

HDM11S Series

Mono-Block Directional Control Valve



General specifications

Dimensional data

Performances curves

Monobloc body

Adjustable Direct Acting - Relief Valve RV

Spool chart

Load sensing .

Spool positioners

Lever styles

Port relief and anticavitation valves

HDM11S Series

Mono-Block Directional Control Valve



General Specifications

Technical specification	Metering unit system	
Max flow rate	l/min U.S.G.P.M.	45 12
Max operating pressure Parallel circuit	bar PSI	400 5700
Max operating pressure Series and L.S. circuit	bar PSI	300 4300
Max back pressure	bar PSI	30 420
Oil temperature	° C ° F	-10 to 80 14 to 180
Oil viscosity	° E cSt	2.4 to 10 16 to 75
Oil filtration	μ	≤ 30

Spool leakage at 100 bar (1450 PSI), Temp. 50° C (120° F), viscosity 27 cSt:

Maximum	cm ³ /min Cu. In./min	12 0.732
Average	cm ³ /min Cu. In./min	6 0.366

Lower values on demand (to be agreed with our Sales Dpt.)

Number of spools	1 to 4
Adjustable direct operated relief valve (tamper-proof seal available on request)	RV
Load hold check valve in each section	LC
Cartridge Anti-Shock Anticavitation and service relief valve	OA-UC-C
Mechanical release check valve	RSM3

Weight

Technical specification	Metering unit systems	
HDM11S/1	kg LBS	5.3 11.66
HDM11S/2	kg LBS	5.9 12.98
HDM11S/3	kg LBS	6.5 14.3
HDM11S/4	kg LBS	7.1 15.62

Material specification:

Body: High strength cast-iron.
Spool: Hardened steel and chrome plated
Seals: Buna "N".

Standard features:

- 1) Parallel circuit
- 2) Balanced interchangeable spools (provides minimum leakage, smooth operation)
- 3) Wide selection inlets, work ports, and outlets threaded ports.
- 4) Negative overlapping of the spool.

Optional features available:

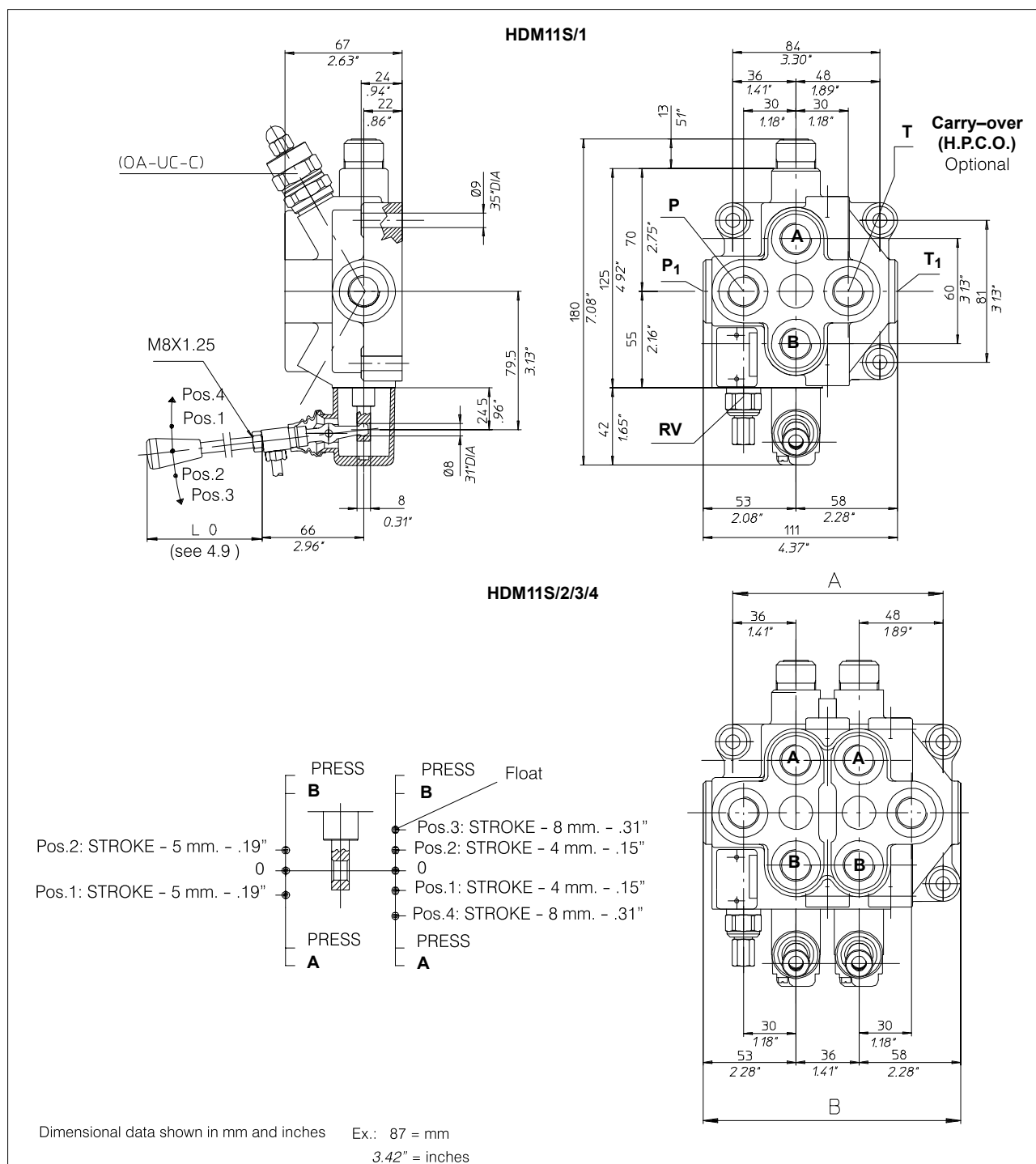
- 1) Open or closed centre positions, 3 or 4 way operations, 3 or 4 position (float position), full open centre (motor spool) and other spool options.
- 2) Carry over.
- 3) Series circuit
- 4) Load sensing circuit closed centre for variable displacement pump
- 5) Complete lever assembly
- 6) Wide range of positioners

Symbols:

P: inlet port
T: outlet port
A/B: work ports
H.P.C.O.: carry-over
RV: relief valve
P₁T₁: side inlet and outlet ports
 3.1.0.2: spool position
P: pressure line
T: exhaust line
E: centre line (by pass).

