

HCMV99 Series

Sectional Directional Control Valve



GENERAL SPECIFICATIONS

Universal products and solutions for Lifting applications

HC-MV99 is the new Load Sensing control valve with electro-proportional actuation from Hydrocontrol S.p.A.

This control valve guarantees the best result in terms of control and movement precision for all applications and has been specially studied for hoisting machines.

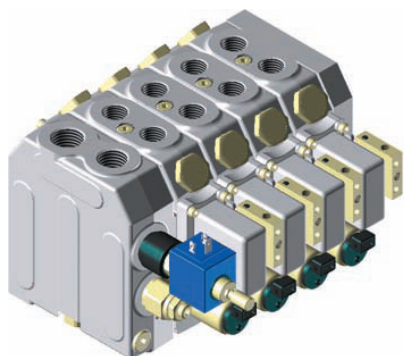
Numerous integrated valve features in addition to countless configuration options make HC-MV99 highly flexible and easily adaptable to the widest applications range.

The Load Sensing system maintains the ΔP constant through spool control notches by means of the pressure compensation principle: flow rate delivery and consequently control is entirely free from any variation to handled load. In addition to the evident advantages of regulation, the system permits significant energy saving.

The control valve is arranged to work either with fixed or variable displacement pumps.

The spool can also be activated by proportional electro-hydraulic control. All such control components, including the pressure reducing valve, are positioned inside the control valve and act with precision, repeatability and reliability.

Sections are equipped with auxiliary valves and a wide variety of spools can satisfy the most diverse flow rate and functioning needs.



Standard working conditions

OPERATING TEMPERATURE

-25°C / +80°C

KINEMATIC VISCOSITY

10 mm²/s - 460 mm²/s

MAX CONTAMINATION LEVEL

NAS 1638 classe 9 (19/16 ISO-4406)

RECOMMENDED FILTRATION LEVEL

$\beta_{10} \geq 75$

INTERNAL FILTER ϕ h electroproportional valves pilot line)

30 μ m

Fluid compatability

TYPE OF FLUID (Oil and Solution)	TEMP. (C°)		GASKET	
	min	max	NBR	VITON(*)
Mineral oil HPL (DIN 51524)	-25	+80	•	•
Oil in water emulsion HFA(*)	+5	+55	•	•
Water in oil emulsion HFB(*)	+5	+55	•	•
Polyglycol-based aqueous sol. HFC(*)	-25	+60	•	
Ester of phosphoric acid HCD(*)	-20	+150		•

(*) : for this application, please contact our technical sales office.

NBR : nitrile rubber compatible with mineral-bases oils ASTM 1

VITON : fluorinated elastomer for use at high temperature, compatible with fluids ASTM 1 and ASTM 3

Unit of measure - Conversion factors

Systems / Unit	METRIC	BSP
LENGTH	1 mm = 0,0394 in	1 in = 25,4 mm
MASS	1 kg = 2,205 lb	1 lb = 0,4536 kg
FORCE	1 Nm = 0,1020 kgf	1 kgf = 9,8067 Nm
VOLUME	1 l = 0,2200 gal UK 1 i = 0,2642 gal US	1 gal UK = 4,546 l 1 gal US = 3,785 l
PRESSURE	1 bar = 100000 Pa 1 bar = 14,5 psi	1 Pa = 0,00001 bar 1 psi = 0.0689 bar

HCMV99 Series

Sectional Directional Control Valve

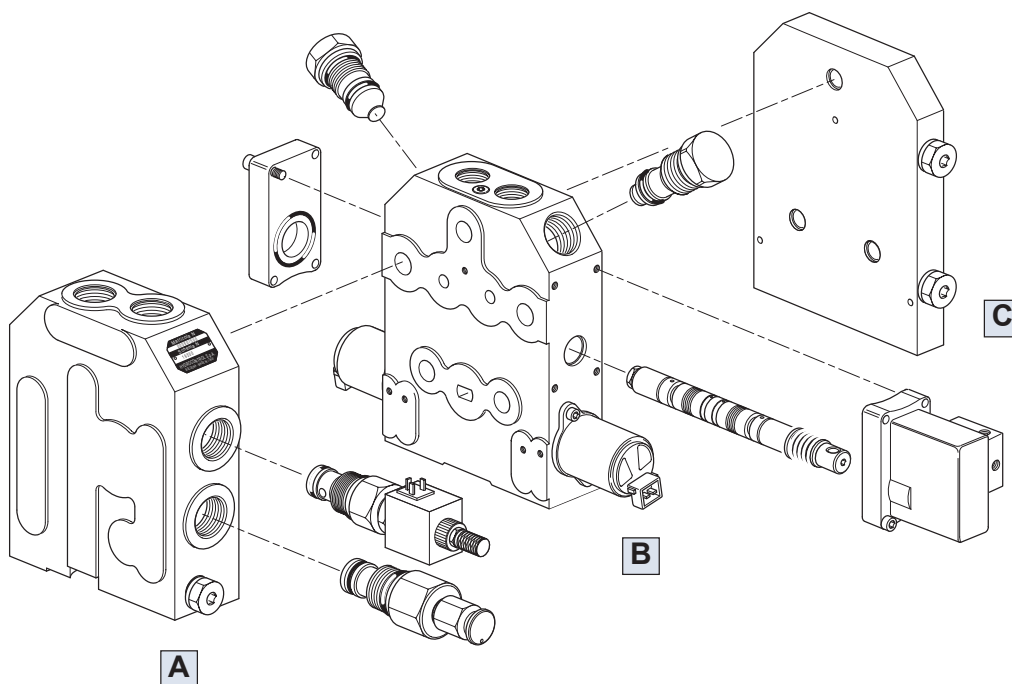


ORDER MODALITY

Order example:

MV99/1 MR 005 (150) KV G05 W001C AACC H404 F001 RD1 G04 05PA 05PB KZ3

A
B
C



VALVE TYPE MV99

HC-MV99 = type

/1 = number of sections

A: INLET ARRANGEMENT

MR 005 = inlet side and valve type

150 = setting (bar)

KV G05 = inlet position and available thread type

B: WORK SECTION ARRANGEMENT

W001C AACC = type and spool delivery

H404 = spool actuation

F001 = spool return action

RD1 G04 = type and thread section

05PA 05PB = auxiliary valve arrangement

NOTE: ordering row B, must be repeated for every work section.

C: OUTLET ARRANGEMENT

KZ3 = plate type

HCMV99 Series

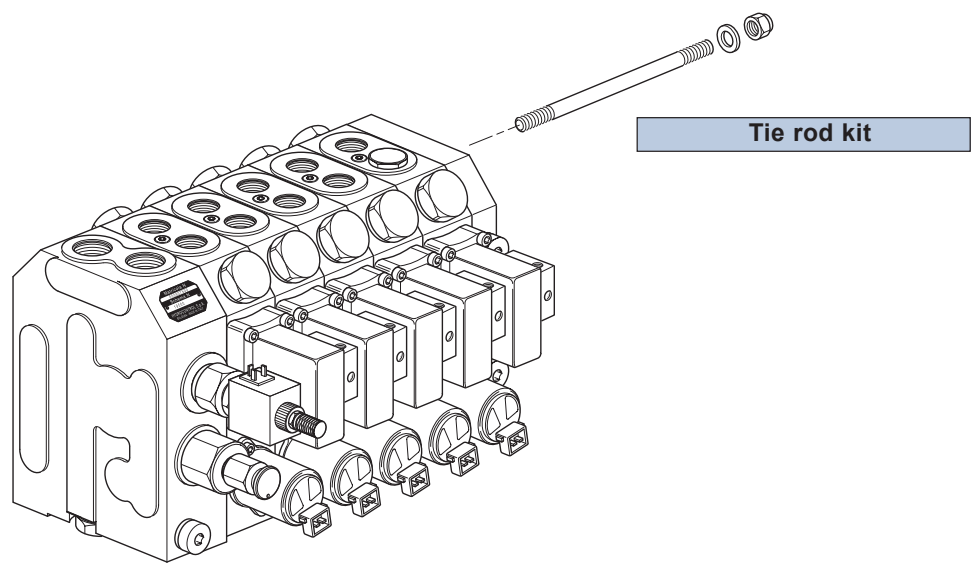
Sectional Directional Control Valve



ORDER MODALITY

Assembly specifications

MV99 proportional valve is assembled with tie-rod kits; tie-rods length depends on sections number.

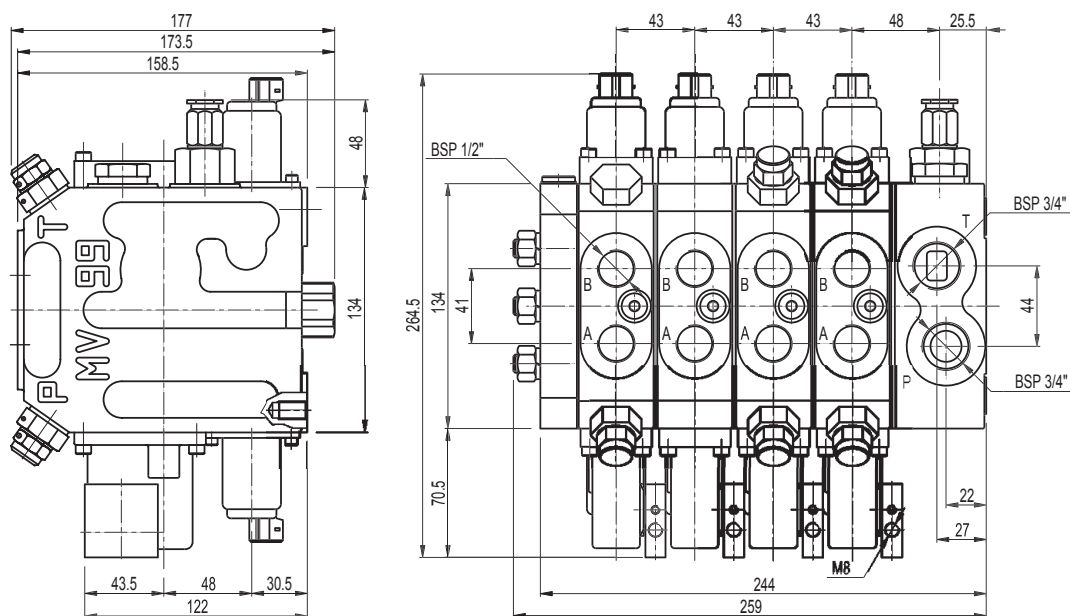


TIE ROD LENGTH

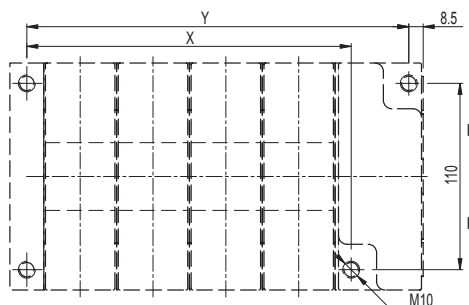
Type	MV99/1	MV99/2	MV99/3	MV99/4	MV99/5	MV99/6	MV99/7	MV99/8	MV99/9	MV99/10
L (mm)	86	129	172	215	258	301	344	387	430	473
L (in)	3,388	5,083	6,777	8,471	10,165	11,859	13,554	15,248	16,942	18,636

NOTE: Each valve is assembled with n° 3 tie-rod kits, composed of a tie-rod, a nut and a washer.

