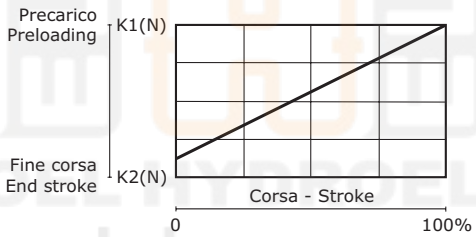
Spool actuation classification for Hydraulic control

code	description	dimensions	configuration
H005 leave out the spool return action code	Hydraulic actuation with side ports BSP ports = G 1/4 UNF ports = 9/16-18 UNF		

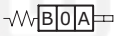
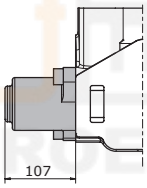
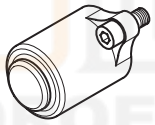
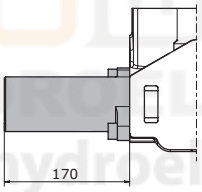
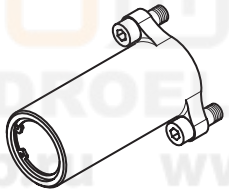
Spool return action classification - Springs load values

Spool return kits have three different sprong types; following the codes depending on spring loads.

Spring type	
Code	**A** (standard spring)
Preloading	272.6 N
End of stroke	593.5 N
Spool return action identification example	
Code	**F001A**



Spool return action classification

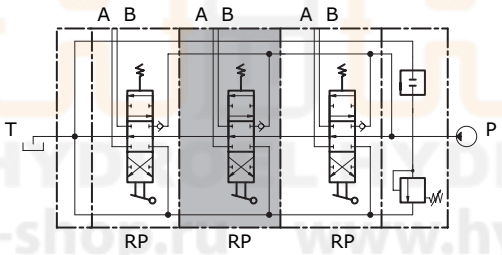
code	description	schema	dimensions	configuration
F001A	3 positions spring-centred spool			
F002A	3 positions spring-centred spool detent in A and B			
F003A	3 positions spring-centred spool detent in A			
F004A	3 positions spring-centred spool detent in B			
F005A	4 positions spring-centred spool detent in 4th position (only for W012 spool)			

Compatibility table

SPOOL ACTION TYPE	SPOOL TYPE											
	W001A	W001B	W002A	W002B	W003A	W003B	W004A	W004B	W005A	W006A	W009A	W012A
H101	•	•	•	•	•	•	•	•	•	•	•	•
H102	•	•	•	•	•	•	•	•	•	•	•	•
H005	•	•	•	•	•	•	•	•	•	•	•	•
SPOOL RETURN ACTION TYPE	**SPOOL TYPE**											
	W001A	W001B	W002A	W002B	W003A	W003B	W004A	W004B	W005A	W006A	W009A	W012A
F001	•	•	•	•	•	•	•	•	•	•	•	
F002	•	•	•	•	•	•	•	•	•	•	•	
F003	•	•	•	•	•	•	•	•	•	•	•	
F004	•	•	•	•	•	•	•	•	•	•	•	
F005												•

Work section identification

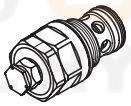
working section type
RP G09
RP S09
RP S10
RP S11
RP S12
RP S39
RP S40

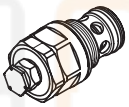


Parallel circuit section

When the spool is operated it intercepts the by-pass gallery by diverting the flow of oil to service port A or B. If two or more spools are actuated at the same time, the oil will power the service port that has the lower load; by throttling the spools, the flow of oil can be divided between two or more service ports.

Auxiliary valve identification

code	description	schema	configuration	type	setting range (bar) at full flow
02 PA	Anticavitation valve (port A)				
04 PA	Pilot combined valve (port A)			A	45 / 65
				B	66 / 350
05 PA	Prearrangement for auxiliary valve (port A)				

code	description	schema	configuration	type	setting range (bar) at full flow
02 PB	Anticavitation valve (port B)				
04 PB	Pilot combined valve (port B)			A	45 / 65
				B	66 / 350
05 PB	Prearrangement for auxiliary valve (port B)				

Auxiliary valve - Setting range

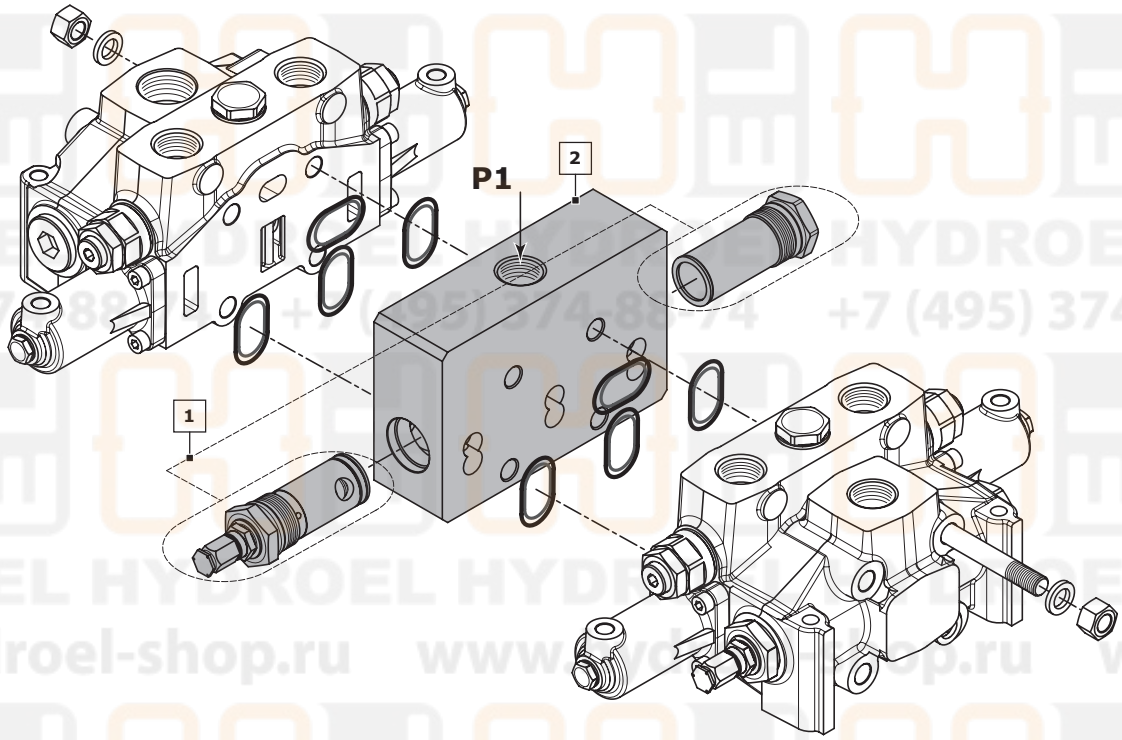
Sections designed to house auxiliary valve option require double choise on work ports A and B.
Always indicate setting value when using pilot combined valve: **04 PA 100**