HDM11S Series

Mono-Block Directional Control Valve



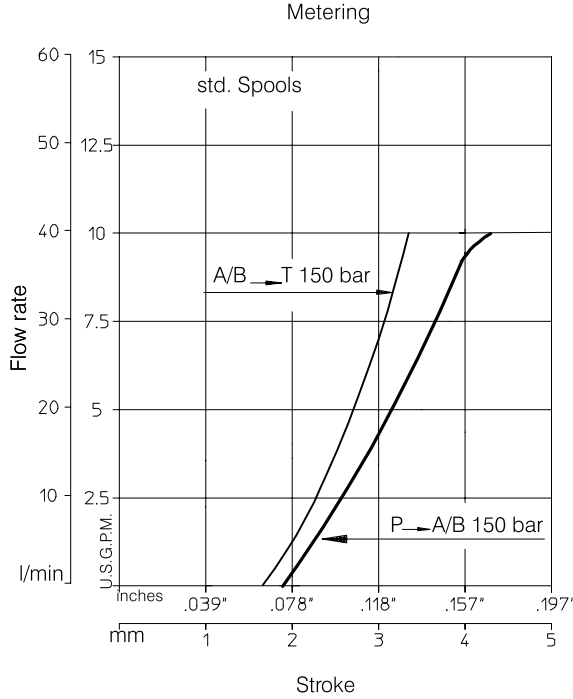
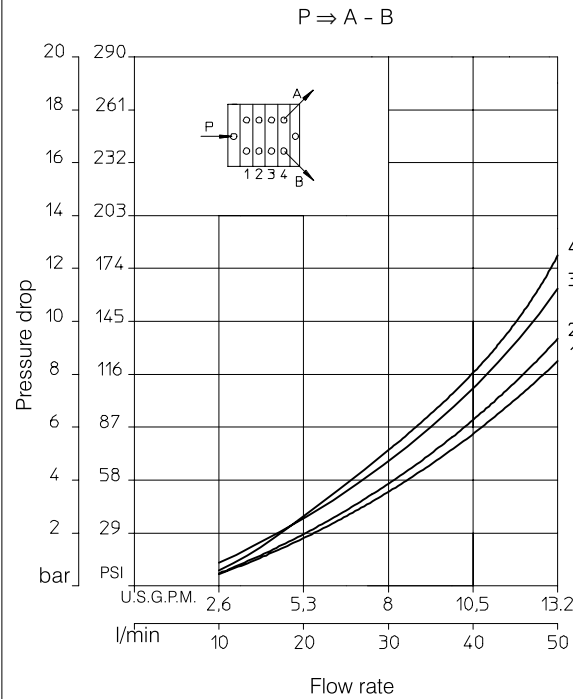
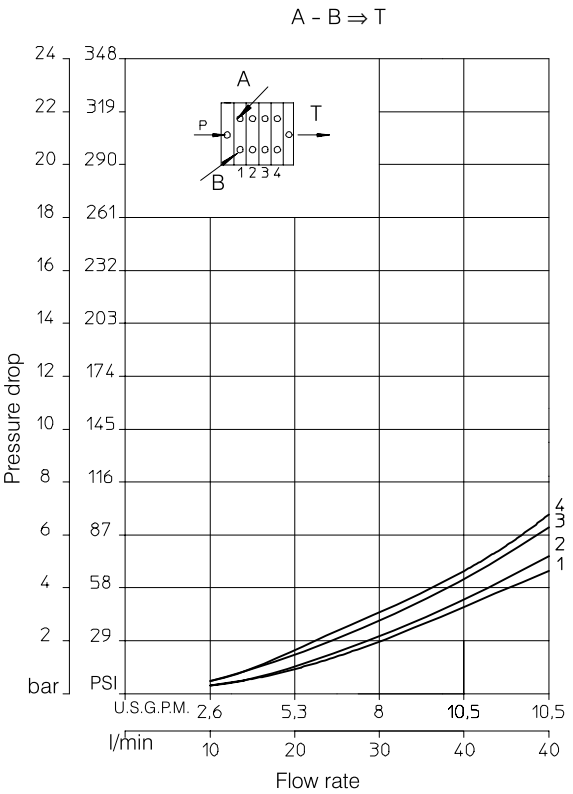
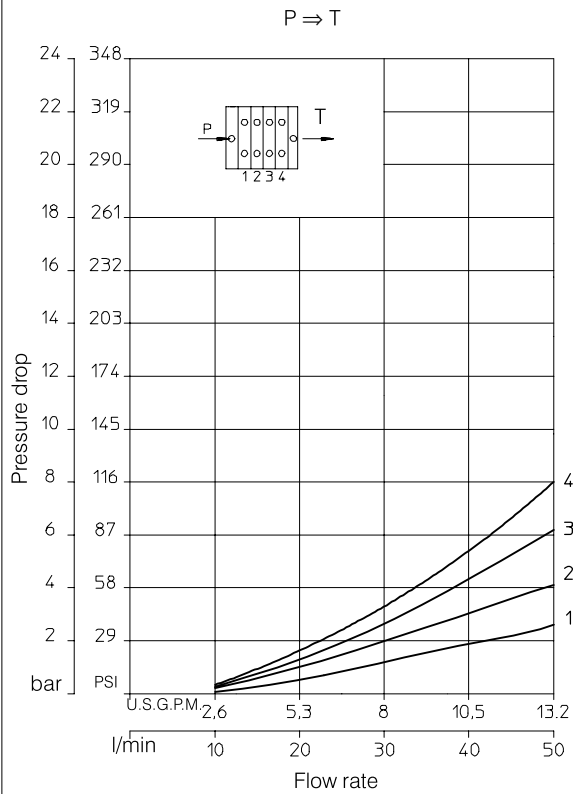
N. of sections	HDM11S/2	HDM11S/3	HDM11S/4
Dimension A	120	156	192
	4.72"	6.14"	7.56"
Dimension B	147	183	219
	5.78"	7.20"	8.62"

HDM11S Series

Mono-Block Directional Control Valve



Oil: Shell Tellus T37
Temperature: 50° C (120° F)
Viscosity: 27 cSt



HDM11S Series

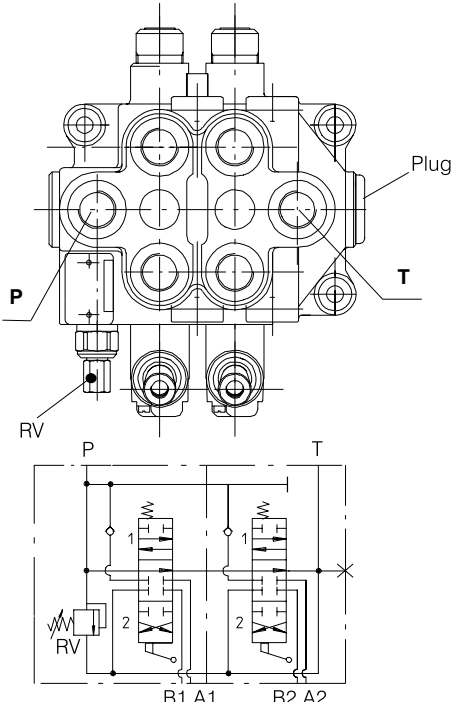
Mono-Block Directional Control Valve

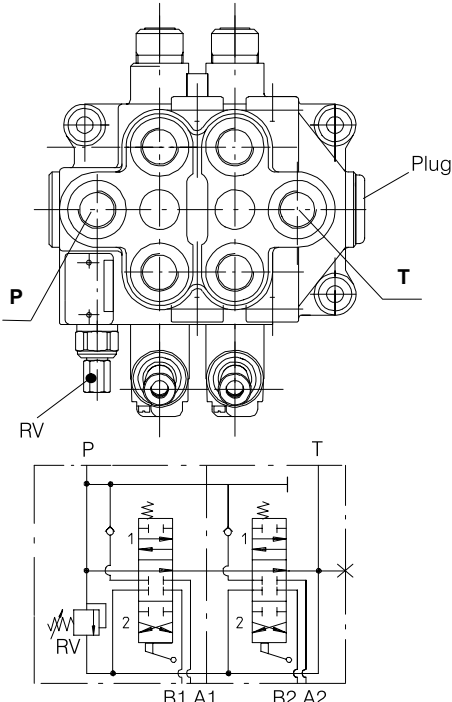


Monobloc body

Standard circuit: parallel

Open center with P – T – RV (Standard)

