



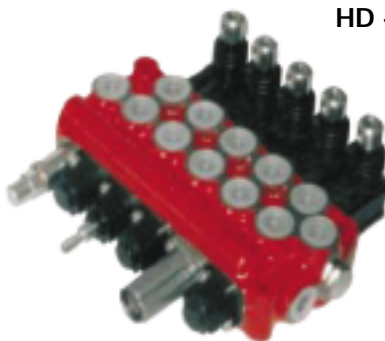
hydro control



HD - D2/1



HD - D2/5



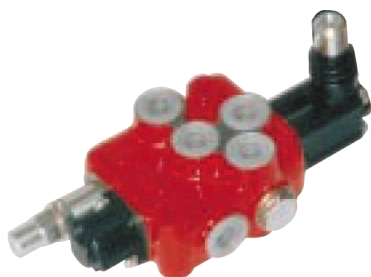
HD - D10/3



HD - D10/2



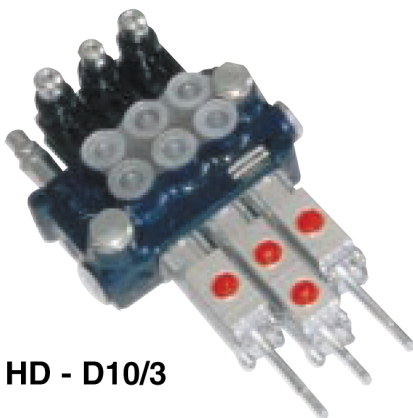
HD - D10/6



HD - D2/1



HD - D2/5



HD - D10/3



HD - D10/2



HD - D10/6

Monoblock valves standard catalogue DM.0698

The specifications detailed in this catalogue show standard products. Special valves are available. Please contact our Engineering Department for further details. This catalogue is not open to interpretation and in case of doubt the customer is requested to contact the Hydrocontrol Technical Sales Office who will be pleased to supply detailed explanations. 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.

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CIRCUITS THAT MAY BE REALISED WITH OUR DIRECTIONAL CONTROL VALVES.

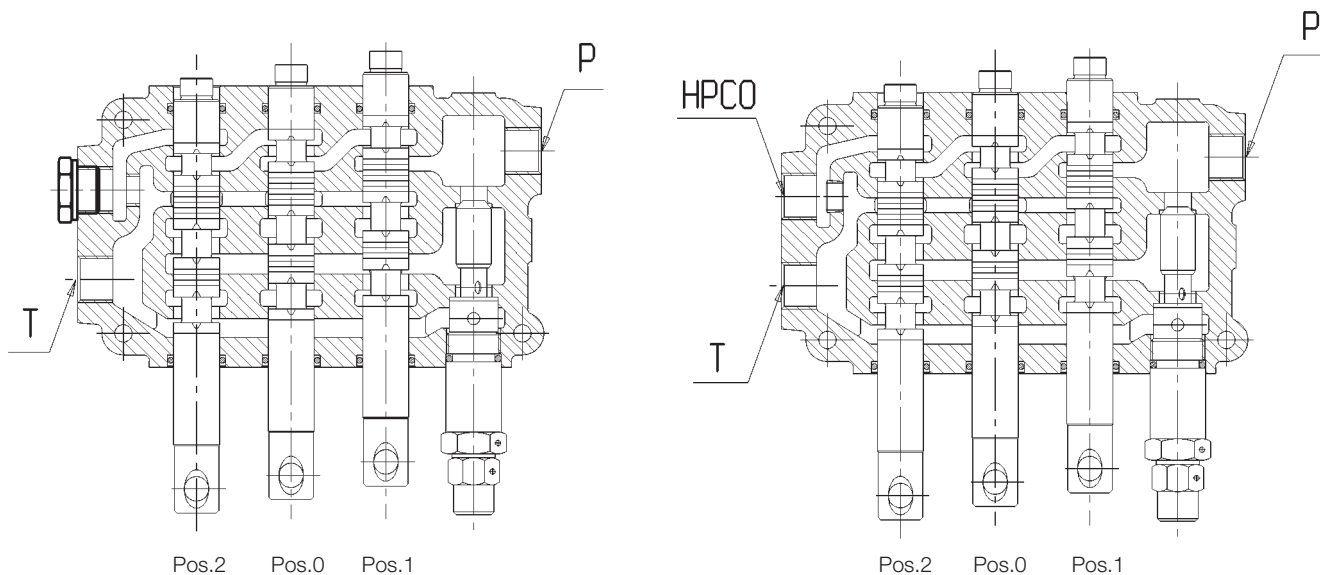
Parallel circuit (RP)

When the spool is operated it intercepts the switch gallery(o) end diverts the flow of oil to service ports A or B. If two or more spools are actuated at the same time, the oil will power the service port which has the lower load by selecting the path with the least resistance; by throttling the spools, the flow of oil can be divided between two or more service ports.

Carryover connection (HPCO)

This option allows the switch gallery (o) to be extended outside in order to power a second directional control valve in series . A directional control valve configured in this manner requires an unloading circuit (T) for the work ports.

LEAKAGE			
Test conditions :	Fluid viscosity	30	Cst
	Fluid temperature	50°	C
	Pressure	100	bar



Monoblock with single outlet (T)

Monoblock with two outlets (HPCO)

UNITS OF MEASURE - CONVERSION FACTORS

Length	mm	in.		Flow rate	l	gal U.K.	gal U.S.	Mass	Kg	lb	
mm	1	0,0394		l	1	0,2200	0,2642	Kg	1	2,205	
in.	25,4	1		gal U.K.	4,546	1	1,2010	lb	0,4536	1	
				gal U.S.	3,785	0,8327	1				
Force Weight	N	Kgf		Pressure	bar	Pa	psi	= Standard units			
N	1	0,1020		bar	1	100000	14,5				
Kgf	9,8067	1		Pa	0,0001	1	0,00014				
				psi	0,0689	6890	1				

MONOBLOCK VALVES

GENERAL DEFINITIONS

APPLICATION CONDITIONS

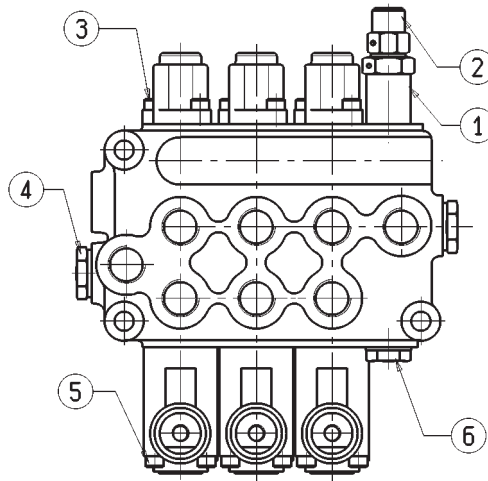
Operating temperature	:	from -25° to + 80° C
Kinematic viscosity	:	from 10 to 460 mm ² /s
Max. contamination level	:	NAS 1638 class 9 (19/16 ISO-4406)
Recommended filtration level	:	$\beta_{10} \geq 75$

FLUID COMPATIBILITY

TYPES OF FLUID	TEMPERATURE RANGE OF FLUID (°C)	GASKET MATERIAL	
		NBR	POLYURETHAN
Mineral oil HLP (DIN 51524)	-25 +80	•	•
Oil in water emulsion HFA	+5 +55	•	•
Water in oil emulsion HFB	+5 +55	•	
Polyglycol-based aqueous solution HFC	-25 +60	•	

NBR Nitrile rubber compatible with mineral-based oils ASTM 1.
POLYURETHAN Elastomer compatible with fluids ASTM 1 and ASTM 3.