INTERMEDIATE INLET SECTION

Order example

BE	009	150	A G09

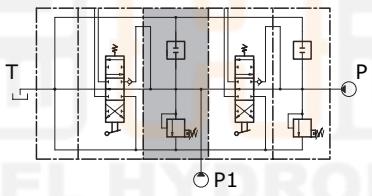
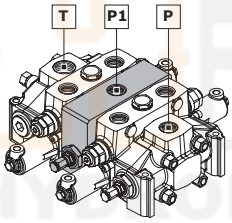
	BE	inlet side
1.	**009**	valve arrangement
	150	setting (bar); when ordering a main relief valve it is necessary to specify setting
2.	**A G09**	inlet position and available thread type



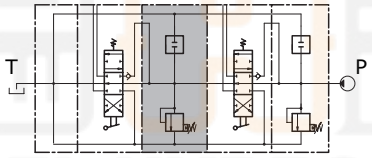
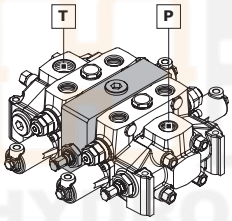
Rif.	Code	Description	Page
-	**BE**	Intermediate inlet section	**20**
	BV*	Intermediate inlet section with pressure relief valve	
1	**009**	Pilot operated pressure relief valve	**21**
	010	Pilot operated pressure relief valve and Main anticavitation check valve	
	019	Without valves	
	020	Main anticavitation check valve	
2	**A G09**	Upper inlet (thread G 2”)	
	A S09	Upper inlet (thread SAE 3000 1”1/2 MA)	

NOTE: when ordering a relief valve it is necessary to specify factory setting (example 150).
* = omit the code for inlet positioning and thread

Intermediate inlet section classifications

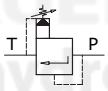
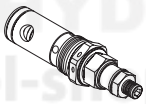
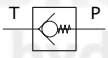
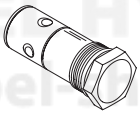
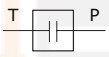
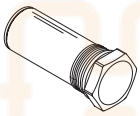
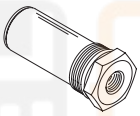
intermediate inlet type			
BE			Intermediate inlet section

The intermediate inlet section is driven by two pumps (P + P1). The downstream elements can be set to a lower pressure than the upstream ones by adjusting the pressure relief valve of the intermediate section in question.

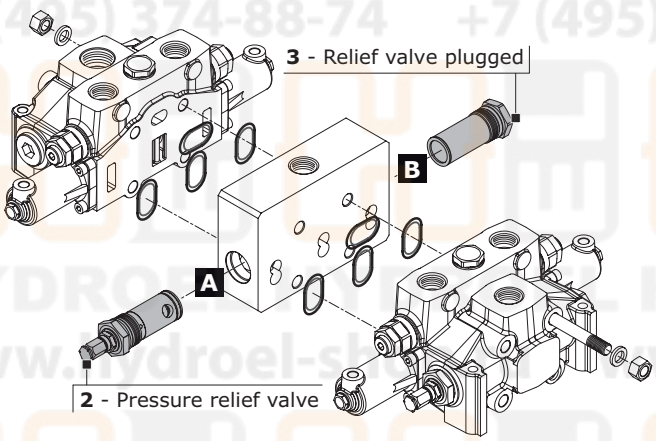
BV			Intermediate inlet section with pressure relief vlalve

The intermediate inlet section and the elements are driven by a single pump (P). The downstream elements can be set to a lower pressure than the upstream ones by adjusting the pressure relief valve of the intermediate section in question.

Valve identification on intermediate inlet section

type	schema	layout	description	type	schema	configurazione	descrizione
2			Pilot operated pressure relief valve	**4**			Externaly piloted valve
3			Relief valve plugged	**11**			Plug with pressure-gauge connection

Valve arrangement on intermediate inlet section



Combination valve example: 009 = 2A - 3B

009 Combination valve
2A Pressure relief valve in port A
3B Relief valve plugged in port B

The code identifies:
with a number, the type of valve; with a letter its position on the inlet section.

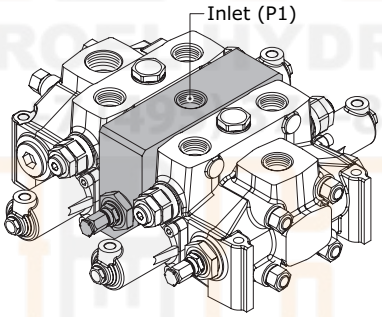
(A) = spool action side
(B) = spool return action side

NOTE: when ordering a main relief valve it is necessary to specify setting

VALVE COMBINATION INLET SECTION		Valve type on port B			
		2	3	4	11
Valve type on port A	2		009	010	016
	3	018	019	020	027
	4	029	030		
	11	085	086		

Inlet combination and thread available

A G09
A S09
A S10
A S11
A S12
A S39
A S40



Upper inlet

Complete configuration samples for D40/2 with intermediate inlet section (BE)

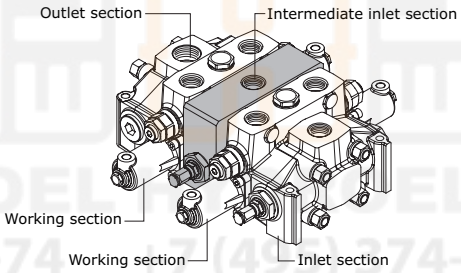
IR 009 150 A G09 ..... Right inlet section

W001A H005 RP G09 ..... Working section

BE 009 150 A G09 .....Intermediate inlet section

W001A H005 RP G09 ..... Working section

TJ A G09 ..... Outlet section



Complete configuration samples for D40/2 with intermediate inlet section (BV)

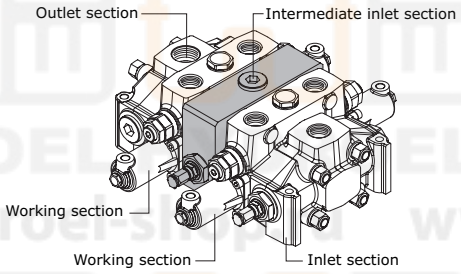
IR 009 150 A G09 ..... Right inlet section

