

D40

SECTIONAL VALVE



 **walvoil**
MOTION BY PEOPLE

TECHNICAL CATALOGUE



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MOTION BY PEOPLE

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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.**



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.





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)	315	350	350	350	315	350	350	250	350	350	350
Max working pressure (PSI)	4500	5000	5000	5000	4500	5000	5000	4000	5000	5000	5000

NOTE (*): Intermittent pressure at max. 1 million cycles with specific internal testing.

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 4 th 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						•		•	•	•	•



GENERAL INDEX

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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 ISO 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.



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

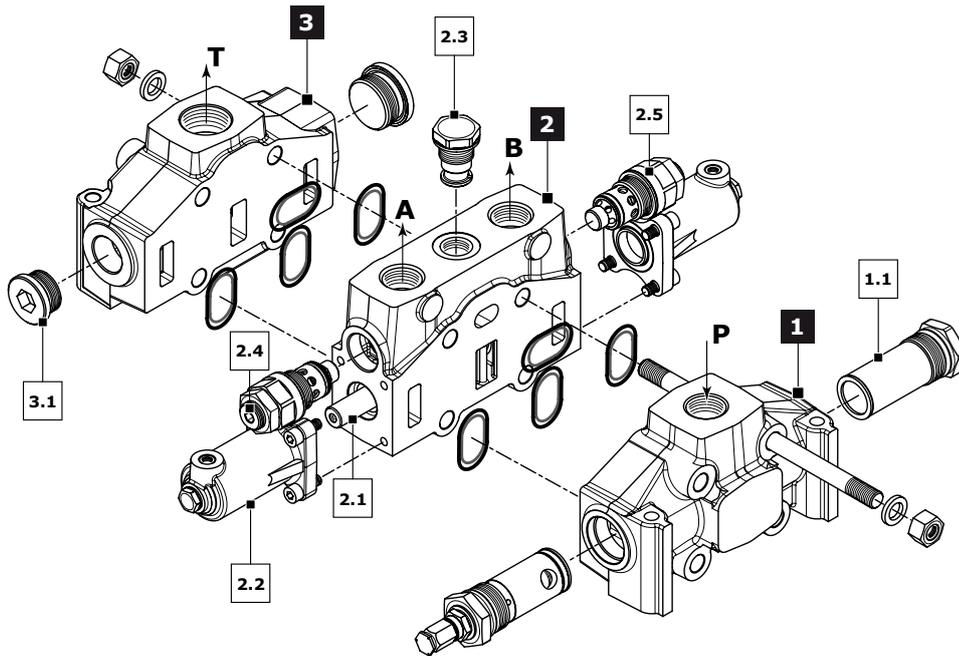
2) WORK SECTION ARRANGEMENT: pag. 14

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

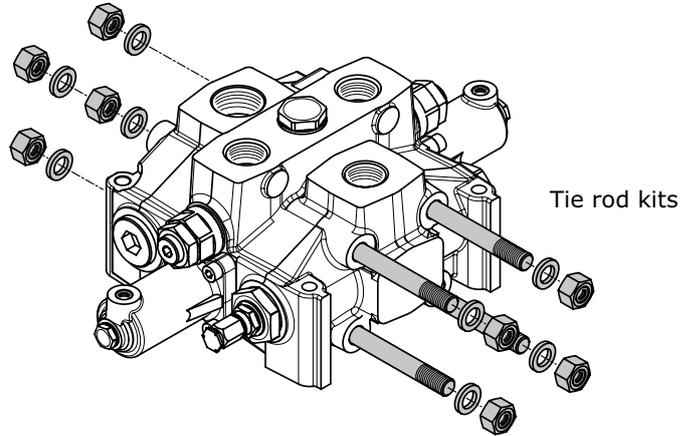
The connection ports size is indicated by an ordering code common for all Hydrocontrol products. Following table shows all available connections; for ordering code refer to table on page 32.

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 kit	Order Code	Length (mm)	Clamping Torque (Nm)	Quantity
D40/1	300110001	334	270	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

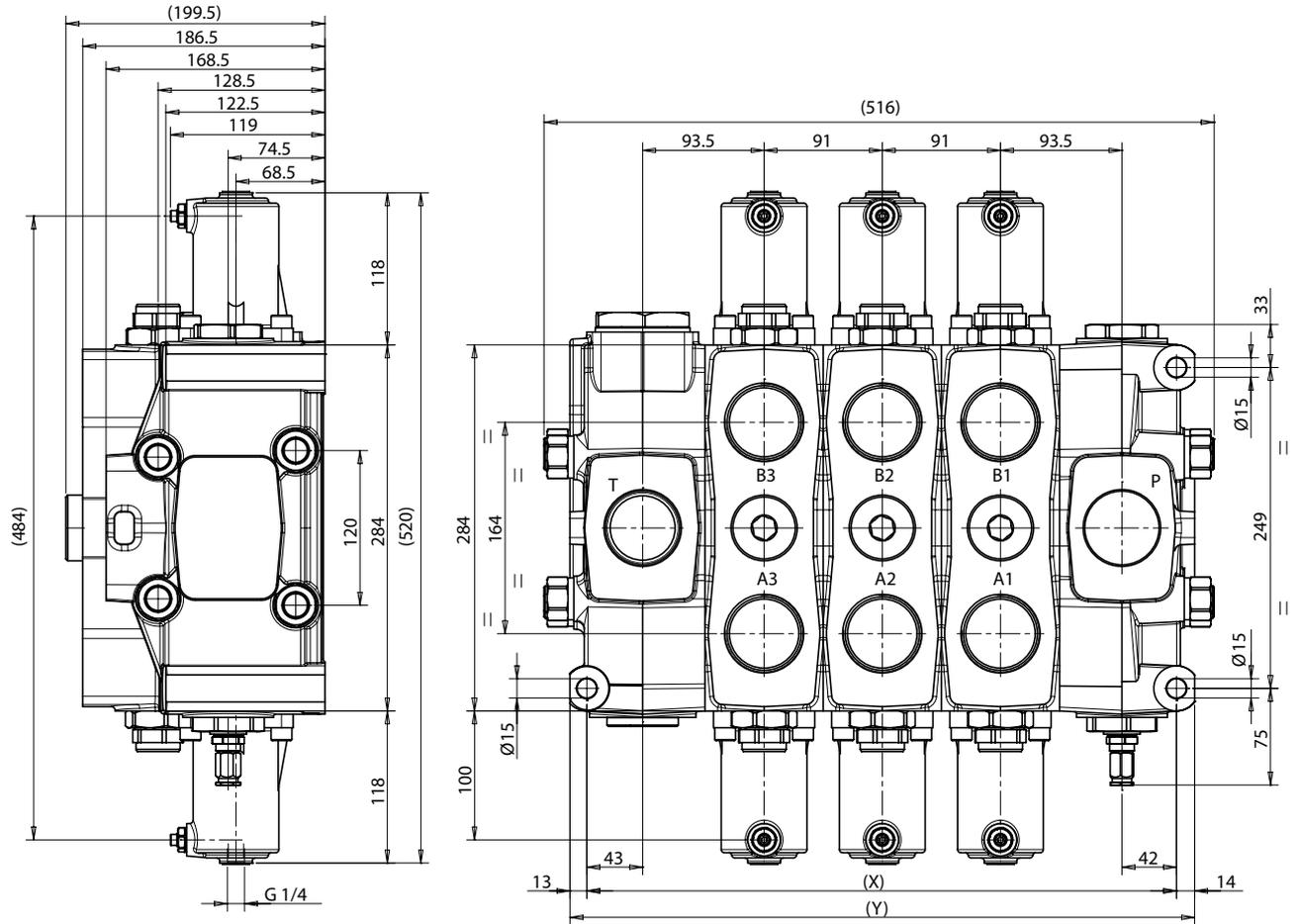
The painting is indicated with the following value:

P006 - /1 - N10





DIMENSIONS



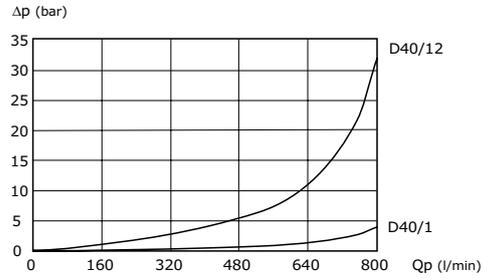
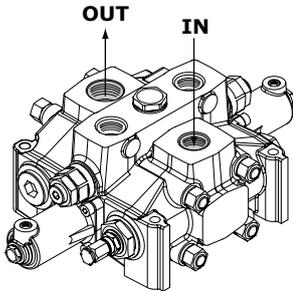
TYPE	/1	/2	/3	/4	/5	/6	/7	/8	/9	/10
X (mm)	272	363	454	545	636	727	818	909	1000	1091
Y (mm)	299	390	481	572	663	754	845	936	1027	1118
Weights (kg)	75	104	133	162	191	220	249	278	307	336



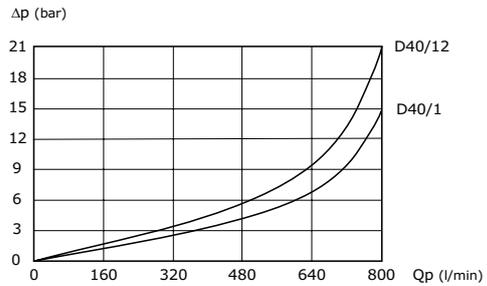
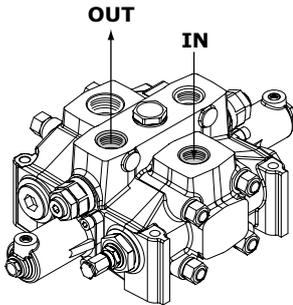
TYPICAL CURVES

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

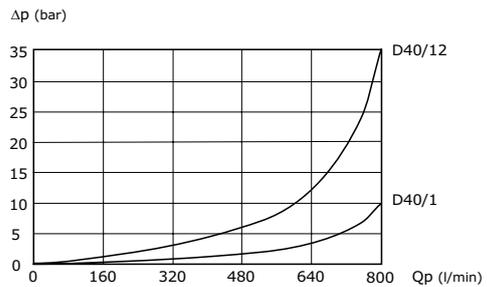
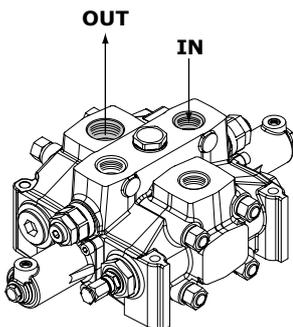
Pressure drop (P - T)



Pressure drop (P - A/B)

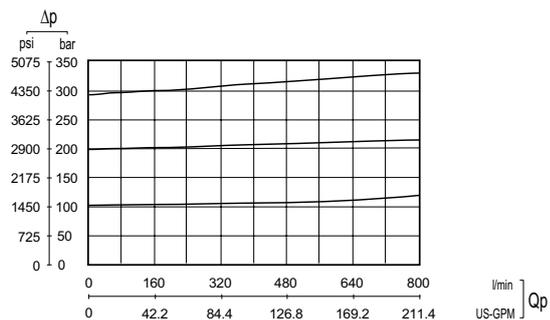


Pressure drop (A/B - T)



Pilot operated relief valve curve

Setting ranges	
type	pressure (bar)
A	0 - 350



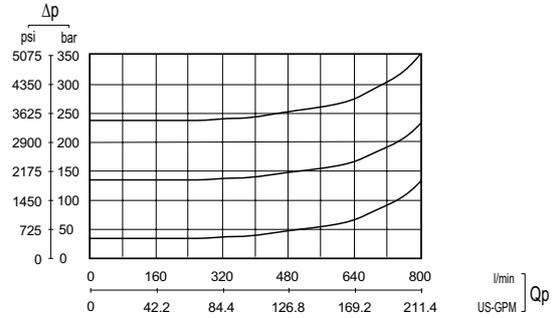


TYPICAL CURVES

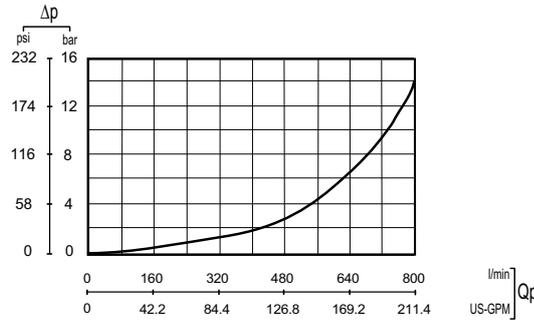
Indicated values have been tested with standard sectional valve and W001A spool.