STANDARD CLAMPING TORQUE



POS.	DESCRIPTION	(Nm)			
		D2	D10		
1	Pressure relief valve body	80	80		
2	Pressure relief valve cap	19	19		
3	Allen screw	3,5	3,5		
4	Fittings in service ports P-A-B-T	see table (A)			
5	Allen screw	3,5	3,5		
6	Check valve plug	8,5			
Table (A)		(Nm)			
		3/8" BSP	1/2" BSP	3/4"-16 UNF	
		50	85	63	

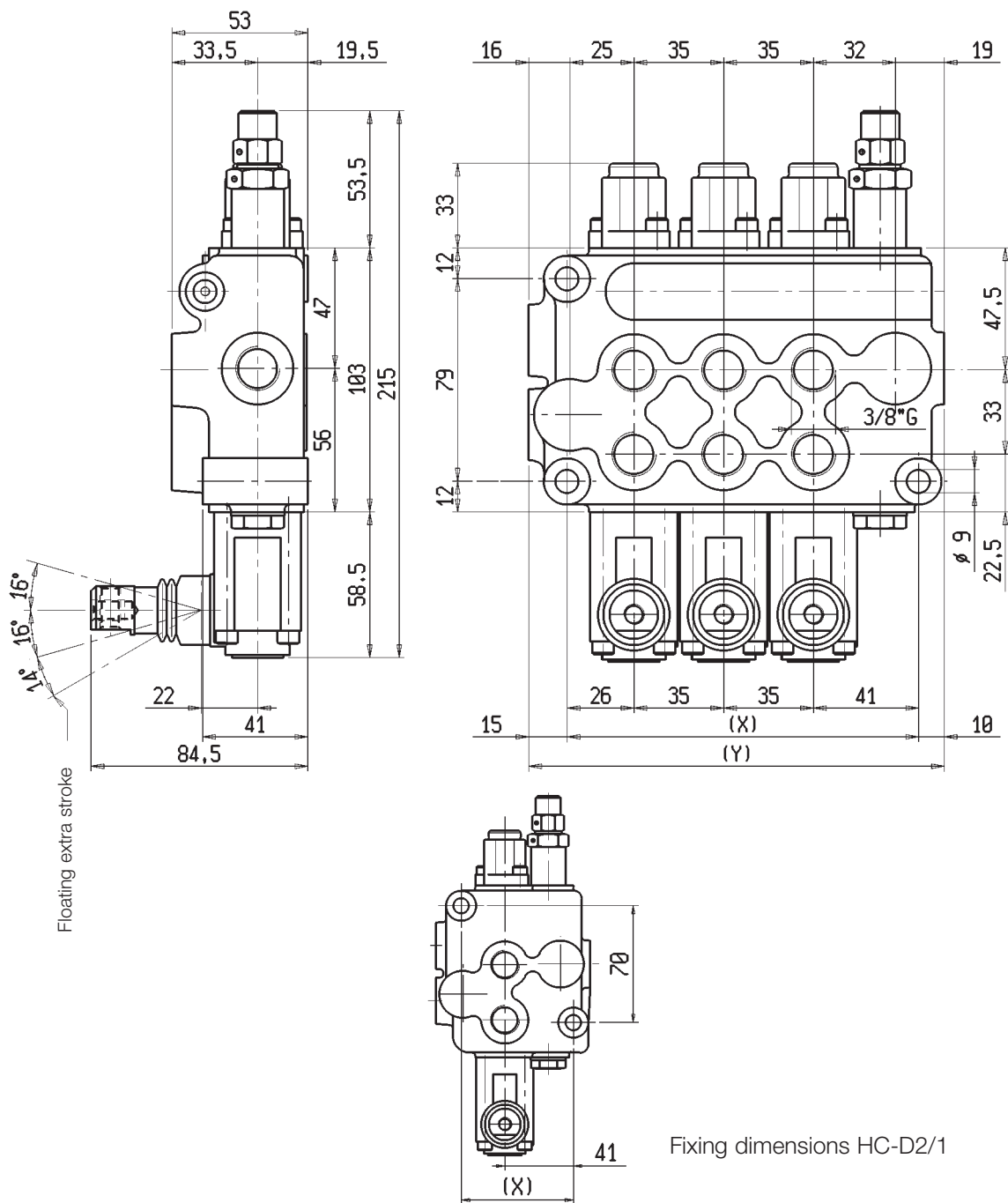
TYPE	D2	D10				
Number of working sections	1÷5	1÷6				
CIRCUITS						
Parallel	•	•				
Parallel circuit stroke (mm)	5+5	5+5				
Float spool extra stroke (mm)	5	5				
Maximum recommended flow rate (l/min)	45	55				
PRESSURE						
Maximum working pressure (bar)	350	350				
MAIN INLET RELIEF VALVE						
Direct operating pressure relief valve	•	•				
SPOOL ACTION						
Manual control	•	•				
Without lever	•	•				
90° joystick control		•				
SPOOL RETURN ACTION						
Spring return	•	•				
Detent in A and B	•	•				
Detent in A	•	•				
Detent in B	•	•				
Detent in 4th position	•	•				
Arranged for dual control	•	•				
Pneumatic control ON-OFF		•				
Proportional pneumatic control		•				
Hydraulic load limit		•				
Hydraulic load limit with dual control		•				
Electrical load limit		•				
Electrical load limit with dual control		•				
Electrohydraulic ON-OFF 12 VDC		•				
Electrohydraulic ON-OFF 24 VDC		•				
Electropneumatic ON-OFF 12 VDC		•				
Electropneumatic ON-OFF 24 VDC		•				
Electrohydraulic control for pressure relief valve		•				

• available
 not available

DIMENSIONS

TYPICAL CURVES

DIMENSIONS



Fixing dimensions HC-D2/1

Flow rate 45 l/min
 Max. Pressure 350 bar
 Spool stroke 5 + 5 mm

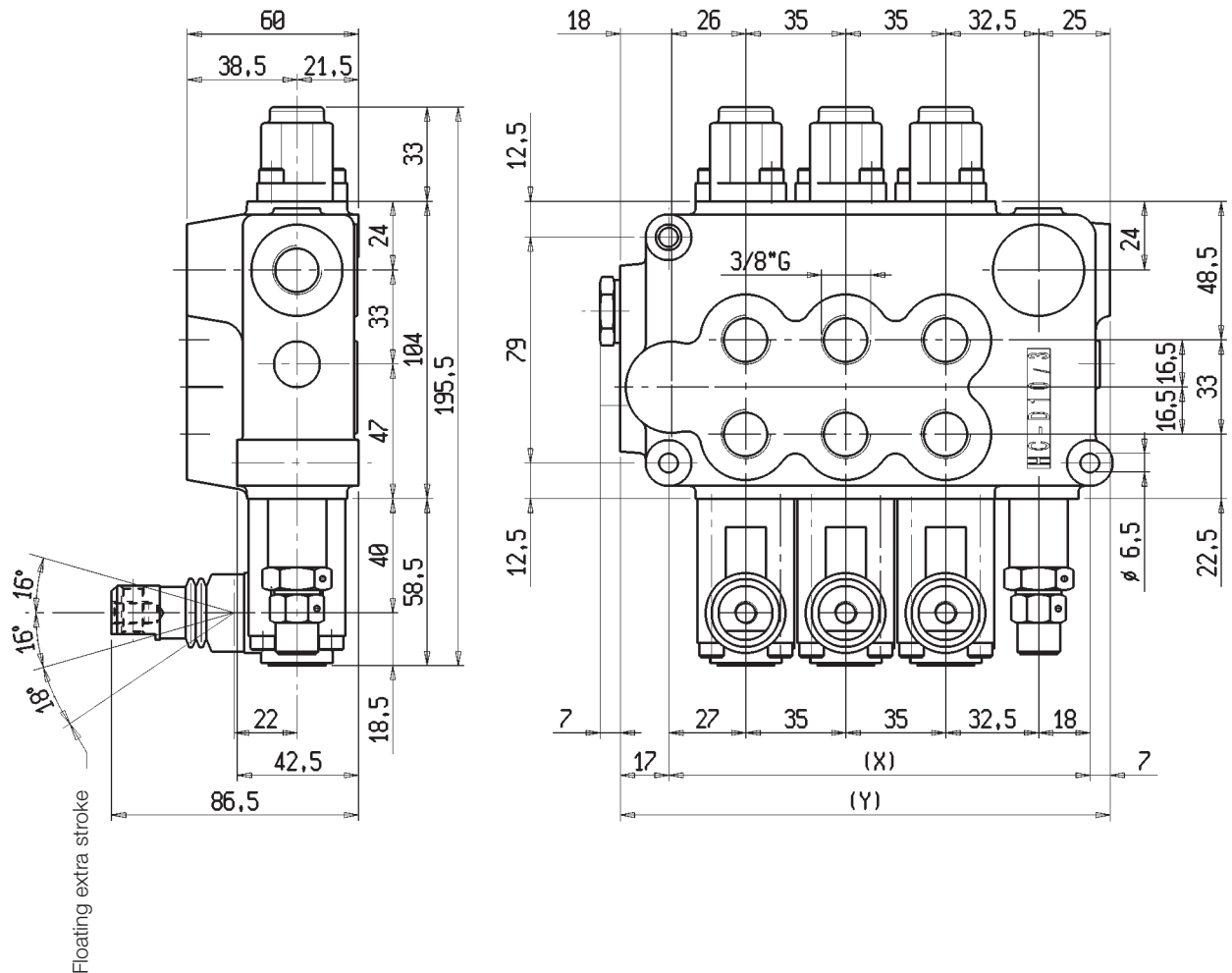
Standard lever code : **ZA - M8 - 210**
 (to be ordered separately)

Number of working sections		1	2	3	4	5
Variable dimensions (mm)	X	67	102	137	172	207
	Y	92	127	162	197	232
Weight (Kg)		2,7	4	5	6,5	7,9