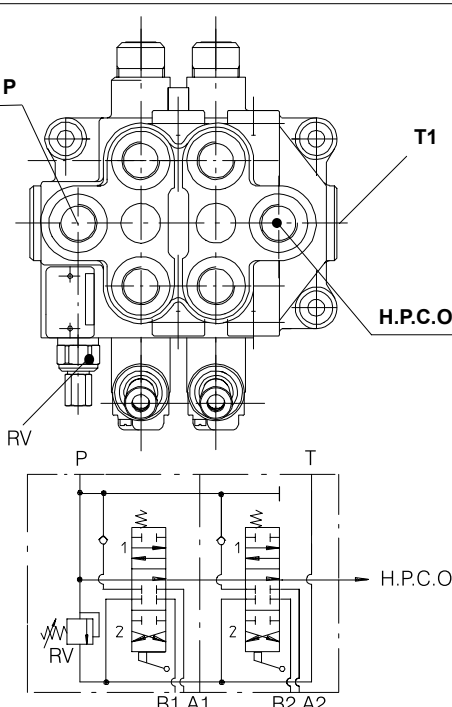
	Code			
	Ø D	HDM11S/1	HDM11S/2	HDM11S/3
SAE 6		K01	K01	K01
SAE 8		K02 200.9431.7004.0	K02 200.9432.7006.0	K02 200.9433.7006.0
3/8" BSP		K04 200.9431.2018.0	K04 200.9432.2048.0	K04 200.9433.2056.0
M18X1.5		K05 200.9431.1024.0	K05 200.9432.1045.0	K05 200.9433.1045.0

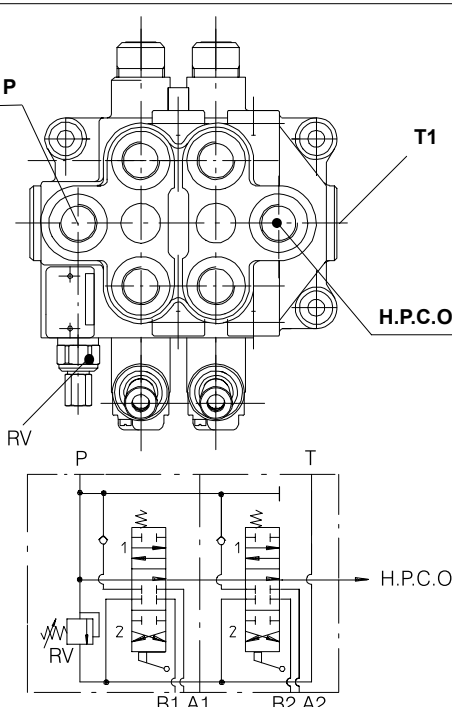
	Section with valve UC-OA-C Code			
	Ø D	HDM11S/1	HDM11S/2	HDM11S/3
SAE 6		K06	K06	K06
SAE 8		K07 200.9431.7005.0	K07 200.9432.7007.0	K07 200.9433.7007.0
3/8" BSP		K09 200.9431.2020.0	K09 200.9432.2050.0	K09 200.9433.2057.0
M18X1.5		K10 200.9431.1023.0	K10 200.9432.1046.0	K10 200.9433.1046.0

Standard circuit: parallel

Open centre and carry-over with P – T1 – R

H.P.C.O.

	Code			
	Ø D	HDM11S/1	HDM11S/2	HDM11S/3
SAE 6		K11	K11	K11
SAE 8		K12 200.9431.7006.0	K12 200.9432.7008.0	K12 200.9433.7008.0
3/8" BSP		K14 200.9431.2019.0	K14 200.9432.2049.0	K14 200.9433.2054.0
M18X1.5		K15 200.9431.1025.0	K15 200.9432.1043.0	K15 200.9433.1051.0

	Section with valve UC-OA-C Code			
	Ø D	HDM11S/1	HDM11S/2	HDM11S/3
SAE 6		K21	K21	K21
SAE 8		K22 200.9431.7007.0	K22 200.9432.7009.0	K22 200.9433.7009.0
3/8" BSP		K24 200.9431.2021.0	K24 200.9432.2051.0	K24 200.9433.2055.0
M18X1.5		K25 200.9431.1026.0	K25 200.9432.1044.0	K25 200.9433.1052.0

Note: Body codes consist of seals, plugs, check valve, but relief valve -RV- is not included.

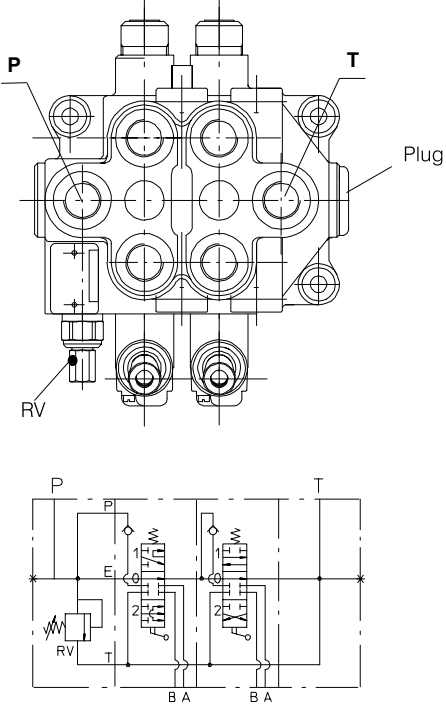
For all the above shown versions it is also available as alternative the 1/2" BSP thread on request. Please contact our Sales Dept.