DIMENSIONS



FIXING SPECIFICATIONS



VARIABLE DIMENSIONS

Type	MV99/1	MV99/2	MV99/3	MV99/4	MV99/5	MV99/6	MV99/7	MV99/8	MV99/9	MV99/10
X (mm)	62,5	105,5	148,5	191,5	234,5	277,5	320,5	363,5	406,5	449,5
X (in)	2,46	4,16	5,86	7,56	9,26	10,96	12,66	14,36	16,06	17,76
Y (mm)	96,5	139,5	182,5	225,5	268,5	311,5	354,5	397,5	440,5	483,5
Y (in)	3,8	5,5	7,2	8,9	10,6	12,3	14	15,7	17,4	19,1

WEIGHTS

Type	MV99/1	MV99/2	MV99/3	MV99/4	MV99/5	MV99/6	MV99/7	MV99/8	MV99/9	MV99/10
Kg	16,5	23	29,5	36	42,5	49	55,5	62	68,5	75
lb	7,5	10,4	13,3	16,2	19,1	22	24,9	27,8	30,7	33,6

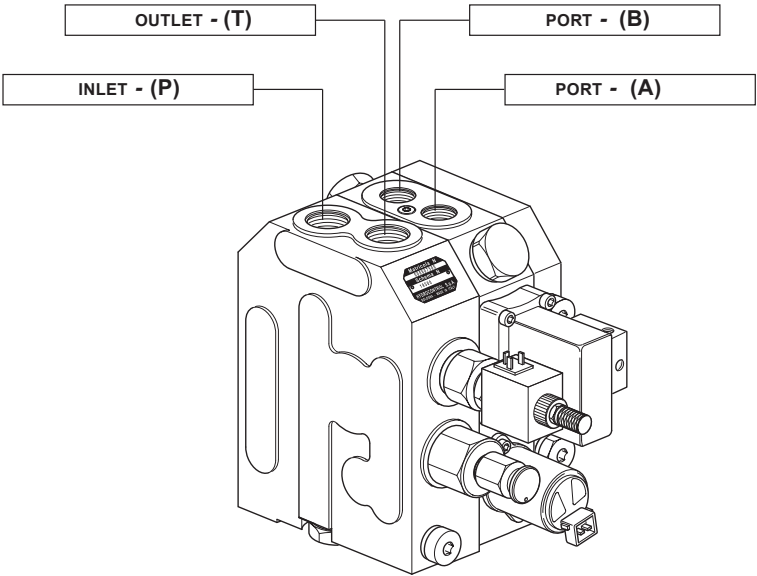
HCMV99 Series

Sectional Directional Control Valve



DIMENSIONS

Standard thread



PORTS	Thread - (BSP) ISO-228	Thread -(SAE UN-UNF) ISO-725
Inlet - (P)	3/4" BSP	1"1/16 -12 UN
Ports - (A-B)	1/2" BSP	7/8"-14 UNF
Outlet - (T)	3/4" BSP	1"1/16 -12 UN

Ordering codes

1/2" BSP

G04

3/4" BSP

G05

7/8"-14 UNF

U04

1"1/16 - 12 UN

U05

TECHNICAL INFORMATION

Technical specifications

- WORKING SECTION NUMBER 1 - 8
- SPOOL STROKE 0,276 + 0,276 in
- SPOOLS PITCH 1,694 in
- DEAD BAND 0,06 + 0,06 in
- MAX. WORK PRESSURE
 - port (P) 6090 psi
 - ports (A-B) 6090 psi
 - port (T) 290 psi
- RATED FLOW
 - ports (P-T) 34,2 GPM
 - ports (A-B) 26,4 GPM

Manual actuation specifications

- ACTUATION FORCE ON THE SPOOL
 - only lever actuation 9,8 - 13,7 daN
 - lever + hydraulic actuation 12,5 - 37,4 daN
 - lever + electrohydraulic actuation . . 12,5 - 37,4 daN
- LEVER DISPLACEMENT +21° / -21°

Hydraulic actuation specifications

- REGULATING PRESSURE 72,5 - 217,5 psi
- MAX. PRESSURE ON PILOT LINE 580 psi
- MAX. PRESSURE ON PILOT TANK LINE 72,5 psi

Proportional electrohydraulic actuation specifications

- FEEDING REDUCED PRESSURE 435 psi
- REGULATING PRESSURE 72,5 - 217,5 psi
- MAX. PRESSURE ON PILOT TANK LINE 72,5 ps
- PWM FREQUENCY SUGGESTED 60 Hz
- CONNECTOR AMP Junior Power Timer
- SUPPLY VOLTAGE 12 VDC / 24 VDC
- COIL RESISTANCE 5,3 Ω / 21,2 Ω
- MAX. SUPPLY CURRENT
 - duty-cycle 100% 1,5 A / 0,75 A
 - (better to limit duty-cycle to 80%)

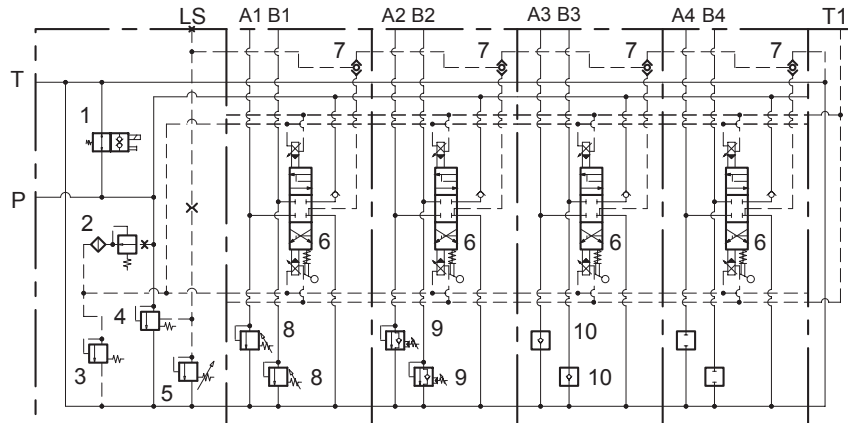
HCMV99 Series

Sectional Directional Control Valve



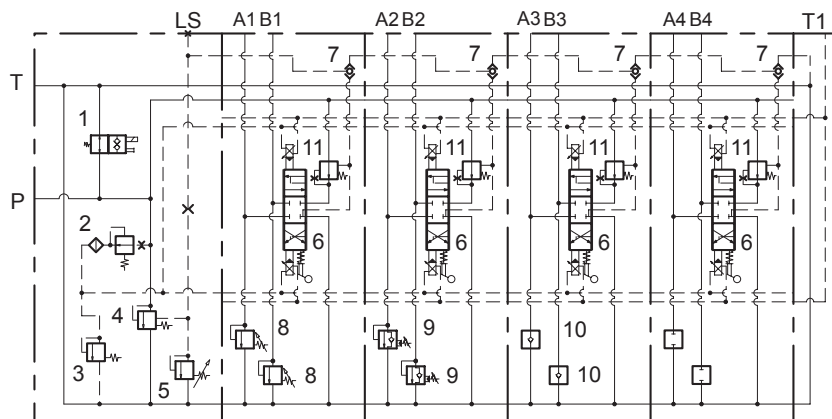
FUNCTIONS

Compensated on inlet section valve



1. Electric operated dump valve
2. Pressure reducing valve with internal filter for electrohydraulic actuation
3. Relief valve for electrohydraulic actuation
4. Inlet pressure compensator
5. Main relief valve
6. Manual and electrohydraulic operated spool
7. L.S. selection valve
8. Antichock auxiliary valve
9. Combined auxiliary valve
10. Anticavitation auxiliary valve

Compensated on work section valve



1. Electric operated dump valve
2. Pressure reducing valve with internal filter for electrohydraulic actuation
3. Relief valve for electrohydraulic actuation
4. Inlet pressure compensator
5. Main relief valve
6. Manual and electrohydraulic operated spool
7. L.S. selection valve
8. Antichock auxiliary valve
9. Combined auxiliary valve
10. Anticavitation auxiliary valve
11. Work section pressure compensator