TYPICAL CURVES

	<p>Internal pressure drop from P → T</p>
	<p>Internal pressure drop P → A / P → B</p>
	<p>Internal pressure drop A → T / B → T</p>
	<p>Direct acting pressure relief valve curve setting ranges (bar)</p> <ul style="list-style-type: none"> 10 - 40 41 - 70 71 - 130 131 - 210 211 - 350

DIMENSIONS



Flow rate 55 l/min

Standard lever code : **ZA - M8 - 210**

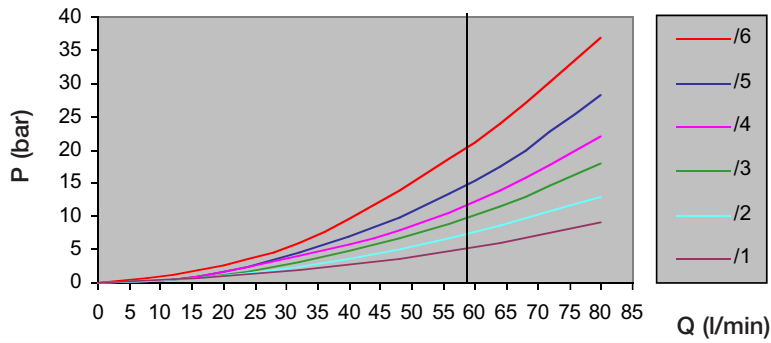
Max. Pressure 350 bar

(to be ordered separately)

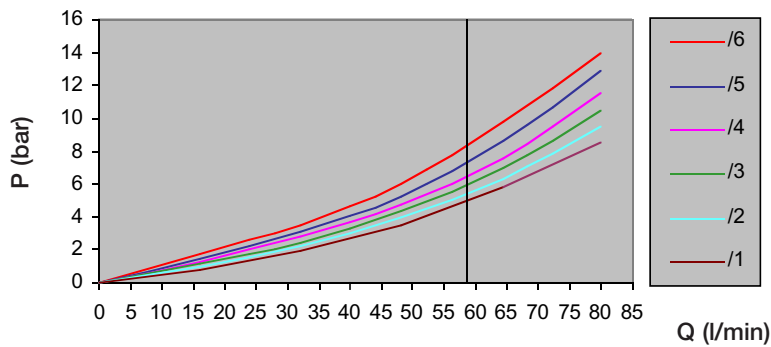
Spool stroke 5 + 5 mm

Number of working sections		1	2	3	4	5	6
Variable dimensions (mm)	X	77,5	112,5	147,5	182,5	217,5	252,5
	Y	101,5	136,5	171,5	206,5	241,5	276,5
Weight (Kg)		2,9	4,3	5,5	6,7	7,9	9,1

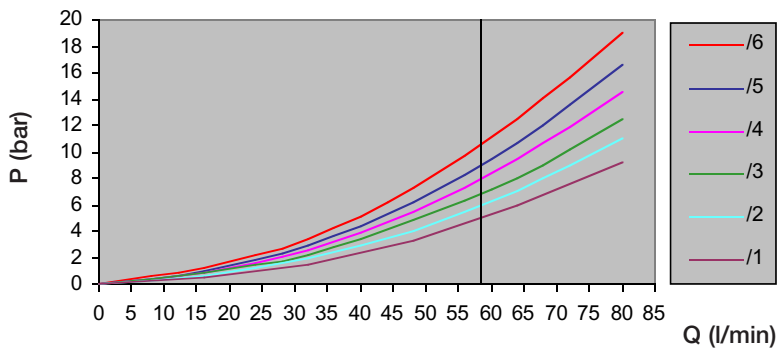
TYPICAL CURVES



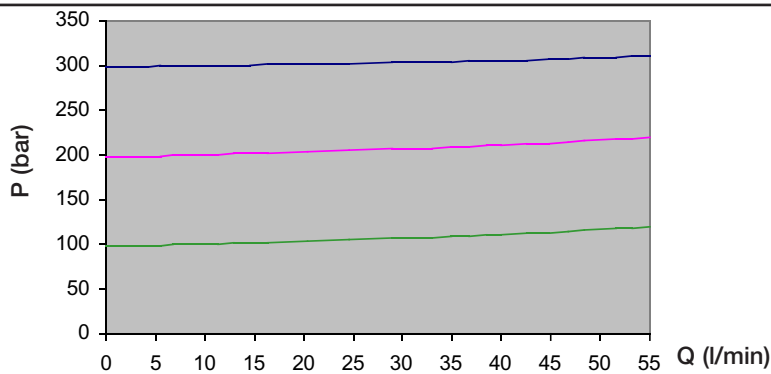
Internal pressure drop from P → T



Internal pressure drop
P → A / P → B



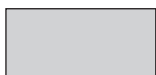
Internal pressure drop
A → T / B → T



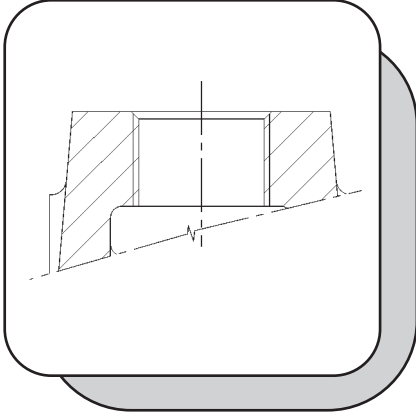
Direct acting pressure relief valve
curve
setting ranges (bar)

- 10 - 40
- 41 - 70
- 71 - 130
- 131 - 210
- 211 - 350

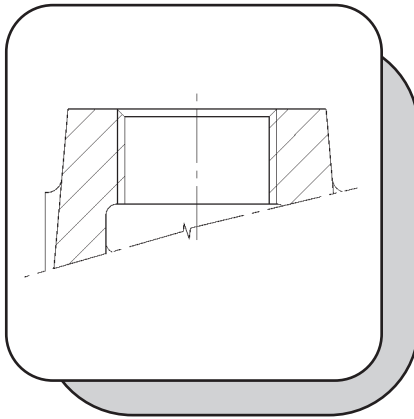
**HOW TO DETERMINE THE
CODES FOR ORDERING
OUR PRODUCTS.**



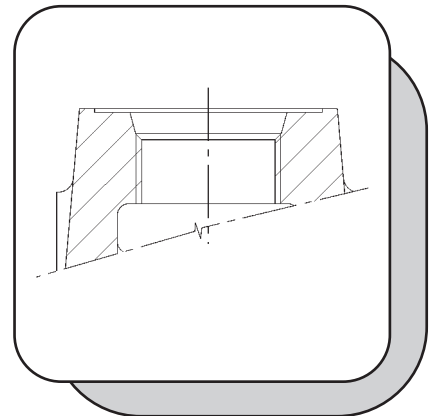
= Standard application



Metric thread
(ISO - 262)



BSP thread
(ISO - 228)



SAE UN-UNF thread
(ISO - 725)

METRIC THREAD (ISO-262)

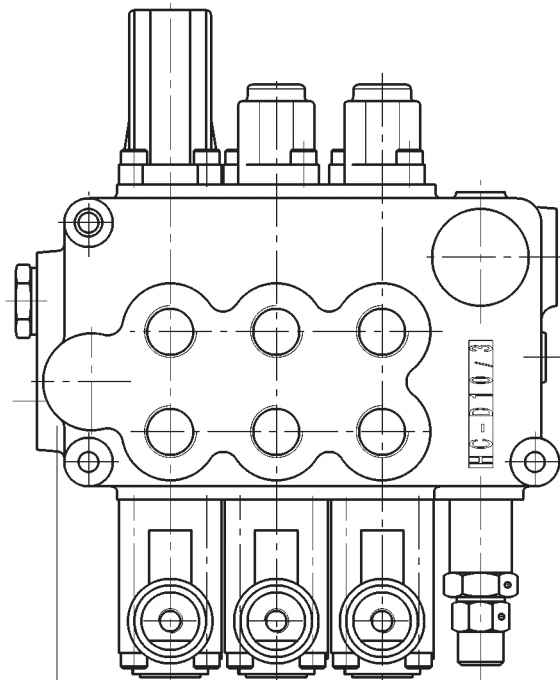
Type	M18x1,5	M22x1,5	M27x2					
Code	M01	M02	M03					

BSP THREAD (ISO-228)

Type	3/8"	1/2"	3/4"					
Code	G03	G04	G05					

UN-UNF THREAD (ISO-725)

