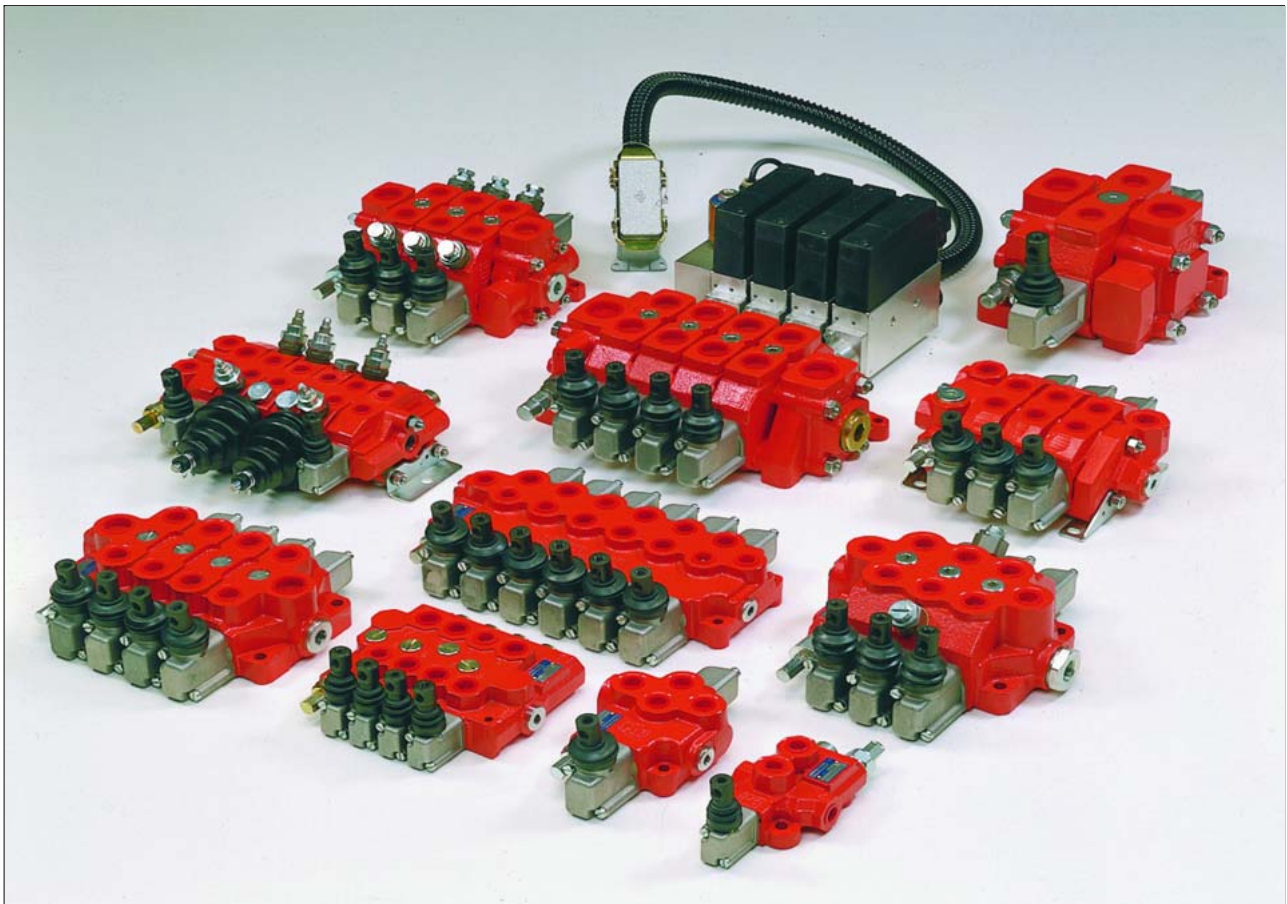


Monobloc and Sectional Directional Control Valves



HDS07

7 Sectional directional control valves HDS07**Contents**

7.1	General specifications	80
7.2	Dimensional data	81
7.3	Performances curves	83
7.4	Operating limits	86
7.5	Inlet and outlet covers	88
7.6	Adjustable direct acting Relief Valve RV	90
7.7	End covers	91
7.8	Sectional bodies	92
7.9	Spool charts	95
7.10	Spool actions	96
7.11	Example of hydraulic circuits	96
7.12	By-pass solenoid valve BP2	97
7.13	Cartridge valves	98
7.14	Solenoid operated directional valve: SPE817/22-TV / SPE817/22-TOR	99

