

TECHNICAL CATALOGUE



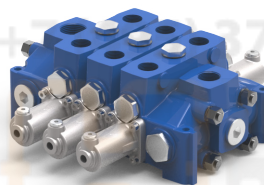
D20

SECTIONAL VALVE



www.hydrocontrol-inc.com





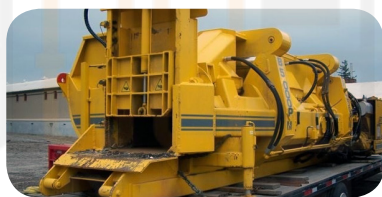
Applications

The valve is available with manual, hydraulic remote, pneumatic and electrohydraulic controls.

Working sections have auxiliary valves and a broad range of interchangeable spools.

Special versions for LS variable pumps can be realised on request.

Suitable for applications including Wheel loaders, Truck cranes, Drilling machines, Sea platform cranes, Presses, Compactor, Hook and Skip loaders.



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											
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						•		•	•	•	•



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4	General specifications Standard working conditions Fluid options
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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	b10 > 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

D20/1: IR 009 150 A G06 W001A H005 RP G06 01 PA 100 01 PB 100 TJ A G07

TYPE:

D20: product type
/1: working section number

1) INLET ARRANGEMENT: pag. 10

IR 009 inlet side and valve type
150 setting (bar)
A G06 inlet position and available thread type

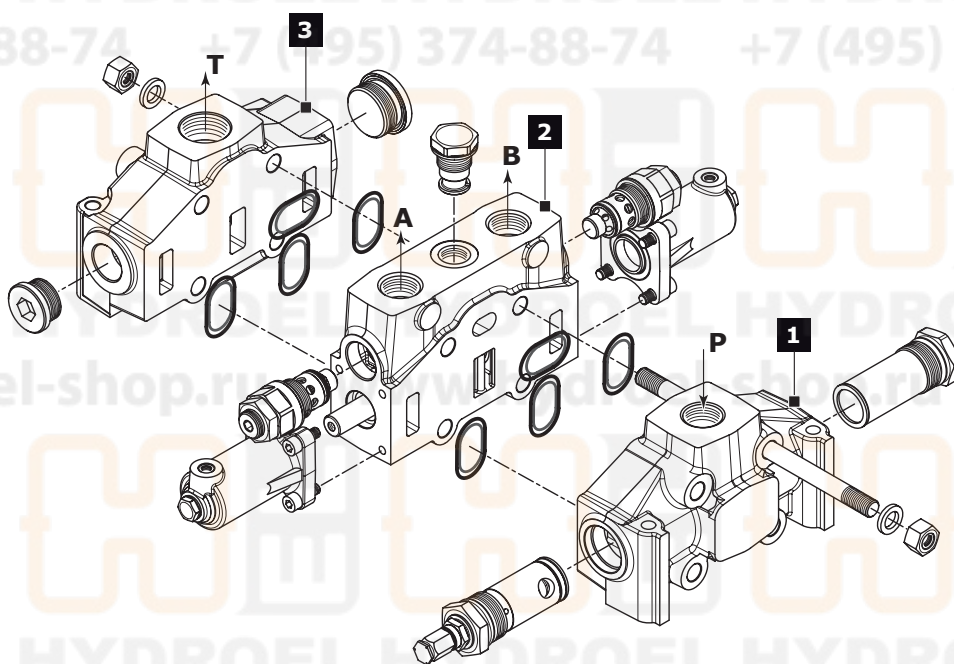
2) WORK SECTION ARRANGEMENT: pag. 14

W001A spool type
H005 spool actuation type
RP G06 type and thread section
01 PA 100 auxiliary valve (port A)
01 PB 100 auxiliary valve (port B)

3) OUTLET ARRANGEMENT: pag. 32

TJ outlet type
A G07 outlet position and available thread type

Ordering row 2 must be repeated for every work section



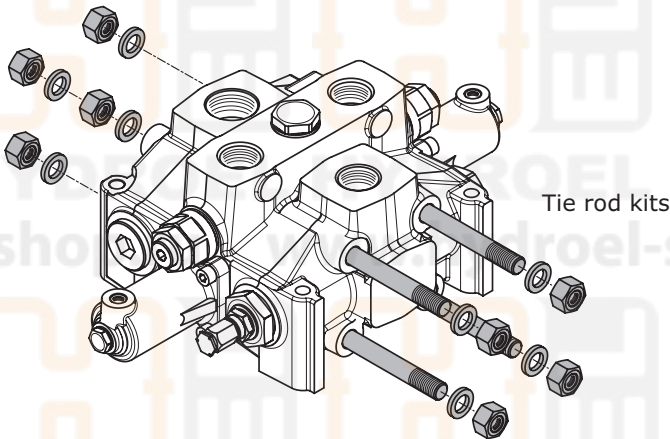
Standard thread

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 40.

ports	BSP (ISO-228)		UN-UNF (ISO-725)		SAE 3000 (ISO 6162-1)		SAE 6000 (ISO 6162-6)	
Inlet Port (P)	G 1 - G 1 1/4	G06-G07	1 5/16 - 12 UNF	U06	1" MA - 1" UNC	S05-S06	3/4" MA - 3/4" UNC	S33-S34
Ports (A - B)	G 1 - G 1 1/4	G06-G07	1 5/16 - 12 UNF	U06	1" MA - 1" UNC	S05-S06	3/4" MA - 3/4" UNC	S33-S34
Outlet (T)	G 1 1/4	G07	1 5/16 - 12 UNF	U06	1 1/4 MA - 1 1/4 UNC	S07-S08	-	-
Carry over (HPCO)	G 1 1/4	G07	1 5/8 - 12 UNF	U07	1 1/4 MA - 1 1/4 UNC	S07-S08	1" MA - 1" UNC	S35-S36
Hydraulic Pilot	G 1/4	G02	9/16" - 18 UNF	U02	-	-	-	-
Pneumatic Pilot	G 1/8		NPTF 1/8-27					

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. D20 requires 4 tie-rod kits.



Tie rod kit	Order Code	Lenght (mm)	Clamping Torque (Nm)	Quantity
D20/1	300108001	248	110	4
D20/2	300108002	312		
D20/3	300108003	376		
D20/4	300108004	440		
D20/5	300108005	504		
D20/6	300108006	568		
D20/7	300108007	632		
D20/8	300108008	696		
D20/9	300108009	760		
D20/10	300108010	824		
D20/11	300108011	888		
D20/12	300108012	952		

Painting

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

Order example of D20/1 painted:

D20/1
 IR 009 150 A G06
 W001A H001 F001A RP G06 01 PA 100 01 PB 100
 TJ A G07
P006/1 N10

The painting is indicated with the following value:

P006 - /1 - N10

Color black

section number

Painted



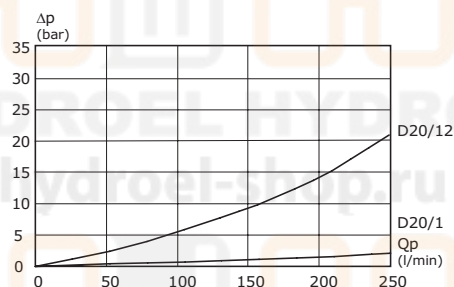
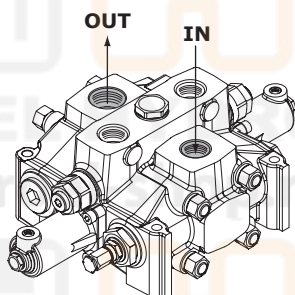
	X (mm)	195	259	323	387	451	515	579	643	707	771	835	899
	Y (mm)	223	287	351	415	479	543	607	671	735	799	863	927
	Weights (kg)	28,6	39,6	50,6	61,6	72,6	83,6	94,6	105,5	116,4	127,4	138,4	149,4



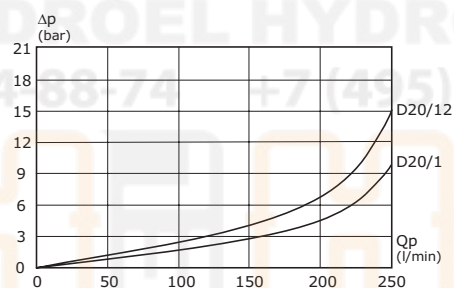
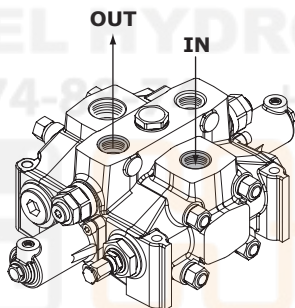
TYPICAL CURVES

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

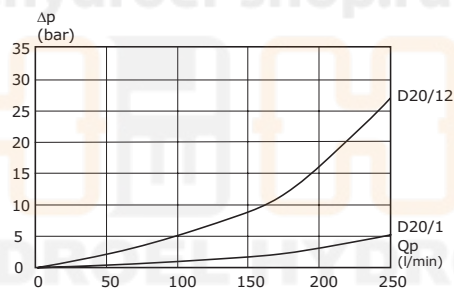
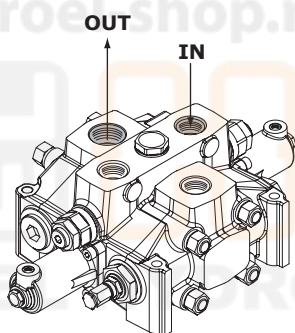
Pressure drop (P - T)



Pressure drop (P - A/B)

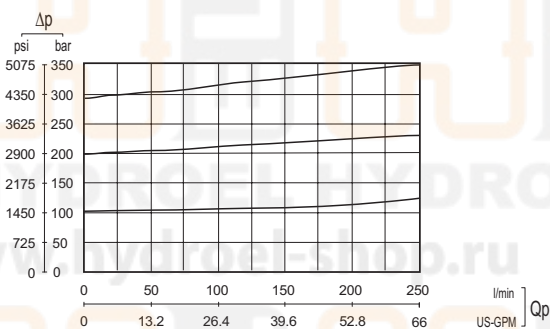


Pressure drop (A/B - T)