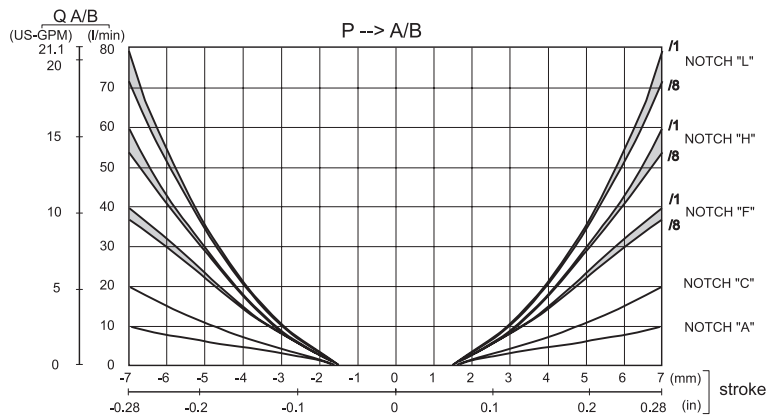
HCMV99 Series

Sectional Directional Control Valve



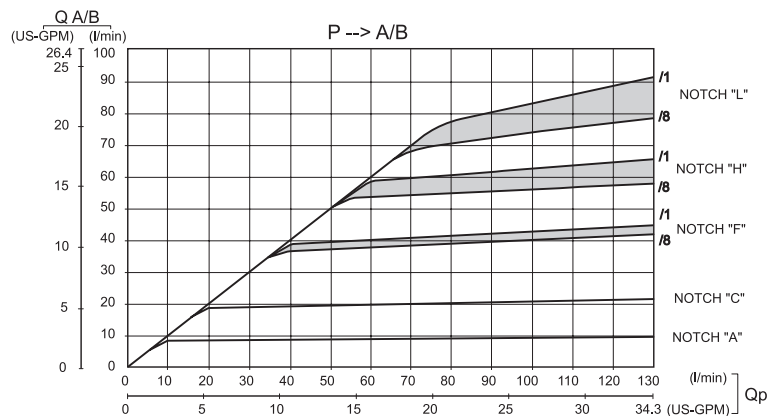
TYPICAL CURVES

COMPENSATED ON INLET SECTION VALVE



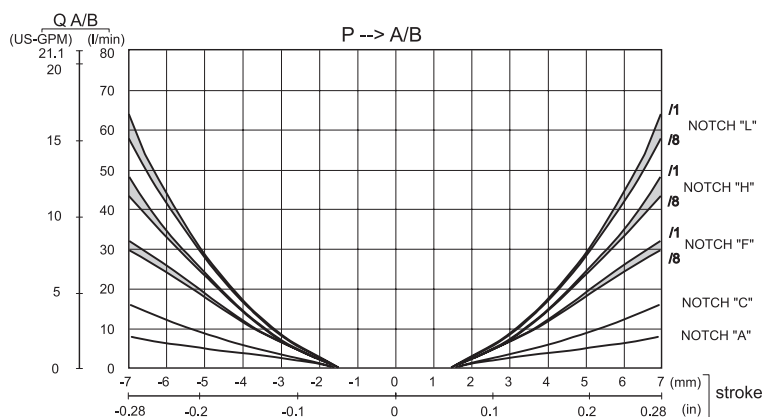
1

COMPENSATED ON INLET SECTION VALVE



2

COMPENSATED ON WORK SECTION VALVE



3

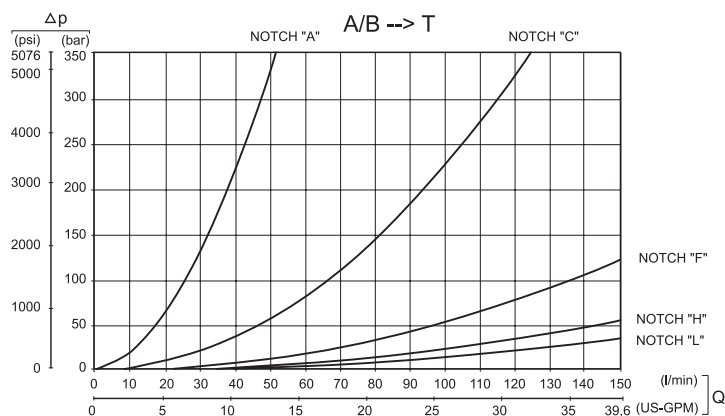
HCMV99 Series

Sectional Directional Control Valve



TYPICAL CURVES

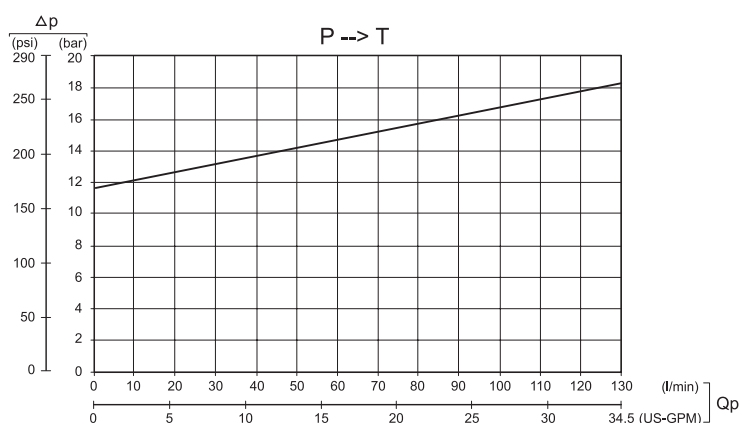
PRESSURE DROP



Pressure drop (A/B in T) as function of flow. Spool at end of stroke

4

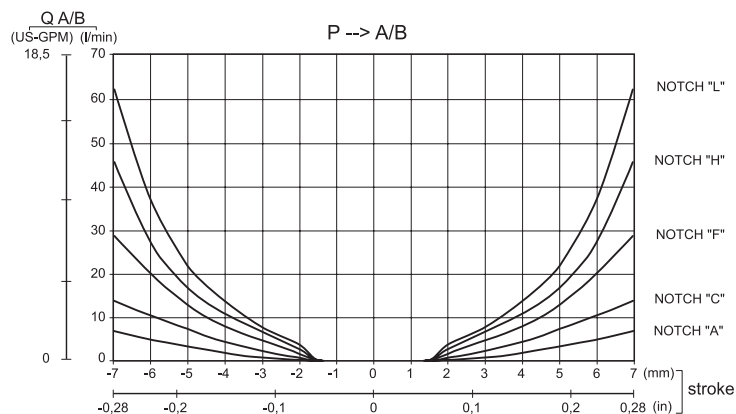
INLET SECTION PRESSURE COMPENSATOR



Pressure drop as function of inlet flow for open centre circuit.

5

COMPENSATED ON INLET SECTION VALVE



Flow on ports A and B (Q A/B) as function of spool stroke.
Closed centre circuit with 10 bar set on variable pump.

6

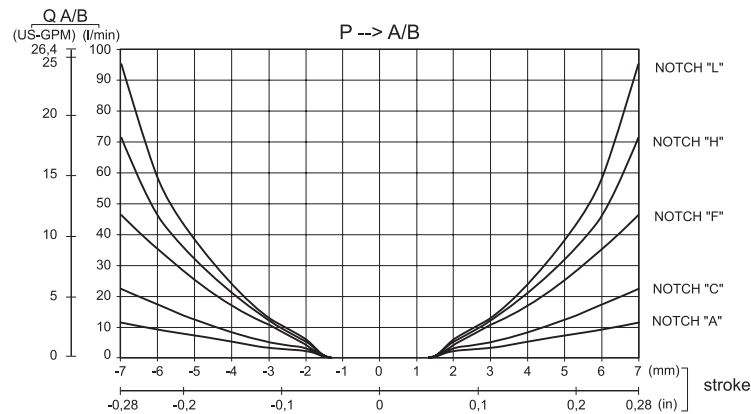
HCMV99 Series

Sectional Directional Control Valve



TYPICAL CURVES

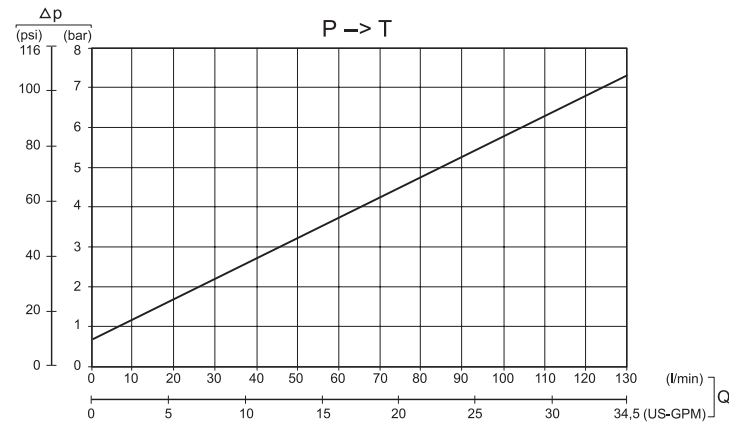
COMPENSATED ON INLET SECTION VALVE



7

Flow on ports A and B (Q A/B) as function of spool stroke.
Closed centre circuit with 20 bar set on variable pump.

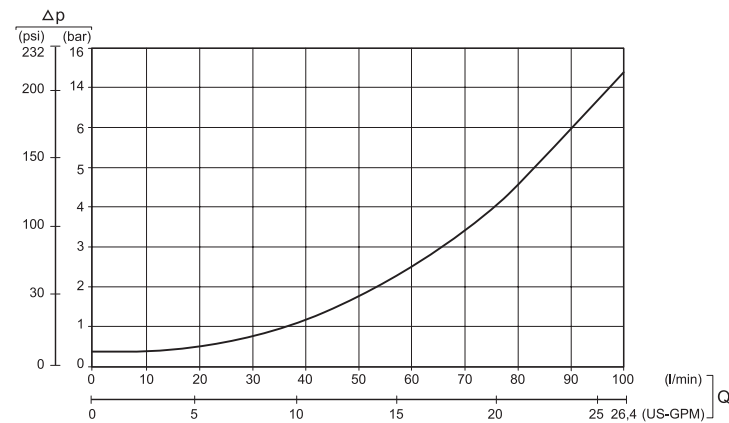
ELECTRIC DUMP VALVE



8

Pressure drop through open electric dump valve.

ANTICAVITATION VALVE



9

Opening and pressure drop characteristic.

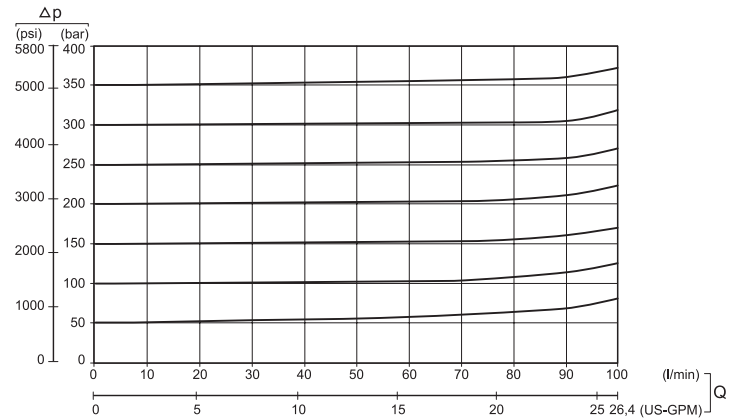
HCMV99 Series

Sectional Directional Control Valve



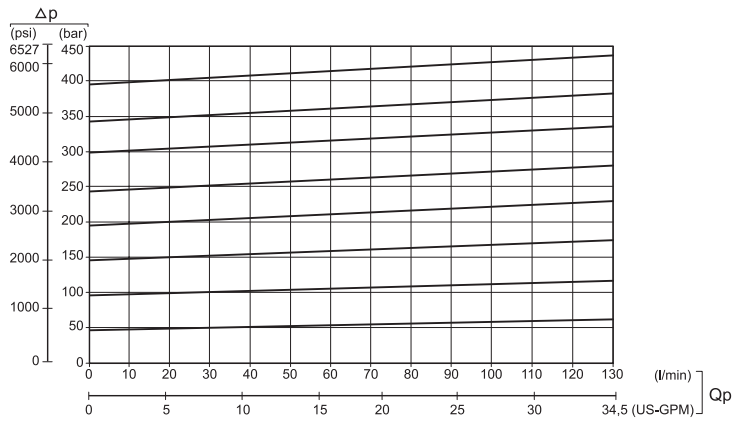
TYPICAL CURVES

ANTISHOCK VALVE



Antishock auxiliary valve characteristic: setting at 15 l/min.

MAIN RELIEF VALVE ON LS SIGNAL



Main relief valve on LS signal characteristic: setting at 15 l/min.