HDS07

7.1 General specifications

Technical specification	Units	
Max flow rate P - T	l/min U.S.G.P.M.	see chapter 7.4
Max flow rate P - T1	l/min. U.S.G.P.M.	
Max continuous operating pressure supply port P	bar PSI	250 3600
Max intermittent peak pressure work port A/B	bar PSI	320 4600
Max back pressure tank port T	bar PSI	20* 250
Oil temperature	° C ° F	-10 / +80 14 / 180
Oil viscosity	mm ² /s	20 to 50
Oil filtration	μ	≤25

Spool leakage at 100 bar (1450 PSI), Temp. 50° C (120° F), viscosity 27 mm ² /s:		
Maximum	cm ³ /min Cu. In./min	22 1.565
Average	cm ³ /min Cu. In./min	18 1.281

Number of spools	1 to 10
Adjustable direct operated relief valve (tamper-proof seal available on request)	RV
Auxiliary check and flow valves	RP-SP817 VRC-VS

7.1.1 Material specification:

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

7.1.2 Standard features available

- Parallel circuit
- Carry over
- Load Sensing circuit
- Non compensated unidirectional flow control valve on ports A-B type VS
- Compensated flow control valve on ports A-B type VRC
- Solenoid valve 2/2 N.C. or N.O. on ports A-B type SP817 leakage free.
- Pilot check valve on ports A-B type RP
- Inlet cover with load hold check valve (on demand)
- Pilot - Actuated Check Valve - RP-
- Interfaceable with HDS11 std / HDS11 EMC valves
- BP2 solenoid valve available only on inlet cover with check valve (on demand)



IMPORTANT! * A wrong assembly of pipes on T and P lines or a detaching of the T pipe may cause pressure peaks on the T line. This valve can stand them till 250 bar, without damages. The right functions of the valve are granted with a max. back pressure of 20 bar, only.

7.1.3 Ports

P-T-P1-T1-A-B-HPCO = M18x1.5; 3/8" BSP; SAE6

7.1.4 Input voltages

Continuous Current 12VDC - 24V DC *
* for non indicated tension valves, please contact our Sales Department

7.1.5 Solenoid specification

Technical specification	Units	
Continuous current voltage	V DC	12 (24) ± 10%
Power consumption	Watt (W)	27
Intensity of current	Ampere (A)	2.25 -(1.13)
Resistance	Ohm (Ω)	5.33 -(21.24)
Duty cycle (continuous)	ED	100%
Stabilized temperature at nominal voltage	° C	110
Ambient temperature	° C	-20 to +40

Protection class IP65 (DIN 40050)
Coil insulation class H (VDEO 0580)
STD. connection (DIN 43650)
Manual override.
Explosion-proof version on demand.

7.1.6 Mechanical specification

Spool diameter 10 mm
Spool stroke 1.75 mm
Overlapping 1 mm
Internal passage 10 mm
Dimensional section (width) 40 mm