Pilot operated relief valve curve

Setting ranges	
type	pressure (bar)
A	0 - 350



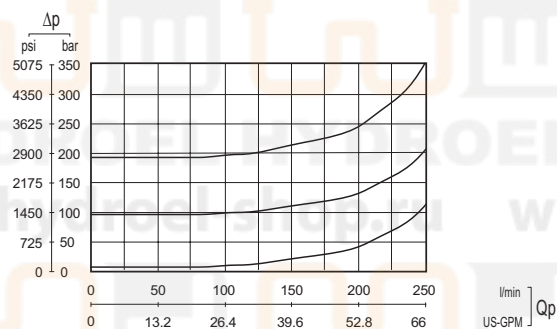


TYPICAL CURVES

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

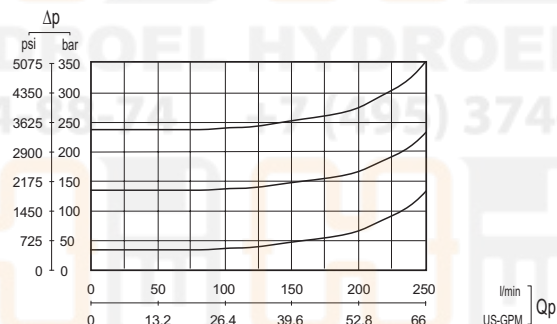
Antishock valve curve

type	Setting ranges	
	pressure (bar)	
	at full flow	at min. flow
A	0 - 70	0-A / 50-A
A	71 - 120	51-A / 70-A
B	121 - 150	71-A / 110-A
C	151 - 300	111-A / 240-A
D	301 - 350	241-A / 350-A

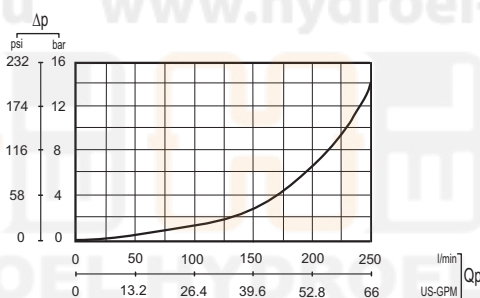


Combined valve curve

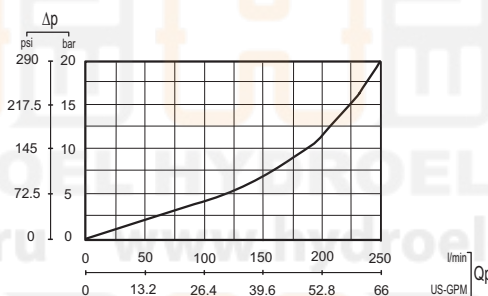
type	Setting ranges	
	pressure (bar)	
	at full flow	at min. flow
A	50 - 130	20-A / 100-A
B	131 - 220	101-A / 220-A
C	221 - 260	221-A / 350-A



Main anticavitation check valve curve



Anticavitation check valve curve



INLET SECTION

Order example

IR	009	150	A G05
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1.

IR

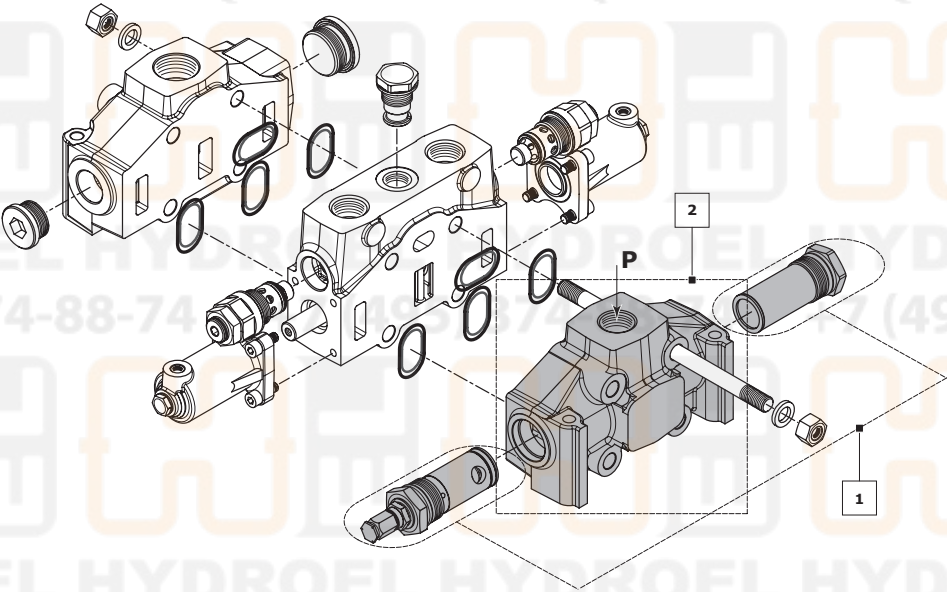
inlet side classification
- 009

valve arrangement
- 150

setting (bar)
2.

A G06

inlet position and available thread type

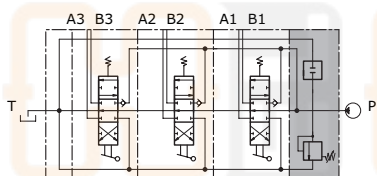


Rif.	Code	Description	Page
-	IR	Sectional valve with right inlet section	11
-	IL	Sectional valve with left inlet section	
1	009	Pilot operated pressure relief valve	
	010	Pilot operated pressure relief valve and Main anticavitation check valve	12
	019	Without valves	
2	A G06	Upper inlet (thread G 1)	
	A G07	Upper inlet (thread G 1"1/4)	
	A U07	Upper inlet (thread 1"5/8 - 12 UNF)	13
	A S05	Upper inlet (thread SAE 3000 1" MA)	
	A S33	Upper inlet (thread SAE 6000 3/4" MA)	

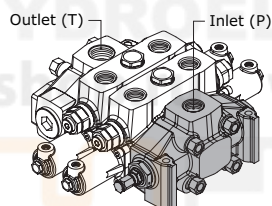
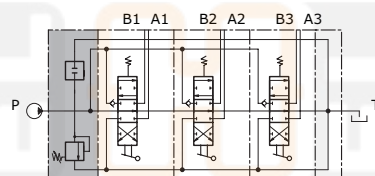
NOTE: when ordering a relief valve it is necessary to specify factory setting (example 150).



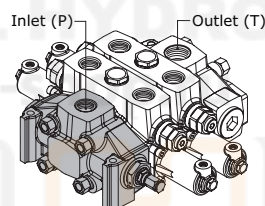
Inlet side classifications

Sectional valve with **right inlet** section


IR


Sectional valve with **right inlet** section


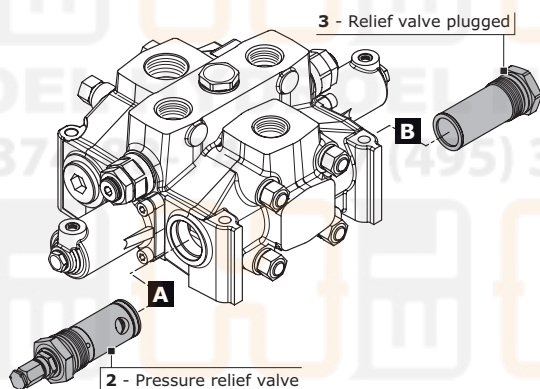
IL



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			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					
							
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

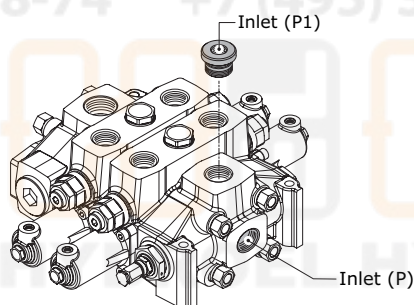
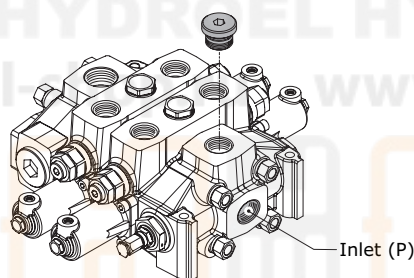
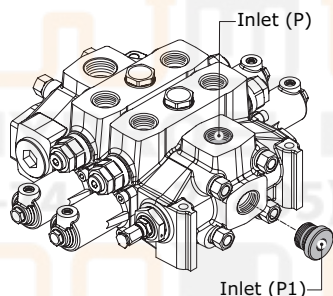
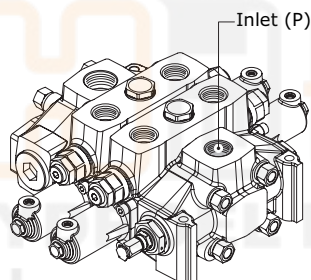
200*380

valve combination

double range setting (bar)


Inlet combination and thread available

A G06		Upper inlet (thread G 1)
A G07		Upper inlet (thread G 1 1/4)
A U07		Upper inlet (thread 1 5/8 - 12 UNF)
A S05		Upper inlet (thread SAE 3000 - 1" MA)
A S06		Upper inlet (thread SAE 3000 - 1" UNC)
A S33		Upper inlet (thread SAE 6000 - 3/4" MA)
A S34		Upper inlet (thread SAE 6000 - 3/4" UNC)
B G06		Upper inlet P1 with pressure-gauge connection G 1/4 (thread G 1)
B G07		Upper inlet P1 with pressure-gauge connection G 1/4 (thread G 1 1/4)
B U07		Upper inlet P1 with pressure-gauge connection G 1/4 (thread 1 5/8 - 12 UNF)
B S05		Upper inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 1" MA)
B S06		Upper inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 1" UNC)
B S33		Upper inlet P1 with pressure-gauge connection G 1/4 (thread SAE 6000 - 3/4" MA)
B S34		Upper inlet P1 with pressure-gauge connection G 1/4 (thread SAE 6000 - 3/4" UNC)
C G06		Central side inlet (thread G 1)
C G07		Central side inlet (thread G 1 1/4)
C U07		Central side inlet (thread 1 5/8 - 12 UNF)
C S05		Central side inlet (thread SAE 3000 - 1" MA)
C S06		Central side inlet (thread SAE 3000 - 1" UNC)
C S33		Central side inlet (thread SAE 6000 - 3/4" MA)
C S34		Central side inlet (thread SAE 6000 - 3/4" UNC)
D G06		Central side inlet P1 with pressure-gauge connection G 1/4 (thread G 1)
D G07		Central side inlet P1 with pressure-gauge connection G 1/4 (thread G 1 1/4)
D U07		Central side inlet P1 with pressure-gauge connection G 1/4 (thread 1 5/8 - 12 UNF)
D S05		Central side inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 1" MA)
D S06		Central side inlet P1 with pressure-gauge connection G 1/4 (thread SAE 3000 - 1" UNC)
D S33		Central side inlet P1 with pressure-gauge connection G 1/4 (thread SAE 6000 - 3/4" MA)
D S34		Central side inlet P1 with pressure-gauge connection G 1/4 (thread SAE 6000 - 3/4" UNC)



WORKING SECTION

Order example:

W001A	H005	RP G06	01 PA 100	01 PB 100
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1.

W001A

2.

H005

3.

RP G06

4.

01 PA 100

5.