Pilot combined valve curve

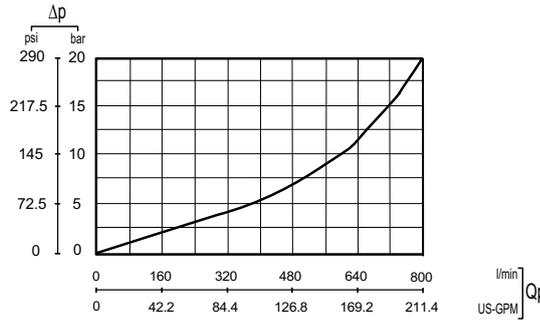
Setting ranges	
type	pressure (bar)
A	45 - 65
B	66 - 350



Main anticavitation check valve curve

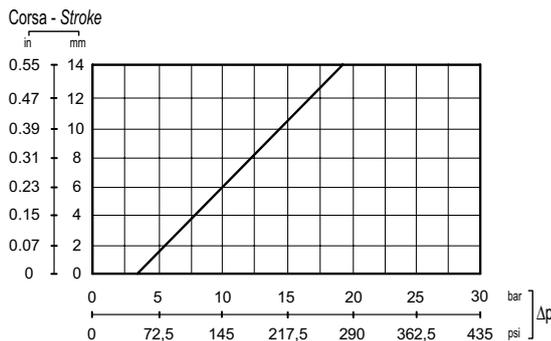


Anticavitation check valve curve



Hydraulic pilot control curve

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



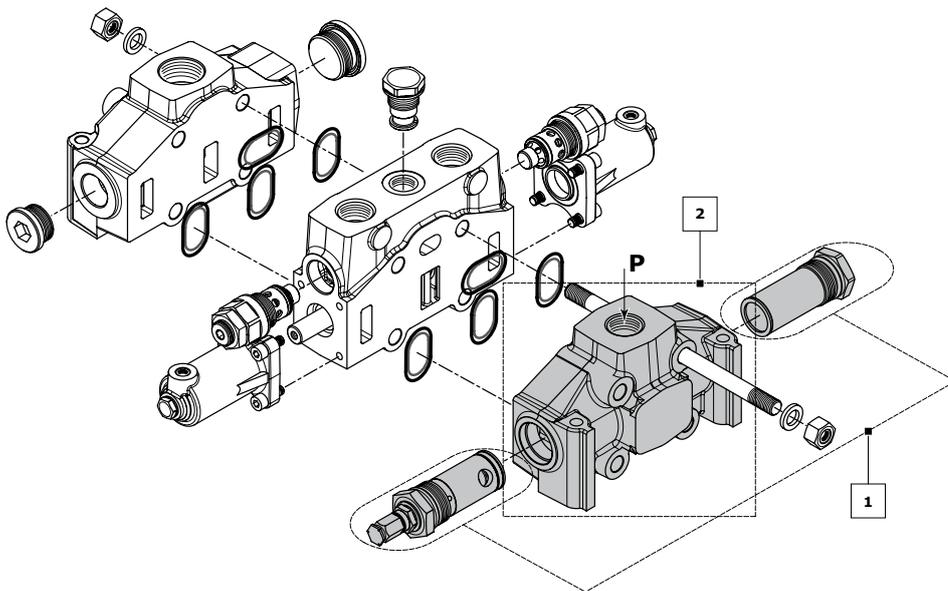


INLET SECTION

Order example

IR	009	150	A G09
----	-----	-----	-------

- 1. **IR** inlet side classification _____
- 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	
	010	Pilot operated pressure relief valve and Main anticavitation check valve	12
	019	Without valves	
2	A G09	Upper inlet (thread G 2")	
	A S09	Upper inlet (thread SAE 3000 1"1/2 MA)	13
	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).



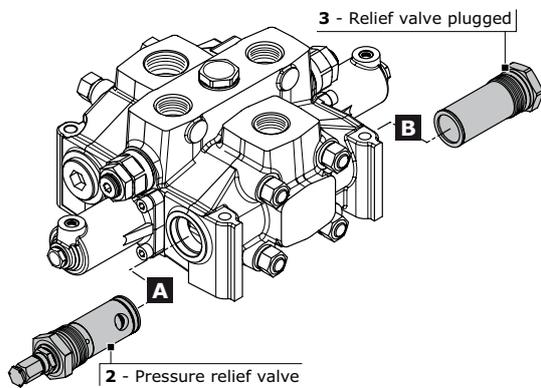
Inlet side classifications

	Sectional valve with right inlet section	Sectional valve with right inlet section
IR		

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			Externally 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).

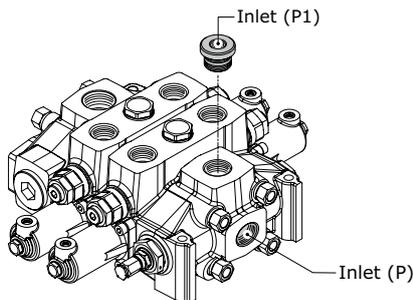
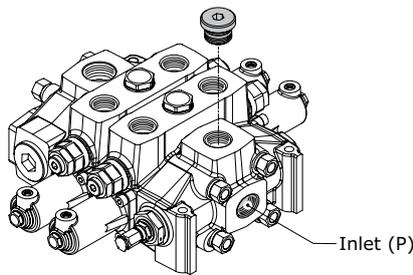
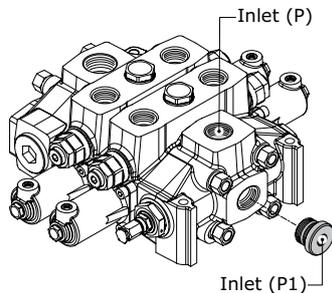
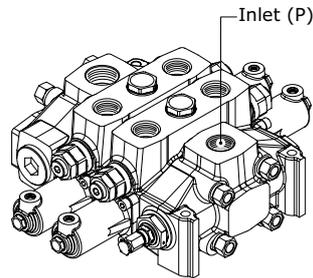
Order example for inlet section: IR **038 200*280** A G05

038
200*380

valve combination _____
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)