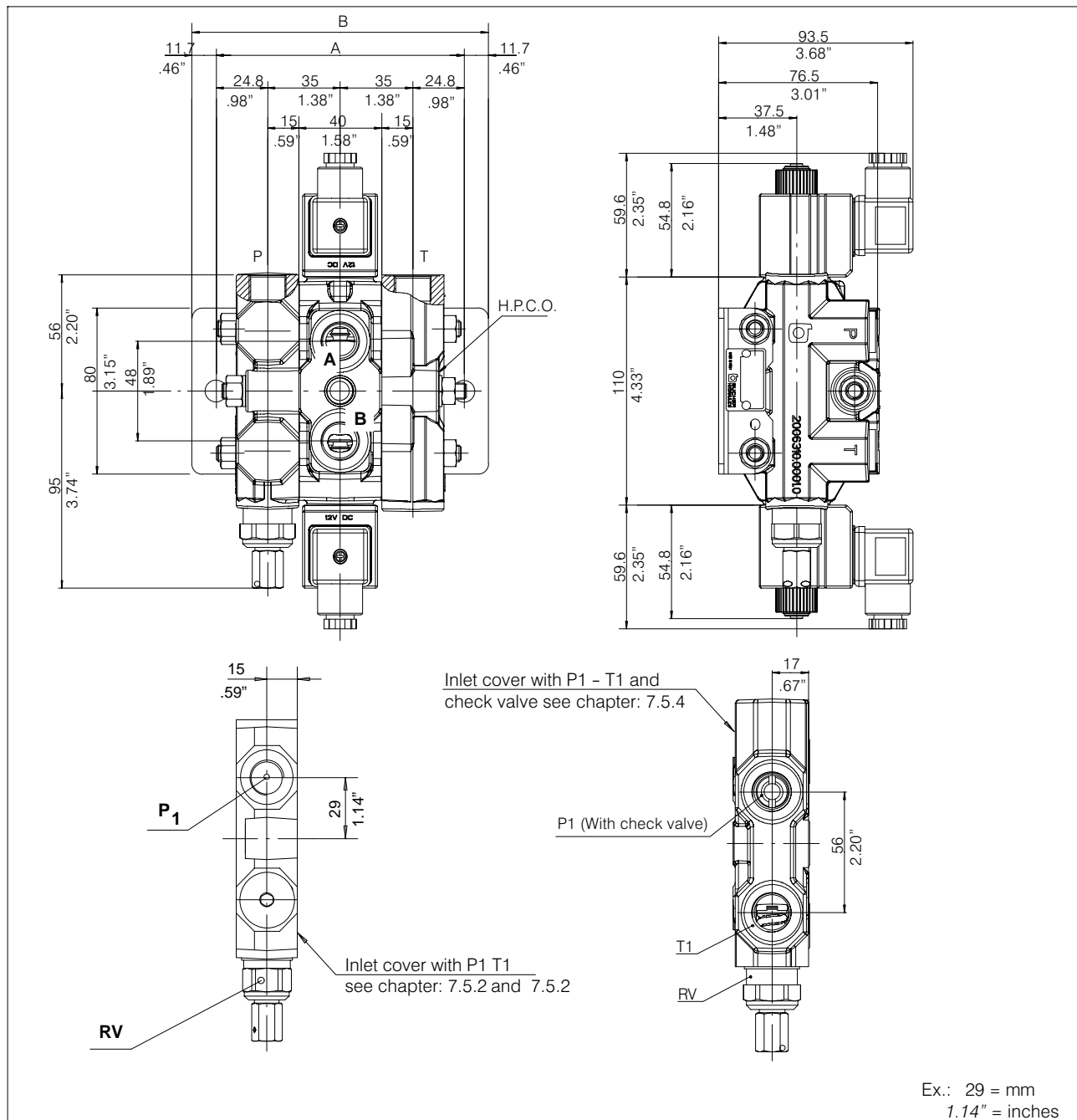
7.1.7 Weight

Version	kg	lb
Inlet cover with relief valve without check valve	1.0	2.2
Inlet cover with relief valve and check valve	1.7	3.74
Section type K001-K004-K005... 2 solenoid	2.14	4.71
Section type K001-K004-K005... 1 solenoid	1.85	4.07
Section type K101-K104-K105... + 2 solenoid	3.58	7.87
Section type K101-K104-K105... + 1 solenoid	3.00	6.60
Section type K201-K204-K205... + 2 solenoid	3.10	6.82
Section type K201-K204-K205... + 1 solenoid	2.75	2.44
End cover	0.75	1.65