Type	3/4"-16 UNF	7/8"-14 UNF	1"1/16-12 UN					
Code	U03	U04	U05					



HC-D10/3 - I R 201 (150) - W 001A - H001- F001A / W 002A - H001 - F001A / W 001A - H001 - F002A - M J - A G03

HC-D10	Monoblock model	Pag.9
/3	Number of sections	
I	Inlet	Pag.15
R	Right-handed pressure inlet	Pag.15
W	Working section	Pag.16 - 35
001A	Type of spool	Pag.16 - 18
H001	Spool action	Pag.19 - 22
F001A	Spool return action	Pag.23 - 33
W	Working section	Pag.16 - 35
002A	Type of spool	Pag.16 - 18
H001	Spool action	Pag.19 - 22
F001A	Spool return action	Pag.23 - 33
W	Working section	Pag.16 - 35
001A	Type of spool	Pag.16 - 18
H001	Spool action	Pag.19 - 22
F002A	Spool return action	Pag.23 - 33
M	Outlet	Pag.36 - 39
J	Outlet with single return	Pag.36 - 39
A	Inlet-ports-outlet position	Pag.36 - 39
G03	Type of thread	Pag.36 - 39



Hydraulic diagram	Layout	Description	Code
		Right inlet	R

VALVOLE

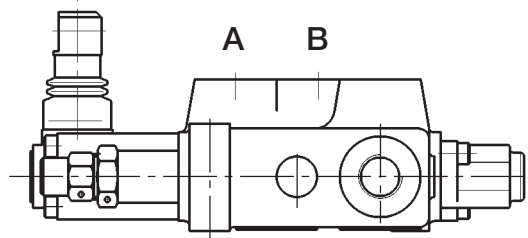
Type	Disegn	Circuit	Description	Type	Disegn	Circuit	Description
1			Direct acting pressure relief valve	3			Relief valve plugged

VALVE TYPE AND ARRANGEMENT ON THE INLET

Example Code : 201 = 1A
 Pressure relief valve in port A side

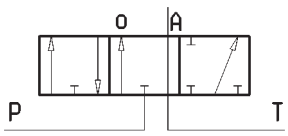
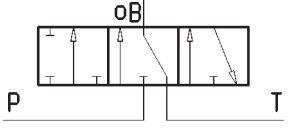
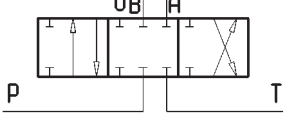
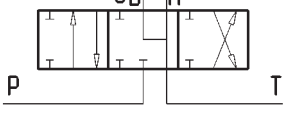
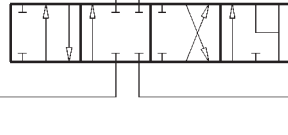
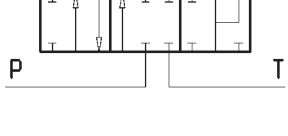
The code identifies : with a number, the type of valve
 with a letter, its position on the inlet

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



Combination	Code	D2	D10										
1A	201		•										
3A	203		•										
1B	301	•											
3B	303	•											

SPOOLS									
Circuit	Description	Spool type	Code	D2	D10				
	3 position double-acting	Standard	001A	•	•				
		Metered	001B	•	•				
	3 position double-acting A and B to tank	Standard	002A	•	•				
		Metered	002B	•	•				
	3 position double-acting A to tank B blocked	Standard	003A	•	•				
		Metered	003B	•	•				
	3 position double-acting A blocked B to tank	Standard	004A	•	•				
		Metered	004B	•	•				
	3 position single-acting on A	Standard	005A	•	•				
		Metered	005B	•	•				
	3 position single-acting on B	Standard	006A		•				
		Metered	006B		•				

SPOOLS									
Circuit	Description	Spool type	Code	D2	D10				
	3 position single-acting on A A to tank	Standard	007A	•	•				
		Metered	007B	•	•				
	3 position single-acting on B B to tank	Standard	008A		•				
		Metered	008B		•				
	3 position double-acting switch port closed A and B blocked	Standard	010A	•	•				
	3 position double-acting switch port closed A and B to tank	Standard	011A	•	•				
	4 position double-acting with float in the 4th position (* machining on the body)	Standard	012A	• (*)	• (*)				
	3 position double-acting regenerative (* machining on the body)	Standard	013A		• (*)				

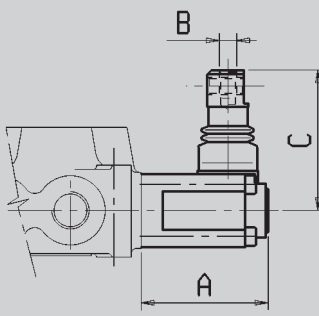
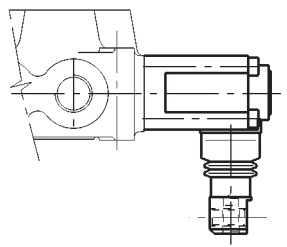
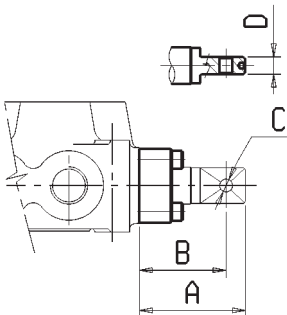
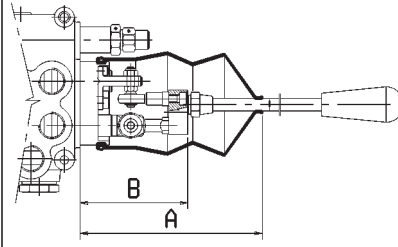
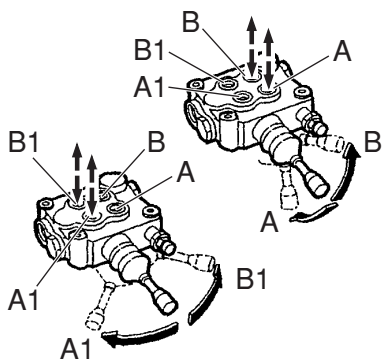
SPOOLS									
Circuit	Description	Spool type	Code	D2	D10				
	4 position double-acting regenerative in 4th position (* machining on the body)	Standard	014A		• (*)				

SPOOLS WITH RESTRICTED SERVICE PORTS ARE AVAILABLE ON REQUEST

Example : CODE **001A J10 (-)**
 type of spool reduction of 0,1 mm on A and B

(-) to be added to the spool code			\geq Area mm ²						
Circuit	Description	Diameter (mm)	Code	D2	D10				
	A-B to T	0,1	J10	2,34	2,66				
		0,15	J15	3,52	3,99				
		0,2	J20	4,68	5,31				
	A to T	0,1	K10	2,34	2,66				
		0,15	K15	3,52	3,99				
		0,2	K20	4,68	5,31				
	B to T	0,1	Y10	2,34	2,66				
		0,15	Y15	3,52	3,99				
		0,2	Y20	4,68	5,31				

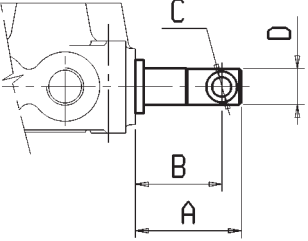
SPOOL ACTION

Dimensions	Description	Code	Dim.	D2	D10				
	Protected lever	H001	A	58,5	58,5				
			B	M8	M8				
	Protected lever rotated 180°	H002	C	57,5	57,5				
	Control without lever	H004	A	33	49				
			B	24	40				
			C	6	6				
			D	8	8				
 	90° Joystick control with fulcrum on the upstream element (inlet side)	H009	A		144				
	Compulsory code for the downstream section drive	H120	B		85				

SPOOL ACTION													
Dimensions	Description	Code	Dim.	D2	D10								
	<p>Compulsory code for the upstream section drive</p>	<p>H120</p>	<p>A</p>		<p>144</p>								
						<p>90° Joystick control with fulcrum on the downstream element (inlet side)</p>	<p>H010</p>	<p>B</p>		<p>85</p>			
	<p>Protected lever with stroke limiter</p>	<p>H019</p>	<p>A</p>	<p>74,5</p>	<p>74,5</p>								
							<p>B</p>	<p>M8</p>	<p>M8</p>				
	<p>Protected lever rotated 180° with stroke limiter</p>	<p>H020</p>	<p>C</p>	<p>57,5</p>	<p>57,5</p>								
	<p>Protected lever 180° with attachment rotated 180° (lever to be ordered separately)</p>	<p>H348</p>	<p>A</p>	<p>58,5</p>	<p>58,5</p>								
							<p>B</p>	<p>M8</p>	<p>M8</p>				
							<p>C</p>	<p>57,5</p>	<p>57,5</p>				