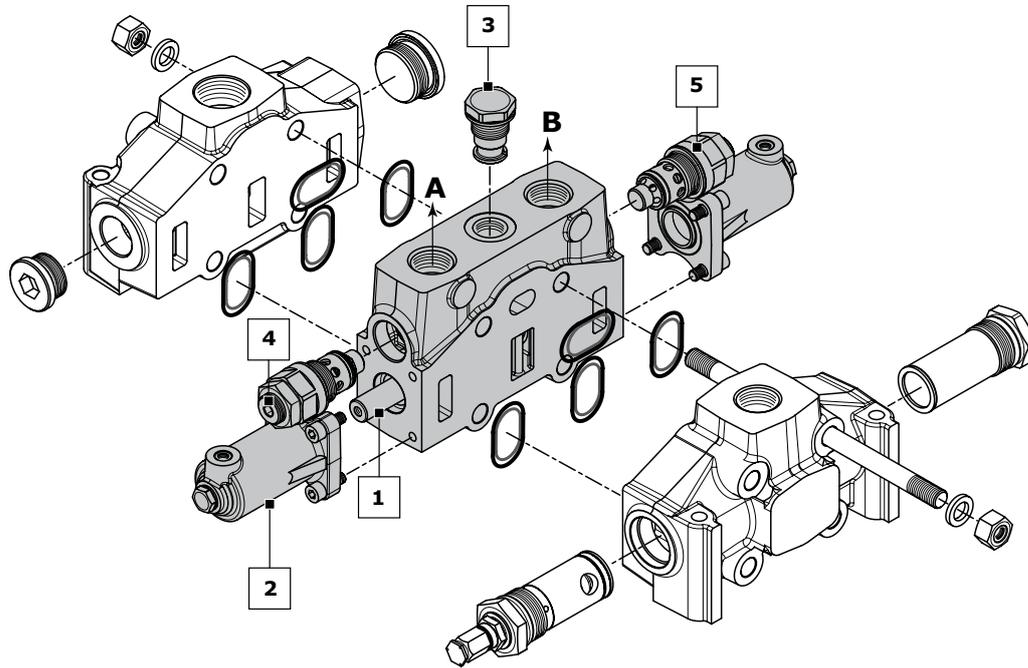


WORKING SECTION

Order example:

W001A	H005	RP G09	04 PA 100	04 PB 100
--------------	-------------	---------------	------------------	------------------

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. W001A 2. H005 3. RP G09 4. 04 PA 100 5. 04 PB 100 | <p>spool type _____</p> <p>spool actuation type _____</p> <p>section and thread type _____</p> <p>auxiliary valve (port A - handle side) _____</p> <p>auxiliary valve (port B - cap side) _____</p> |
|---|---|



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)	

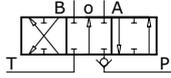
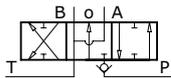
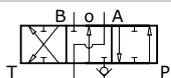
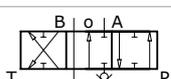
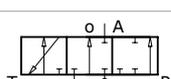
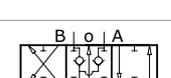
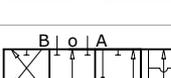
NOTE: (*) Leave out the spool return action code when choosing H005.
 Sections designed to house auxiliary valve option require double choice on work ports A and B.
 Always indicate setting value when using Pilot combined valve: **04 PA (100)**

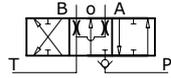
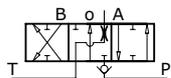
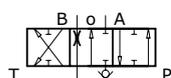


Spool identification

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 (mm ²)	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

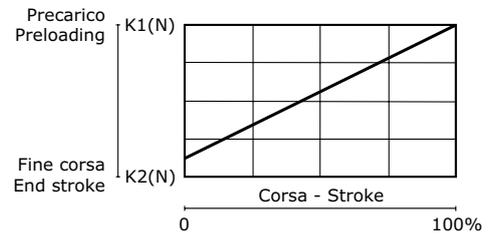
code	description	dimensions	configuration
H005	Hydraulic actuation with side ports		
	leave out the spool return action code BSP ports = G 1/4 UNF ports = 9/16-18 UNF		



Spool return action classification - Springs load values

Spool return kits have three different spring 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

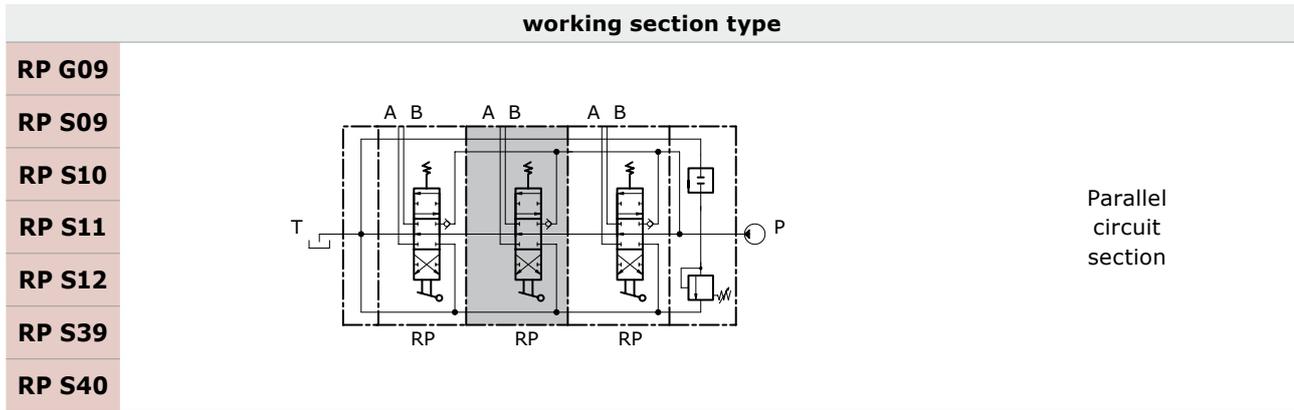
code	description	schema	dimensions	configuration
F001A	3 positions spring-centred spool			
F002A	3 positions spring-centred spool detent in A and B			
F003A	3 positions spring-centred spool detent in A			
F004A	3 positions spring-centred spool detent in B			
F005A	4 positions spring-centred spool detent in 4 th 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



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 choice on work ports A and B. Always indicate setting value when using pilot combined valve: **04 PA 100**