HDS07

7.2 Dimensional data

7.2.1 Version with standard element

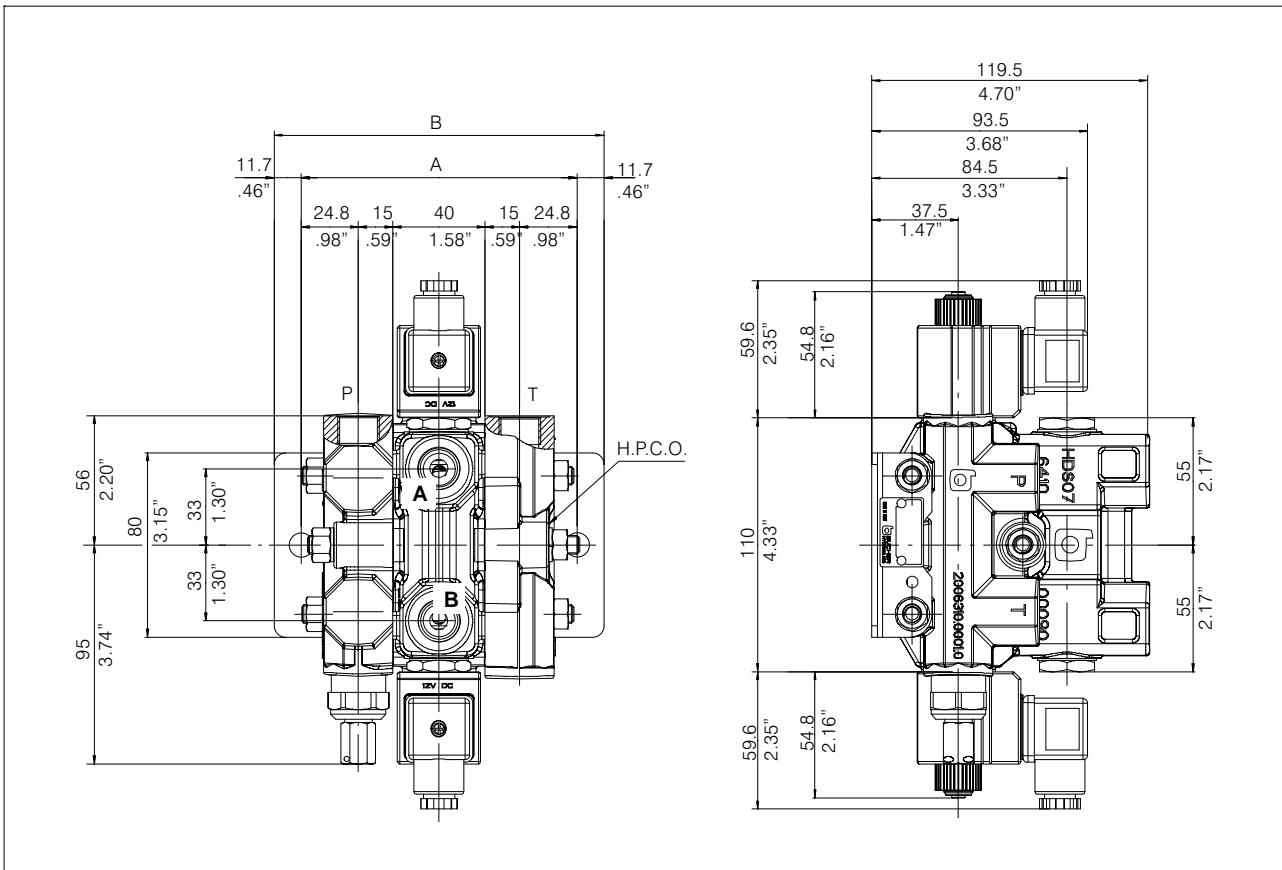


N. of sections		1	2	3	4	5	6	7	8	9	10
Dimension	A	119.6	159.6	199.6	239.6	279.6	319.6	359.6	399.6	439.6	479.6
		4.71"	6.28"	7.86"	9.43"	11.01"	12.58"	14.16"	15.73"	17.31"	18.88"
Dimension	B	143	183	223	263	303	343	383	423	463	503
		5.63"	7.20"	8.78"	10.35"	11.93"	13.50"	15.08"	16.65"	18.23"	19.80"