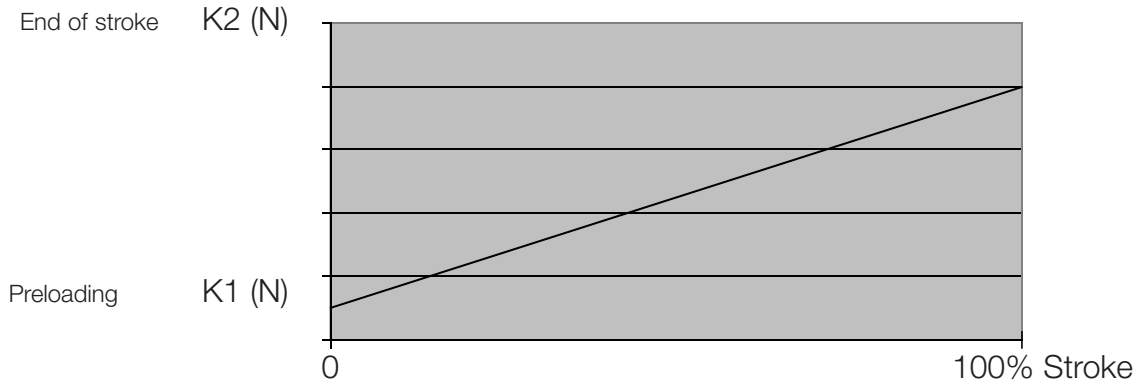
SPOOL ACTION

Dimensions	Description	Code	Dim.	D2	D10				
	Protected lever rotated 90° inlet side	H349	A	58,5					
			B	M8					
			C	65					
	Protected lever rotated 90° outlet side	H350	A	58,5	58,5				
			B	M8	M8				
			C	65	65				
	Unprotected lever	H101	A	33					
			B	M8					
			C	24					
	Unprotected lever rotated 180°	H102	D	24					
			E	28,5					
			F	8					
	180° rotary control (leave out the spool return action code)	H114	A		81				
			B		47				
			C		40				

SPOOL ACTION									
Dimensions	Description	Code	Dim.	D2	D10				
	Pin hole end	H118	A	49	49				
			B	40	40				
			C	9	9				
			D	14,5	16,5				

SPOOL RETURN ACTION

Spring loading

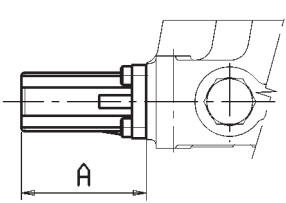
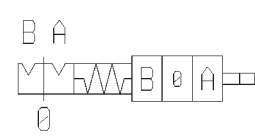
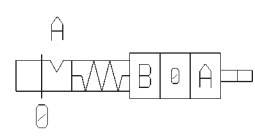
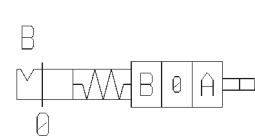
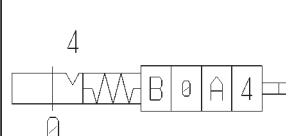
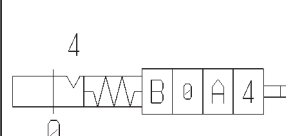


Type	Standard spring		A	Type	Soft spring		B	Type	Heavy spring		C
	K1 (N)	K2 (N)			K1 (N)	K2 (N)			K1 (N)	K2 (N)	
D2	121,6	203		D2	88,3	147,1		D2	149,1	206	
D10	121,6	203		D10	88,3	147,1		D10	149,1	206	

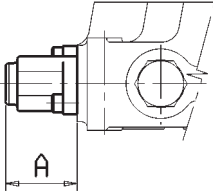


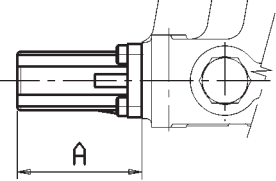
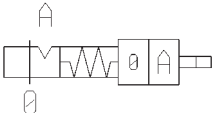
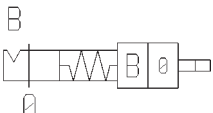
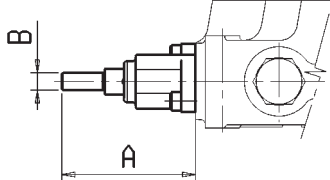

SPOOL RETURN ACTION

Dimensions	Description	Code	Dim.	D2	D10				
	3 position spring-centred spool 	F001A	A	33	33				
		F001B		33	33				
		F001C		33	33				

SPOOL RETURN ACTION

Dimensions	Description	Code	Dim.	D2	D10				
	3 position spring-centred spool detent in A and B 	F002A	A	57,5	57,5				
		3 position spring-centred spool detent in A 	F003A	A	57,5	57,5			
		3 position spring-centred spool detent in B 	F004A	A	57,5	57,5			
		4 position spring-centred spool detent in 4th position 	F005A	A	57,5	57,5			
	4 position spring-centred spool detent in 4th position (only for spool type 014A) 	F006A	A		57,5				

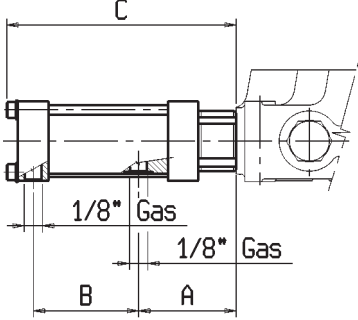

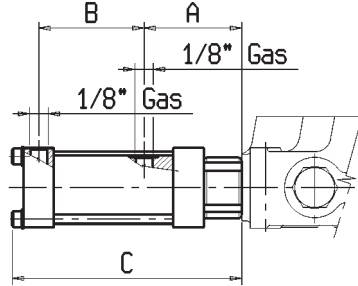
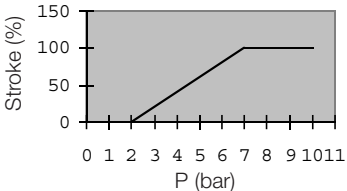
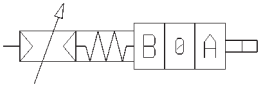
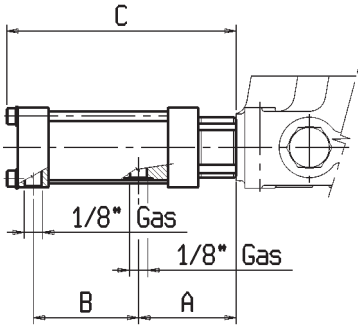
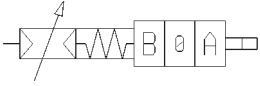
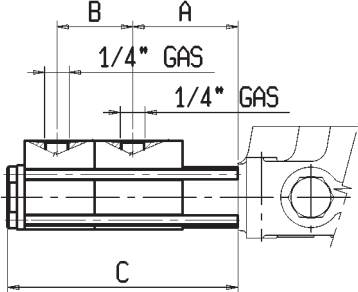
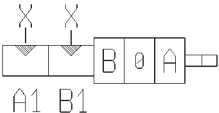
SPOOL RETURN ACTION

Dimensions	Description	Code	Dim.	D2	D10				
	2 position in A spring-centred spool 	F009A	A	33	33				
		F009B		33	33				
		F009C		33	33				
	2 position in B spring-centred spool 	F010A	A	33	33				
		F010B		33	33				
		F010C		33	33				
	2 position detent in A spring-centred spool 	F011A	A	57,5	57,5				
		F011B		57,5	57,5				
		F011C							
	2 position detent in B spring-centred spool 	F012A	A	57,5	57,5				
		F012B		57,5	57,5				
		F012C							
	3 position spring-centred spool desi- gned to house optional dual command 	F013A	A	61,5	61,5				
			B	M8	M8				
		F013B	A	61,5	61,5				
			B	M8	M8				
		F013C	A	61,5	61,5				
			B	M8	M8				

SPOOL RETURN ACTION

Dimensions	Description	Code	Dim.	D2	D10					
	<p>3 position spring-centred spool with stroke limiter</p>	F014A	A	44,5	44,5					
		F014B		44,5	44,5					
		F014C		44,5	44,5					
	<p>Detent in A-B kick-out for centre return</p>	F0170	A		123					
			B		20					
	<p>Detent in A kick-out for centre return</p>	F0180	A		123					
			B		20					
	<p>Specify working pressure Setting range (bar) 50 - 350</p>	<p>Detent in B kick-out for centre return</p>	F0190	A		123				
				B		20				
	<p>Pneumatic control ON-OFF</p> <p>Operating pressure 2-3,5 bar</p>	F020A	A		51,5					
			B		55,5					
			C		121					

SPOOL RETURN ACTION

Dimensions	Description	Code	Dim.	D2	D10					
	Pneumatic control rotated 180° ON-OFF Operating pressure 2-3,5 bar 	F021A	A		51,5					
			B		55,5					
			C		121					
 	Proportional pneumatic control 	F022A	A		51,5					
			B		55,5					
			C		121					
	Proportional pneumatic control rotated 180° 	F023A	A		51,5					
			B		55,5					
			C		121					
	Load limit in A e B "X" in A1 = A in o "X" in B1 = B in o Max. pressure on "X" 350 bar 	F024A	A		55,5					
			B		40					
			C		121,5					
		F024C	A		55,5					
			B		40					
			C		121,5					