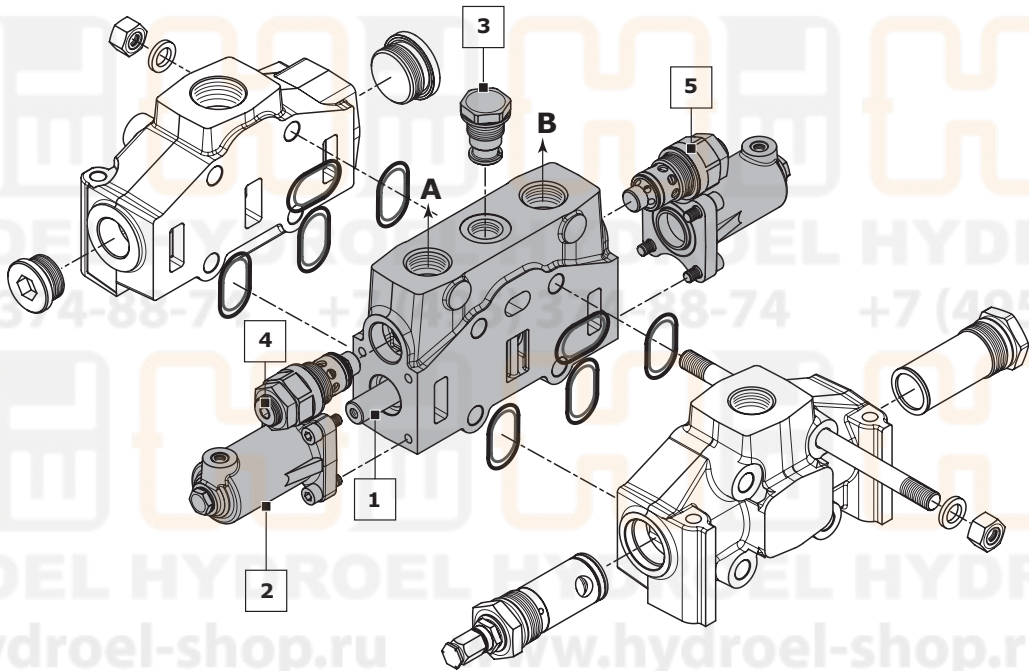
01 PB 100
- spool type

spool actuation type

section and thread type

auxiliaty valve (port A - handle side)

auxiliaty valve (port B - cap side)



Rif.	Code	Description	Page
1	W001 W002	3 positions double-acting 3 positions double-acting A-B to tank	15
2	H101 H005*	Unprotected lever hydraulic actuation	17
3	RP G06 RP U06 RS G06 RS U06	Parallel circuit (G 1) Parallel circuit (1"5/16-12 UNF) Series circuit (G 1) Series circuit (1"5/16-12 UNF)	23
4	01 PA 100 05 PA	Antishock valve (port A) Prearrangement for auxiliary valve (port A)	24
5	01 PB 100 05 PB	Antishock valve (port B) 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.

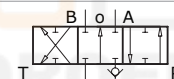
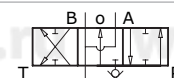
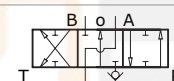
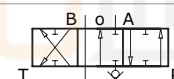
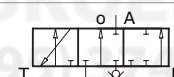
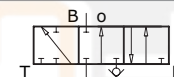
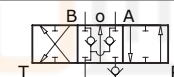
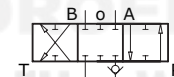
Always indicate setting value when using antishock and combined valve: 01 PA (100) - 03 PA (100)



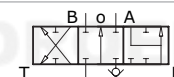
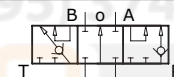
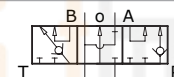
Spool identification

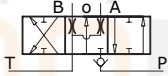
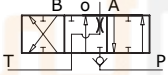
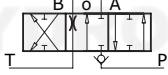
order example of spool: **W001 A J10**

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

W010 3 positions double-acting switch port closed (A - B blocked)

W011 3 positions double-acting switch port closed (A - B to tank)

W012 4 positions double-acting with float in the 4th position

W013 3 positions double-acting regenerative

W015 3 positions double-acting series

W016 3 positions double-acting series A and B to tank


spools with restricted service ports				
code	circuit	restriction on diameter (mm)	section (mm ²)	hydraulic schema
J10	A-B IN T	0,10	4,08	
K10	A IN T	0,10	4,08	
Y10	B IN T	0,10	4,08	

CODE	spool type available	
	STANDARD A	METERED B
W001	W001A	W001B
W002	W002A	W002B
W003	W003A	W003B
W004	W004A	W004B
W005	W005A	W005B
W006	W006A	W006B
W009	W009A	W009B
W010	W010A	
W011	W011A	
W012	W012A	
W013	W013A	
W015	W015A	
W016	W016A	

- NOTE:
- W012, W013, spools need a special machining on the valve body.
 - W015, W016, spools need RS type body.
 - Float spool (W012) need special detent kit (F005).
 - Regenerative spool (W013) need special return spring kits.
 - Different spools are available on request.

Plaese contact our Sales department for more information.



Spool actuation classification for manual control

code	description	dimensions	configuration
H004	Control without lever		
H101	Unprotected lever		
H102	Unprotected lever rotated 180°		

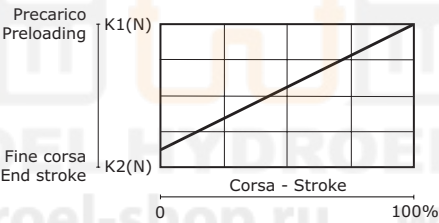
Spool actuation classification for Hydraulic control

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		
H006 leave out the spool return action code	Hydraulic actuation with side ports and cast-iron end caps 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)	B (soft spring)	C (heavy spring)
Preloading	196.2 N	145.1 N	313.9 N
End of stroke	245.2 N	176.6 N	412 N
Spool return action identification example			
Code	F001A	F001B	F001C



Spool return action classification

code	description	schema	dimensions	configuration
F001A	3 positions spring-centred spool		 	
F001B				
F001C				
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)			
F013A	3 positions spring-centred spool prearrangement dual command		 	
F013B				
F013C				

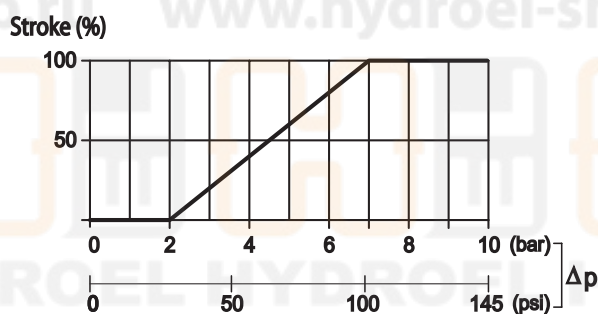


Pneumatic control classification

code	description	schema	dimensions	configuration
F020A	Pneumatic control ON - OFF			
F021A	Pneumatic control ON - OFF rotated 180°			
F022A	Proportional Pneumatic control			
F023A	Pneumatic control rotated 180°			
F135A	Pneumatic control ON - OFF			
F136A	Pneumatic control ON - OFF rotated 180°			
F126A	Proportional Pneumatic control			
F127A	Proportional Pneumatic control rotated 180°			

Proportional pneumatic control curve

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

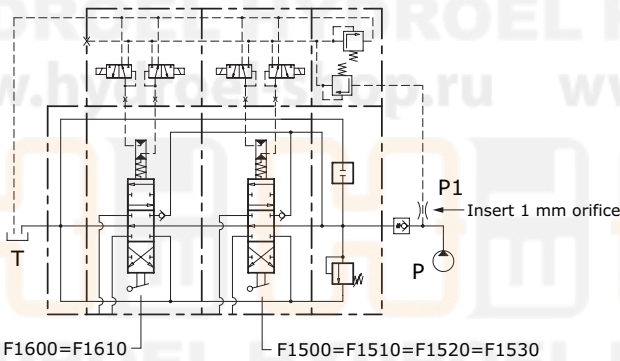


Electrohydraulic control specifications

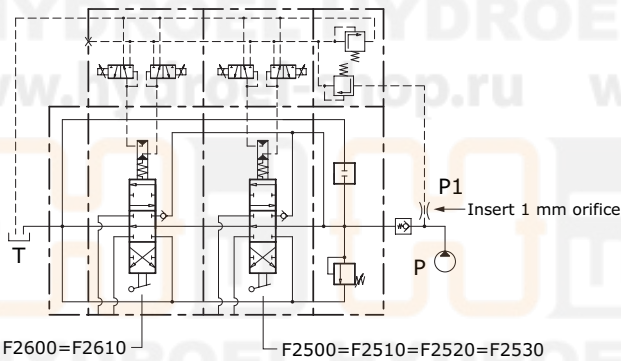
Operating temperature range
 Max inlet pressure
 Reduced pressure
 Back pressure on (T)
 Filtering degree
 Racommended pilot pipe size

-20°C / +80°C
 350 bar
 16 bar
 3 bar
 25 μ assoluti
 Ø 6 mm - G 1/4

Electrohydraulic ON-OFF control with fixed pressure reducing valve



Electrohydraulic PROPORTIONAL control with fixed pressure reducing valve



Proportional control kit, mechanically retrooperated, allows the maximum precision of positioning, limiting the hysteresis. The control is operated with PWM control of the current. PWM frequency suggest: 60-80 Hz

regulation currents			
Nominal voltage (V)	Resistance R ₂₀ (Ohm)	Current min (A)	Current max (A)
12 vdc	3,7	0,9	1,7
24 vdc	15,5	0,45	0,85

Electrohydraulic control classification

code	description	dimensions	configuration
F1600	3 positions electrohydraulic control ON - OFF 12 Vdc		
F1610	3 positions electrohydraulic control ON - OFF 24 Vdc		
F2600	3 positions electrohydraulic control PROPORTIONAL 12 Vdc		
F2610	3 positions electrohydraulic control PROPORTIONAL 24 Vdc		

Electrohydraulic ON-OFF control is stackable with electrohydraulic PROPORTIONAL control (F2600 = F2610). Control kit already includes orifice to make spool displacement more gradual.



Electrohydraulic control with fixed pressure reducing valve classification

code	description	configuration
F1500	Electrohydraulic control ON - OFF (fixed pressure reducing valve) P - T inlet side (12 vdc)	
F1510	Electrohydraulic control ON - OFF (fixed pressure reducing valve) P - T inlet side (24 vdc)	
F2500	Electrohydraulic control PROPORTIONAL (fixed pressure reducing valve) P - T inlet side (12 vdc)	
F2510	Electrohydraulic control PROPORTIONAL (fixed pressure reducing valve) P - T inlet side (24 vdc)	
F1520	Electrohydraulic control ON - OFF (fixed pressure reducing valve) P inlet - T outlet (12 vdc)	
F1530	Electrohydraulic control ON - OFF (fixed pressure reducing valve) P inlet - T outlet (24 vdc)	
F2520	Electrohydraulic control PROPORTIONAL (fixed pressure reducing valve) P inlet - T outlet (12 vdc)	
F2530	Electrohydraulic control PROPORTIONAL (fixed pressure reducing valve) P inlet - T outlet (24 vdc)	

Control tie rod assembly

The length of the control tie rod, will change depending on the section numbers; in this way it will be easy to install in the right way the sections and avoid any misassembly. Each kit is composed by 2 tie rods, 2 plugs, 2 connection ports and spacers according to the section number.