W001A H005 RP G09 ..... Working section

BV 009 150 .....Intermediate inlet section

W001A H005 RP G09 ..... Working section

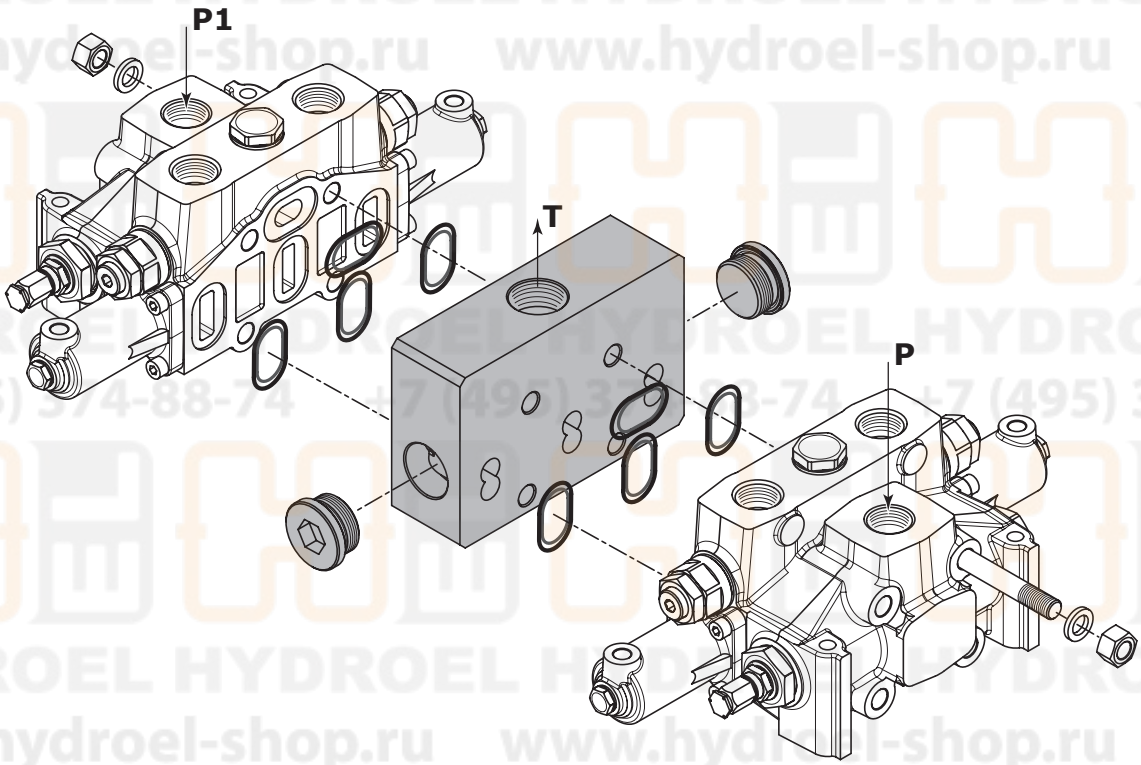
TJ A G09 ..... Outlet section



INTERMEDIATE OUTLET SECTION

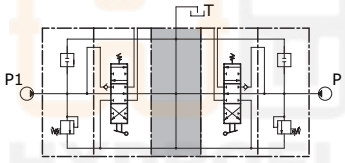
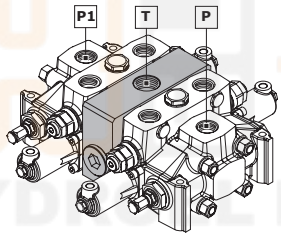
Order example

			BF	A G09
	BF	inlet side		
1.	**A G09**	inlet position and available thread type		

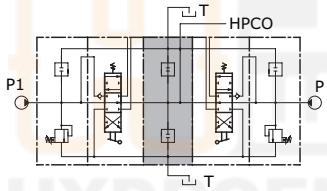
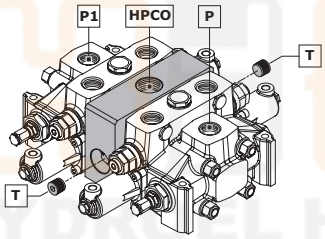


Rif.	Code	Type	Description	Page
-	**BF**		Intermediate outlet section with single tank return	
	BG		Intermediate outlet section with two tank returns	
1	**A G09**		Upper outlet (thread G 2”)	
	A S11		Upper outlet (thread SAE 3000 2” MA)	
	G G09	for	Front outlet side A (thread G 2”)	**23**
	G S11	BF	Front outlet side A (thread SAE 3000 2” MA)	
	H G09		Rear outlet side B (thread G 2”)	
	H S11		Rear outlet side B (thread SAE 3000 2” MA)	
	J G09	for	Upper outlet HPCO - front side A and rear side B to T (thread G 2”)	
	J S11	BG	Upper outlet HPCO-front side A and rear side B to T (thread SAE 3000 2” MA)	

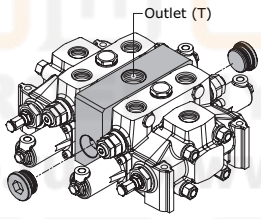
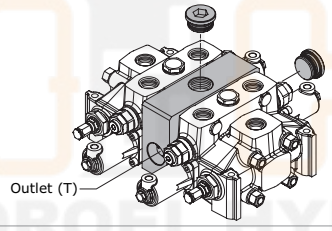
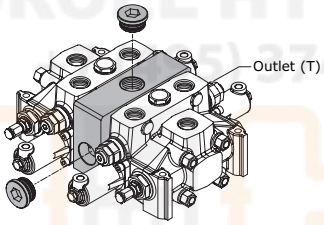
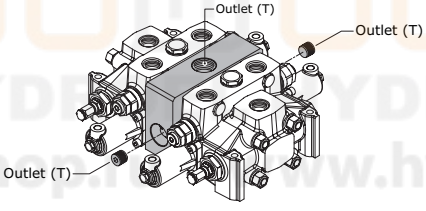
Intermediate outlet section classifications

intermediate outlet type			
BF	 	Intermediate outlet section **with single tank return**

The above outlet section allows the flow of oil of the two pumps and the tank ports to be piped to a single outlet T.

BG	 	Intermediate outlet section **with two tank returns**

The section in question allows the flow of oil of the two pumps to be piped in two outlets: HPCO for powering another directional control valve, T for discharge of the work ports. In order to obtain this, the two T need to be linked.