SPOOL RETURN ACTION

Dimensions	Description	Code	Dim.	D2	D10					
	<p>Load limit in A e B rotated 180°</p> <p>"X" in A1 = A in o "X" in B1 = B in o Max. pressure on "X" 350 bar</p>	F025A	A	55,5						
			B	40						
			C	121,5						
		F025C	A	55,5						
			B	40						
			C	121,5						
	<p>Load limit in A</p> <p>"X" in A1 = A in o Max. pressure on "X" 350 barr</p>	F026A	A	47						
			B	20						
			C	76						
		F026C	A	47						
			B	20						
			C	76						
	<p>Load limit in A e B rotated 180°</p> <p>"X" in A1 = A in o Max. pressure on "X" 350 barr</p>	F027A	A	47						
			B	20						
			C	76						
		F027C	A	47						
			B	20						
			C	76						
	<p>Load limit in B</p> <p>"X" in B1 = B in o Max. pressure on "X" 350 barr</p>	F028A	A	47						
			B	27,5						
			C	83,5						
		F028C	A	47						
			B	27,5						
			C	83,5						
	<p>Load limit in B rotated 180°</p> <p>"X" in B1 = B in o Max. pressure on "X" 350 barr</p>	F029A	A	47						
			B	27,5						
			C	83,5						
		F029C	A	47						
			B	27,5						
			C	83,5						

SPOOL RETURN ACTION

Dimensions	Description	Code	Dim.	D2	D10					
	Load limit in A and B dual control "X" in A1 = A in o "X" in B1 = B in o Max. pressure on "X" 350 bar	F030C	A		55,5					
			B		40					
	Load limit in A and B dual control rotated 180° "X" in A1 = A in o "X" in B1 = B in o Max. pressure on "X" 350 bar	F031C	C		158,5					
			D		M8					
	Load limit in A dual control "X" in A1 = A in o Max. pressure on "X" 350 bar	F032C	A		47					
			B		20					
	Load limit in A dual control rotated 180° "X" in A1 = A in o Max. pressure on "X" 350 bar	F033C	C		158,5					
			D		M8					
	Load limit in B dual control "X" in B1 = B in o Max. pressure on "X" 350 bar	F034C	A		47					
			B		27,5					
			C		158,5					
			D		M8					

SPOOL RETURN ACTION

Dimensions	Description	Code	Dim.	D2	D10				
	Load limit in B dual control rotated 180° "X" in B1 = B in o Max. pressure on "X" 350 bar B1	F035C	A		47				
			B		27,5				
			C		158,5				
			D		M8				

GENERAL SPECIFICATIONS OF ELECTRICAL LOAD LIMIT

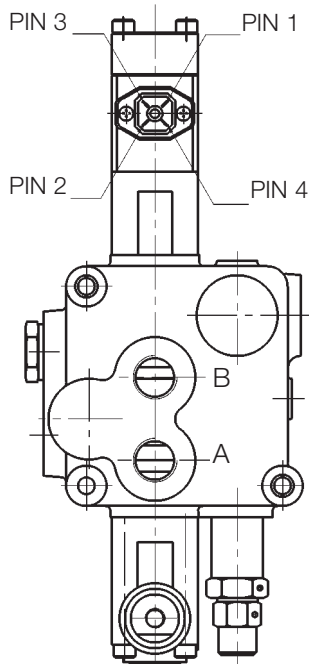
Power supply	Current-carrying capacity of contacts	Degree of protection	Temperature range
12 VDC	3 A	IP 65	from -25° C to + 90° C
24 VDC	1,5 A		

In neutral position (o) the contacts are normally closed.

A HIRSCHMANN female connector , type G4 W 1F , code 413000045 (*) is available on request.

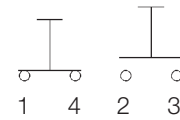
(*) to be ordered separately

OPERATIONAL DIAGRAM

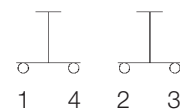


Control in A e B : connect PIN 1-4 and 2-3
 Control in A : connect PIN 2-3
 Control in B : connect PIN 1-4

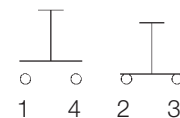
WIRING DIAGRAM



Control port A

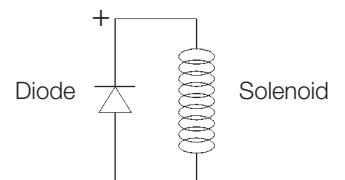


Neutral in O

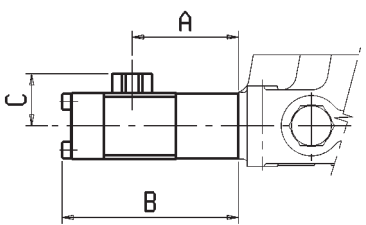
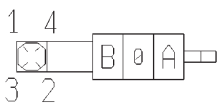
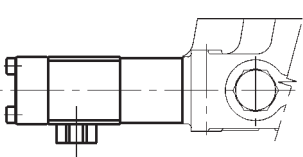
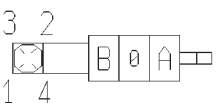
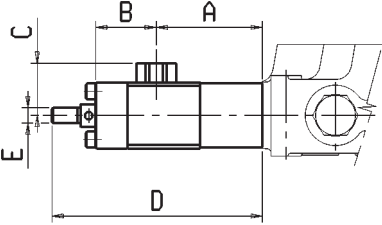
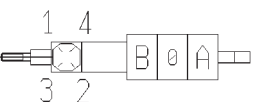
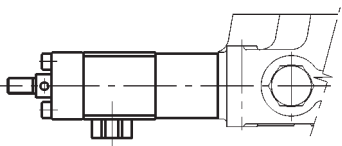
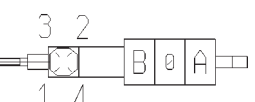


Control port B

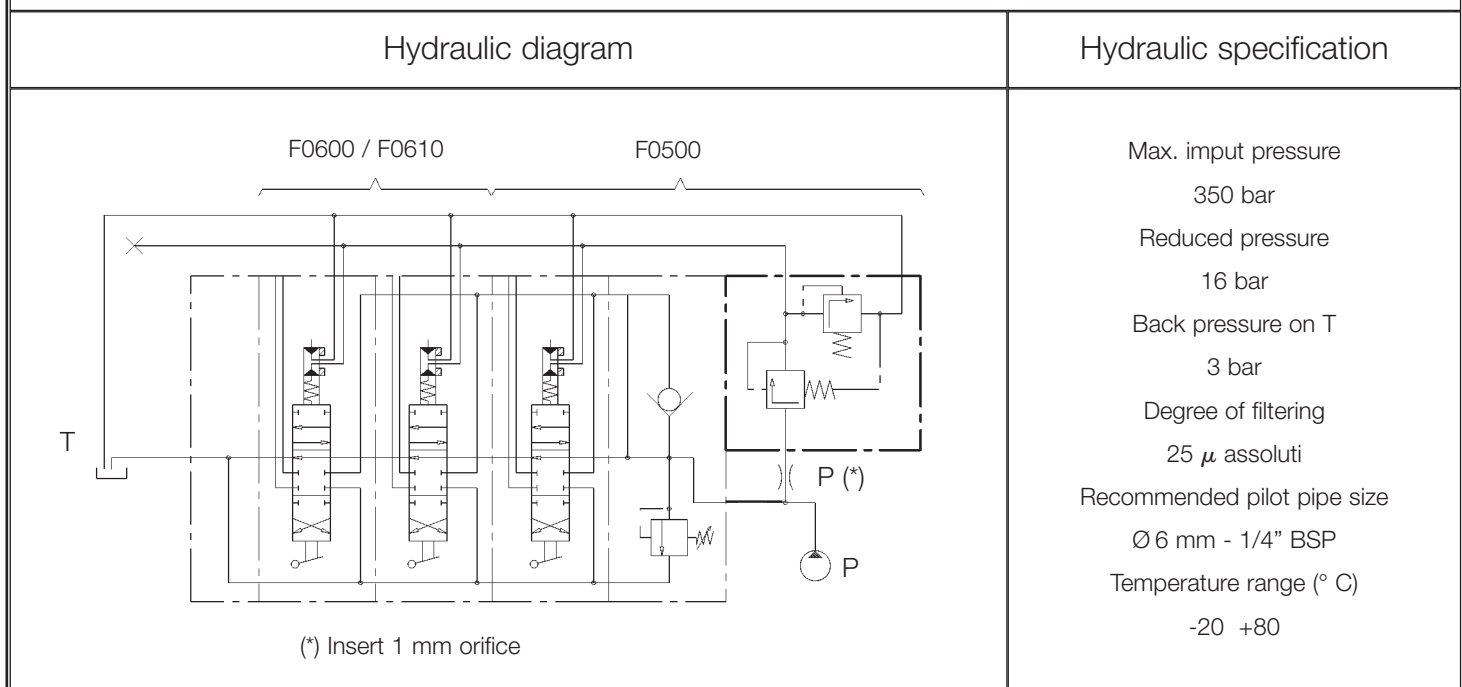
In case of inductive loads it is advisable to connect the terminals of the work port (solenoid) to a 200 V-3 A diode.