HCMV99 Series

Sectional Directional Control Valve



INLET SECTION

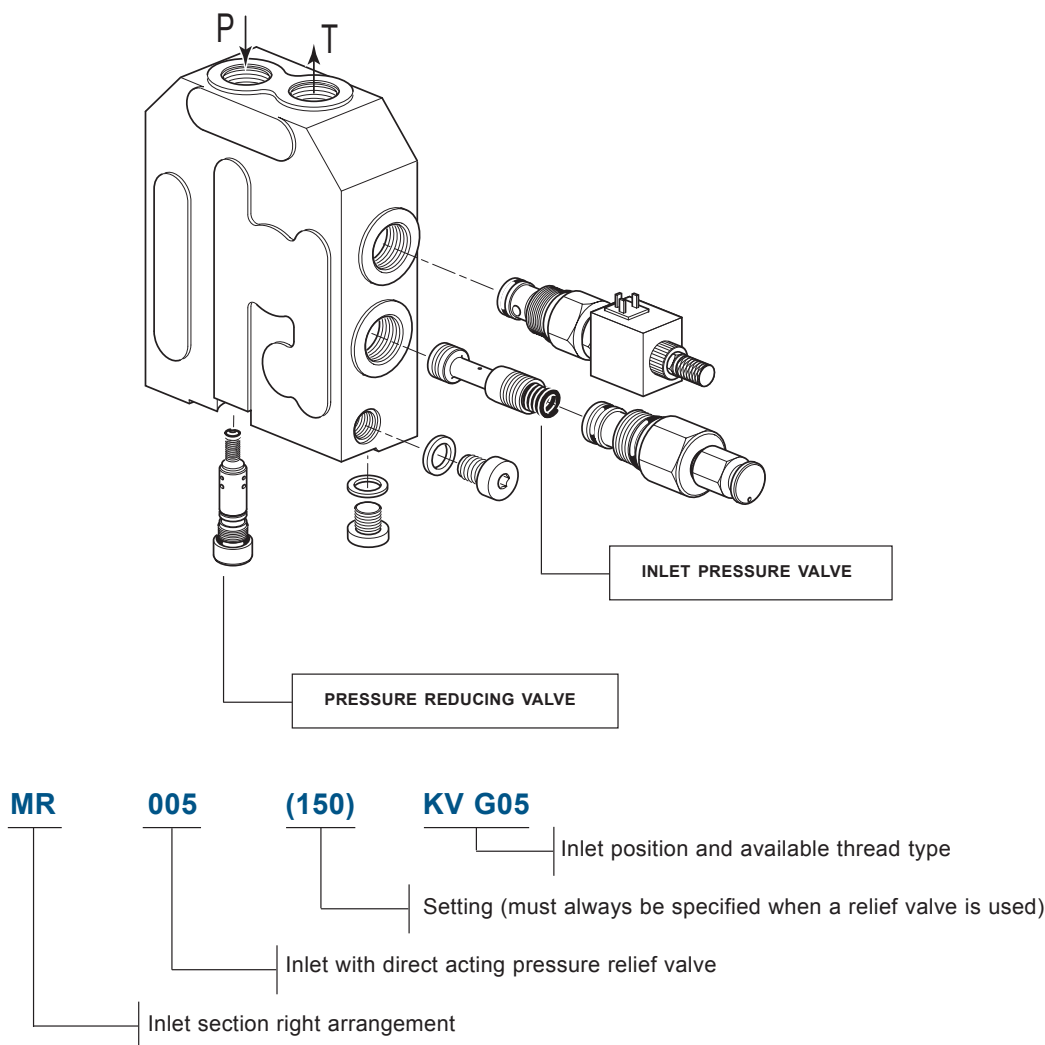
The inlet module includes the valve feed port P and tank port T in addition to an outlet for LS signal.

It can be variously equipped with a 12, 24 or 26 VDC electric operated dump valve, a main pressure relief valve, a pressure reducing valve to feed the proportional electro-hydraulic control (equipped with a 30 mm filter) and a pressure relief valve.

The open center version for combination with fixed displacement pumps or the closed center version for variable displacement pumps are both available.

In the first circumstance, the spool functions as a general pressure compensator for the Load Sensing system, whereas in the closed center version, it acts as a main stage for the main pressure relief valve.

Order example



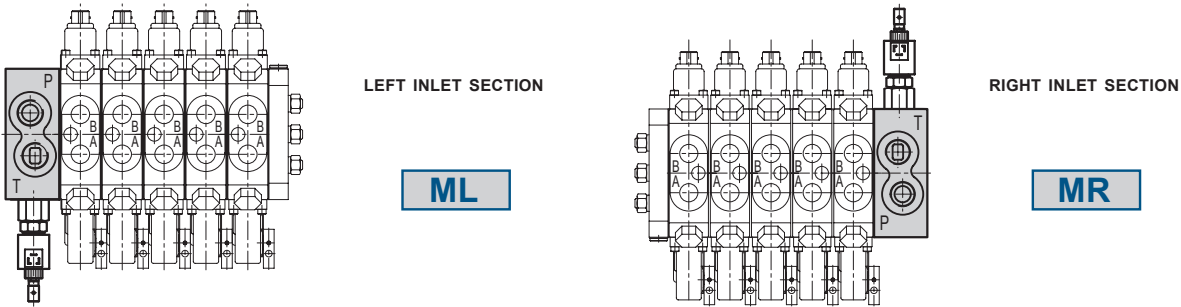
HCMV99 Series

Sectional Directional Control Valve

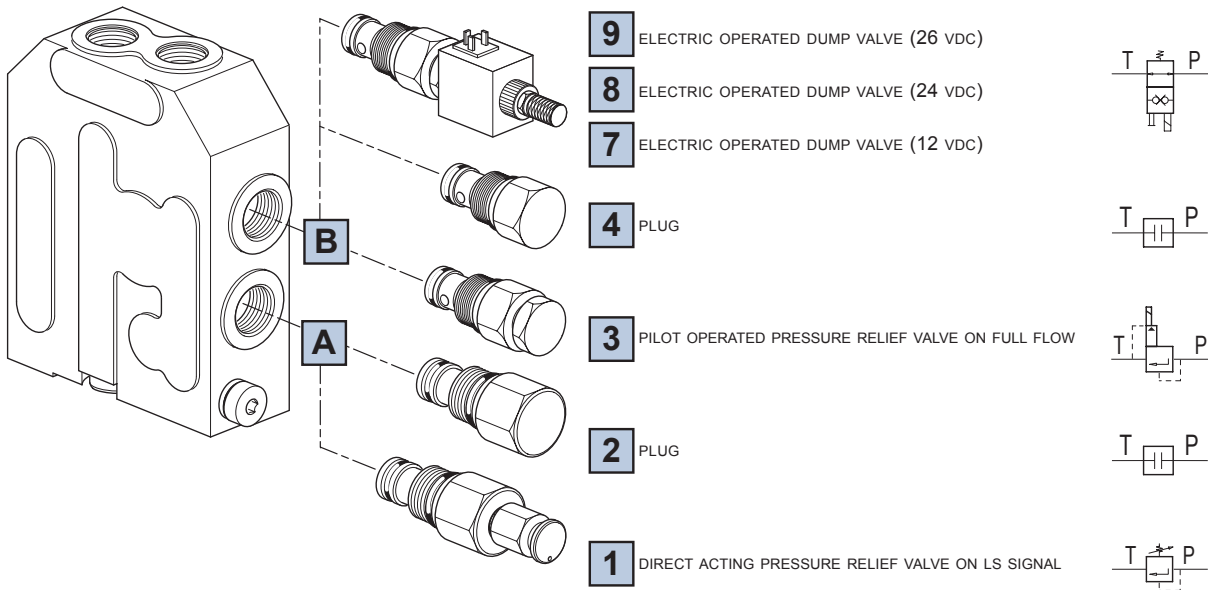


INLET SECTION ARRANGEMENT

Inlet side



Inlet section arrangement



ORDERING CODE	001	004	005	006	018	019	023	024	025
VALVES COMBINATION	1A-4B	1A-7B	1A-8B	1A-9B	2A-3B	2A-4B	2A-7B	2A-8B	2A-3B

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

HCMV99 Series

Sectional Directional Control Valve



INLET SECTION ARRANGEMENT

Inlet section type and thread

Open centre inlet section (for fixed displacement pumps)

HYDRAULIC DIAGRAM	THREAD	ORDERING CODE
	3/4" BSP	KV G05
	1"1/16 - 12 UN	KV U05

The inlet section with KV configuration enables control valve usage with fixed displacement pumps.

When fully equipped, a 12, 24 or 26 VDC electric operated dump valve (1) is used to act on full inlet flow rate and serves as a safety device.

Load Sensing flow rate control is achieved by the pressure compensator (4), which keeps a pressure drop constant through the spool control notches by comparing the LS signal and feed pressure. In its standard version, the main relief valve (5) acts on the LS signal. The pressure reducing valve (2), equipped with a 30 µm filter and a relief valve (3), feeds the proportional electro-hydraulic section controls.

Closed centre inlet section (for variable displacement pumps)

HYDRAULIC DIAGRAM	THREAD	ORDERING CODE
	3/4" BSP	JV G05
	1"1/16 - 12 UN	JV U05

The inlet section with JV configuration enables control valve usage with variable displacement pumps.

The piloting signal of the pump displacement controller can be drawn from the LS outlet.

The 12, 24 or 26 VDC electric operated dump valve (1) acts on full flow rate and serves as a safety device.

In this case, the main relief valve (5) acts on a piloting line and serves as a pilot stage for the main stage (4), disposing of the entire flow rate. The pressure reducing valve (2) ensures that the relative 30 µm filter and the relief valve feed the sections' proportional electro-hydraulic controls.

NOTE: transformation of the inlet section from closed center to open center and vice versa is possible by ordering the appropriate kit 320055005

HCMV99 Series

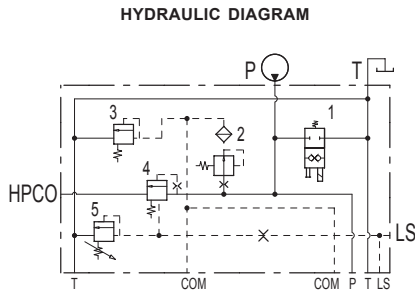
Sectional Directional Control Valve



INLET SECTION ARRANGEMENT

Special inlet section type

Open centre inlet section with carry over HPCO (for fixed displacement pumps)