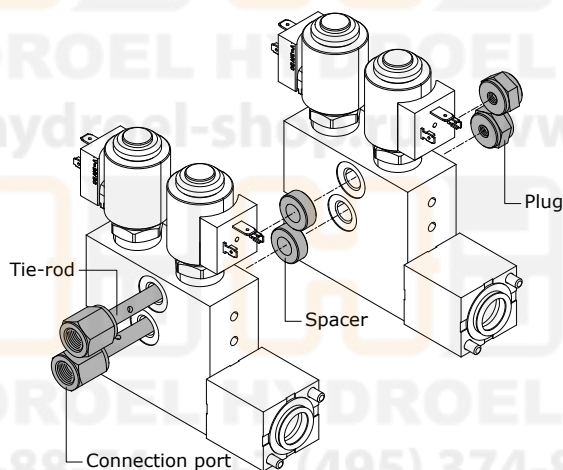
NOTE: the control tie rod kit has always to be ordered separately.

Reducing valve, combined with electrohydraulic control kit has to be calculated as a normal working section.

ORDER EXAMPLE:

Complete valves with 3 sections F1600 requires a complete tie-rod kit /3.

Complete valves with 2 sections F1600 and 1 section with F1500 (reducing valve) requires a complete tie-rod kit /4.



Order code fixed pressure reducing valve:

915000303 = reducing valve for BSP ports

915000312 = reducing valve for UNF ports

Order code for control tie rod (BSP):

320103001 = control tie rod /1

320108001 = control tie rod /2

320108002 = control tie rod /3

320108003 = control tie rod /4

320108004 = control tie rod /5

320108005 = control tie rod /6

320108006 = control tie rod /7

320108007 = control tie rod /8

320108008 = control tie rod /9

Order code for control tie rod (UNF):

320103026 = control tie rod /1

320108012 = control tie rod /2

320108013 = control tie rod /3

320108014 = control tie rod /4

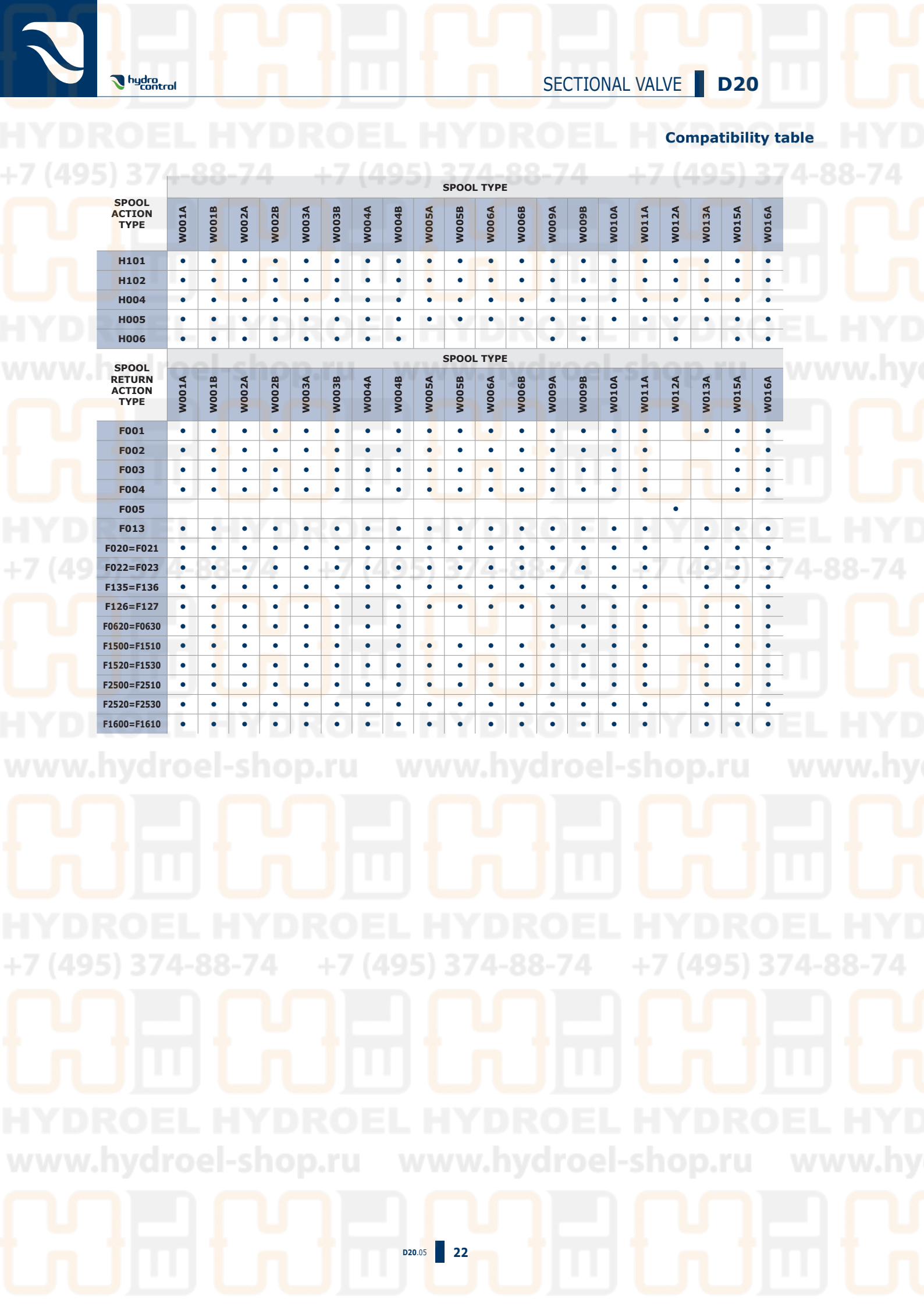
320108015 = control tie rod /5

320108016 = control tie rod /6

320108017 = control tie rod /7

320108018 = control tie rod /8

320108019 = control tie rod /9



Compatibility table

SPOOL ACTION TYPE	SPOOL TYPE															
	W001A	W001B	W002A	W002B	W003A	W003B	W004A	W004B	W005A	W005B	W006A	W006B	W009A	W009B	W010A	W011A
H101	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
H102	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
H004	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
H005	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
H006	•	•	•	•	•	•	•	•					•	•	•	•
SPOOL RETURN ACTION TYPE	SPOOL TYPE															
	W001A	W001B	W002A	W002B	W003A	W003B	W004A	W004B	W005A	W005B	W006A	W006B	W009A	W009B	W010A	W011A
F001	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F002	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F003	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F004	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F005																
F013	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F020=F021	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F022=F023	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F135=F136	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F126=F127	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F0620=F0630	•	•	•	•	•	•	•	•					•	•		•
F1500=F1510	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F1520=F1530	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F2500=F2510	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F2520=F2530	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
F1600=F1610	•	•	•	•	•	•	•	•	•	•	•	•	•	•		•



Work section identification

working section type

RP G06

RP G07

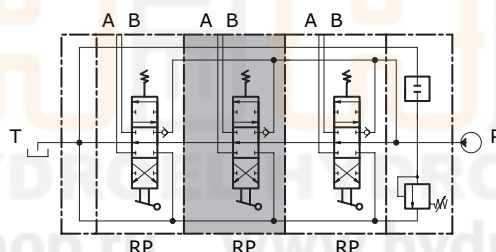
RP U06

RP S05

RP S06

RP S33

RP S34



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.

RS G06

RS G07

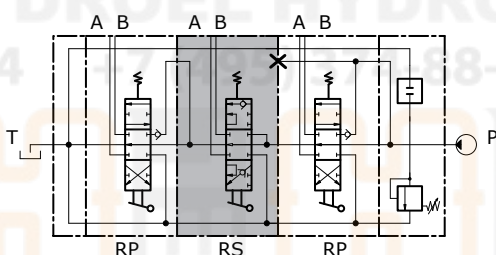
RS U06

RS S05

RS S06

RS S33

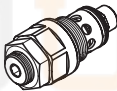
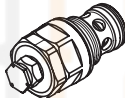
RS S34

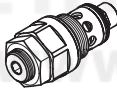


Series
circuit
section

When the spool is operated it intercepts the switch gallery by diverting the flow of oil to service port A or B. The oil that flows back from the actuator is carried to the switch gallery thus making it available to the service ports downstream from the series section. The pressure drop downstream is added to the pressure drop of the section itself.

Auxiliary valve identification

code	description	schema	configuration	setting range (bar)			
				type	at full flow	type	at min. flow
01 PA	Antishock valve (port A)			A	0 / 70	A	0-A / 50-A
				B	71 / 120	B	51-A / 70-A
				C	121 / 150	C	71-A / 110-A
				D	151 / 300	D	111-A / 240-A
				E	301 / 350	E	241-A / 350-A
02 PA	Anticavitation valve (port A)						
04 PA	Pilot combined valve (port A)			A	30 / 110		
				B	111 / 350		
05 PA	Prearrangement for auxiliary valve (port A)						

code	description	schema	configuration	setting range (bar)			
				type	at full flow	type	at min. flow
01 PB	Antishock valve (port B)			A	0 / 70	A	0-A / 50-A
				B	71 / 120	B	51-A / 70-A
				C	121 / 150	C	71-A / 110-A
				D	151 / 300	D	111-A / 240-A
				E	301 / 350	E	241-A / 350-A
02 PB	Anticavitation valve (port B)						
04 PB	Pilot combined valve (port B)			A	30 / 110		
				B	111 / 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 antishock valve and pilot combined valve:

- 01 PA (120) = setting at full flow
- 01 PA (120-A) = setting at min. flow
- 04 PA (120) = setting at min. flow