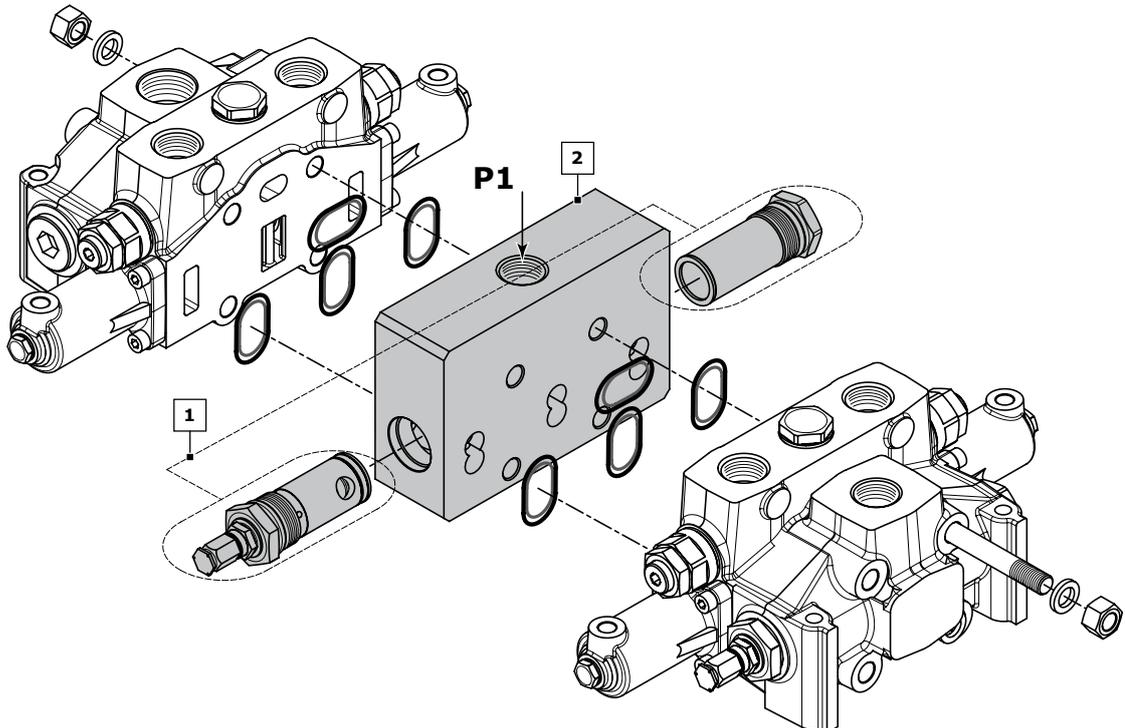


INTERMEDIATE INLET SECTION

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.

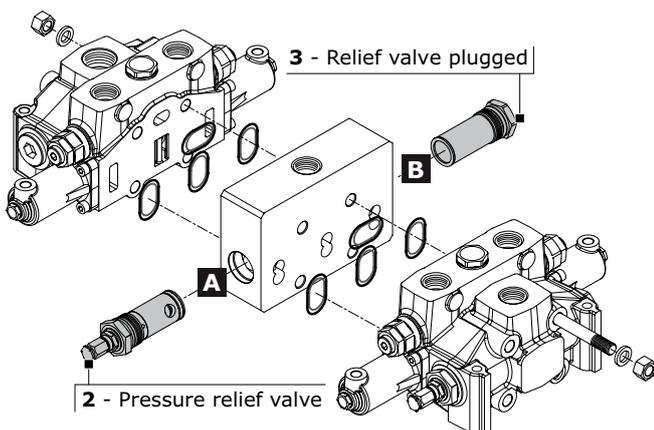
BV			Intermediate inlet section with pressure relief valve
-----------	--	--	---

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			Externally 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	

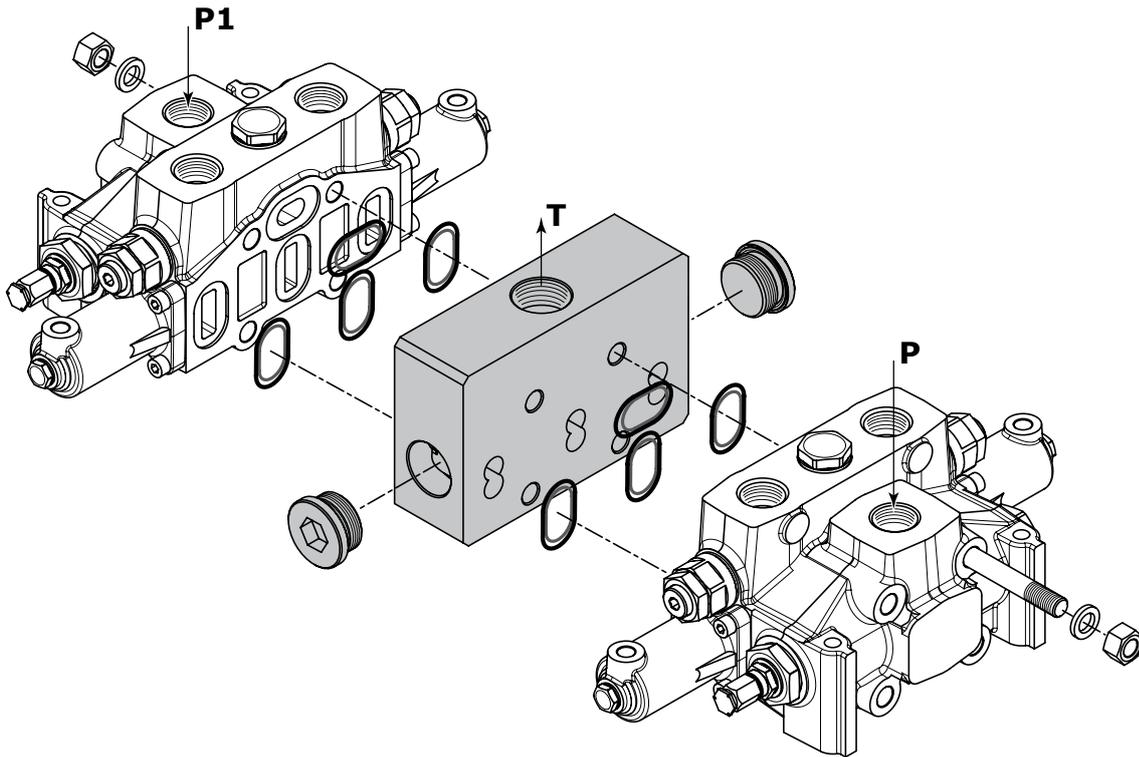


INTERMEDIATE OUTLET SECTION

Order example

BF | **A G09**

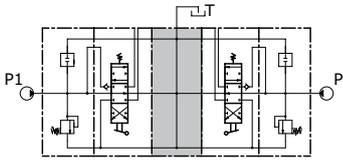
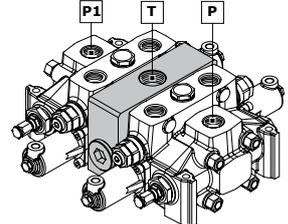
1. **BF** inlet side _____
A G09 inlet position and available thread type _____



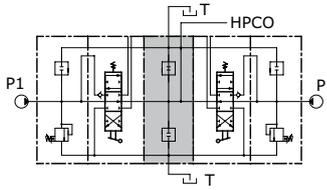
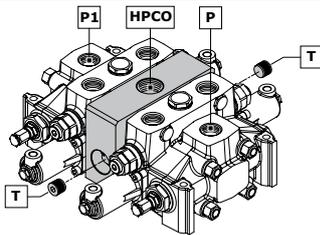
Rif.	Code	Type	Description	Page
-	BF		Intermediate outlet section with single tank return	
	BG		Intermediate outlet section with two tank returns	
1	A G09		Upper outlet (thread G 2")	23
	A S11		Upper outlet (thread SAE 3000 2" MA)	
	G G09	for	Front outlet side A (thread G 2")	
	G S11	BF	Front outlet 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)	