THREAD

3/4" BSP

1"1/16 - 12 UN

ORDERING CODE

HV G05

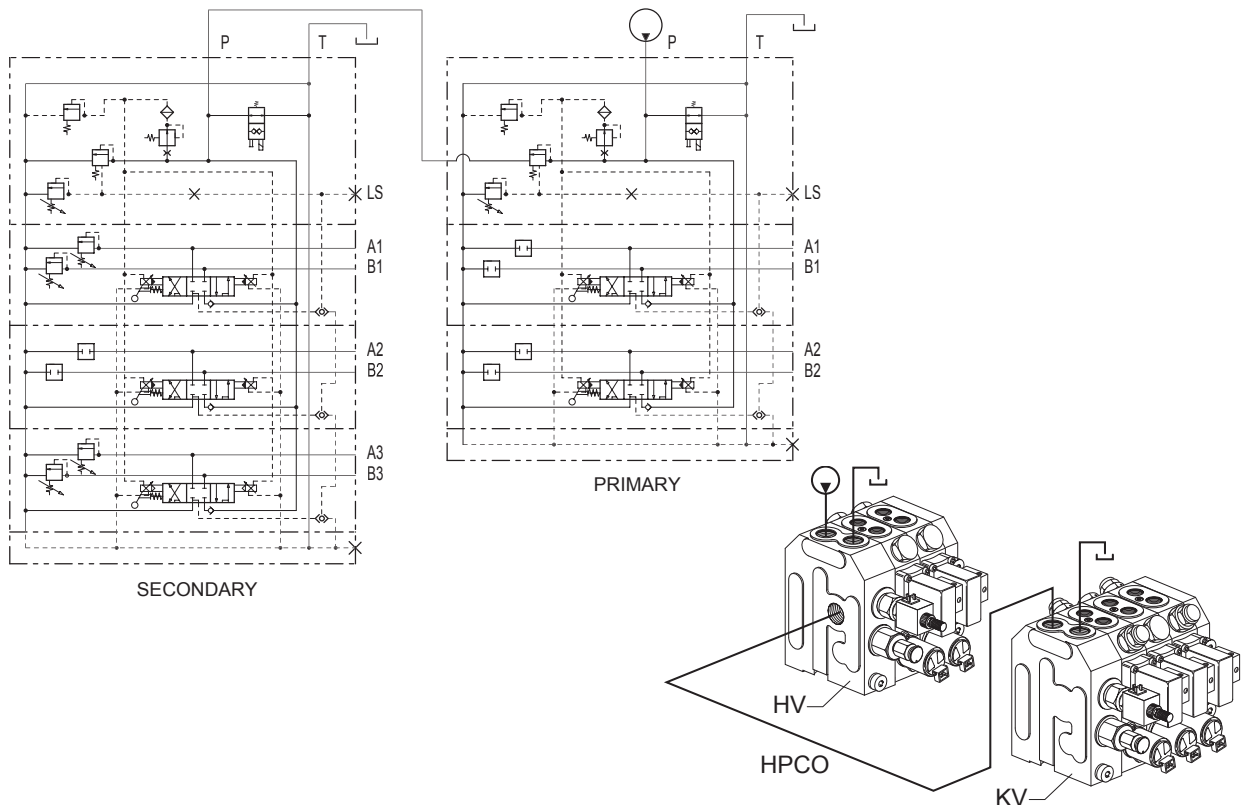
HV U05

The special HV inlet module section achieving a special carry-over connection between two MV99 control valves which is extremely useful as only two connection tubes are used between the two control valves. This application is only suitable for systems with fixed displacement pumps.

Flow rate goes through the first control valve, with HV inlet configurations, then proceeds from HPCO outlet to the second control valve with KV inlet configuration; the second control valve is fed by the unused flow rate of the first one.

Available also for this version are: the 12, 24 or 26 VDC electric operated dump valve (1), the main relief valve (5) and the pressure-reducing valve (2) with 30 µm filter and relief valve (3).

SAMPLE OF CARRY-OVER SPECIAL CIRCUIT (HV TYPE)



HCMV99 Series

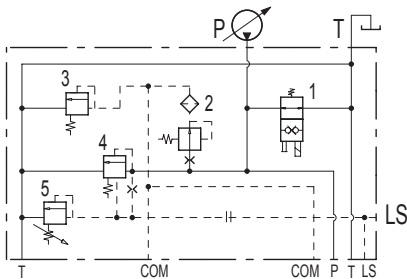
Sectional Directional Control Valve



INLET SECTION ARRANGEMENT

Complete configuration samples for inlet section

HYDRAULIC DIAGRAM

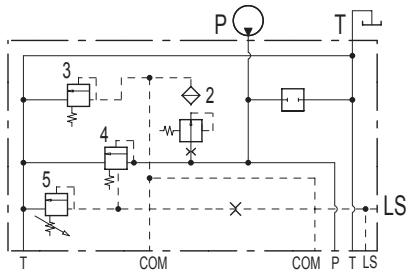


ORDERING CODE

MR 004 (180) JV G05

- Right inlet section
- Arranged with electric operated dump valve (12 VDC) and direct acting relief valve on LS signal (setting 180 BAR)
- "JV" type for variable pump
- 3/4" BSP thread

HYDRAULIC DIAGRAM

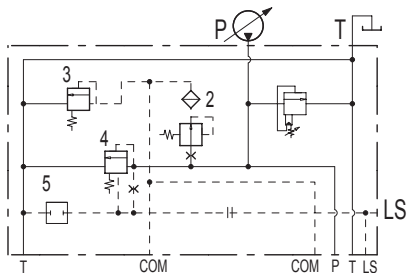


ORDERING CODE

ML 001 (130) KV G05

- Left inlet section
- Arranged with plug and direct acting relief valve LS signal (setting 130 bar).
- "KV" type for fixed pump
- 3/4 " BSP thread

HYDRAULIC DIAGRAM

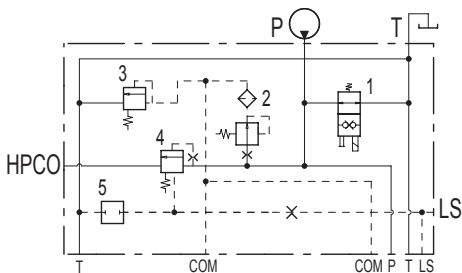


ORDERING CODE

MR 018 (210) JV U05

- Right inlet section
- Arranged with plug and pilot operated relief valve on full flow (setting 210 BAR)
- "JV" type for variable pump
- 1"1/16-12 UN thread

HYDRAULIC DIAGRAM



ORDERING CODE

ML 023 HV G05

- left inlet section
- Arranged with plug and electric operated dump valve 12 VDC
- "HV" type for fixed pump and special carry-over
- 3/4" BSP thread

HCMV99 Series

Sectional Directional Control Valve



WORK SECTION ARRANGEMENT

Non compensated section

A spool with ample flow ranges, differentiated on ports A and B if required, is used for each work section. Spool actuation can be manual, hydraulic or proportional electro-hydraulic.

The selector valve, which appears on all sections, selects the highest LS signal and transmits it to the inlet module in the event of simultaneous section operation.

The A and B ports can also both be equipped with an auxiliary valve which can be of antishock, anticavitation or combined type, according to requirements.

When using not compensated sections, the Load Sensing principle (flow rate control is entirely free from load variations) is guaranteed for each work section only when operated individually.

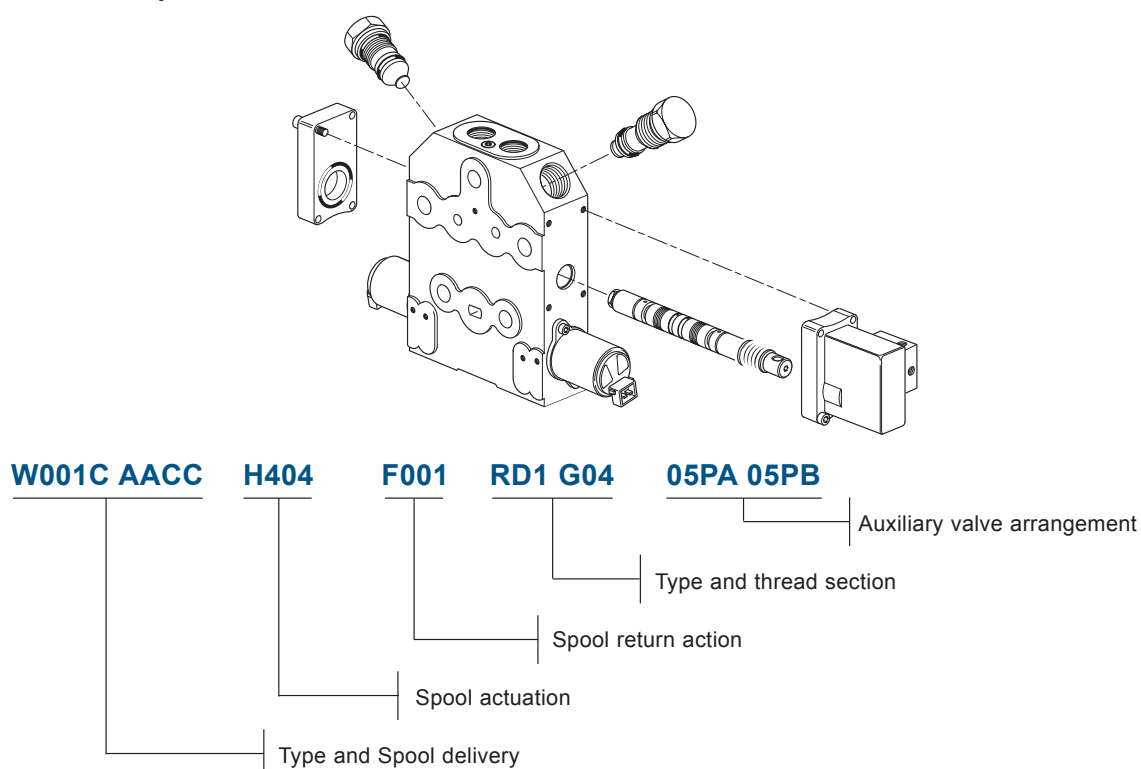
If two or more sections are operated simultaneously, only the one with the highest load will keep its flow rate constant against load changes.

Compensated section

The technical specifications of each non compensated section can be directly transferred to compensated ones. A local pressure compensator spool is also provided. In addition to guaranteeing constant flow rate against load changes as in the previous case, compensated sections also ensure this function during contemporary operation of two or more spools.

This solution exploits this highly developed Load Sensing system and frees each function from external disturbances.

Order example



HCMV99 Series

Sectional Directional Control Valve



SPOOL TYPE

Spools identification

HYDRAULIC SCHEMATIC	CIRCUIT DESCRIPTION	CODE
	3 positions double-acting	W001
	3 positions double-acting A and B to tank	W002
	3 positions double-acting A to tank B blocked	W003
	3 positions double-acting A blocked B to tank	W004
	3 positions single-acting on A	W005
	3 positions single-acting on B	W006

Special spool

HYDRAULIC SCHEMATIC	CIRCUIT DESCRIPTION	CODE
	4 positions double-acting with float in the 4 th position	W012
	3 positions double-acting regenerative	W013
	4 positions double-acting (regenerative in 4 th position)	W014

NOTE: W012, W013 and W014 spools need a special machining on the valve body. Ask our Technical-Sales Dpt. for further informations.

HCMV99 Series

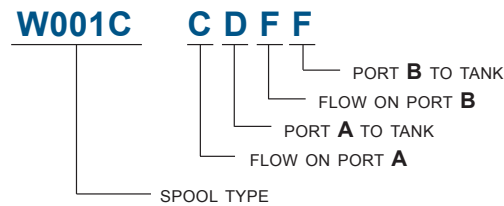
Sectional Directional Control Valve



SPOOL TYPE

Spool flow

Flow rates delivered to the A, B ports and the return control characteristics of the spools are identified by a four-letter abbreviation as explained below:



Spool are defined as standard when delivery and return flow rates are the same for each single mouth (ex. AABB, AACC, ...).