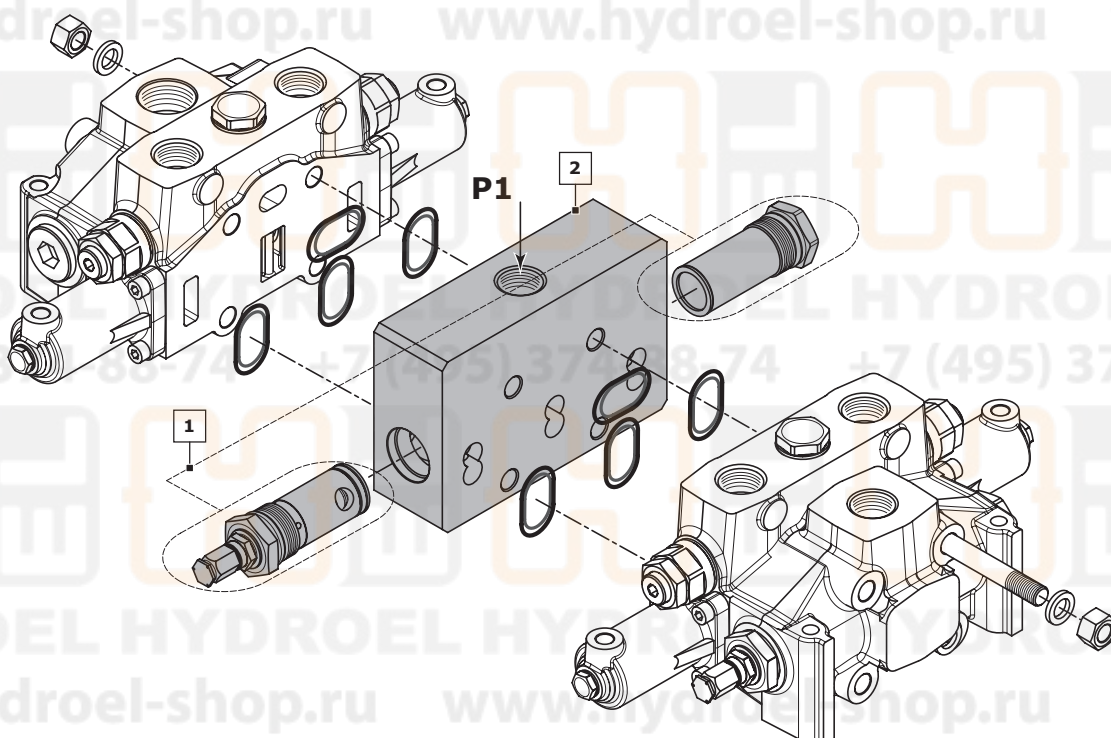


INTERMEDIATE INLET SECTION

Order example

BE	009	150	A G06
----	-----	-----	-------

1. **BE** inlet side _____
009 valve arrangement _____
150 setting (bar); when ordering a main relief valve it is necessary to specify setting _____
2. **A G06** inlet position and available thread type _____



Rif.	Code	Description	Page
-	BE	Intermediate inlet section	26
	BV*	Intermediate inlet section with pressure relief valve	
1	009	Pilot operated pressure relief valve	27
	010	Pilot operated pressure relief valve and Main anticavitation check valve	
	019	Without valves	
	020	Main anticavitation check valve	
2	A G06	Upper inlet (thread G 1)	
	A U06	Upper inlet (thread 1"5/16-12 UNF)	

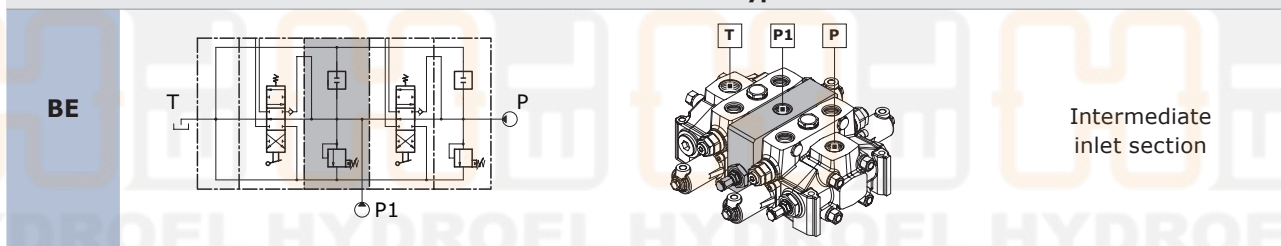
NOTE: when ordering a relief valve it is necessary to specify factory setting (example 150).

* = omit the code for inlet positioning and thread

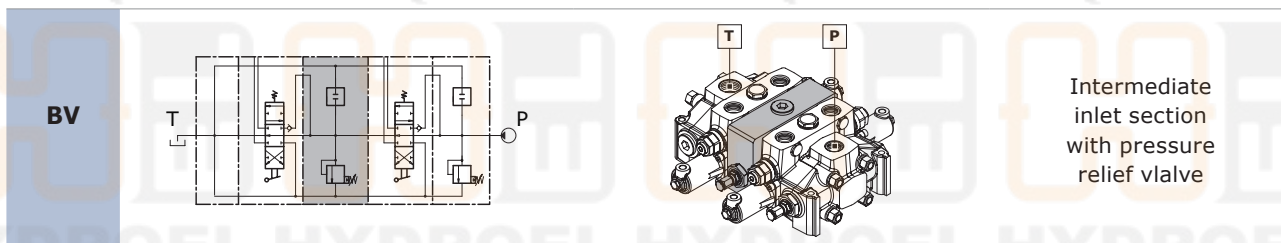


Intermediate inlet section classifications

intermediate inlet type



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.

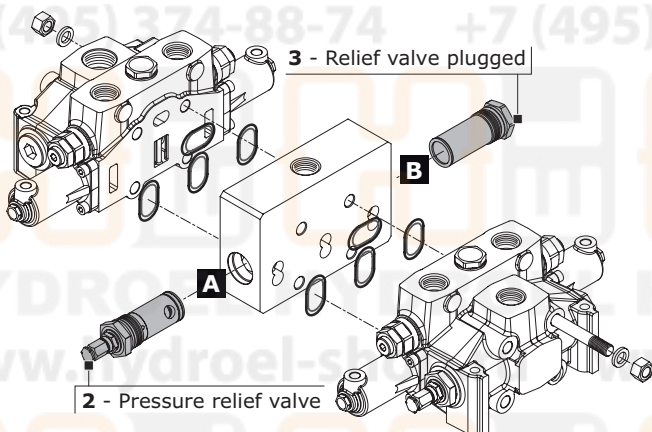


The intermediate inlet section and the elements are driven by a single pump (P). The downstream elements can be set to a lower pressure than the upstream ones by adjusting the pressure relief valve of the intermediate section in question.

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

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

Inlet combination and thread available

A G06

A G07

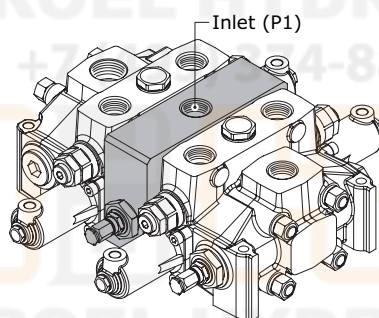
A U06

A S05

A S06

A S33

A S34



Upper inlet



Complete configuration samples for D20/2 with intermediate inlet section (BE)

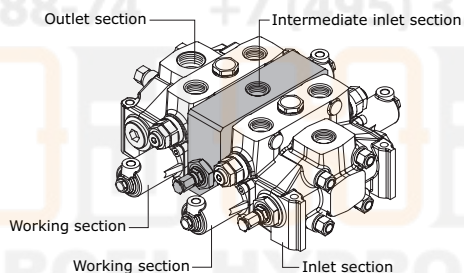
IR 009 150 A G06 Right inlet section

W001A H101 F001A RP G06..... Working section

BE 009 150 A G06Intermediate inlet section

W001A H101 F001A RP G06..... Working section

TJ A G07 Outlet section



Complete configuration samples for D20/2 with intermediate inlet section (BV)

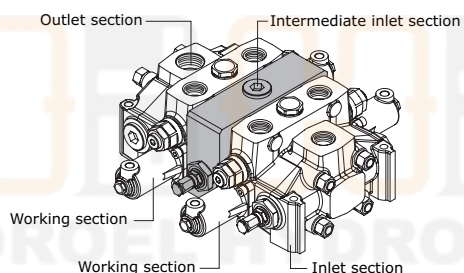
IR 009 150 A G06 Right inlet section

W001A H101 F001A RP G06..... Working section

BV 009 150Intermediate inlet section

W001A H101 F001A RP G06..... Working section

TJ A G07 Outlet section





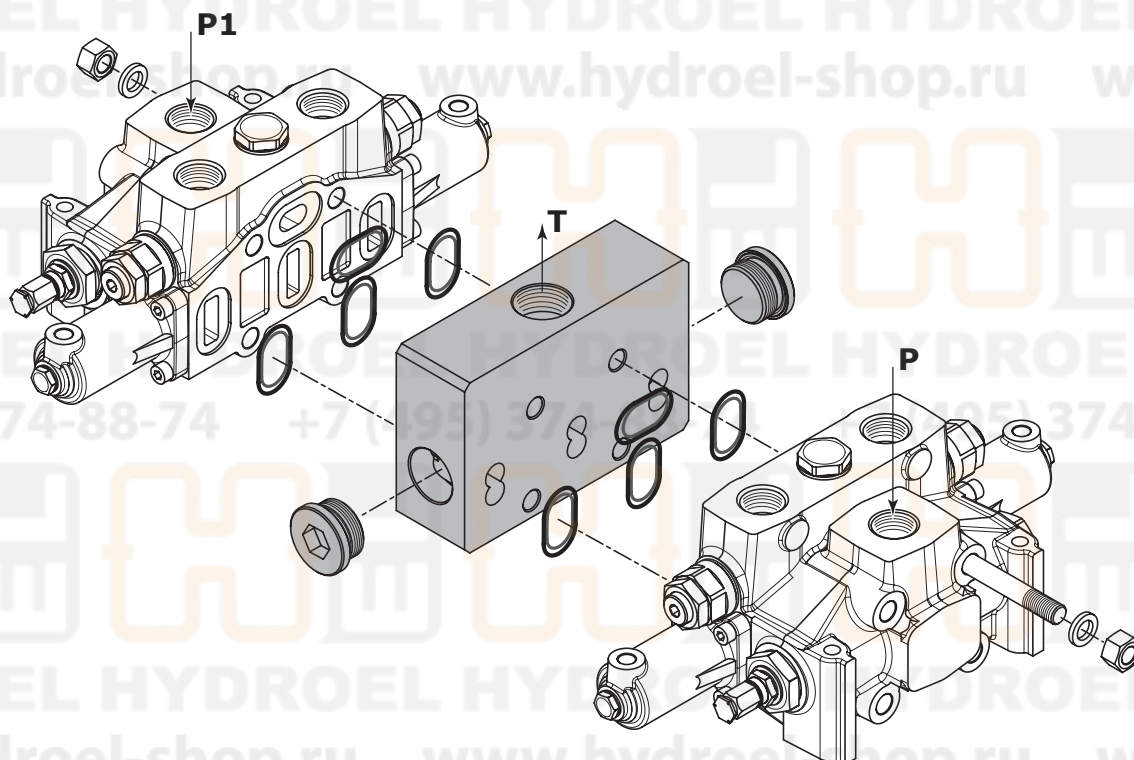
INTERMEDIATE OUTLET SECTION

Order example

BF

A G07

1. **BF** inlet side _____
A G07 inlet position and available thread type _____

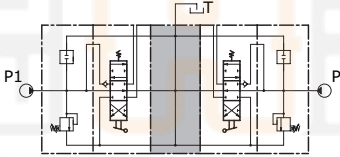
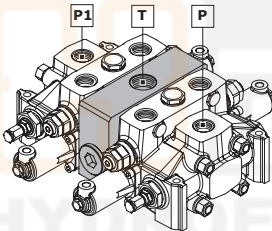