SPOOL RETURN ACTION

Dimensions	Description	Code	Dim.	D2	D10				
	Electrical load limit 	F0360	A		56				
			B		93				
	Electrical load limit rotated 180° 	F0370	C		27,5				
	Electrical load limit dual control 	F0380	A		56				
			B		32				
			C		27,5				
	Electrical load limit dual control rotated 180° 	F0390	D		112				
			E		M8				

SPOOL RETURN ACTION

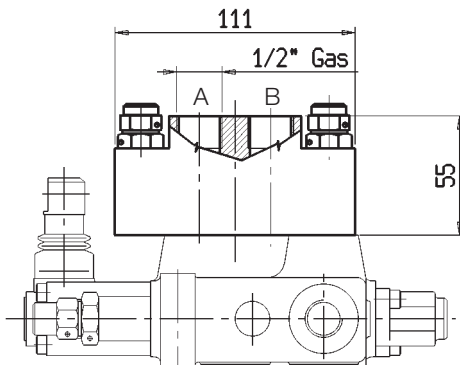


Dimensions	Description	Code	Dim.	D2	D10				
	Electrohydraulic control ON-OFF 12 VDC - 7.5 Ω 19 W - 1.58 A with fixed pressure relief valve P1-T inlet side	F0500	A		46.5				
			B		28,5				
	Electrohydraulic control ON-OFF 24 VDC - 29.5 Ω 19 W - 0.81 A with fixed pressure relief valve P1-T inlet side	F0510	A		46.5				
			B		28,5				
	Electrohydraulic control ON-OFF 12 VDC - 7.5 Ω 19 W - 1.58 A with fixed pressure relief valve P1 inlet-T outlet	F0520	A		46.5				
			B		13				
	Electrohydraulic control ON-OFF 24 VDC - 29.5 Ω 19 W - 0.81 A with fixed pressure relief valve P1 inlet-T outlet	F0530	A		46.5				
			B		13				

SPOOL RETURN ACTION

Dimensions	Description	Code	Dim.	D2	D10					
	<p>3 position electrohydraulic control ON-OFF 12 VDC - 7,5 Ω 19 W - 1,58 A Max. pressure 16 bar</p>	F0600	A		103					
			B		72					
			C		26,5					
			D		66					
			E		49,5					
			F		145					
	<p>3 position electrohydraulic control ON-OFF 24 VDC - 29,5 Ω 19 W - 0,81 A Max. pressure 16 bar</p>	F0610	A		103					
			B		72					
			C		26,5					
			D		66					
			E		49,5					
			F		145					
	<p>3 position electropneumatic control ON-OFF 12 VDC 7 W - 0,58 A</p>	F0620	A		122,5					
			B		69,5					
			C		37,5					
			D		131,5					
	<p>3 position electropneumatic control ON-OFF 24 VDC 7 W - 0,29 A</p>	F0630	A		122,5					
			B		69,5					
			C		37,5					
			D		131,5					

CROSS RETURN RELIEF VALVES ON PORTS A-B

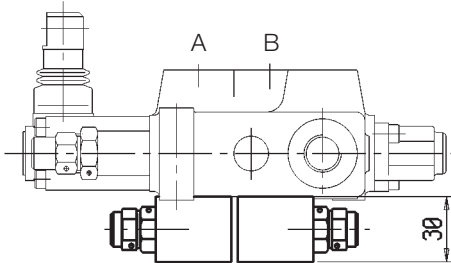


Setting ranges
cross return relief valve
(Code : 18-19-20)
40 - 120 bar
121 - 150 bar
151 - 250 bar
251 - 350 bar

Note : With auxiliaries valves on ports A-B , the top connections on inlet (P) and outlet (T) are not available.

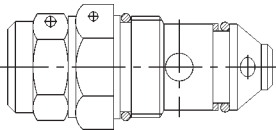
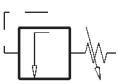
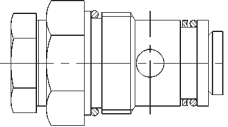

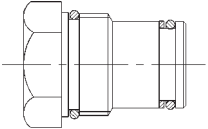

Circuit	Description	Code	D2	D10				
<p>A B</p>	Cross return relief valve from port A to port B	18	•	•				
<p>A B</p>	Cross return relief valve from port B to port A	19	•	•				
<p>A B</p>	Cross return relief valve from port A and B	20	•	•				
<p>A B</p>	Pilot operated check valve on port A	21	•	•				
<p>A B</p>	Pilot operated check valve on port B	22	•	•				
<p>A B</p>	Pilot operated check valve on ports A and B	23	•	•				

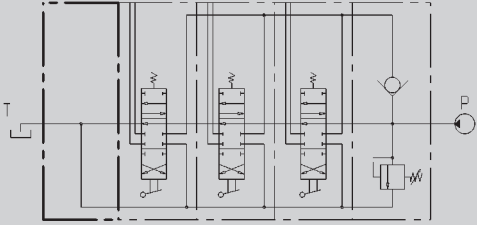
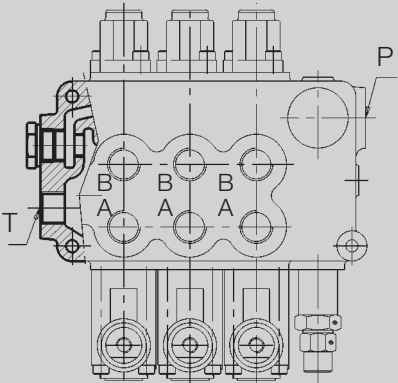
AUXILIARY VALVES ON PORTS A-B



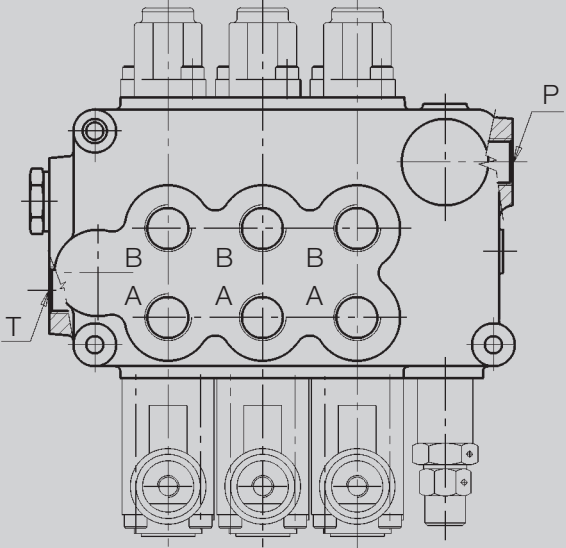
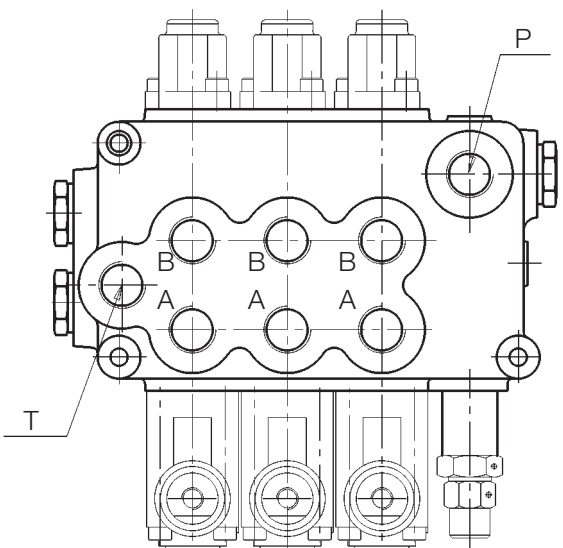
Setting ranges
flow pressure
anti-shock valve (01PA/PB)

- 40 - 120 bar
- 121 - 150 bar
- 151 - 250 bar
- 251 - 350 bar

Design	Circuit	Description	Code	D2	D10				
		Anti-shock valve on port A	01PA	•	•				
		Anti-shock valve on port B	01PB						
		Anticavitation valve on port A	02PA	•	•				
		Anticavitation valve on port B	02PB						
		Valve plug on port A	05PA	•	•				
		Valve plug on port B	05PB						