Outlet combination and thread available			
A G09 **A S11** **A S12**			Upper outlet (T)
G G09 **G S11** **G S12**		available only for **BF**	Front outlet side A (T)
H G09 **H S11** **H S12**			Rear outlet side B (T)
J G09 **J S11** **J S12**		available only for **BG**	Upper outlet HPCO front side A and rear side B to T

Complete configuration samples for D40/2 with intermediate outlet section (BF)

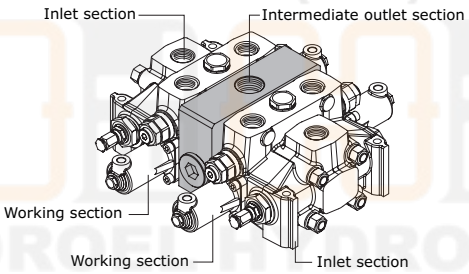
IR 009 150 A G09 ..... Right inlet section

W001A H005 RP G09 ..... Working section

BF A G09 .....Intermediate outlet section

W001A H005 RP G09 ..... Working section

IL 009 150 A G09..... Left inlet section



Complete configuration samples for D40/2 with intermediate oulet section (BG)

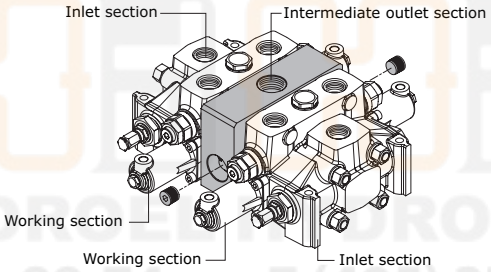
IR 009 150 A G09 ..... Right inlet section

W001A H005 RP G09 ..... Working section

BG J G09 .....Intermediate outlet section

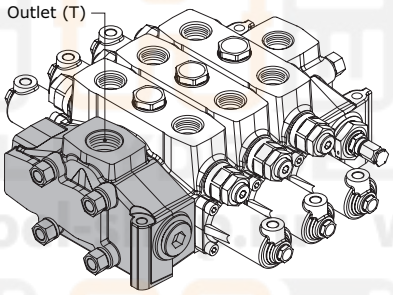
W001A H005 RP G09 ..... Working section

IL 009 150 A G09..... Left inlet section



OUTLET SECTION (VERSION 1 OUTLET)

Order example



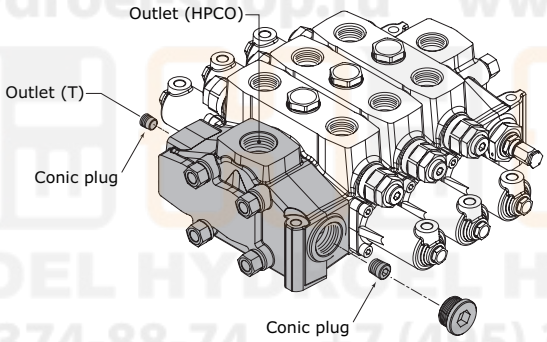
TJ	A G09

1. **TJ** outlet section type
2. **A G09** outlet position and available thread type

Rif.	Code	Description	Page
1	**TJ**	Outlet section with single return (T) right-side inlet (P)	
	TK	Outlet section with single return (T) left-side inlet (P)	
2	**A G09**	Upper outlet (thread G 2”)	**26**
	A S11	Upper outlet (thread SAE 3000 - 2” MA)	
	A S12	Upper outlet (thread SAE 3000 - 2” UNC)	
	C G09	Central outlet (thread G 2”)	
	C S11	Central outlet (thread SAE 3000 - 2” MA)	
	C S12	Central outlet (thread SAE 3000 - 2” UNC)	

OUTLET SECTION (HPCO VERSION OUTLET)

Order example - HPCO version Outlet



TM	M G09

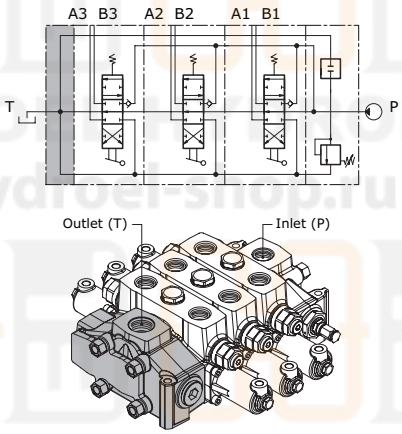
1. **TM** outlet section type
2. **M G09** outlet position and available thread type

Rif.	Code	Description	Page
1	**TM**	Outlet section with two return (T-HPCO) right-side inlet (P)	
	TN	Outlet section with two return (T-HPCO) left-side inlet (P)	
2	**M G09**	HPCO upper outlet T (tank) rear outlet side B (thread G 2”)	**27**
	M S11	HPCO upper outlet T (tank) rear outlet side B (thread SAE 3000 - 2” MA)	
	M S12	HPCO upper outlet T (tank) rear outlet side B (thread SAE 3000 - 2” UNC)	
	N G09	HPCO upper outlet T (tank) front outlet side A (thread G 1”1/2)	
	N S11	HPCO upper outlet T (tank) front outlet side A (thread SAE 3000 - 2” MA)	
	N S12	HPCO upper outlet T (tank) front outlet side A (thread SAE 3000 - 2” UNC)	

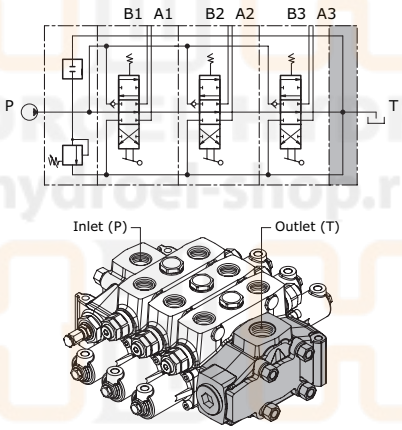
Outlet with single tank classification

outlet identification

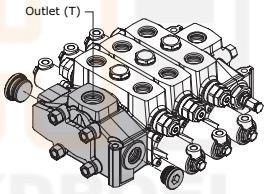
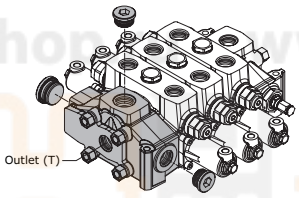
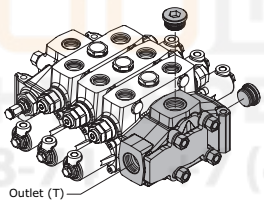
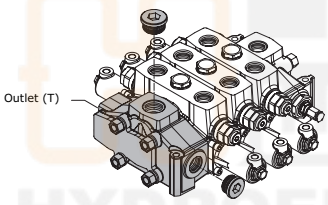
TJ Outlet section with single return (T) right-side inlet (P)



TK Outlet section with single return (T) left-side inlet (P)