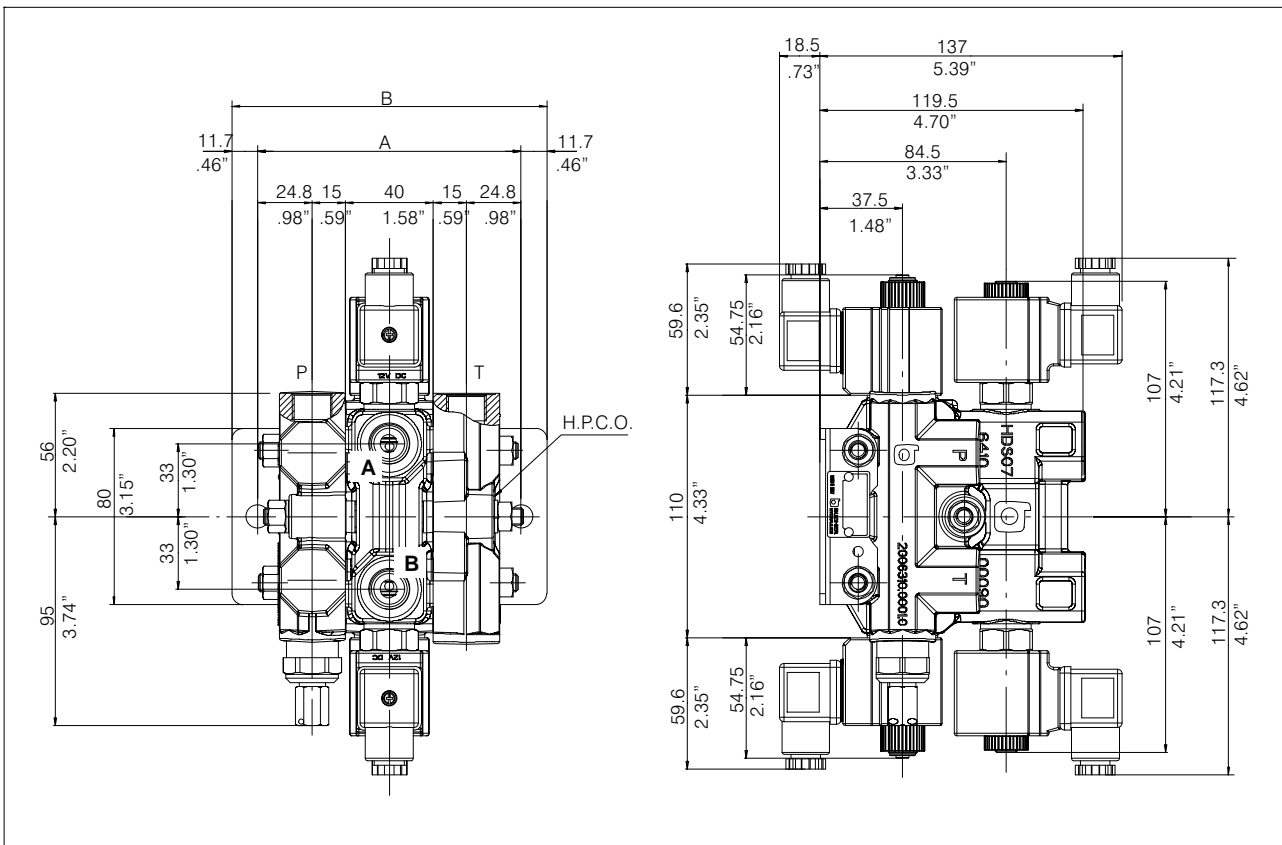
N.B.: Dimensions A and B for the valves with inlet cover + check valve must be increased of 4 mm.