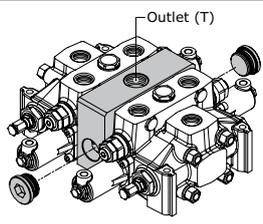
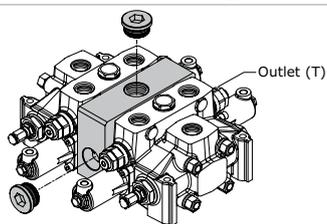
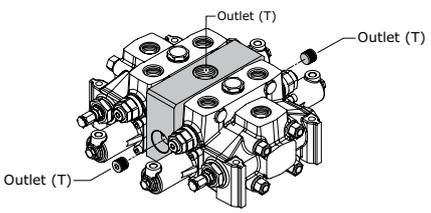
Intermediate outlet section classifications

intermediate outlet type		
BF		 <p style="text-align: center;">Intermediate outlet section with single tank return</p>

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		 <p style="text-align: center;">Intermediate outlet section with two tank returns</p>
-----------	---	--

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



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

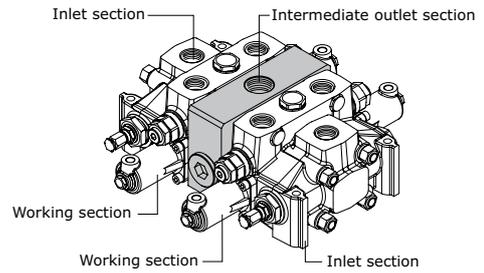
IR 009 150 A G09 Right inlet section

W001A H005 RP G09 Working section

BF A G09Intermediate outlet section

W001A H005 RP G09 Working section

IL 009 150 A G09 Left inlet section



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

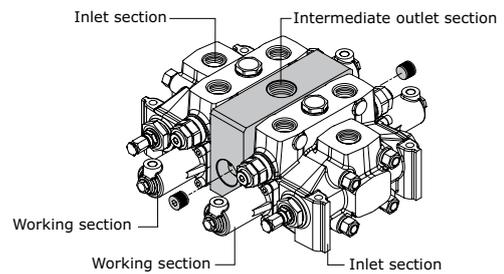
IR 009 150 A G09 Right inlet section

W001A H005 RP G09 Working section

BG J G09Intermediate outlet section

W001A H005 RP G09 Working section

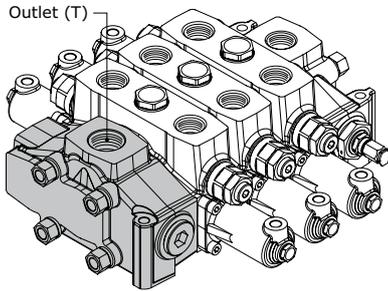
IL 009 150 A G09 Left inlet section





OUTLET SECTION (VERSION 1 OUTLET)

Order example



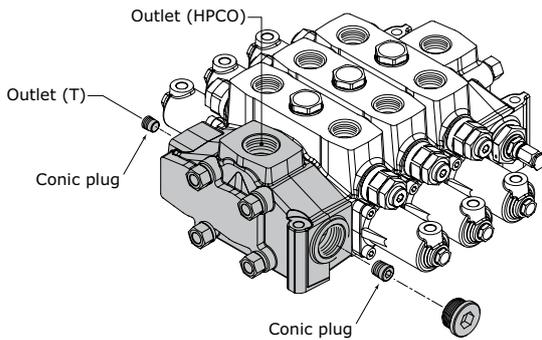
TJ | **A G09**

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)	

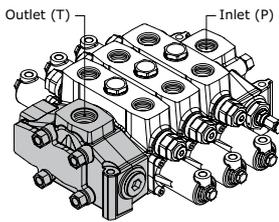
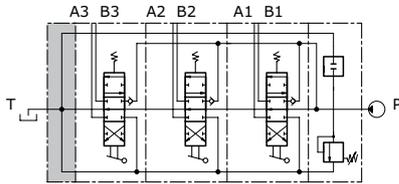


Outlet with single tank classification

outlet identification

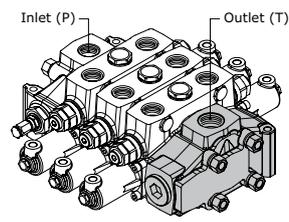
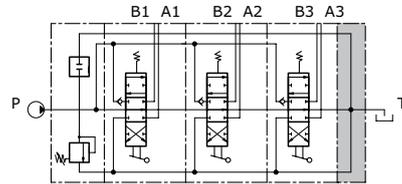
TJ

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



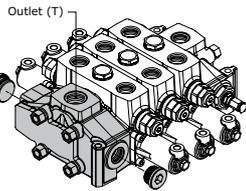
TK

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



outlet combination and thread available

A G09



Upper outlet
(thread G 2")

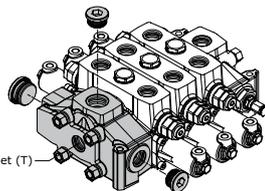
A S11

Upper outlet
(thread SAE 3000 - 2" MA)

A S12

Upper outlet
(thread SAE 3000 - 2" UNC)

C G09



Central outlet
(thread G 2")

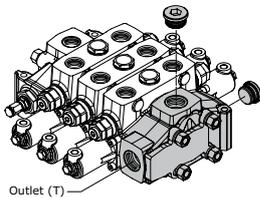
C S11

Central outlet
(thread SAE 3000 - 2" MA)

C S12

Central outlet
(thread SAE 3000 - 2" UNC)

G G09



Front outlet side A
(thread G 2")

G S11

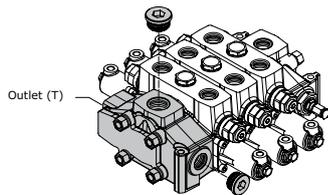
Front outlet side A
(thread SAE 3000 - 2" MA)

G S12

Front outlet side A
(thread SAE 3000 - 2" UNC)

only for
TK

H G09



Rear outlet side B
(thread G 2")

H S11

Rear outlet side B
(thread SAE 3000 - 2" MA)