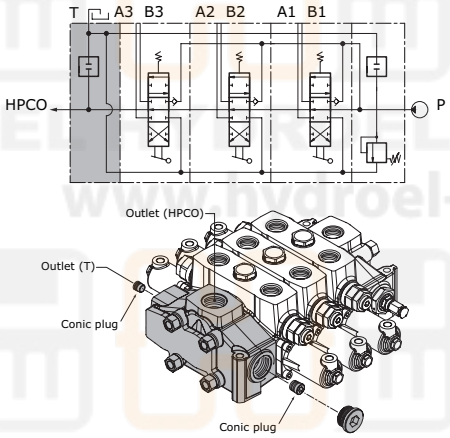
outlet combination and thread available

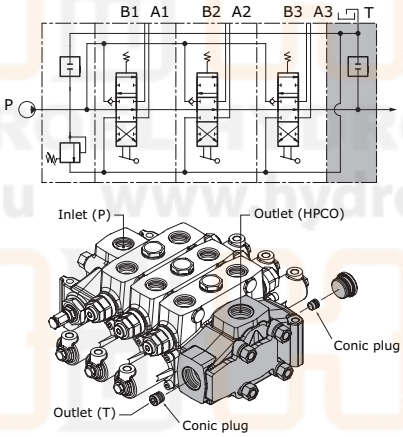
A G09			Upper outlet (thread G 2″)
A S11			Upper outlet (thread SAE 3000 - 2″ MA)
A S12			Upper outlet (thread SAE 3000 - 2″ UNC)
C G09			Central outlet (thread G 2″)
C S11			Central outlet (thread SAE 3000 - 2″ MA)
C S12			Central outlet (thread SAE 3000 - 2″ UNC)
G G09		**only for TK**	Front outlet side A (thread G 2″)
G S11			Front outlet side A (thread SAE 3000 - 2″ MA)
G S12			Front outlet side A (thread SAE 3000 - 2″ UNC)
H G09		**only for TJ**	Rear outlet side B (thread G 2″)
H S11			Rear outlet side B (thread SAE 3000 - 2″ MA)
H S12			Rear outlet side B (thread SAE 3000 - 2″ UNC)

Outlet with two tanks classification

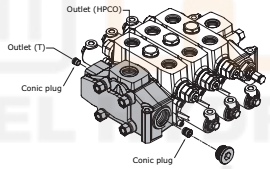
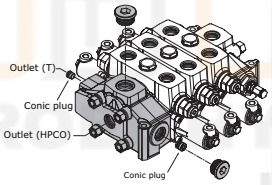
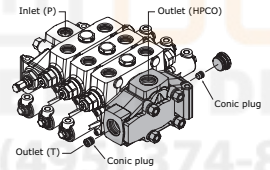
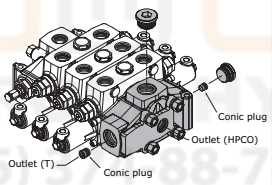
outlet identification

TM	Outlet section with two return (T-HPCO) right-side inlet (P)	**TN**	Outlet section with two return (T-HPCO) left-side inlet (P)



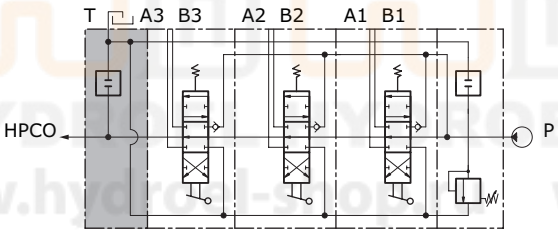


outlet combination and thread available

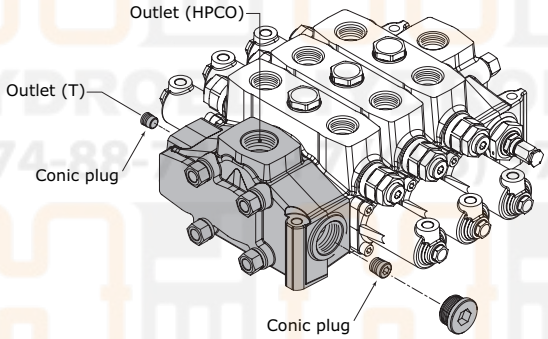
M G09		**only for TM**	HPCO Upper outlet T rear outlet side B (G 2”)	**P G09**		**only for TM**	HPCO Central outlet T rear outlet side B (thread G 2”)
M S11			HPCO Upper outlet T rear outlet side B (SAE 3000 2” MA)	**P S11**			HPCO Central outlet T rear outlet side B (SAE 3000 2” MA)
M S12			HPCO Upper outlet T rear outlet side B (SAE 3000 2” UNC)	**P S12**			HPCO Central outlet T rear outlet side B (SAE 3000 2” UNC)
M S39			HPCO Upper outlet T rear outlet side B (SAE 6000 1”1/2 MA)	**P S39**			HPCO Central outlet T rear outlet side B (SAE 6000 1”1/2 MA)
M S40			HPCO Upper outlet T rear outlet side B (SAE 6000 1”1/2 UNC)	**P S40**			HPCO Central outlet T rear outlet side B (SAE 6000 1”1/2 UNC)
N G09		**only for TN**	HPCO Upper outlet T front outlet side A (G 2”)	**Q G09**		**only for TN**	HPCO Central outlet T front outlet side A (G 2”)
N S11			HPCO Upper outlet T front outlet side A (SAE 3000 2” MA)	**Q S11**			HPCO Central outlet T front outlet side A (SAE 3000 2” MA)
N S12			HPCO Upper outlet T front outlet side A (SAE 3000 2” UNC)	**Q S12**			HPCO Central outlet T front outlet side A (SAE 3000 2” UNC)
N S39			HPCO Upper outlet T front outlet side A (SAE 6000 1”1/2 MA)	**Q S39**			HPCO Central outlet T front outlet side A (SAE 6000 1”1/2 MA)
N S40			HPCO Upper outlet T front outlet side A (SAE 6000 1”1/2 UNC)	**Q S40**			HPCO Central outlet T front outlet side A (SAE 6000 1”1/2 UNC)

Carry-over connection (HPCO)

This option, available on all D40, allows the sectional valve to feed a second valve, by extending the free flow channel.
In this configuration, the valve need a separated port for connection to tank.