The correct definition of delivered flow rates can be established via the following table where different notch types are indicated.

It is extremely important to clarify that flow rate values differ according to whether sections are compensated or not.

Table values are obtained with inlet flow rate $Q_p = 100$ l/min.

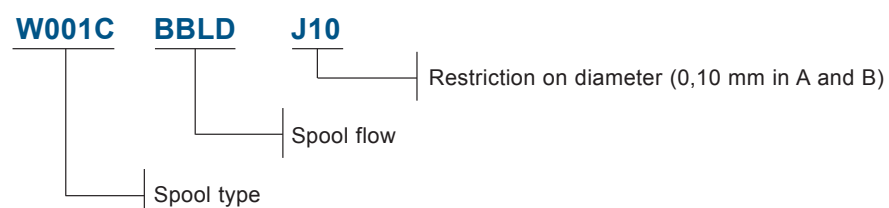
Notch type	FLOW ON PORT (l/min $\pm 5\%$)										
	A	B	C	D	E	F	G	H	I	L	M
Not compensated (code "RD")	10	15	20	25	30	40	50	60	70	80	90
Compensated (code "RC")	8	12	16	20	24	32	40	48	56	64	72

Refer to diagram 4 for tank notches characteristic.

Spools with restricted service ports

HYDRAULIC SCHEMATIC	CIRCUIT	RESTRICTION ON DIAMETER (mm)	CODE	SECTION (mm ²)
	AB IN T	0,10	J10	2,82
	A IN T	0,10	K10	2,82
	B IN T	0,10	Y10	2.82

Order example



HCMV99 Series

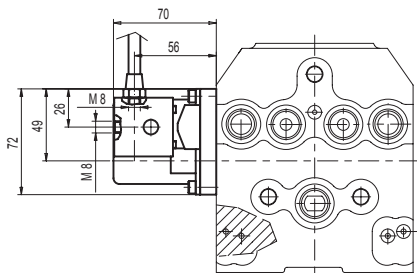
Sectional Directional Control Valve



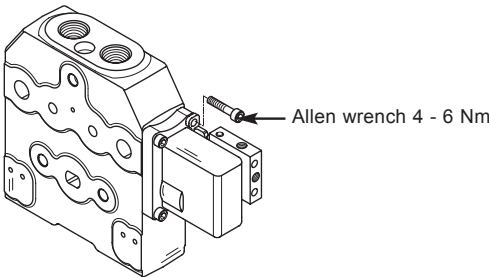
SPOOL ACTUATION

Spool actuation identification

DIMENSIONS



CLAMPING TORQUE



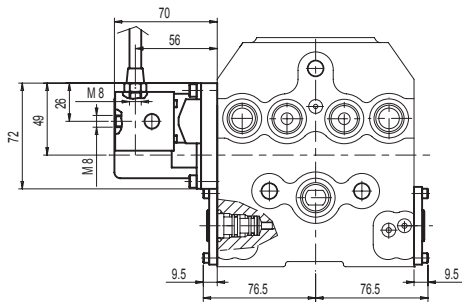
DESCRIPTION

Lever actuation

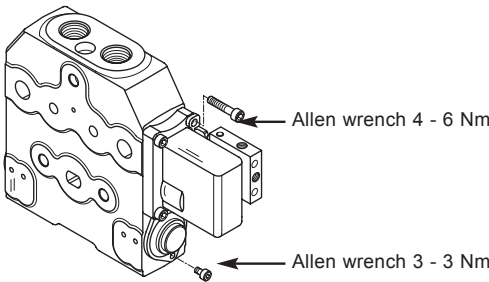
ORDERING CODE

H401

DIMENSIONS



CLAMPING TORQUE



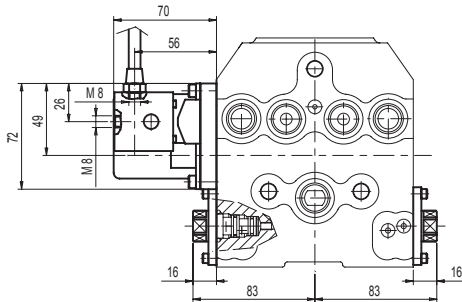
DESCRIPTION

Lever actuation
(arranged for electrohydraulic proportional actuation)

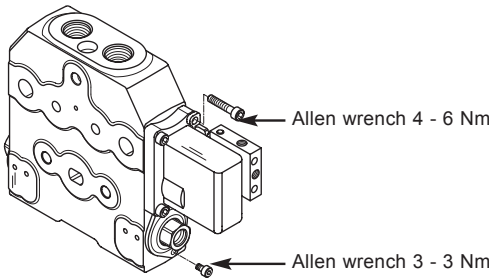
ORDERING CODE

H402

DIMENSIONS



CLAMPING TORQUE



DESCRIPTION

Lever + hydraulic actuation

ORDERING CODE

H403

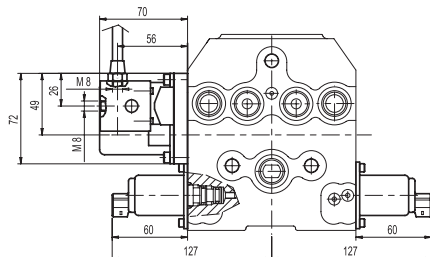
HCMV99 Series

Sectional Directional Control Valve



SPOOL ACTUATION

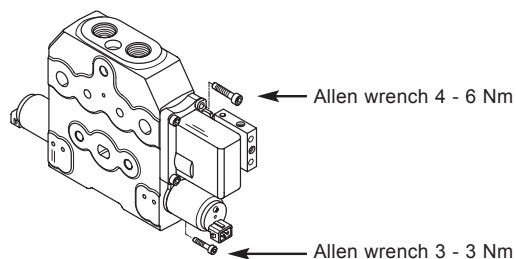
DIMENSIONS



DESCRIPTION

Lever + electrohydraulic actuation

CLAMPING TORQUE



ORDERING CODE

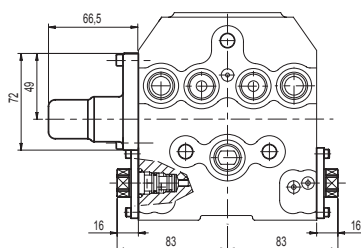
H404

12 VDC

H405

24 VDC

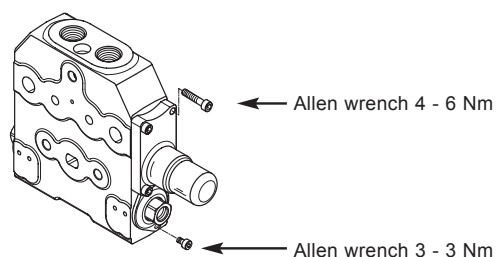
DIMENSIONS



DESCRIPTION

Without lever + hydraulic actuation

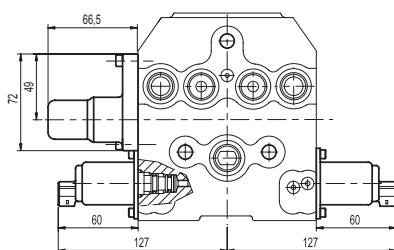
CLAMPING TORQUE



ORDERING CODE

H406

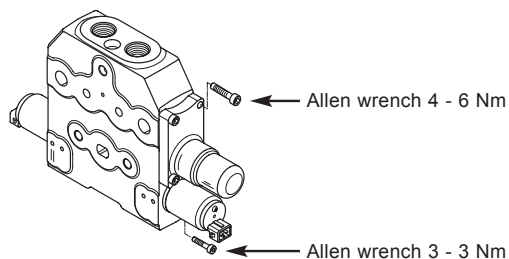
DIMENSIONS



DESCRIPTION

Without Lever + electrohydraulic actuation

CLAMPING TORQUE



ORDERING CODE

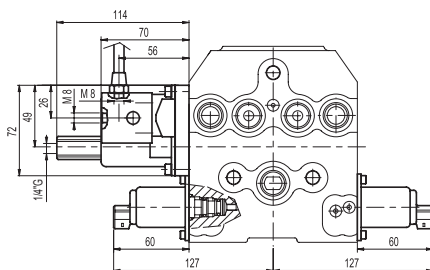
H407

12 VDC

H408

24 VDC

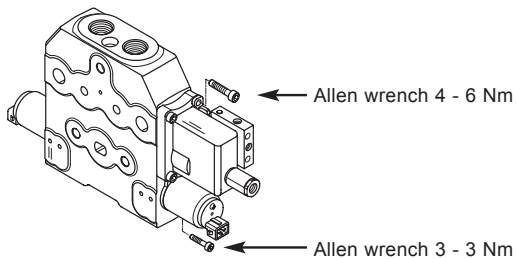
DIMENSIONS



DESCRIPTION

Lever + hydraulic actuation + electrohydraulic actuation

CLAMPING TORQUE



ORDERING CODE

H424

12 VDC

H425

24 VDC

HCMV99 Series

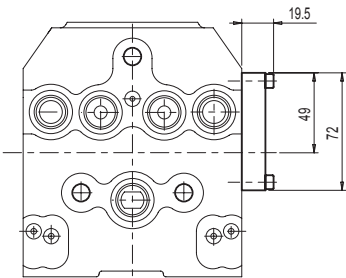
Sectional Directional Control Valve



SPOOL RETURN ACTION

Spools return identification

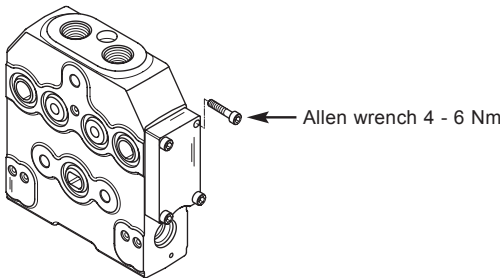
DIMENSIONS



DESCRIPTION

3 positions spring centered spool

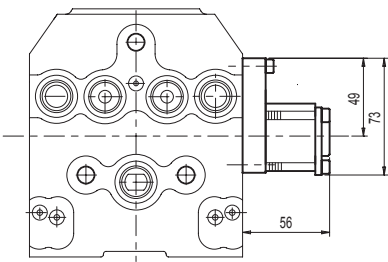
CLAMPING TORQUE



ORDERING CODE

F001

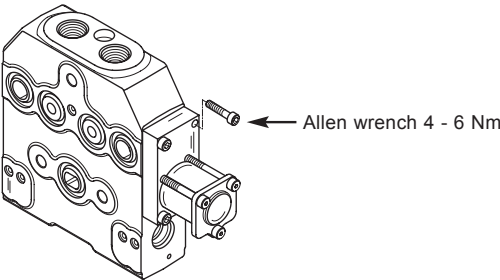
DIMENSIONS



DESCRIPTION

4 positions prefeeling

CLAMPING TORQUE

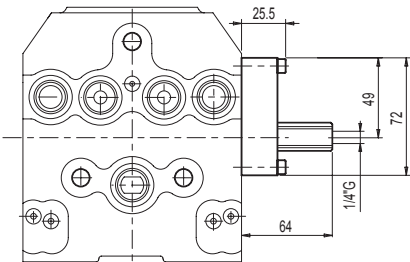


ORDERING CODE

F008

(only for W012C)