Rif.	Code	Type	Description	Page
-	BF		Intermediate outlet section with single tank return	
	BG		Intermediate outlet section with two tank returns	
1	A G07		Upper outlet (thread G 1"1/4)	
	A U07		Upper outlet (thread 1"5/8-12 UNF)	
	G G07	for	Front outlet side A (thread G 1"1/4)	
	G U07	BF	Front outlet side A (thread 1"5/8-12 UNF)	30
	H G07		Rear outlet side B (thread G 1"1/4)	
	H U07		Rear outlet side B (thread 1"5/8-12 UNF)	
	J G07	for	Upper outlet HPCO - front side A and rear side B to T (thread G 1"1/4)	
	J U07	BG	Upper outlet HPCO-front side A and rear side B to T (thread 1"5/8-12 UNF)	

Intermediate outlet section classifications

intermediate outlet type

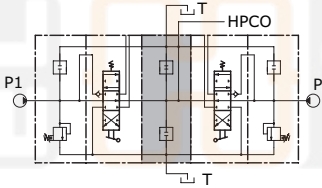
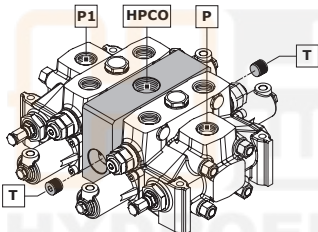
BF

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 position and available thread type (for BF intermediate)

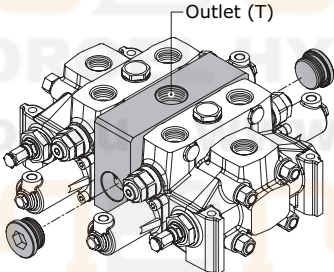
Outlet combination and thread available

A G07

A U07

A S07

A S08



Outlet (T)

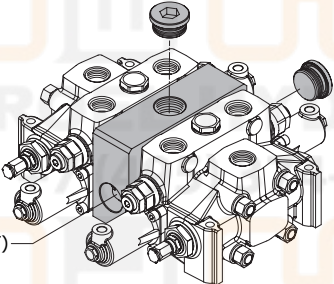
Upper outlet (T)

G G07

G U07

G S07

G S08



Outlet (T)

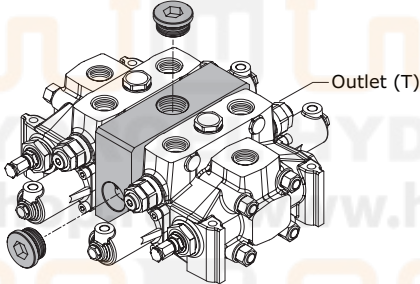
Front outlet side A (T)

H G07

H U07

H S07

H S08



Outlet (T)

Rear outlet side B (T)



Outlet position and available thread type (for BG intermediate)

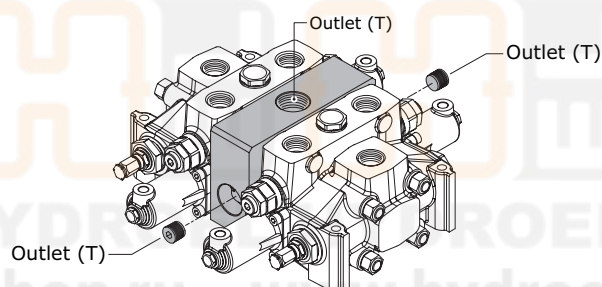
Inlet combination and thread available

J G07

J U07

J S07

J S08



Upper outlet HPCO
front side A and
rear side B to T

Complete configuration samples for D20/2 with intermediate outlet section (BF)

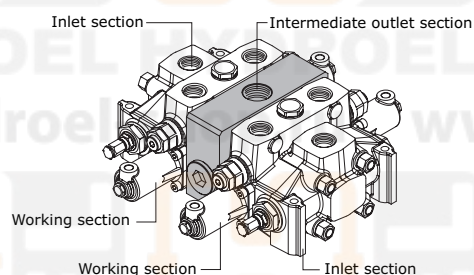
IR 009 150 A G06 Right inlet section

W001A H101 F001A RP G06 Working section

BF A G07 Intermediate outlet section

W001A H101 F001A RP G06 Working section

IL 009 150 A G06 Left inlet section



Complete configuration samples for D20/2 with intermediate outlet section (BG)

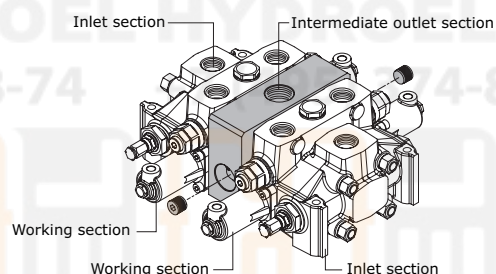
IR 009 150 A G06 Right inlet section

W001A H101 F001A RP G06 Working section

BG J G07 Intermediate outlet section

W001A H101 F001A RP G06 Working section

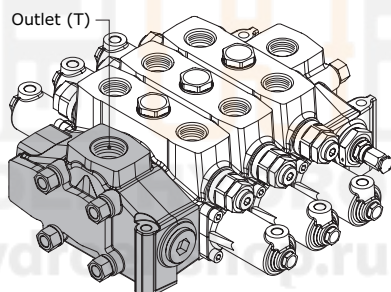
IL 009 150 A G06 Left inlet section





OUTLET SECTION (VERSION 1 OUTLET)

Order example



TJ

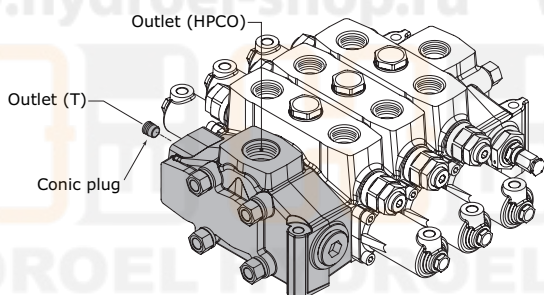
A G07

1. **TJ** outlet section type
2. **A G07** outlet position and available thread type

Rif.	Code	Description	Page
1	TJ TK	Outlet section with single return (T) right-side inlet (P) Outlet section with single return (T) left-side inlet (P)	
2	A G07 A U07 A S07 A S08 C G07 C U07 C S07 C S08	Upper outlet (thread G 1"1/4) Upper outlet (thread 1"5/8-12 UNF) Upper outlet (thread SAE 3000 - 1"1/4 MA) Upper outlet (thread SAE 3000 - 1"1/4 UNC) Central outlet (thread G 1"1/4) Central outlet (thread 1"5/8-12 UNF) Central outlet (thread SAE 3000 - 1"1/4 MA) Central outlet (thread SAE 3000 - 1"1/4 UNC)	33

OUTLET SECTION (HPCO VERSION OUTLET)

Order example - HPCO version Outlet



TM

M G07

1. **TM** outlet section type
2. **M G07** outlet position and available thread type

Rif.	Code	Description	Page
1	TM TN	Outlet section with two return (T-HPCO) right-side inlet (P) Outlet section with two return (T-HPCO) left-side inlet (P)	
2	M G07 M U07 M S07 M S08 N G07 N U07 N S07 N S08	HPCO upper outlet T (tank) rear outlet side B (thread G 1"1/4) HPCO upper outlet T (tank) rear outlet side B (thread 1"5/8-12 UNF) HPCO upper outlet T (tank) rear outlet side B (thread SAE 3000 - 1"1/4 MA) HPCO upper outlet T (tank) rear outlet side B (thread SAE 3000 - 1"1/4 UNC) HPCO upper outlet T (tank) front outlet side A (thread G 1"1/4) HPCO upper outlet T (tank) front outlet side A (thread 1"5/8-12 UNF) HPCO upper outlet T (tank) front outlet side A (thread SAE 3000 - 1"1/4 MA) HPCO upper outlet T (tank) front outlet side A (thread SAE 3000 - 1"1/4 UNC)	34



Outlet with single tank classification

outlet identification

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

outlet combination and thread available

A G07		Upper outlet (thread G 1 1/4)
A U07		Upper outlet (thread 1 5/8 - 12 UNF)
A S07		Upper outlet (thread SAE 3000 - 1 1/4 MA)
A S08		Upper outlet (thread SAE 3000 - 1 1/4 UNC)
C G07		Central outlet (thread G 1 1/4)
C U07		Central outlet (thread 1 5/8 - 12 UNF)
C S07		Central outlet (thread SAE 3000 - 1 1/4 MA)
C S08		Central outlet (thread SAE 3000 - 1 1/4 UNC)
F G07		Lateral outlet (thread G 1 1/4)
F U07		Lateral outlet (thread 1 5/8 - 12 UNF)
G G07		Front outlet side A (thread G 1 1/4)
G U07		Front outlet side A (thread 1 5/8 - 12 UNF)
G S07		Front outlet side A (thread SAE 3000 - 1 1/4 MA)
G S08		Front outlet side A (thread SAE 3000 - 1 1/4 UNC)
H G07		Rear outlet side B (thread G 1 1/4)
H U07		Rear outlet side B (thread 1 5/8 - 12 UNF)
H S07		Rear outlet side B (thread SAE 3000 - 1 1/4 MA)
H S08		Rear outlet side B (thread SAE 3000 - 1 1/4 UNC)

only for
TK

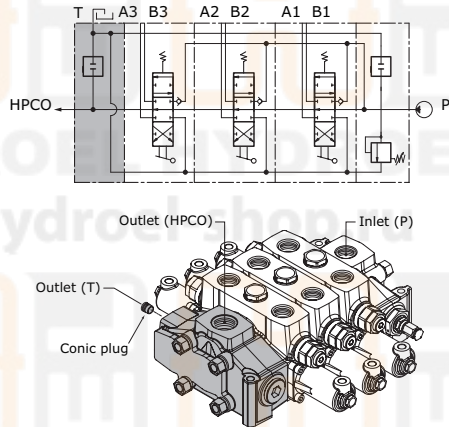
only for
TJ

Outlet with two tanks classification

outlet identification

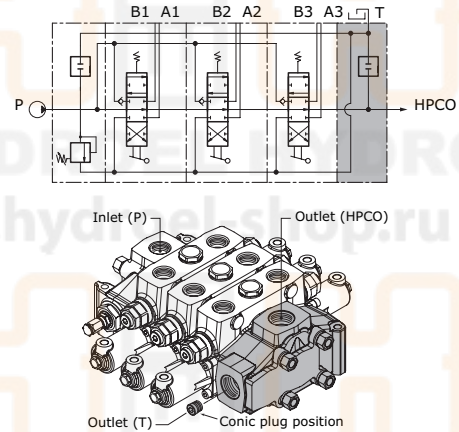
TM

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 G07

M U07

M S07

M S08

M S35

M S36

N G07

N U07

N S07

N S08

N S35

N S36

P G07

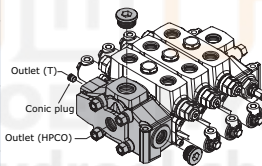
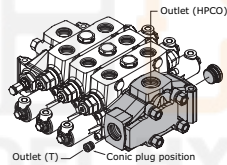
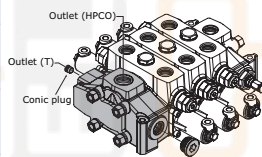
P U07