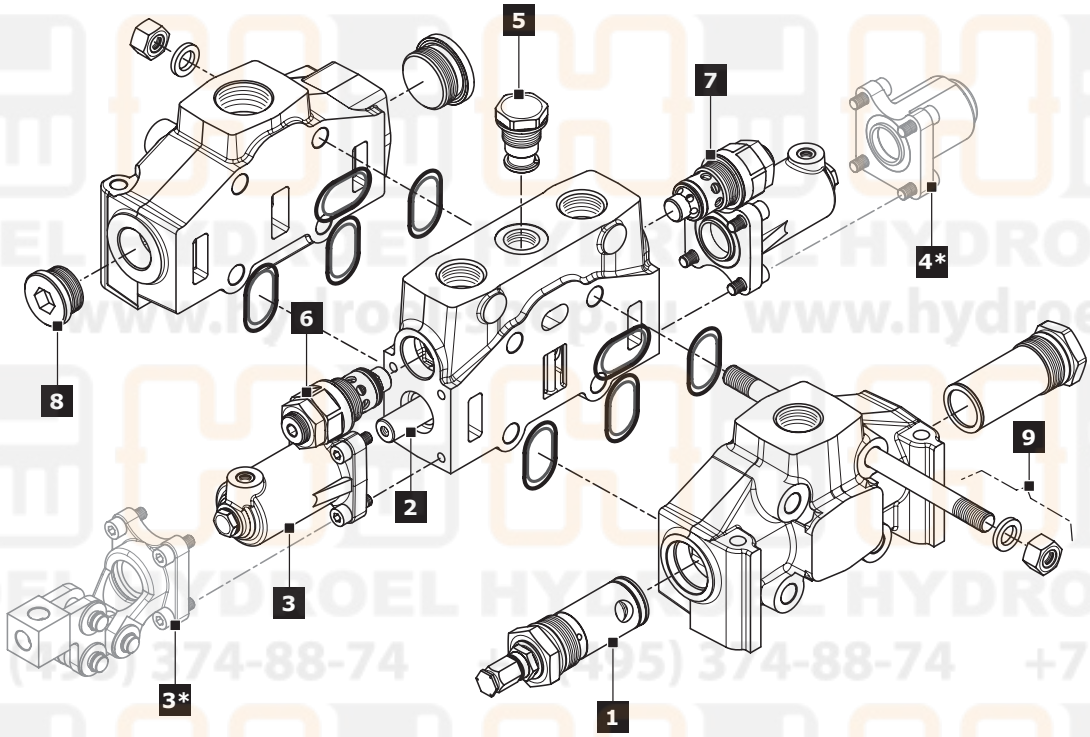


It is possible to transform sectional valve from standard to HPCO version just by ordering the appropriate conic plug:



code (HPCO Plug identification)	description	q.ty
413010205	conic plug G 3/4 x 20,5	2

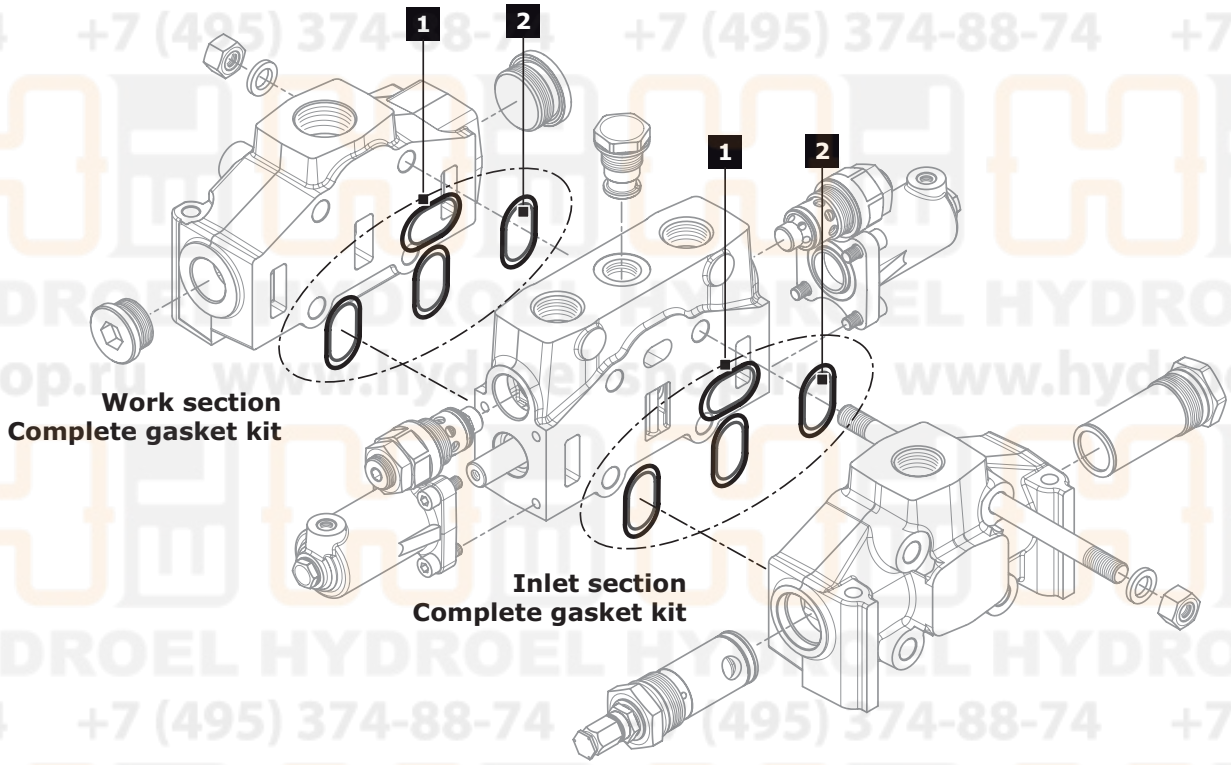
D40 SPARE PARTS LIST



Ref.	Description	Order code	Q.ty	Code	Note
1	Pilot operated pressure relief valve (*)	**5622**	1	-	Setting: 150 bar
		10969			Setting: 200 bar
		6848			Setting: 300 bar
	Relief valve plugged	**430110001**	1		
	Main Anticavitation check valve	**915051001**	1		
	External piloted valve	**915041001**	1		
	Plug with pressure-gauge connection	**430110003**	1		
2	3 positions double-acting spool	**421210007**	1	**W001A**	
		421210033		**W001B**	
		421210006		**W001A**	for hydraulic actuation
	3 positions double-acting A and B to tank spool	**421210002**	1	**W002A**	
		421210001			for hydraulic actuation
	3 positions single-acting on A	**421210019**	1	**W005A**	
		421210013			for hydraulic actuation
	3 positions single-acting on B	**421210012**	1	**W006A**	
		421210013			for hydraulic actuation
	4 positions double-acting with float in the 4th pos.	**421210010**	1	**W012A**	
		421210009			for hydraulic actuation
3*	Unprotected lever	**320310001**	1	**H101 = H102**	
		320310003			only for W012 spool
3	Hydraulic actuation with side ports	**320510001**	2	**H005**	for BSP version