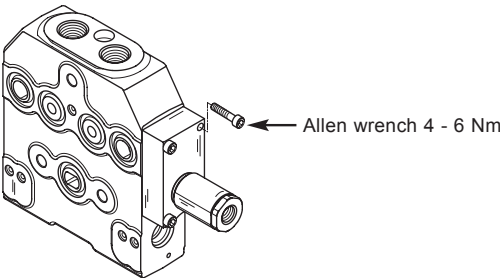
DIMENSIONS



DESCRIPTION

3 positions spring centered spool

CLAMPING TORQUE



ORDERING CODE

F0710

(only for H424=H425)

HCMV99 Series

Sectional Directional Control Valve



SPOOL RETURN ACTION

DIMENSIONS	SPECIFICATIONS	CLAMPING TORQUE
	X in A1: it inhibits flow on port A X in B1: it inhibits flow on port B P max. = 350 bar	
DESCRIPTION	ORDERING CODES	
Load limit in A and B	F024	

DIMENSIONS	SPECIFICATIONS	CLAMPING TORQUE
	X in A1: it inhibits flow on port A P max. = 350 bar	
DESCRIPTION	ORDERING CODES	
Load limit in A	F026	

DIMENSIONS	SPECIFICATIONS	CLAMPING TORQUE
	X in B1: it inhibits flow on port B P max. = 350 bar	
DESCRIPTION	ORDERING CODES	
Load limit in B	F028	

HCMV99 Series

Sectional Directional Control Valve



SPOOL RETURN ACTION

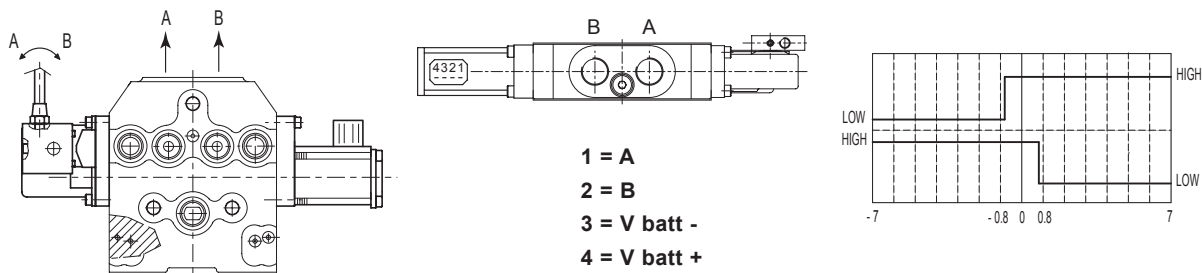
Directional load limit Kit

It indicates with two independent electric signals whether the spool is operated to feed port A or B.

Technical specifications

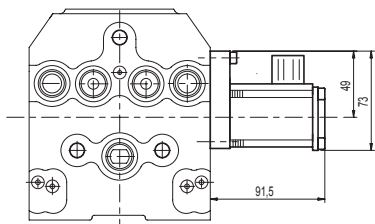
- POWER SUPPLY 10 - 30 VDC
- MAX OUTPUT 300 mA
- PROTECTION AGAINST POLARITY INVERSION'
- PROTECTION AGAINST SHORT CIRCUIT

OPERATIONAL DIAGRAM



Directional load limit kit identification

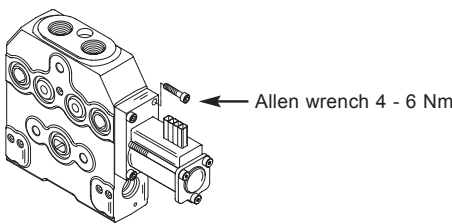
DIMENSIONS



DESCRIPTION

Directional load limit kit

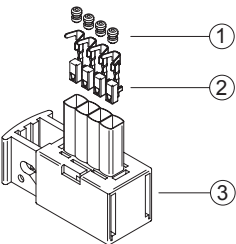
CLAMPING TORQUE



ORDERING CODES

F0360

A female connector, (AMP junior power timer), with 2 meters wiring is available on request
Ordering code: 413190020
(to be ordered separately)



1. Fairlead
(828904-01) N°4
2. Contacts
(929933-01) N°4
3. Body (Key A)
(1-967059-1) N°1

HCMV99 Series

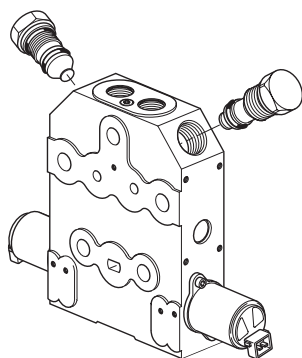
Sectional Directional Control Valve



SECTION ARRANGEMENT

Section type A-B ports thread

NON COMPENSATED SECTION

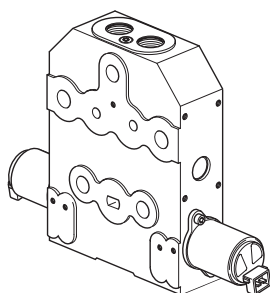


DESCRIPTION

Not compensated section
arranged for auxiliary valves

ORDERING CODE

RD1



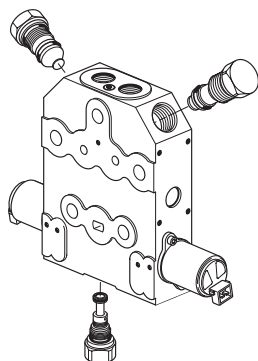
DESCRIPTION

Not compensated section
without auxiliary valves

ORDERING CODE

RD2

COMPENSATED SECTION

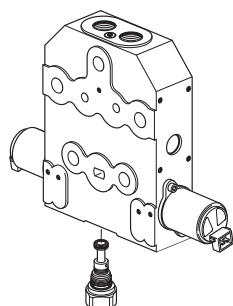


DESCRIPTION

Compensated section
arranged for auxiliary valves

ORDERING CODE

RC1



DESCRIPTION

Compensated section
without auxiliary valves

ORDERING CODE

RC2

HCMV99 Series

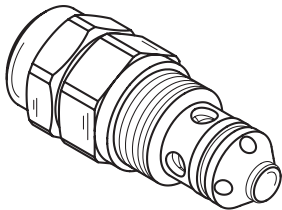
Sectional Directional Control Valve



AUXILIARY VALVE

Valves identification

Antishock valve



SETTING RANGE

range - (1):
50/200 bar

range - (2):
201/420 bar

ORDERING CODE

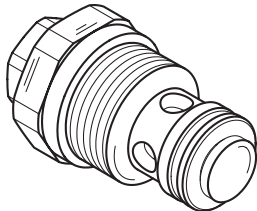
01 PA

service port A

01 PB

service port B

Anticavitation valve



ORDERING CODE

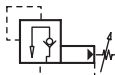
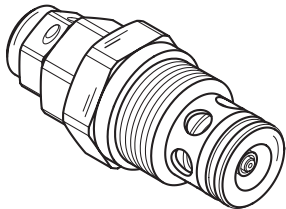
02 PA

service port A

02 PB

service port B

Pilot operated combined valve



SETTING RANGE

range -
50/420 bar

ORDERING CODE

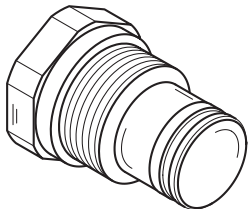
04 PA

service port A

04 PB

service port B

Plug kit



ORDERING CODE

05 PA

service port A

05 PB

service port B

NOTE: sections designed to house auxiliary valve option
require double choice on work ports A and B

Always indicate setting value when using antishock auxiliary
valves or pilot operated combined valve:

SETTING AT FULL FLOW = 01 PA **120**

SETTING AT MIN. FLOW (5 l/min) = 01 PA **120-A**

HCMV99 Series

Sectional Directional Control Valve



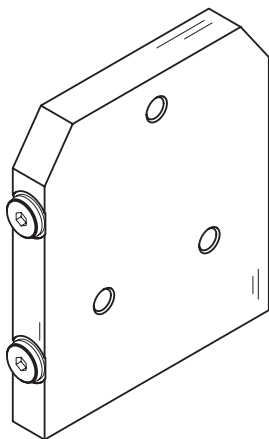
END PLATE

End plate type

The standard end plate version includes the drainage for LS signal. If proportional electrovalves are used, their drainage is taken from port T1.

Special plates are also available for HPCO connection between two MV99 control valves.

STANDARD VERSION



DESCRIPTION

End plate with T1 port plugged
To be used with: H401, H403 and H406

ORDERING CODE

Z3

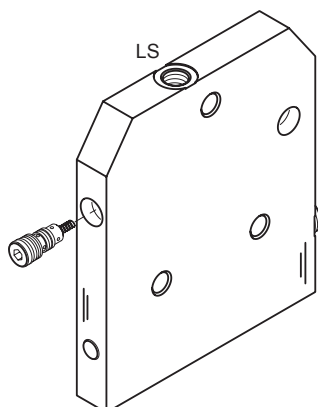
DESCRIPTION

End plate with separated proportional electrovalves
tank line (port T1)
To be used with: H402, H404, H405, H407, H408, H424 e H42

ORDERING CODE

Z4

SPECIAL VERSION



DESCRIPTION

End plate with T1 port plugged (HPCO version)
To be used with: H401, H403 and H406

ORDERING CODE

Z5

DESCRIPTION

End plate with separated proportional electrovalves
tank line on port T1 (HPCO version)
To be used with: H402, H404, H405, H407, H408, H424 e H425