HDS07

7.2.2 Version with RP/AB valves



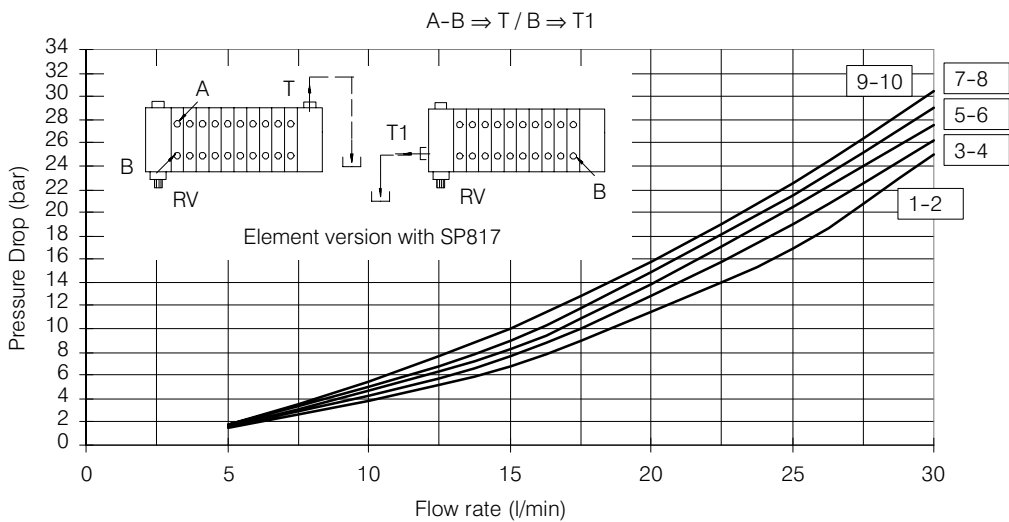
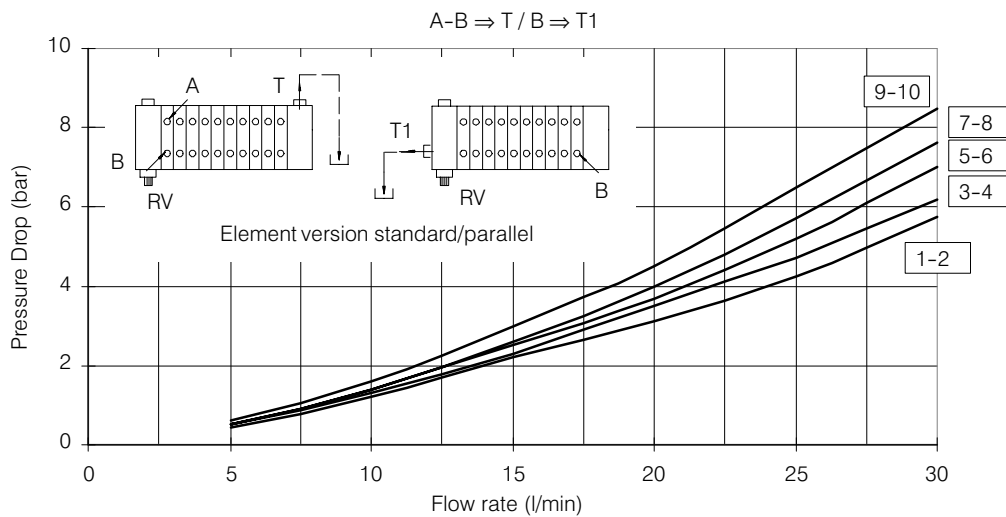
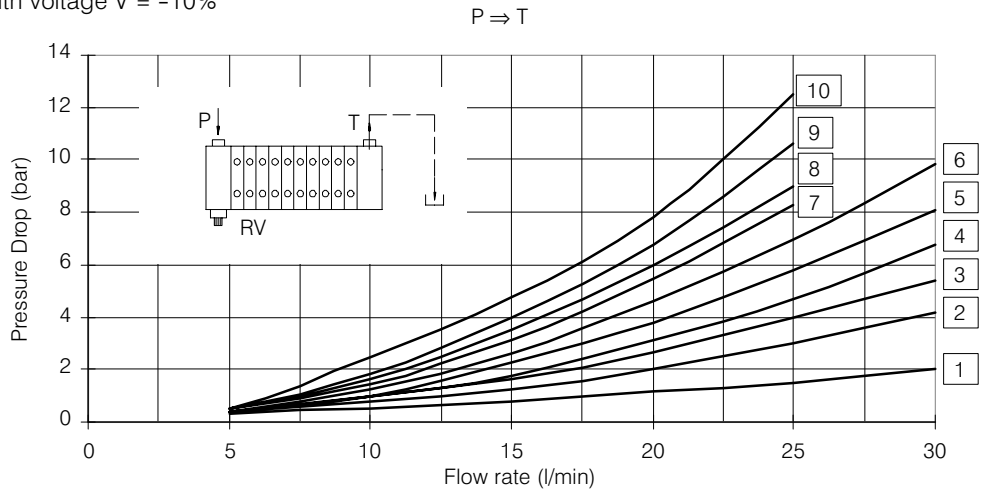
7.2.3 Version with SP.../AB valves