Ref.	Description	Order code	Q.ty	Code	Note
4*	3 position spring centred spool	**320710001**	1	**F001A**	
	Detent in A and B	**320810001**	1	**F002A**	
	Detent in A	**320810002**	1	**F003A**	
	Detent in B	**320810003**	1	**F004A**	
	Detent in 4th position	**320810004**	1	**F005A**	only for W012 spool
5	Check valve on the work section	**320210002**	1	**-**	only for RP and RT section
	Anticavitation valve on port A	**915081001**		**02 PA**	
	Pilot combined valve on port A	**17067**	1	**04 PA**	Setting: 100 bar
		7125			Setting: 200 bar
		4707			Setting: 300 bar
	Prearrangement for auxiliary valve on port A	**430410001**		**05 PA**	
	Anticavitation valve on port B	**915081001**		**02 PB**	
	Pilot combined valve on port B	**17067**	1	**04 PB**	Setting: 100 bar
		7125			Setting: 200 bar
		4707			Setting: 300 bar
	Prearrangement for auxiliary valve on port B	**430410001**		**05 PB**	
8	Plug kit (G 2)	**300010001**	1	**G09**	
	Plug kit (G 1"1/2)	**300009001**		**G08**	

Gasket kit



Inlet and work section

Rif.	Order code	Description	Q.ty
1	423401018	Ring	4
2	412020604	0.R. 90SH (2-137)	4

Complete Gasket kit: order code - 350910001

INSTALLATION AND MAINTENANCE

Guidelines

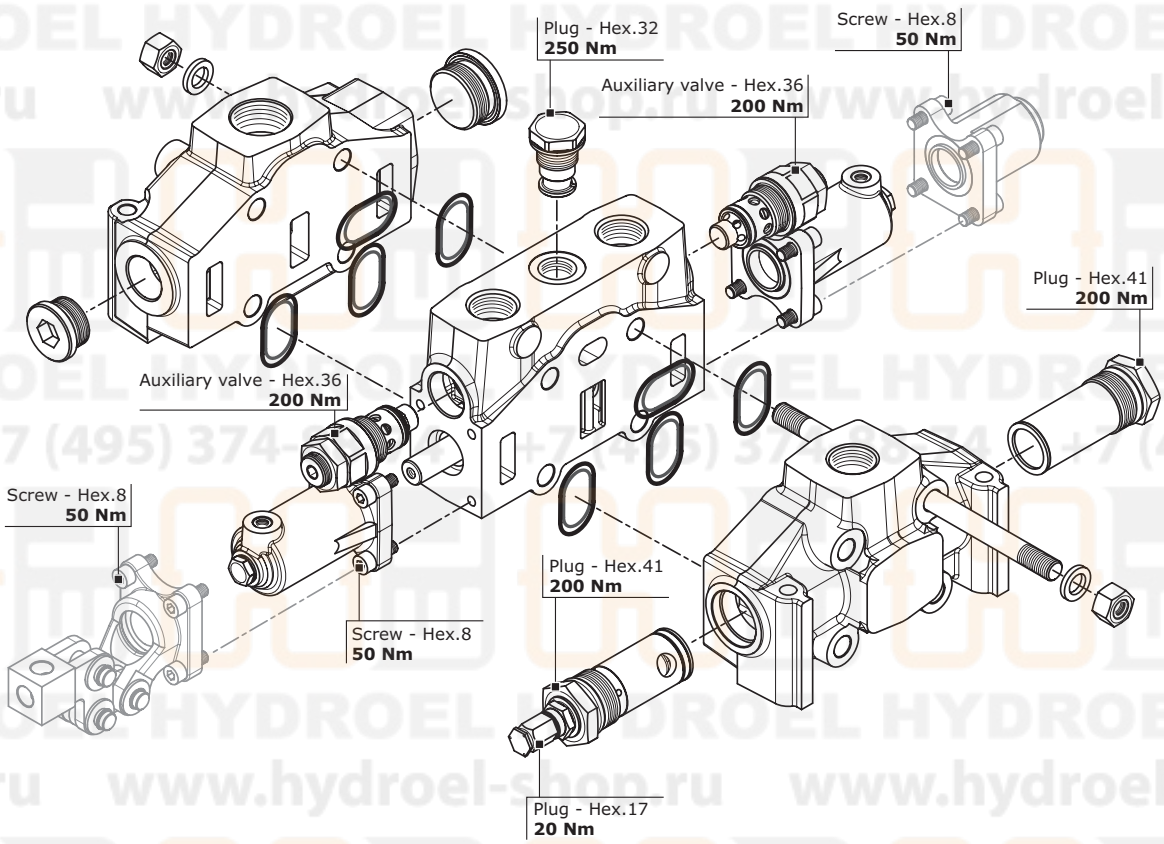
- Mount the control valve securely to a flat surface (recommended 3 point fixing); at the time do not use a hammer to positioning by hitting.
- When handling the control valve, be careful not hold the pilot cover or return spring cap of the spool or accessory valves such as main relief valves and anti-shock relief valves.
- Clean piping materials sufficiently before use.
- Make sure to prevent the port openings from being entered with dust or foreign matters.
- Tighten the port connectors surely with the recommended fastening torques.
- Do not direct the jet of a pressure washing unit directly to the valve.

Fittings tightening torque (Nm)

thread type	port P	Port A - B	Port T
BSP (ISO - 228)	**G 2**	**G 2**	**G 2**
with rubber sealing (DIN 3869)	200	200	200
with copper or steel and rubber washer	200	200	200

General clamping torque

The following table provides the main tightening torques of the distributor D40:



Dimensions - Thread codes

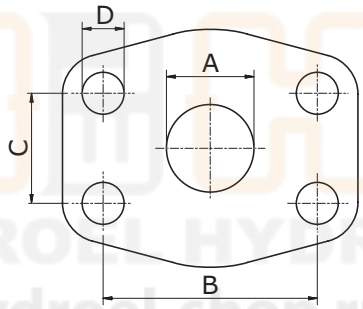
The connection ports size is indicated by an ordering code common for all Hydrocontrol products. Following table shows all available connections.