P S07

P S08

P S35

P S36



only
for
TM

only
for
TN

only
for
TM

HPCO Upper outlet T
rear outlet side B
(thread G 1"1/4)

HPCO Upper outlet T
rear outlet side B
(thread 1"5/8-12 UNF)

HPCO Upper outlet T
rear outlet side B
(thread SAE 3000 3/4 MA)

HPCO Upper outlet T
rear outlet side B
(thread SAE 3000 3/4 UNC)

HPCO Upper outlet T
rear outlet side B
(thread SAE 6000 1" MA)

HPCO Upper outlet T
rear outlet side B
(thread SAE 6000 1" UNC)

HPCO Upper outlet T
front outlet side A
(thread G 1"1/4)

HPCO Upper outlet T
front outlet side A
(thread 1"5/8-12 UNF)

HPCO Upper outlet T
front outlet side A
(thread SAE 3000 3/4 MA)

HPCO Upper outlet T
front outlet side A
(thread SAE 3000 3/4 UNC)

HPCO Upper outlet T
front outlet side A
(thread SAE 6000 1" MA)

HPCO Upper outlet T
front outlet side A
(thread SAE 6000 1" UNC)

HPCO Central outlet T
rear outlet side B
(thread G 1"1/4)

HPCO Central outlet T
rear outlet side B
(thread 1"5/8-12 UNF)

HPCO Central outlet T
rear outlet side B
(thread SAE 3000 3/4 MA)

HPCO Central outlet T
rear outlet side B
(thread SAE 3000 3/4 UNC)

HPCO Central outlet T
rear outlet side B
(thread SAE 6000 1" MA)

HPCO Central outlet T
rear outlet side B
(thread SAE 6000 1" UNC)

Q G07

Q U07

Q S07

Q S08

Q S35

Q S36

R G07

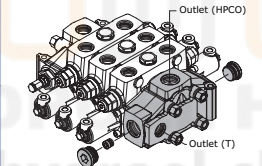
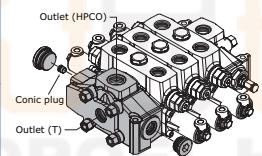
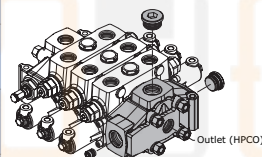
R S07

R S08

R U07

S G07

S U07



only
for
TN

only
for
TM

only
for
TN

HPCO Central outlet T
front outlet side A
(thread G 1"1/4)

HPCO Central outlet T
front outlet side A
(thread 1"5/8-12 UNF)

HPCO Central outlet T
front outlet side A
(thread SAE 3000 3/4 MA)

HPCO Central outlet T
front outlet side A
(thread SAE 3000 3/4 UNC)

HPCO Central outlet T
front outlet side A
(thread SAE 6000 1" MA)

HPCO Central outlet T
front outlet side A
(thread SAE 6000 1" UNC)

HPCO Upper outlet T
rear outlet side B
(thread G 1"1/4)

HPCO Upper outlet T
rear outlet side B
(thread 1"5/8-12 UNF)

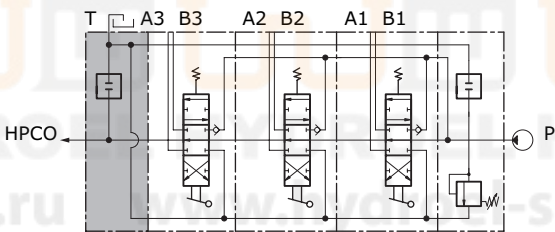
HPCO Upper outlet T
side outlet A
(thread G 1"1/4)

HPCO Upper outlet T
side outlet A
(thread 1"5/8-12 UNF)

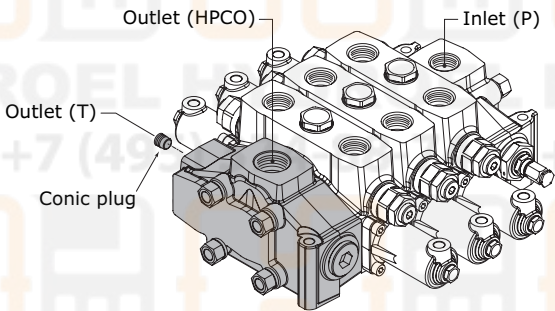


CARRY-OVER CONNECTION (HPCO)

This option, available on all D20, 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.



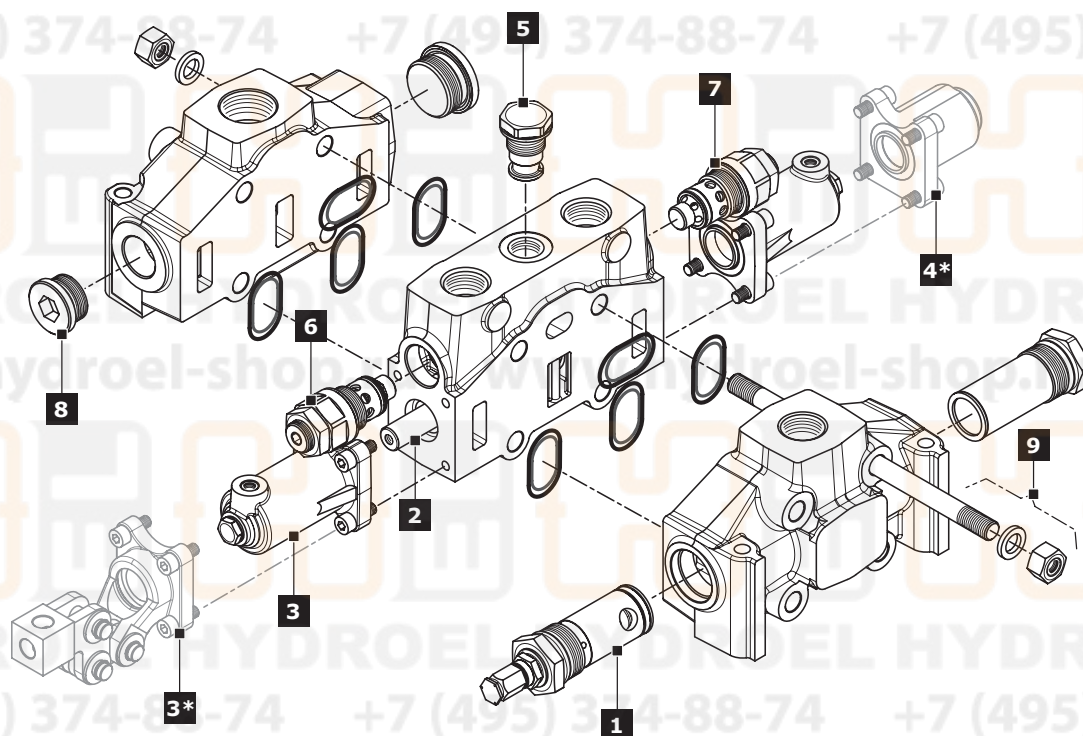
It is possible to transform sectional valve from standard to HPCO version just by ordering the appropriate conic plug:



code (HPCO Plug identification)	description	q.ty
413010201	conic plug G 1/2 x 17	1