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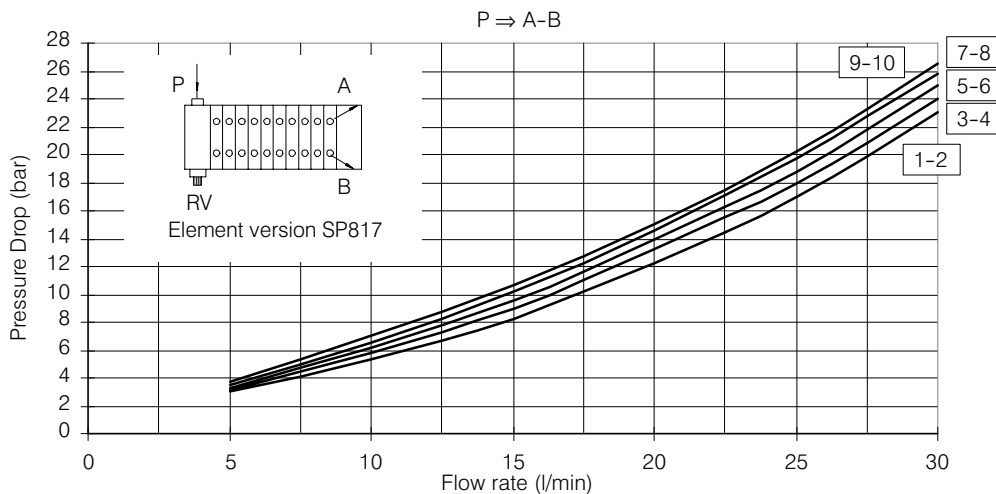
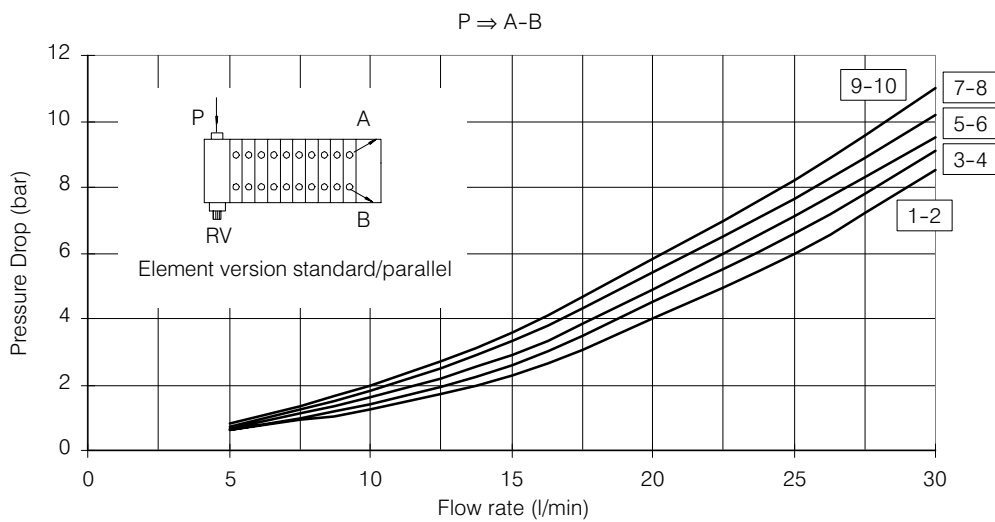
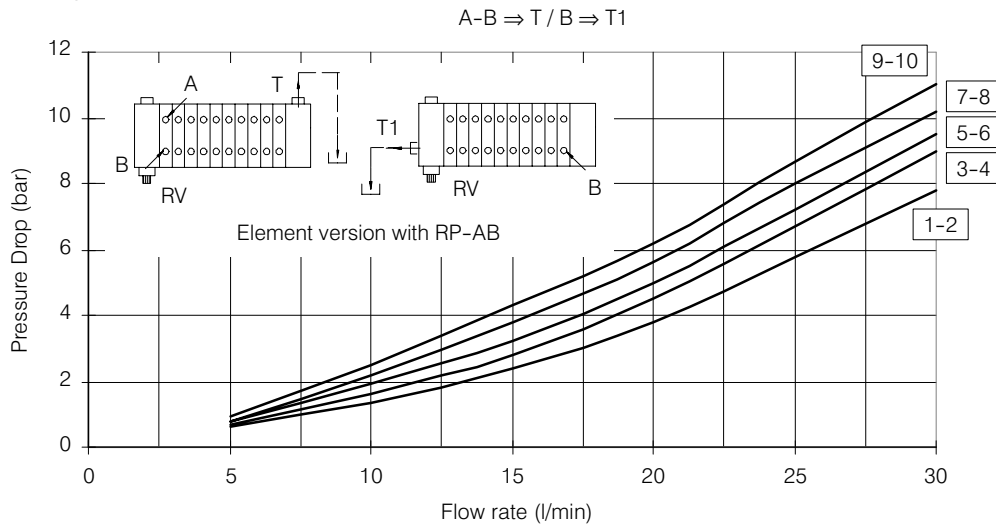
7.3 Performances curves

Oil: Shell Tellus T37
 Temperature: 50°C (120°F)
 Viscosity: 27 mm²/s
 Tested with voltage V = -10%