ORDERING CODE

Z6

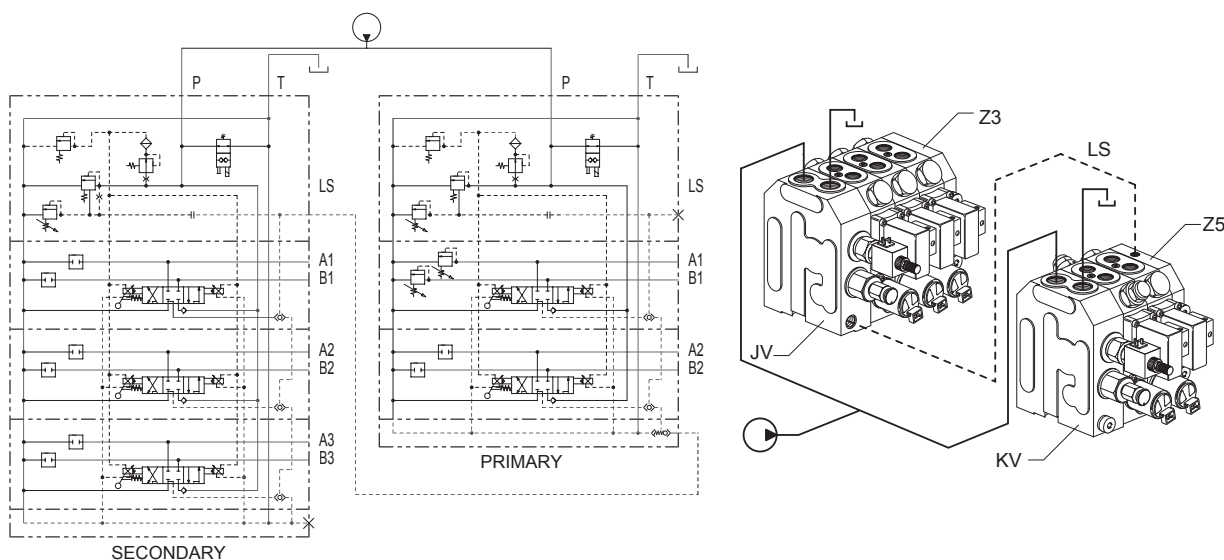
HCMV99 Series

Sectional Directional Control Valve

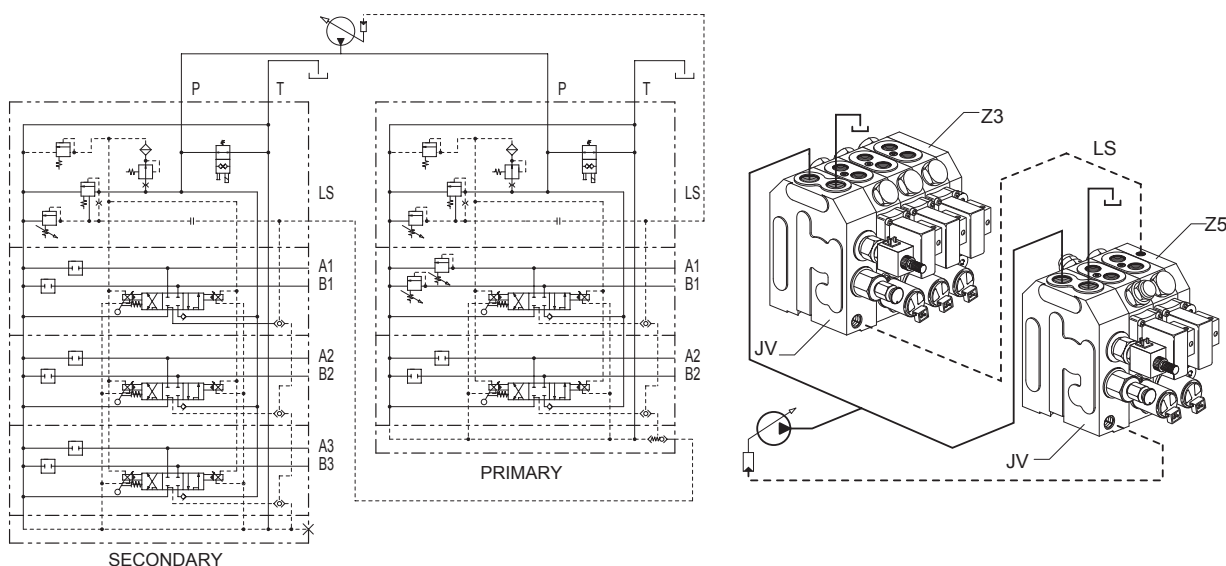


END PLATE

HYDRAULIC DIAGRAM FOR SPECIAL END PLATE (WITH FIXED DISPLACEMENT PUMP)



HYDRAULIC DIAGRAM FOR SPECIAL END PLATE (WITH FIXED DISPLACEMENT PUMP)



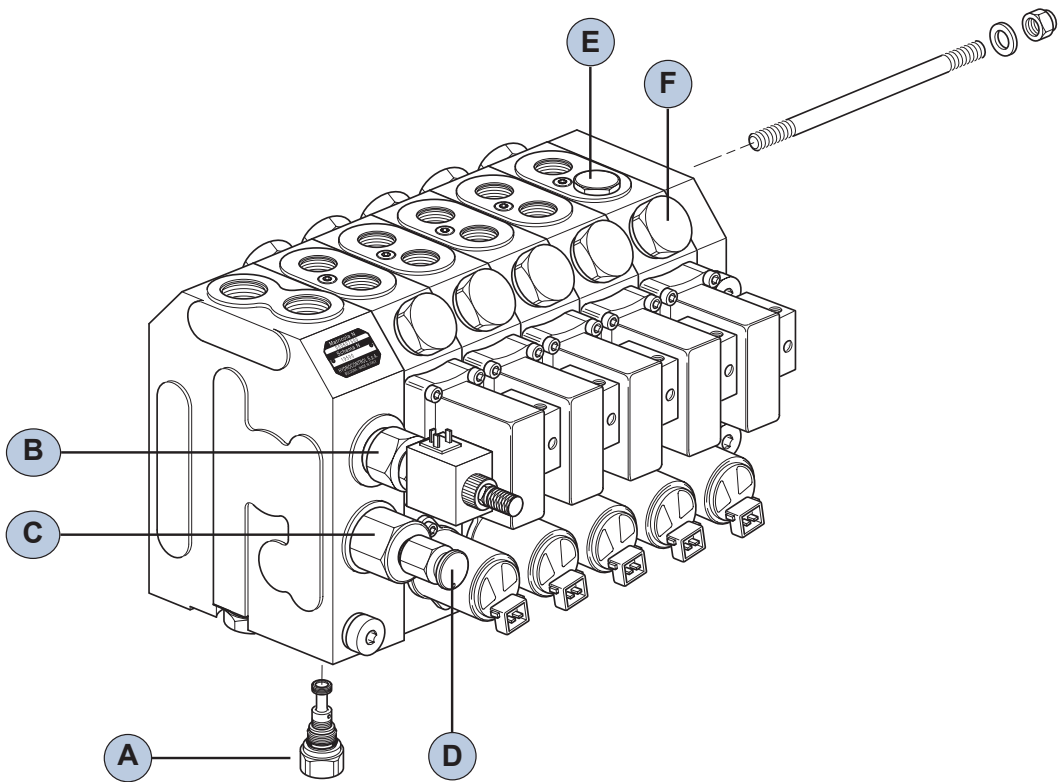
NOTES: the secondary control valve necessarily adopts a JV type inlet module; the LS signal of the secondary one is drawn from the inlet module and driven to the end plate Z5 (o Z6) of the primary control valve. The primary control valve is equipped with a KV or JV type inlet module depending on whether the system is fed by a variable or fixed displacement pump.

HCMV99 Series

Sectional Directional Control Valve



INSTALLATION AND MAINTENANCE



General clamping torque

POSITION	DESCRIPTION	CLAMPING TORQUE (Nm)	
A	work section compensator plug	60	
B	electric operated dump valve body	120	
C	pressure relief valve body	120	
D	pressure relief valve plug	80	
E	fittings in service ports A-B-P-T	G04 = 60 U04 = 60	G05 = 120 U05 = 120
F	clamping torque auxiliary valve	see table (X)	

TABLE			
ANTISHOCK VALVE PLUG	ANTICAVITATION VALVE PLUG	COMBINED VALVE PLUG	PLUG REPLACES VALVE
80 Nm	80 Nm	80 Nm	80 Nm
ANTISHOCK VALVE BODY	ANTICAVITATION VALVE BODY	COMBINED VALVE BODY	
120 Nm	120 Nm	120 Nm	
TIE-ROD CLAMPING TORQUE			
35 Nm			

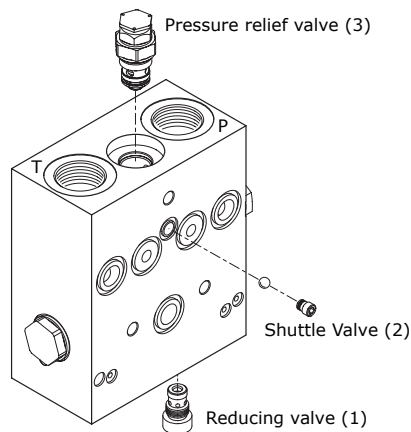
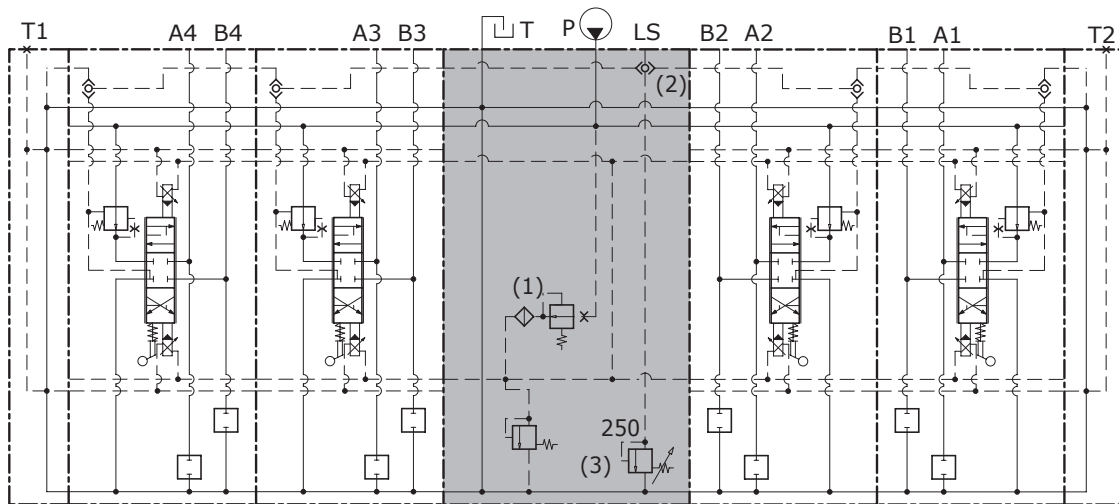
HCMV99 Series

Sectional Directional Control Valve



Intermediate inlet section

The intermediate inlet section for the HC-MV99 control valve allows inlet flow rate up to 200 l/min from a Load Sensing variable displacement pump. This intermediate section has been designed to assemble two independent flow control units, fed from a single, high flow rate pump. The symmetrical pressure drop control allows the regulated flow-rates to be accurately distributed. Among the possible applications are travel systems for drills, excavators and medium- to large-sized agricultural machinery.



assembly kit

The HC-MV99 intermediate inlet section is equipped with a pressure reducer valve (1) feeding the proportional electro-hydraulic controls, equipped with a filter and pressure limiting device. It also has an integral "Shuttle Valve" (2) to select LS signals coming from the two flow control units, controlled in turn by the pressure relief valve (3).

ordering code

The intermediate section assembly ordering code is **61071**. The proportional control valve assembly (equipped with an intermediate inlet section) should be used with two closure plates on both ends and without an inlet module.

HCMV99 Series



Sectional Directional Control Valve

Dimensional drawing