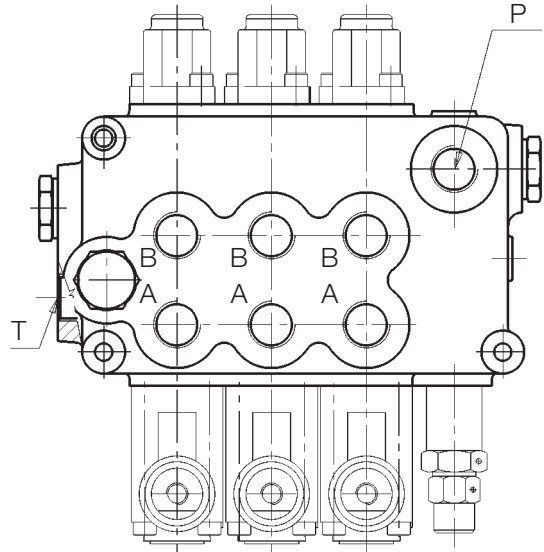
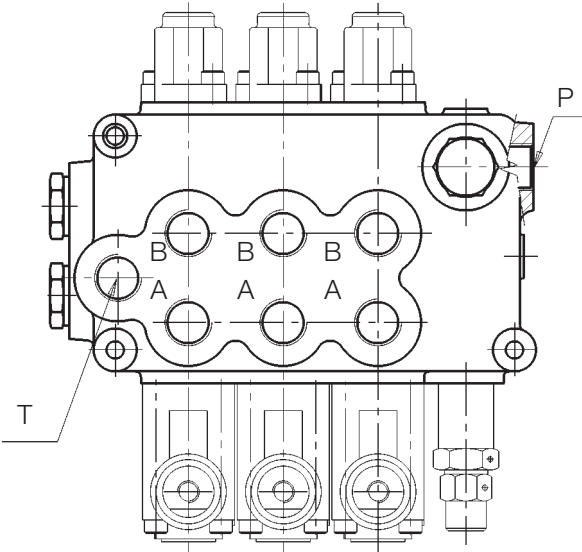
Hydraulic diagram	Layout	Description	Code
		<p>Outlet with single return (T)</p>	<p>J</p>

SINGLE OUTLET (T) POSITION AND TYPE OF THREAD ON INLET-PORTS-OUTLET

	
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Code	Description					Code	Description							
C	Side inlet P and outlet T top ports A - B					A	Top inlet P - outlet T top ports A - B							
Type	CODE					Type	CODE							
D2	G03	U03				D2	G03	U03						
D10	G03	G04	U03			D10	G03	G04	U03					

SINGLE OUTLET (T) POSITION AND TYPE OF THREAD ON INLET-PORTS-OUTLET



Code	Description					Code	Description				
K	Side inlet P top ports A - B and outlet T					L	Top inlet P and ports A - B side outlet T				
Type	CODE					Type	CODE				
D2	G03	U03				D2	G03	U03			
D10	G03	G04	U03			D10	G03	G04	U03		

Note : The monoblock HC-D10 with single outlet (T) type "J" can be converted to type "M" with two outlets with HPCO (see page 39) mounting a conic plug as per the table mentioned below . For the same application on the monoblock HC-D2 , a machining is required.

Type of conic plugs to convert a single outlet into a double one

Type	Conic plug code	Dimensions	Quantity
D2	413010210	1/4" x 6,5	1
D10	413010210	1/4" x 6,5	1

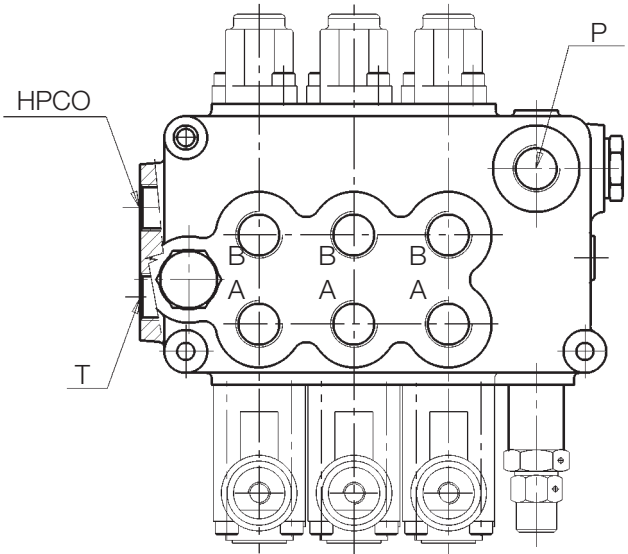
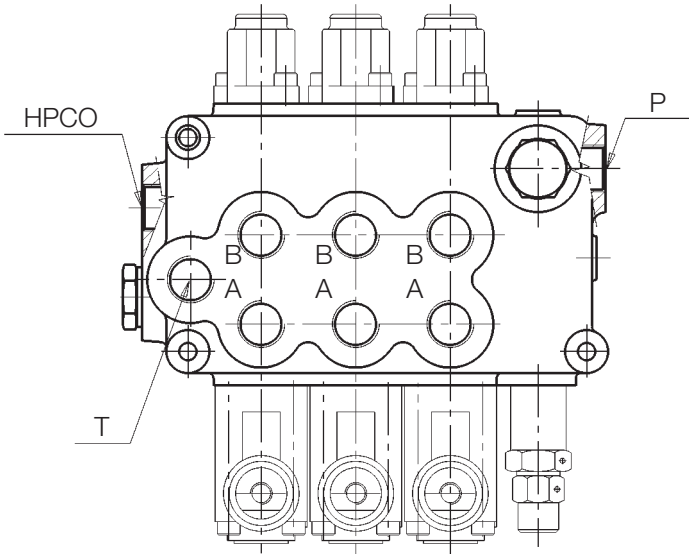
Hydraulic diagram	Layout	Description	Code
		<p>Outlet with two returns (HPCO)</p>	<p>M</p>

TWO OUTLETS POSITION WITH HPCO AND TYPE OF THREAD ON INLET-PORTS-OUTLET

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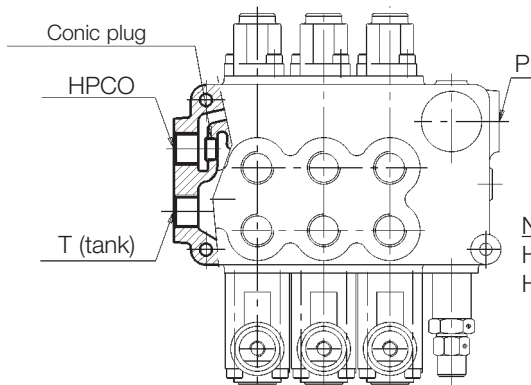
Code	Description						Code	Description							
T	Side inlet P - outlet T (tank) - outlet HPCO top ports A - B						U	Top inlet P - outlet T (tank) - ports A - B side outlet HPCO							
Type	CODE						Type	CODE							
D2	G03	U03					D2	G03	U03						
D10	G03	G04	U03				D10	G03	G04	U03					

TWO OUTLETS POSITION WITH HPCO AND TYPE OF THREAD ON INLET-PORTS-OUTLET



Code	Description	Code	Description
V	Side inlet P - outlet HPCO top ports A - B and outlet T (tank)	X	Top inlet P and ports A - B side outlet T (tank) and outlet HPCO
Type	CODE	Type	CODE
D2	G03 U03	D2	G03 U03
D10	G03 G04 U03	D10	G03 G04 U03

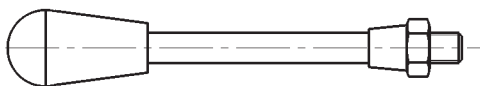
Conversion of a single outlet T (J) into a two outlets with HPCO (M)



Note
 HC-D2 : Application HPCO on request
 HC-D10 : Application HPCO prearranged



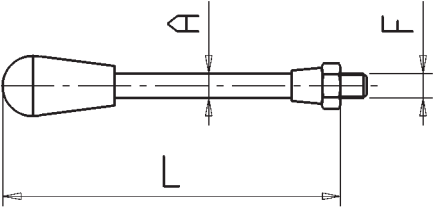
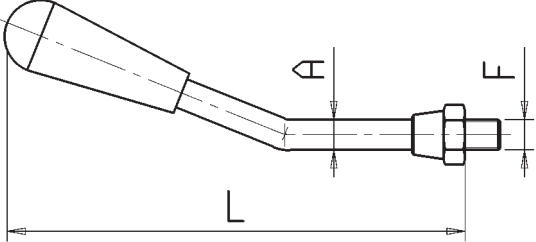
LEVER



ORDERING CODES

Z A - M8 - 210

Z	Lever	Pag.40
A	Type of lever	Pag.41
M8	Lever thread	Pag.41
210	Overall length	Pag.41

Dimensions	Description	Code	Dimensions							
	Lever with knob	A	A	F	L (mm)					
			8	M8	135	210	295	395		
	Lever with knob for joystick control H009 - H010	C	A	F	L (mm)					
			10	M10	250					

COMPATIBILITY
TABLE