HDM11S Series

Mono-Block Directional Control Valve



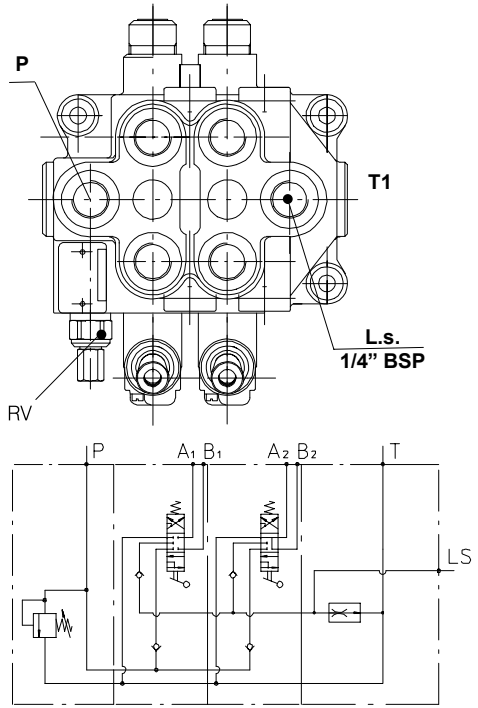
Optional circuits: series and tandem
Open centre with P – T – RV



Ø D	Code		
	HDM11S/2	HDM11S/3	HDM11S/4
SAE 6	K31	K31	K31
SAE 8	K32	K32	K32
3/8" BSP	K34 200.9432.2046.0	K34 200.9433.2058.0	K34 200.9434.2040.0
M18X1.5	K35 200.9432.1047.0	K35 200.9433.1054.0	K35 200.9434.1031.0

Ø D	Section with valve UC-OA-C Code		
	HDM11S/2	HDM11S/3	HDM11S/4
SAE 6	K36	K36	K36
SAE 8	K37	K37	K37
3/8" BSP	K39 200.9432.2047.0	K39 200.9433.2059.0	K39 200.9434.2041.0
M18X1.5	K40 200.9432.1048.0	K40 200.9433.1055.0	K40 200.9434.1032.0

Optional circuit: load sensing
Closed centre for variable-displacement pump
with P – T1– RV and L.s.



Ø D	Code			
	HDM11S/1	HDM11S/2	HDM11S/3	HDM11S/4
SAE 6	K51	K51	K51	K51
SAE 8	K52	K52	K52	K52
3/8" BSP	K54	K54	K54	K54
M18X1.5	K55	K55	K55	K55

Ø D	Section with valve UC-OA-C Code			
	HDM11S/1	HDM11S/2	HDM11S/3	HDM11S/4
SAE 6	K56	K56	K56	K56
SAE 8	K57	K57	K57	K57
3/8" BSP	K59	K59	K59	K59
M18X1.5	K60	K60	K60	K60

Note: Body codes consist of seals, plugs, check valve, but relief valve -RV- is not included.
For all the above shown versions it is also available as alternative the 1/2" BSP thread on request. Please contact our Sales Dept.

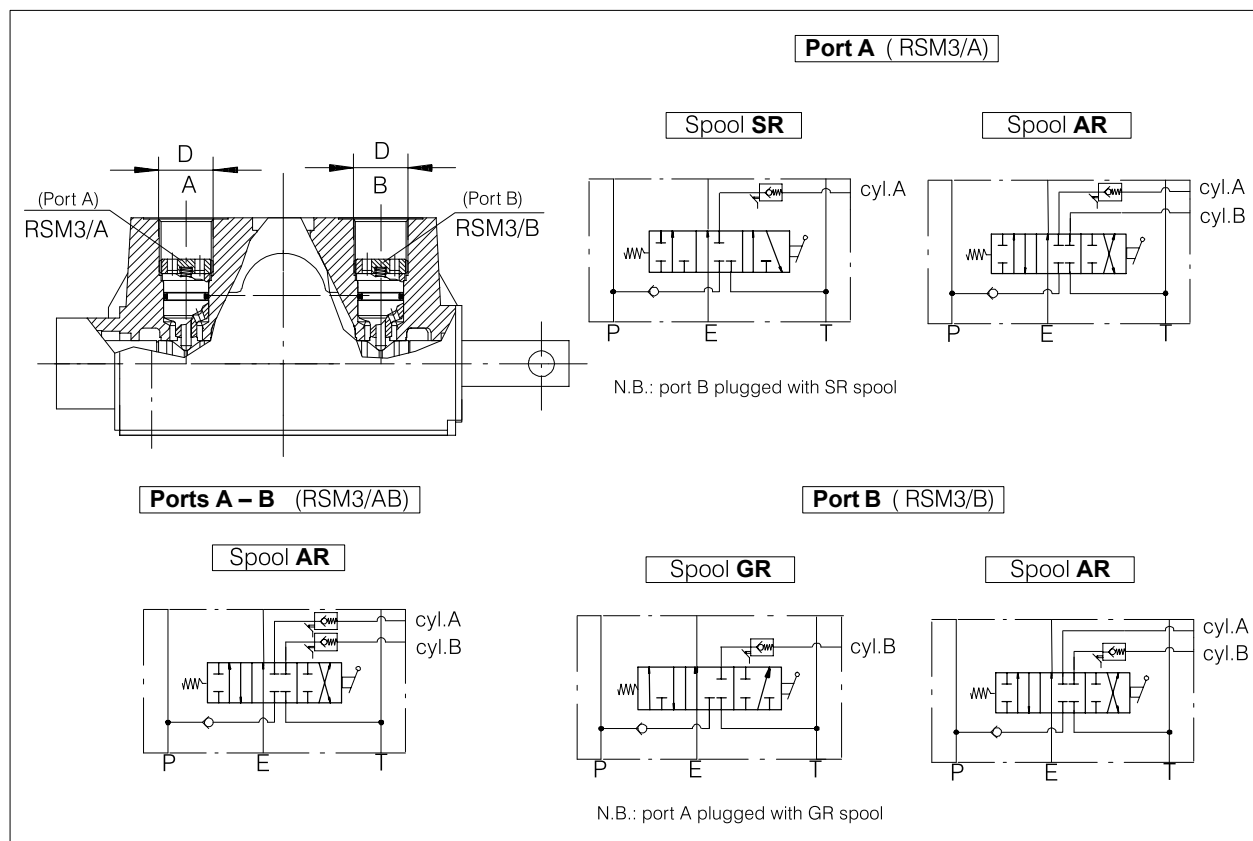
HDM11S Series

Mono-Block Directional Control Valve



Check valves with mechanical release RSM3

The check valve taper seal is released by means of a taper on the spool and by a push rod.



Ø D	Code			
	HDM11S/1	HDM11S/2	HDM11S/3	HDM11S/4
SAE 8	K82	K82	K82	K82
3/8" BSP	K84 200.9431.2022.0	K84	K84	K84
M18X1.5	K85	K85	K85	K85

Ø D	RSM3 code
SAE8	*** **
3/8" BSP	200.7876.0234.0
M18X1.5	200.7876.0229.0

Ø D	Section with valve UC-OA-C Code			
	HDM11S/1	HDM11S/2	HDM11S/3	HDM11S/4
SAE 8	K92	K92	K92	K92
3/8" BSP	K94	K94	K94	K94
M18X1.5	K95	K95	K95	K95