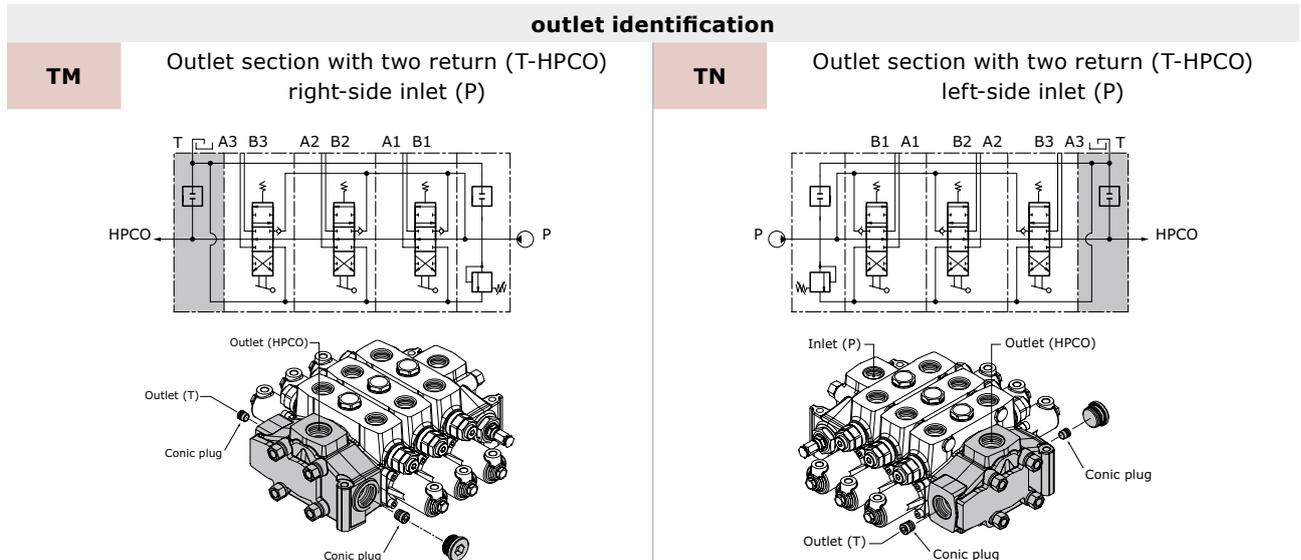
H S12

Rear outlet side B
(thread SAE 3000 - 2" UNC)

only for
TJ



Outlet with two tanks classification



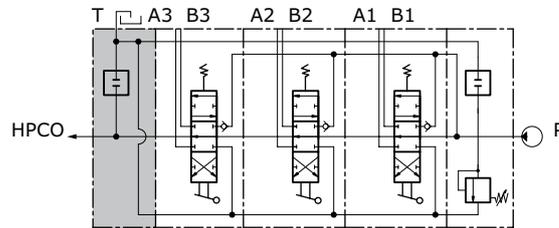
outlet combination and thread available

		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)			

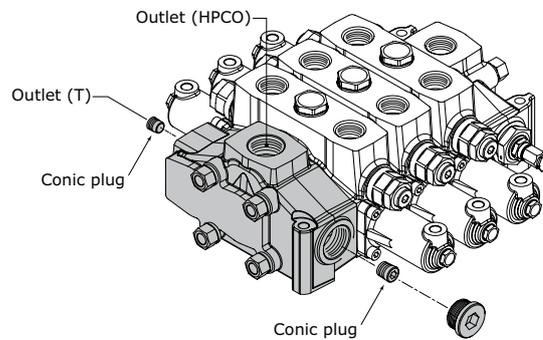


Carry-over connection (HPCO)

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.



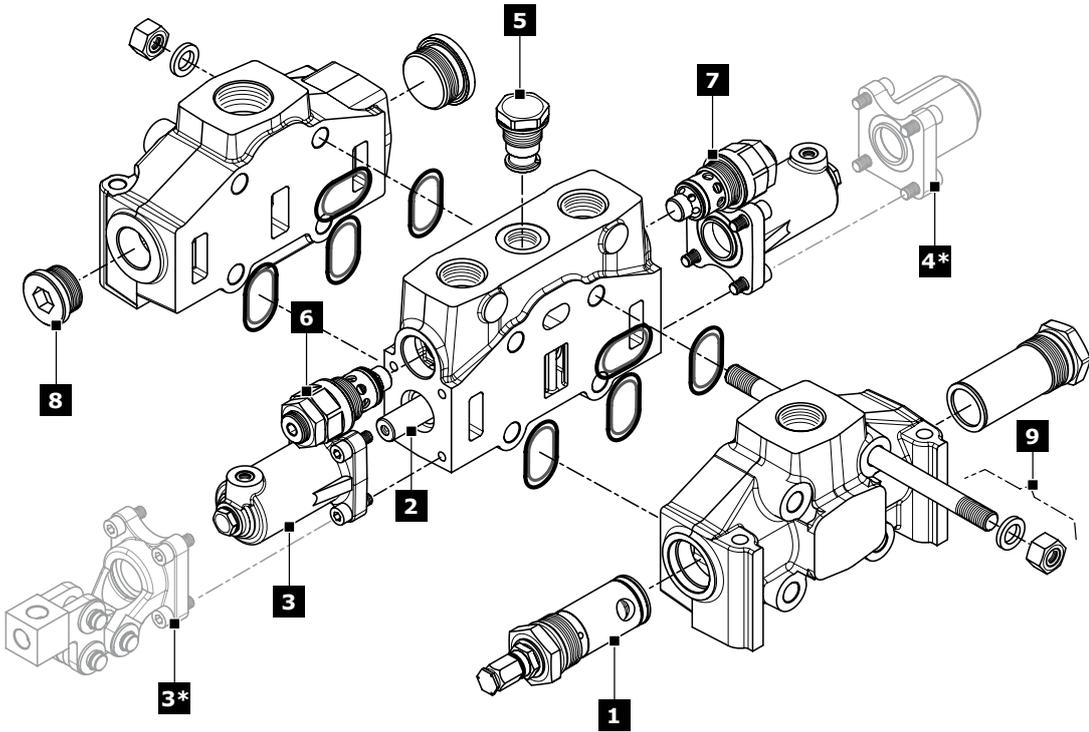
It is possible to transform sectional valve from standard to HPCO version just by ordering the appropriate conic plug:



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



D40 SPARE PARTS LIST

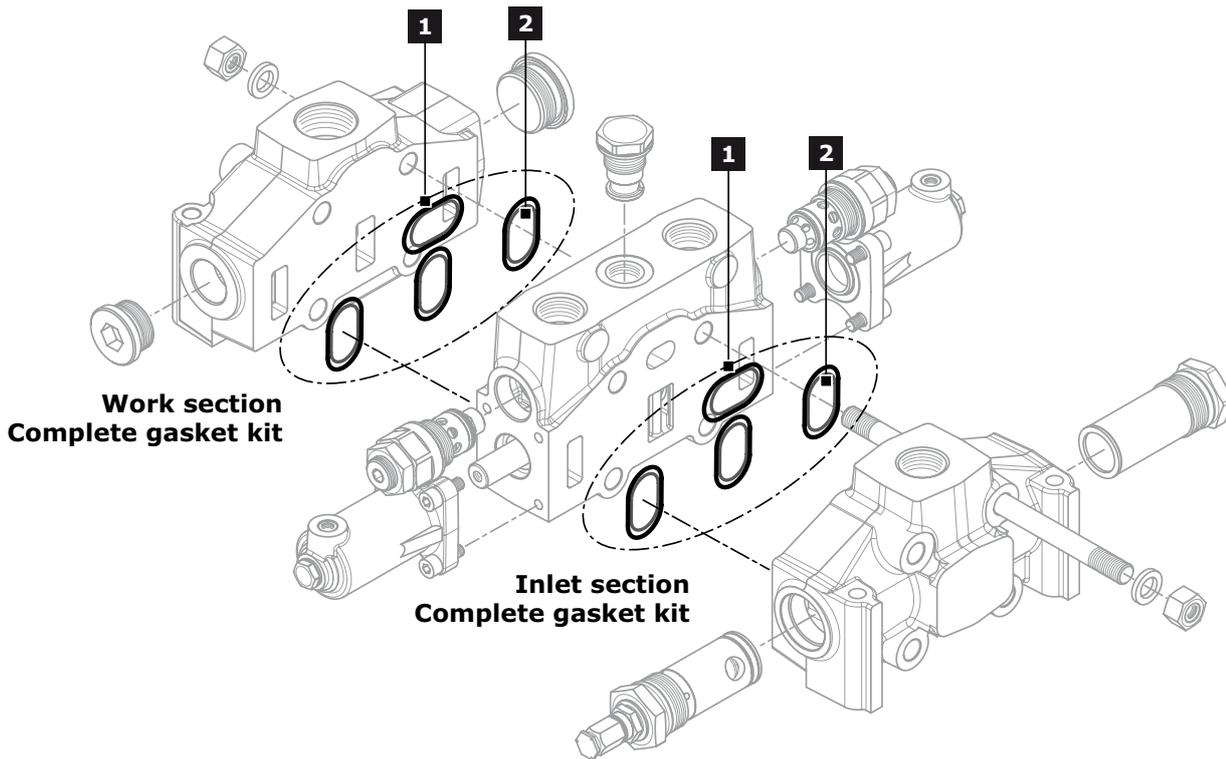


Ref.	Description	Order code	Q.ty	Code	Note
1	Pilot operated pressure relief valve (*)	5622	1		Setting: 150 bar
		10969			Setting: 200 bar
		6848			Setting: 300 bar
	Relief valve plugged	430110001	1	-	
	Main Anticavitation check valve	915051001	1		
2	3 positions double-acting spool	421210007	1	W001A	
		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 4 th 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 4 th 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	
		17067			Setting: 100 bar
	Pilot combined valve on port A	7125	1	04 PA	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	
		17067			Setting: 100 bar
	Pilot combined valve on port B	7125	1	04 PB	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	O.R. 90SH (2-137)	4	

Complete Gasket kit: order code - 350910001



INSTALLATION AND MAINTENANCE

Guidelines

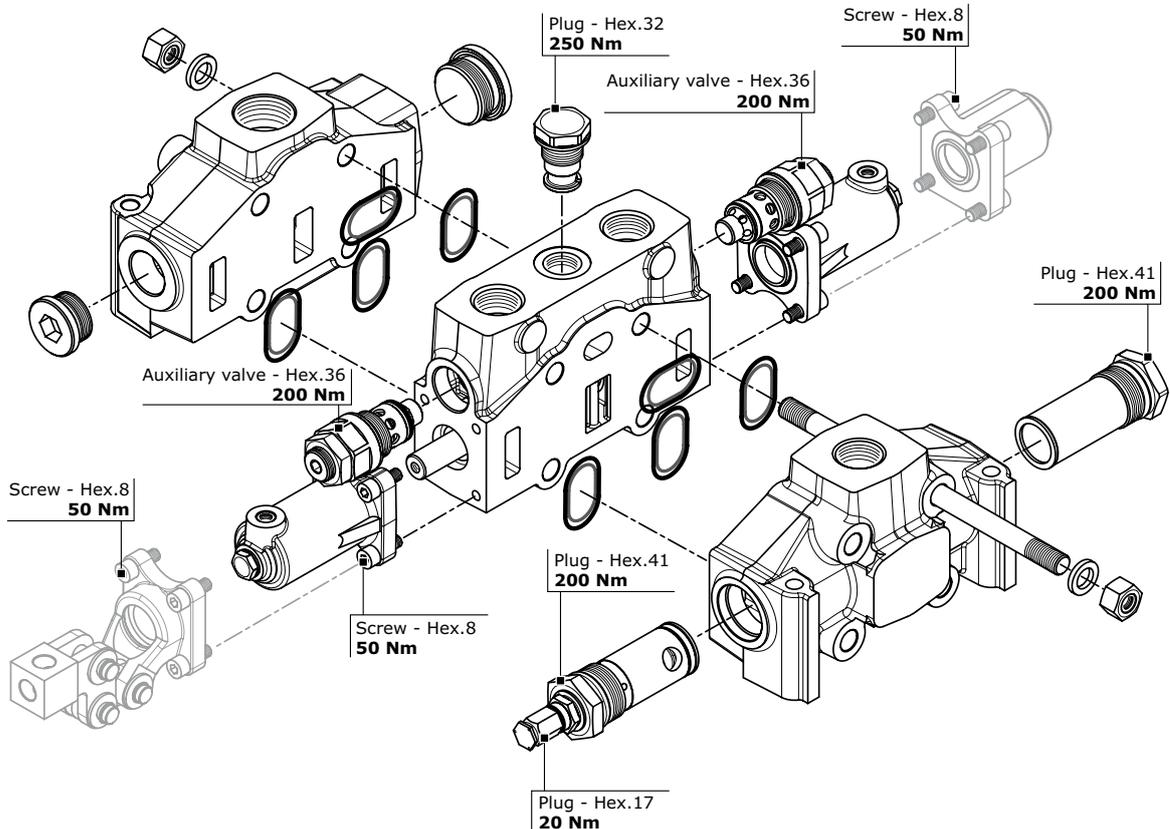
- Mount the control valve securely to a flat surface (recommended 3 point fixing); at the time do not use a hammer to positioning by hitting.
- When handling the control valve, be careful not hold the pilot cover or return spring cap of the spool or accessory valves such as main relief valves and anti-shock 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

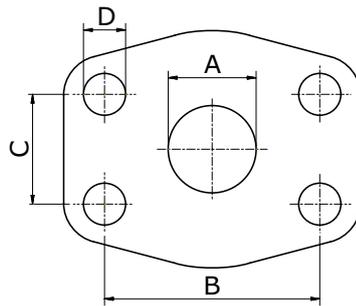
BSP THREAD (ISO 1179-1)

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

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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