D20 SPARE PARTS LIST

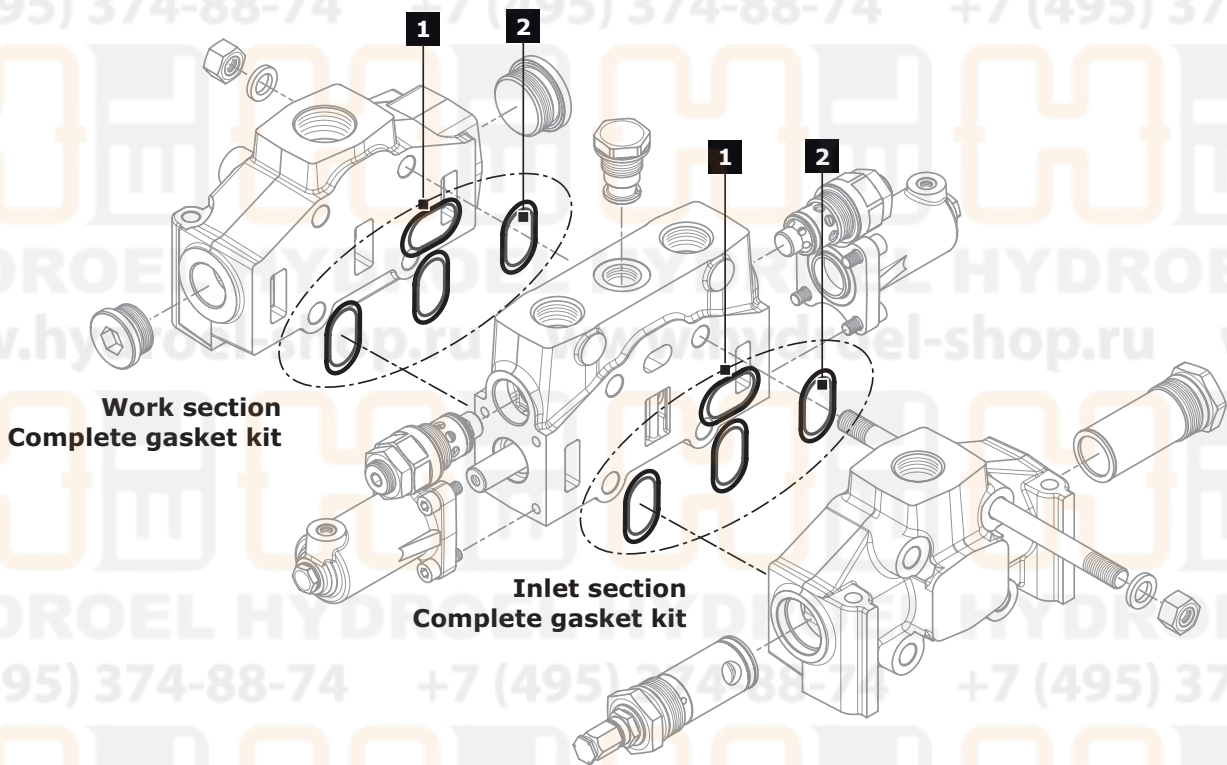


Ref.	Description	Order code	Q.ty	Code	Note
1	Pilot operated pressure relief valve (*)	30168			Setting: 100 bar
		3143	1		Setting: 200 bar
		4383			Setting: 300 bar
	Relief valve plugged	430109001	1	-	
	Main Anticavitation check valve	915050901	1		
	External piloted valve	915040901	1		
	Plug with pressure-gauge connection	430109003	1		
	3 positions double-acting spool	421208010		W001A	
		421208022	1	W001B	
		421208001		W001A	for hydraulic actuation
2	3 positions double-acting A and B to tank spool	421208005		W002A	
		421208002	1	W002B	
		421208023		W002A	for hydraulic actuation
	3 positions single-acting on A	421208015	1	W005A	
	3 positions single-acting on B	421208017	1	W006A	
3*	4 positions double-acting with float in the 4 th pos.	421208012	1	W012A	
		421208011			for hydraulic actuation
	Control without lever	320308002	1	H004	
		320308005			only for W012 spool
	Protected vertical safety lever	320308001	1	H101 = H102	
3		320308003			only for W012 spool
		320508001	2		for BSP version
	Hydraulic actuation with side ports	320508005	1	H005	only for W012 spool - for BSP version
		320508023	2		for UNF version
		320508024	1		only for W012 spool - for UNF version



Ref.	Description	Order code	Q.ty	Code	Note
4*	3 position spring centred spool	320708001	1	F001A	
	Detent in A and B	320808001	1	F002A	
	Detent in A	320808002	1	F003A	
	Detent in B	320808003	1	F004A	
	Detent in 4 th position	320808004	1	F005A	only for W012 spool
	Prearrangement dual command	320708005	1	F013A	
	Pneumatic control ON-OFF	321108003	1	F020A=F021A	BSP ports
	Proportional Pneumatic control	321208002	1	F022A=F023A	BSP ports
		321208004	1	F126A=F127A	NPT ports
	Electrohydraulic ON-OFF (12 vdc)	321408021	1	F1600	
	Electrohydraulic ON-OFF (24 vdc)	321408022	1	F1610	
	Electrohydraulic Proportional (12 vdc)	322008001	1	F2600	
	Electrohydraulic Proportional (24 vdc)	322008002	1	F2610	
	Electrohydraulic ON-OFF (12 vdc) with reducing valve	321408023	1	F1500=F1520	BSP ports
	Electrohydraulic ON-OFF (24 vdc) with reducing valve	321408024	1	F1510=F1530	BSP ports
	Electrohydraulic Proportional (12 vdc) with reducing valve	322008003	1	F2500=F2520	BSP ports
	Electrohydraulic Proportional (24 vdc) with reducing valve	322008004	1	F2510=F2530	BSP ports
	Electrohydraulic ON-OFF (12 vdc) with reducing valve	321408025	1	F1500=F1520	UNF ports
	Electrohydraulic ON-OFF (24 vdc) with reducing valve	321408025	1	F1510=F1530	UNF ports
	Electrohydraulic Proportional (12 vdc) with reducing valve	322008005	1	F2500=F2520	UNF ports
	Electrohydraulic Proportional (24 vdc) with reducing valve	322008006	1	F2510=F2530	UNF ports
5	Check valve on the work section	320208001	1	-	only for RP and RT section
	Antishock valve on port A	3027			Setting: 100 bar
		2647		01 PA	Setting: 200 bar
6		2781			Setting: 300 bar
	Anticavitation valve on port A	915080801	1	02 PA	
		15888			Setting: 100 bar
	Pilot combined valve on port A	5091		04 PA	Setting: 200 bar
		8943			Setting: 300 bar
7	Prearrangement for auxiliary valve on port A	430409001		05 PP	
	Antishock valve on port B	3027			Setting: 100 bar
		2647		01 PB	Setting: 200 bar
		2781			Setting: 300 bar
	Anticavitation valve on port B	915080801	1	02 PB	
		15888			Setting: 100 bar
	Pilot combined valve on port B	5091		04 PB	Setting: 200 bar
		8943			Setting: 300 bar
	Prearrangement for auxiliary valve on port B	430409001		05 PB	
	Plug kit (G 1)	430000021		G06	
8	Plug kit (G 1"1/4)	430000022	1	G07	
	Plug kit (1"5/16-12 UNF)	300008002		U06	
	Plug kit (1"5/8-12 UNF)	300009002		U07	

GASKET KITS



Inlet and work section			
Rif.	Order code	Description	Q.ty
1	423401017	Ring	4
2	412020603	O.R. 90SH (2-129)	4
Complete Gasket kit: order code - 350909001			



INSTALLATION AND MAINTENANCE

Guidelines

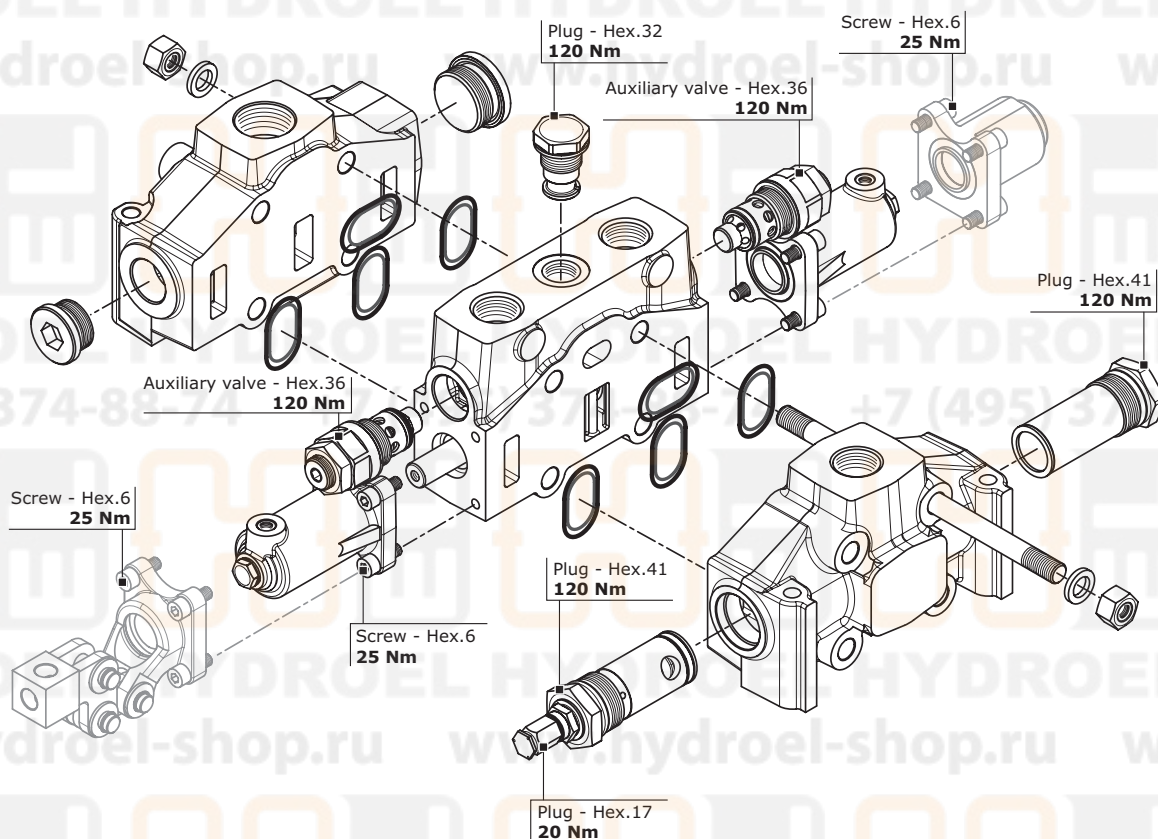
- Mount the control valve securely to a flat surface (recommended 3 point fixing); at the time do not use a hammer to positioning by hitting.
- When handling the control valve, be careful not hold the pilot cover or return spring cap of the spool or accessory valves such as main relief valves and anti-shock 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 1	G 1	G 1
with rubber sealing (DIN 3869)	120	120	120
with copper or steel and rubber washer	120	120	120
BSP (ISO - 228)	G 1"1/4	G 1"1/4	G 1"1/4
with rubber sealing (DIN 3869)	120	120	120
with copper or steel and rubber washer	120	120	120
UN-UNF (ISO - 725)	1"1/16 12 UNF	1"1/16 12 UNF	1"1/16 12 UNF
with O.R.	120	120	120
UN-UNF (ISO - 725)	1"5/16 12 UNF	1"5/16 12 UNF	1"5/16 12 UNF
with O.R.	120	120	120

General clamping torque

The following table provides the main tightening torques of the distributor D20:



Dimensions - Thread codes

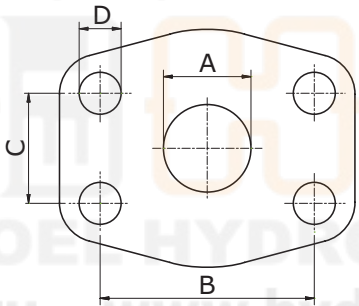
The connection ports size is indicated by an ordering code common for all Hydrocontrol products. Following table shows all available connections.

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

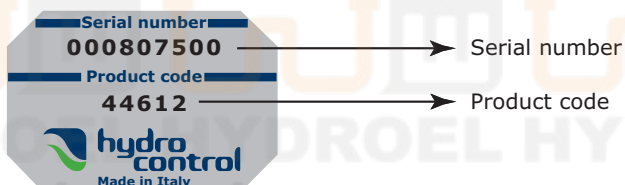
SAE / 6000 FLANGE (ISO 6162-2)								
Type	3/4" (MA)	3/4" (UNC)	1" (MA)	1" (UNC)	1"1/4 (MA)	1"1/4 (UNC)	1"1/2 (MA)	1"1/2 (UNC)
Code	S33	S34	S35	S36	S37	S38	S39	S40
A	19	19	25	25	32	32	38	38
B	50,8	50,8	57,2	57,2	66,6	66,6	79,3	79,3
C	23,8	23,8	27,8	27,8	31,8	31,8	36,5	36,5
D	M10	3/8-16	M12	7/16-14	M14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

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.

A member of



Hydrocontrol S.p.A. (Head Quarter)

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