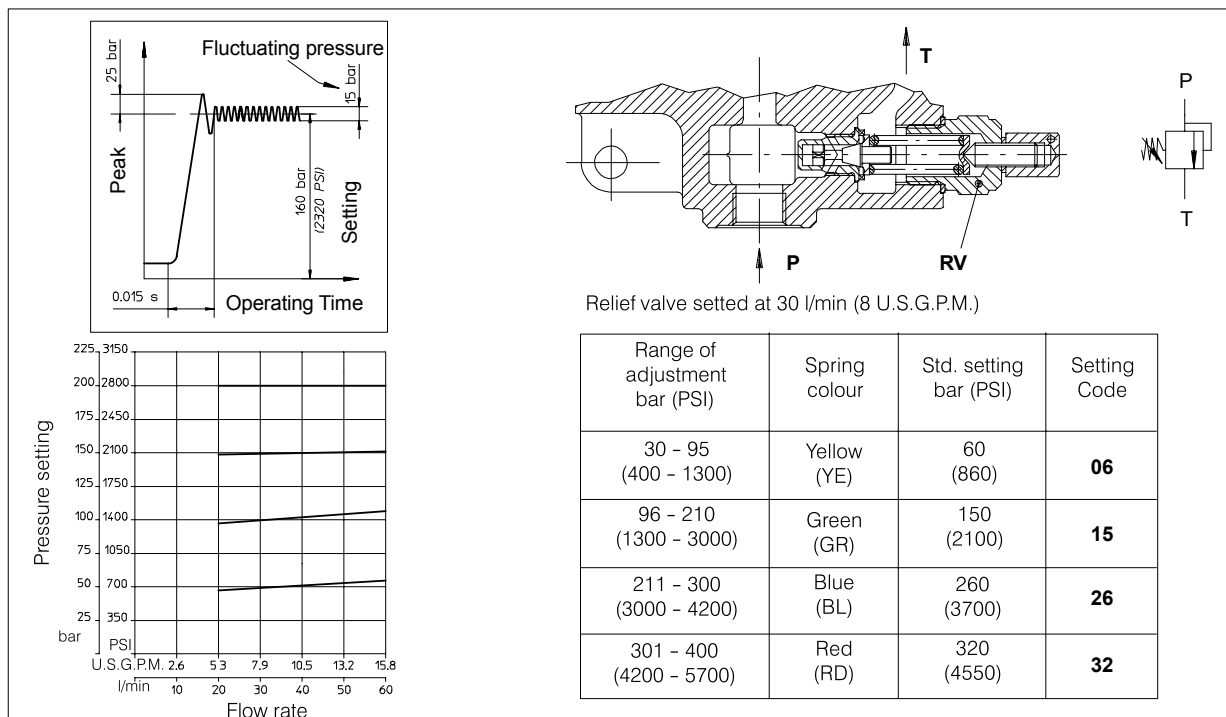
Note: RSM3 check valve for SAE6 bodies is not available.

HDM11S Series

Mono-Block Directional Control Valve



Adjustable direct acting Relief Valve RV



Spool chart

Type	Spool scheme	Spool features
A AR**		4 way - 3 position A/B: blocked E: open by pass
B		4 way - 3 position A/B: blocked E: closed
C		4 way - 3 position A/B to tank in neutral E: open by pass
D		4 way - 3 position A: blocked B: to tank in neutral
G GR**		3 way - 3 position B: blocked E: open by pass
L		4 way - 3 position B: blocked A: to tank in neutral
R**		4 way - 3 position with differential spool in 2 nd position
S SR**		3 way - 3 position A: blocked E: open by pass

X		4 way - 3 position series connection
Xc		4 way - 3 position A: to tank in neutral
Z		4 way - 4 position 4 th floating position
* WW		4 way - 4 position 4 th floating position
** LsA		4 way - 3 position A/B: blocked Load Sensing
** LsC		4 way - 3 position A/B: to tank in neutral Load Sensing
** LsG		3way - 3 position B: blocked Load Sensing
** LsS		3 way - 3 position A: blocked Load Sensing

Note: For availability of L/S versions please contact our Sales Department

* : "WW" spool require special body (K...), positioner (240) and lever (L192)

** : special body required (please contact our Sales Dept.)

HDM11S Series

Mono-Block Directional Control Valve



Load sensing

Load-sensing control and working principle

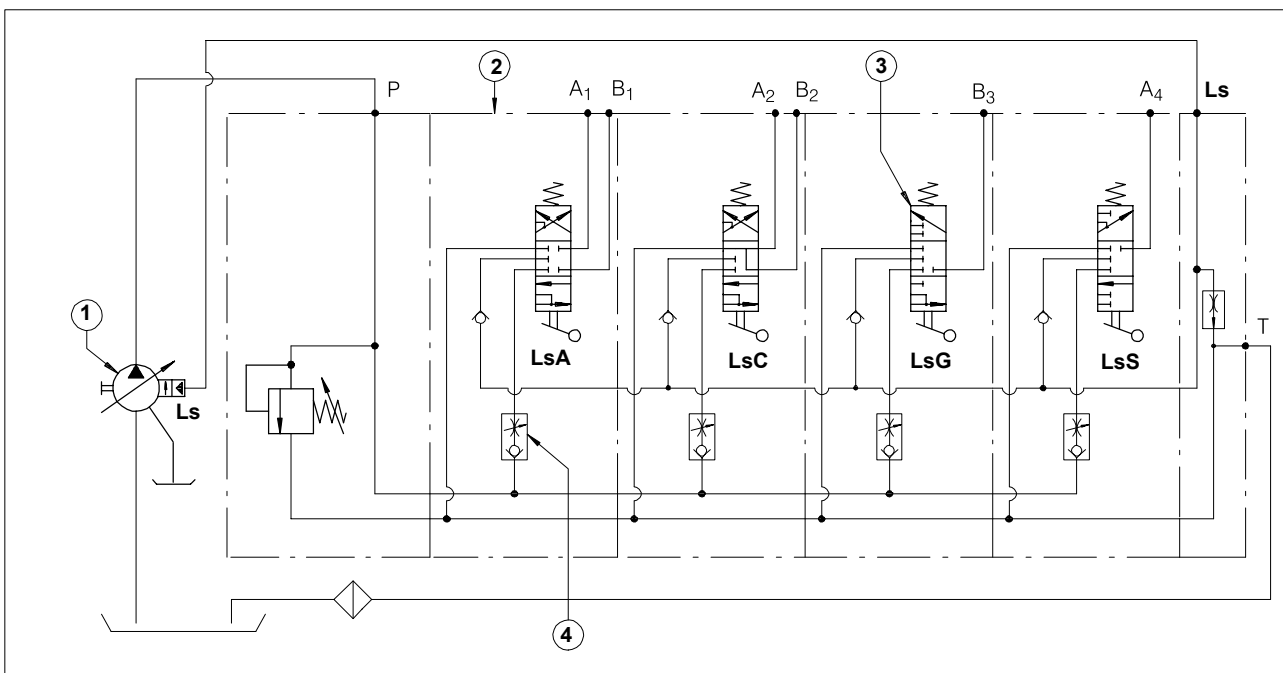
Through the use of variable flow pumps provided with a pressure and flow compensator the pressure and flow parameters can be adapted according to the different and real working conditions.

These pumps require the use of special valves provided with Load Sensing control which "feels" the hydraulic components (cylinder and motor) requirements and through a special pilot line (L.S.) controls the pump compensator conforming capacity and pressure to such requirements which can

be variable in time within the limits of the pump performance.