METRIC THREAD (ISO 9974-1)			
Type	M18x1,5	M22x1,5	M27x2
Code	**M01**	**M02**	**M03**

BSP THREAD (ISO 1179-1)								
Type	1/4"	3/8"	1/2"	3/4"	1"	1"1/4	1"1/2	2"
Code	**G02**	**G03**	**G04**	**G05**	**G06**	**G07**	**G08**	**G09**

UN / UNF THREAD (ISO 11926-1)						
Type	9/16" 18 UNF SAE6	3/4" 16 UNF SAE8	7/8" 14 UNF SAE10	1"1/16 12 UNF SAE12	1"5/16 12 UNF SAE16	1"5/8 12 UNF SAE20
Code	**U02**	**U03**	**U04**	**U05**	**U06**	**U07**

Dimensions - SAE Flange codes



SAE / 3000 FLANGE (ISO 6162-1)												
Type	3/4" (MA)	3/4" (UNC)	1" (MA)	1" (UNC)	1"1/4 (MA)	1"1/4 (UNC)	1"1/2 (MA)	1"1/2 (UNC)	2" (MA)	2" (UNC)	3" (MA)	3" (UNC)
Code	**S03**	**S04**	**S05**	**S06**	**S07**	**S08**	**S09**	**S10**	**S11**	**S12**	**S15**	**S16**
A	19	19	25	25	32	32	38	38	51	51	76	76
B	47,6	47,6	52,4	52,4	58,7	58,7	69,9	69,9	77,8	77,8	106,4	106,4
C	22,3	22,3	26,2	26,2	30,2	30,2	35,7	35,7	42,9	42,9	61,9	61,9
D	M10	3/8-16	M10	3/8-16	M10	7/16-14	M12	1/2-13	M12	1/2-13	M16	5/8-11

SAE / 6000 FLANGE (ISO 6162-2)								
Type	3/4" (MA)	3/4" (UNC)	1" (MA)	1" (UNC)	1"1/4 (MA)	1"1/4 (UNC)	1"1/2 (MA)	1"1/2 (UNC)
Code	**S33**	**S34**	**S35**	**S36**	**S37**	**S38**	**S39**	**S40**
A	19	19	25	25	32	32	38	38
B	50,8	50,8	57,2	57,2	66,6	66,6	79,3	79,3
C	23,8	23,8	27,8	27,8	31,8	31,8	36,5	36,5
D	M10	3/8-16	M12	7/16-14	M14	1/2-13	M16	5/8-11

GENERAL CONDITIONS AND PATENTS

Product identification

All Hydrocontrol products have an identifying plate placed in specific position.

Serial number

Product code

Serial number:

It univocally identifies the physical valve: this provides an easy way to find all sales and production details.

Product code:

It is a number univocally identifying the configuration and pressure settings of a valve.

Introduction

These general conditions apply to all general supplies from Hydrocontrol s.p.a., after receiving orders from the Customer. Should commercial terms such as EXW, DDP, etc be mentioned, of course the Incoterms of the International Chamber of Commerce must be referred to, according to the test existing when the general supply conditions are agreed on.

Management of orders

No Customer's order is binding to Hydrocontrol s.p.a. if Hydrocontrol s.p.a. has not confirmed the order in writing. Hydrocontrol s.p.a. commits to supplying the orders in compliance with the order confirmation that has been issued. Any disagreement with the content of the order confirmation must be communicated in writing to Hydrocontrol s.p.a. within and no later than 5 days from the delivery of the order confirmation. The Customer commits to paying for the goods supplied by Hydrocontrol s.p.a., according to the prices indicated on the order confirmation.

Payment conditions

The Parties agree on the payment terms at the beginning of the supply. The terms will be indicated on the order confirmation. Should the Customer be late with the payments, Hydrocontrol S.p.a. will be entitled to require the payment of interests on arrears based on the exiting Prime Rate increased by 2%. Should there be any payment delay, Hydrocontrol s.p.a. will be entitled not to process the Customer's purchase order, even if it has already been confirmed.

Delivery and shipment

The goods are always supplied Ex Works, even when Hydrocontrol s.p.a. agrees with the Customer that the shipment, or a part of it, will be arranged by Hydrocontrol s.p.a. It is agreed that the Customer will bear the risk of goods deterioration or damaging from the moment the goods are handed by Hydrocontrol s.p.a. to the first carrier.

Product characteristics

Hydrocontrol s.p.a. commits to supplying good quality products, compliant with the technical specifications declared on the technical tables and on the catalogue. Hydrocontrol s.p.a, even without notice, at its own discretion, reserves the right to modify the products as necessary, without these changes altering the main characteristics of the products.

Claims

Any claims about defects on delivered products (just as an example: claims about the packaging, the number, the quantity or the external product characteristics) will have to be notified to Hydrocontrol s.p.a. in writing, within and no later than 7 days from reception of the goods, otherwise the claims will be considered as null and void. Occult defects (the defects of the goods that cannot be spotted with a careful control of the goods received by the Customer), will have to be notified in writing to Hydrocontrol s.p.a. within 7 days from the discovery of the defect, and anyhow no later than 12 months from the delivery of the goods, otherwise the claim will be considered as null and void. Even in case of claim or objection, the Customer will never be entitled to suspend or delay the payments to Hydrocontrol s.p.a. for the products subject to claim or objection nor for any other supply.

GENERAL CONDITIONS AND PATENTS

Warranty

Should the products supplied by Hydrocontrol not be compliant or have the required quality and should this defect be due to Hydrocontrol, Hydrocontrol s.p.a. commits, at its choice, to replace or repair the faulty products, as long as the defect or lack of compliance is notified to Hydrocontrol s.p.a. in writing, as specified at point 6, within and no later than 18 months from product delivery. On the products that have been fixed or replaced in accordance with what specified above, the above-mentioned warranty applies. The 12 month duration starts from the date of repair or replacement. In case of defects, lack of quality or in case of lack of compliance for the supplied products, with the exception of fraud or serious offence, Hydrocontrol s.p.a. only commits to repairing or replacing the faulty products, according to what specified above. This warranty replaces any other Supplier's warranty or liability established by the law. This warranty excludes any other liability contractual or extra-contractual by Hydrocontrol s.p.a. on the products supplied by Hydrocontrol (as a mere example: damage refund, loss of profit, product recall campaign, etc). Hydrocontrol s.p.a. has signed a product civil liability police, with a suitable maximum coverage.

Ownership retention

The products supplied by Hydrocontrol s.p.a. will be owned by the latter until Hydrocontrol receives the complete payment for the supplied goods.

Obligation confidentiality

Hydrocontrol s.p.a. commits to not disclosing the technical and commercial information it receives from the Customer, unless this information has already been publicly disclosed.

Patents

The Customer is not allowed to use the provided Products, or a part of them, their descriptions or drawings protected or not protected by Patent or registered trademark in order to design or make similar products, unless Hydrocontrol s.p.a. previously issues its written authorization. Should Hydrocontrol s.p.a. give its written authorization, all patents, trademarks, registered designs, copyrights and intellectual property rights related or connected to the Products provided by Hydrocontrol s.p.a. will stay Hydrocontrol's property. The Customer commits to respecting the highest confidentiality.

Applicable law and court of jurisdiction

Hydrocontrol s.p.a.'s supplies are regulated by these General Supply Conditions and, for anything not defined here, by the Italian law. Any controversy related, generated or connected to the supply of Products by Hydrocontrol s.p.a., where Hydrocontrol s.p.a. is involved, will be exclusively dealt with by the Court of Bologna.

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