The Load Sensing brings following advantages:

- a) Energy saving.
- b) Smaller heat exchangers can be used due to a smaller heat energy dissipation.
- c) Longer life of the pump and driving motor, due to reduced heavy working cycles.
- d) Excellent control of the load by using 100% of the spool metering.



- 1) Variable flow pump provided with pressure and flow compensator.
- 2) Load Sensing valve.

- 3) Special spools: LsA – LsC – LsG – LsS
- 4) Check valve provided with max flow control

Spool positioners

Type	F (N)	Code*
01 _{STD}	200	200.7685.1001.0
79	140	200.7685.1092.0

3 position spring return to neutral

Type	Code*
02	200.7685.3001.0

2 position detent - spring center

HDM11S Series



Mono-Block Directional Control Valve

Type	Code*
03	200.7685.2001.0

3 position detent

Type	Code
04	200.7685.4003.0

4 position float Plastic plug code: 200.6780.0009.0

Type	Code*
05	200.7685.2005.0

2 position detent

Type	Code*
06	200.7685.1005.0

2 position spring return

Type	Code*
07	200.7685.2027.0

2 position detent

Type	Code*
12	200.7685.1021.0

2 position spring return

Type	Code*
15	200.7685.1109.0

2 position spring return

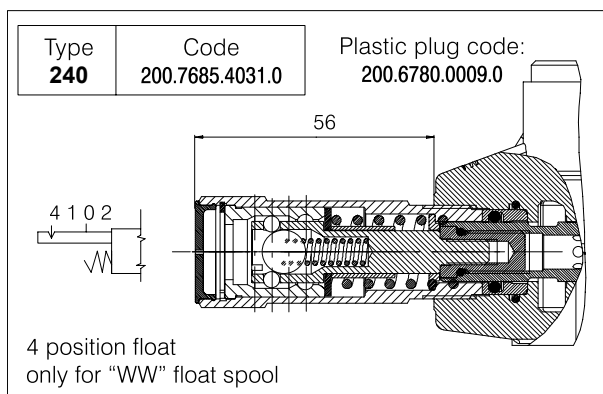
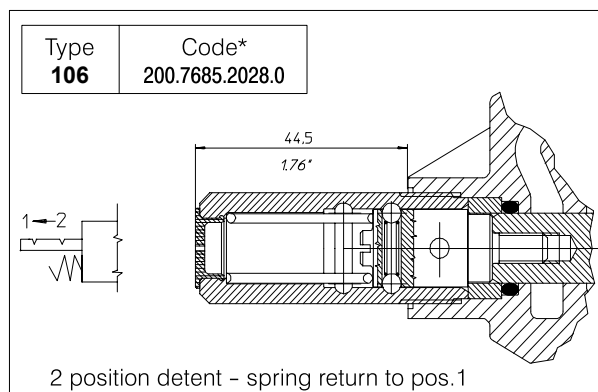
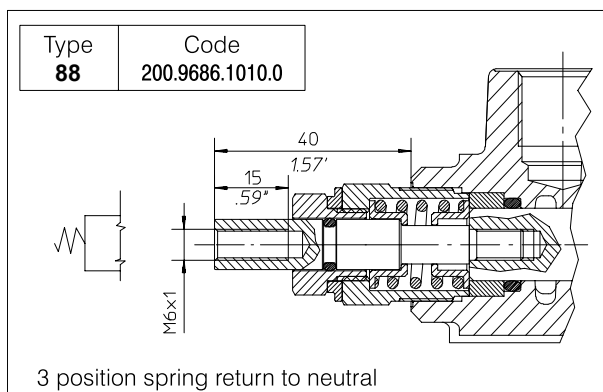
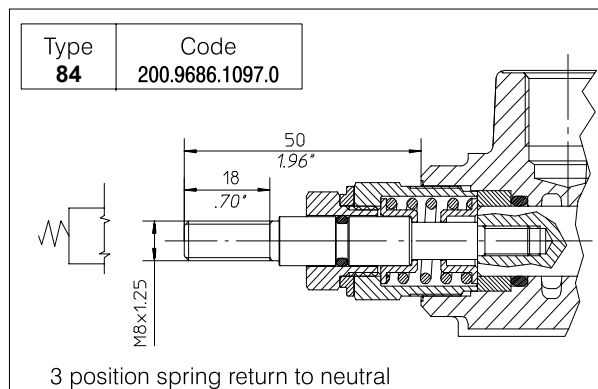
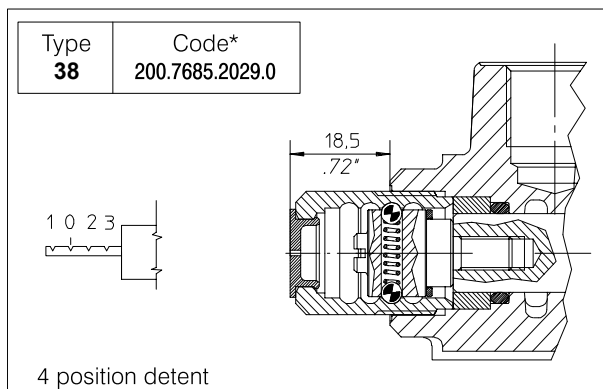
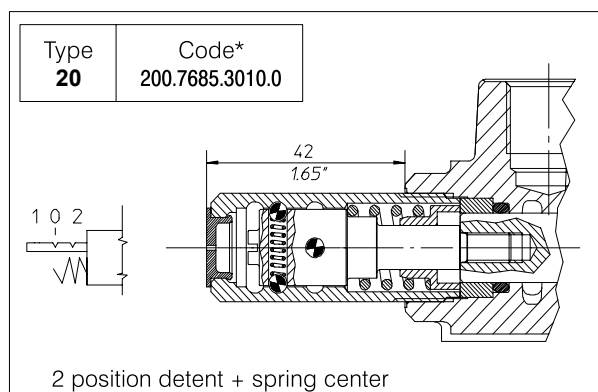
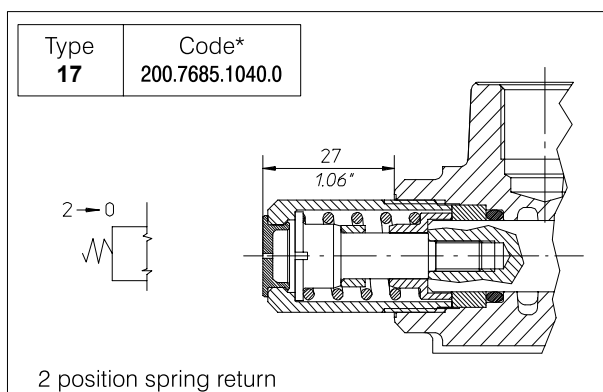
Type	Code*
16	200.7685.1110.0

2 position spring return to neutral

* : code without plastic plug; plastic plug code: 200.6780.0008.0

HDM11S Series

Mono-Block Directional Control Valve



HDM11S Series

Mono-Block Directional Control Valve



Microswitch control

Type 30	Code 200.9686.1050.0	Micro operated with spool in pos. 1	
Type 32	Code 200.9686.1060.0	Micro operated with spool in pos. 2	
Type 34	Code 200.9686.1064.0	Micro operated with spool in pos. 1 and 2	

* The microswitch code 200.9625.0006.0 is supplied only on customer's request.

Single microswitch control for multi – sectional valves (1st element).

Type 40 (MFL)	Code 200.9686.1140.0
-------------------------	-------------------------

Micro operated with
spool in pos. 1 and 2

* The microswitch code 200.9625.0006.0 is supplied only on customer's request.

Positioner 40 must be assembled only on the last element near T port

Single microswitch control for multi– sectional valves (2nd and following el.).

Type 39 (MSF)	Code 200.9686.1139.0
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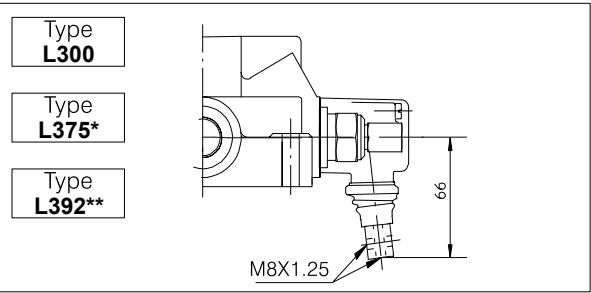
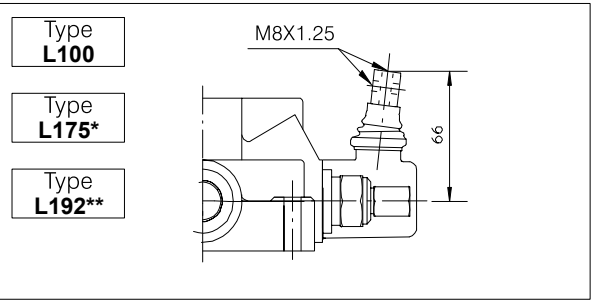
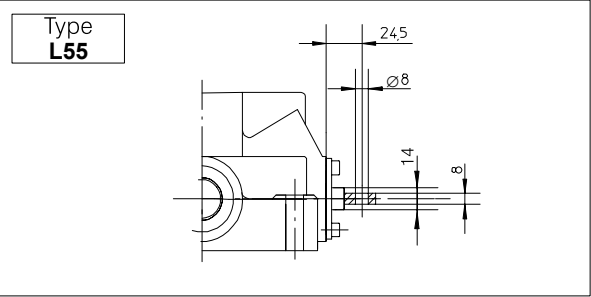
Micro operated with spool in pos. 1 and 2

HDM11S Series

Mono-Block Directional Control Valve

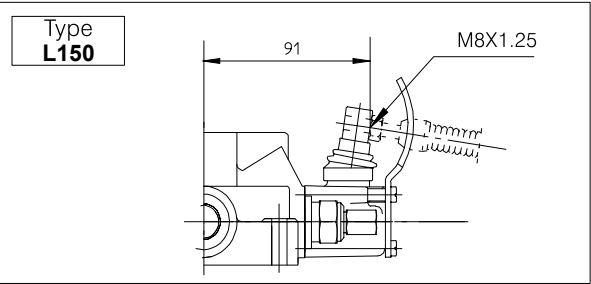
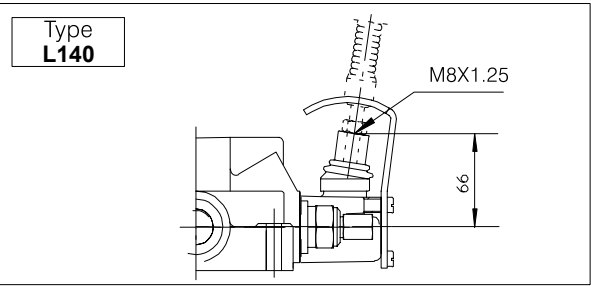


Lever styles



* L175 - L375 only for "Z" spool application
** L192 - L392 only for "WW" spool application

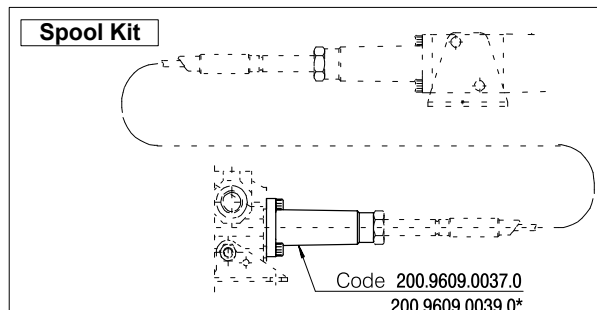
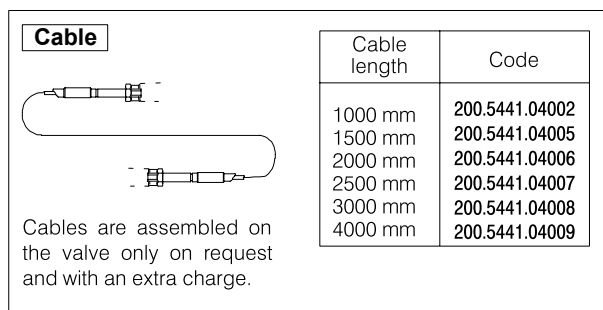
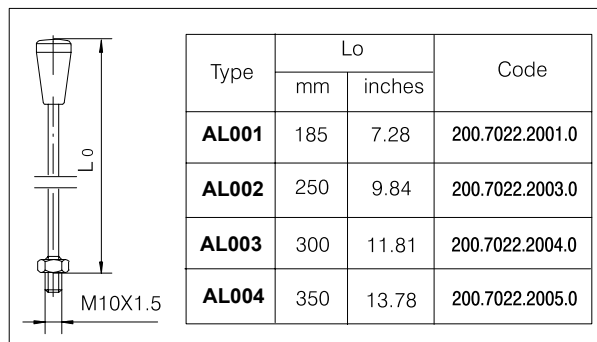
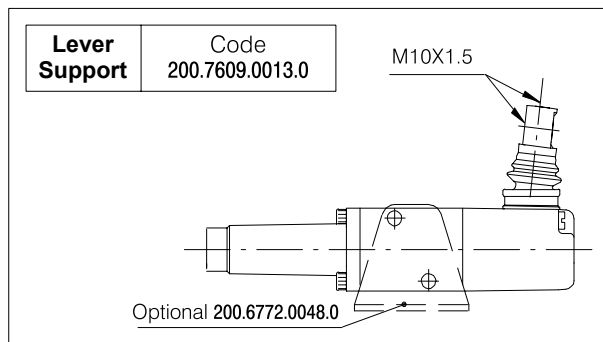
Safety levers



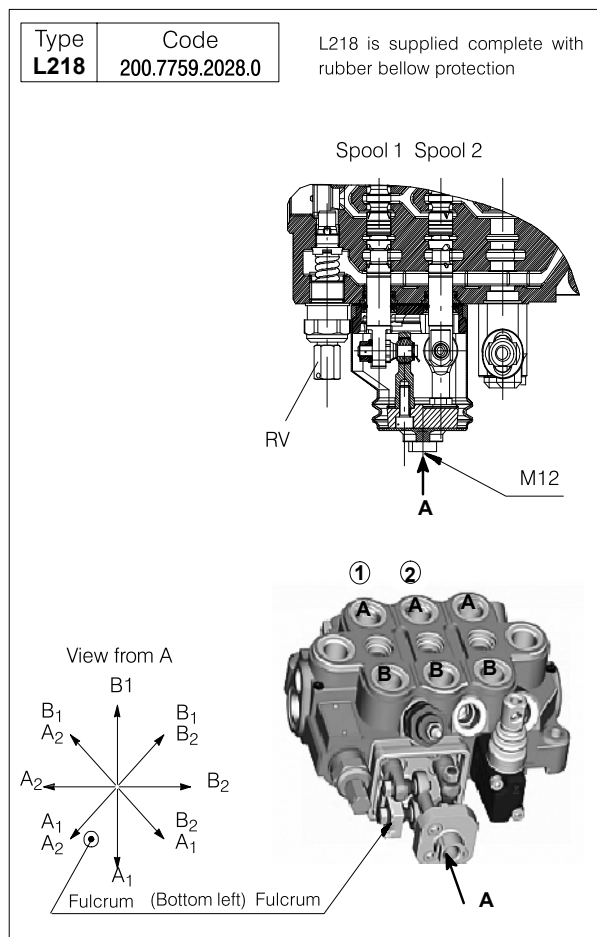
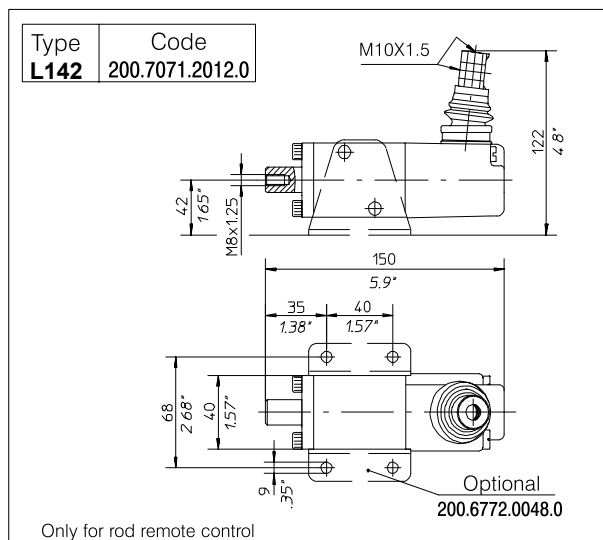
Type	Lo		Code
	mm	inches	
AL001	150	5.90	200.7022.1019.0
AL002	200	7.87	200.7022.1003.0
AL003	250	9.84	200.7022.1005.0
AL004	300	11.81	200.7022.1006.0

Type	Lo		Code
	mm	inches	
AL014	160	6.30	200.7022.1009.0
AL018	180	7.08	200.7022.1011.0

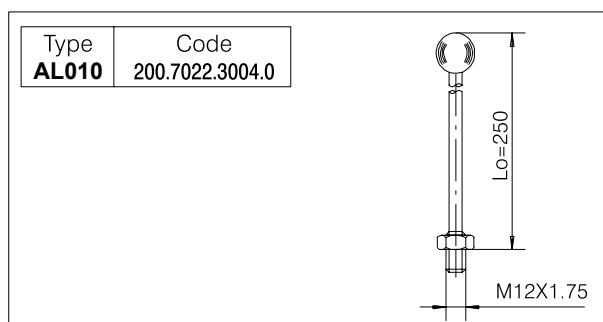
Mono-Block Directional Control Valve



* only for "Z" spool application



Cross joystick for dual axis control

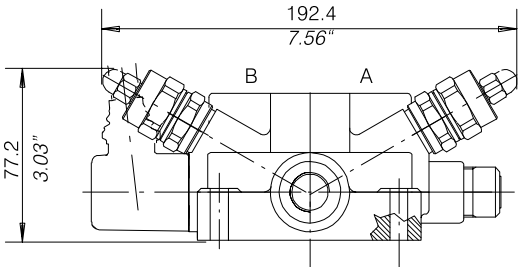


HDM11S Series

Mono-Block Directional Control Valve



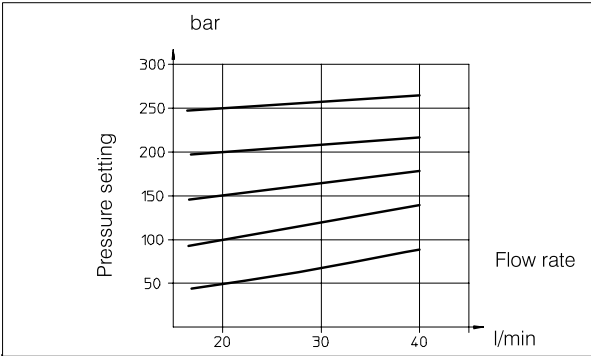
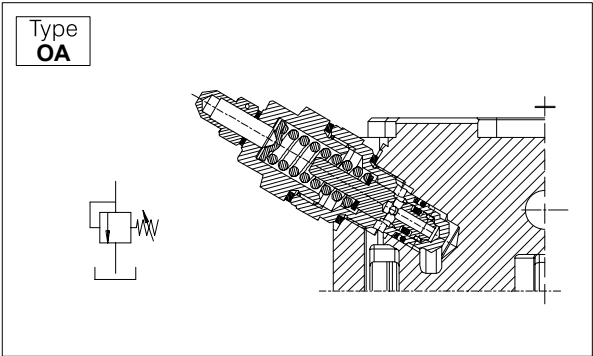
Port relief and anticavitation valves



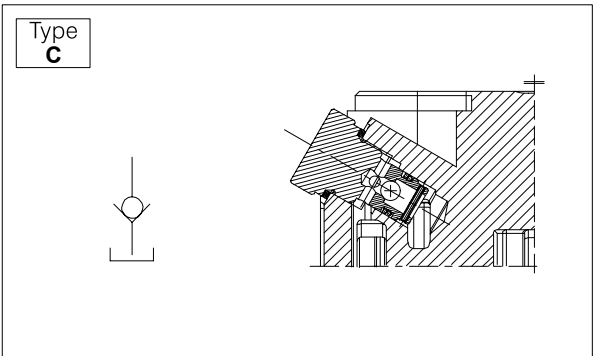
Port relief valve settings

Range of Adjustment bar (PSI)	Spring colour	Std. setting bar (PSI)	Setting Code
30 - 130 (400 - 1850)	Yellow (YE)	60 (860)	06
131 - 320 (1850 - 4600)	Green (GR)	150 (2100)	15

Port relief valve



Anticavitation valve



Combined port relief and anticavitation valve