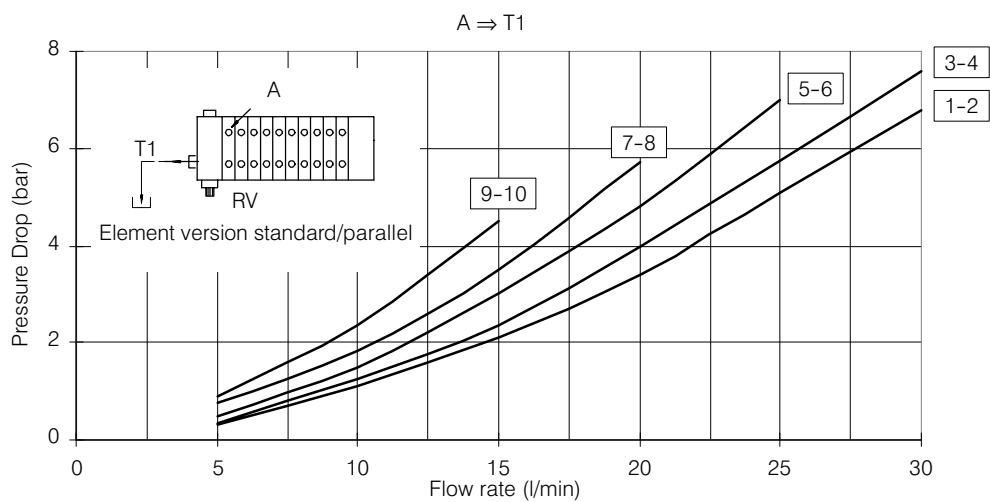
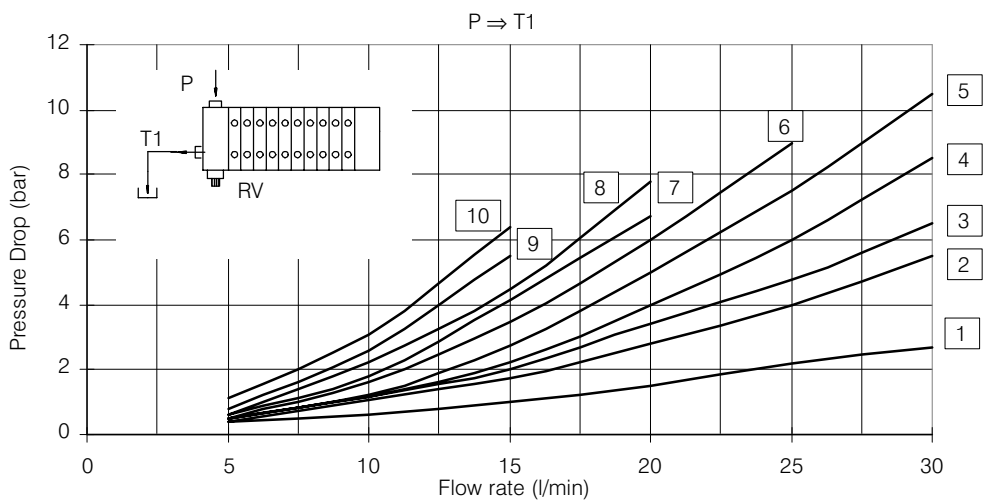
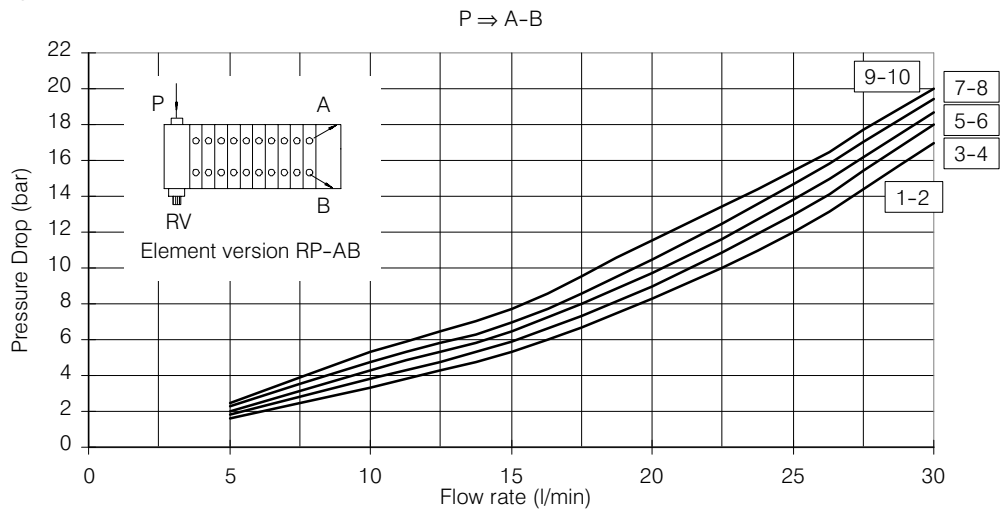
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Oil: Shell Tellus T37
 Temperature: 50°C (120°F)
 Viscosity: 27 mm²/s
 Tested with voltage V = -10%



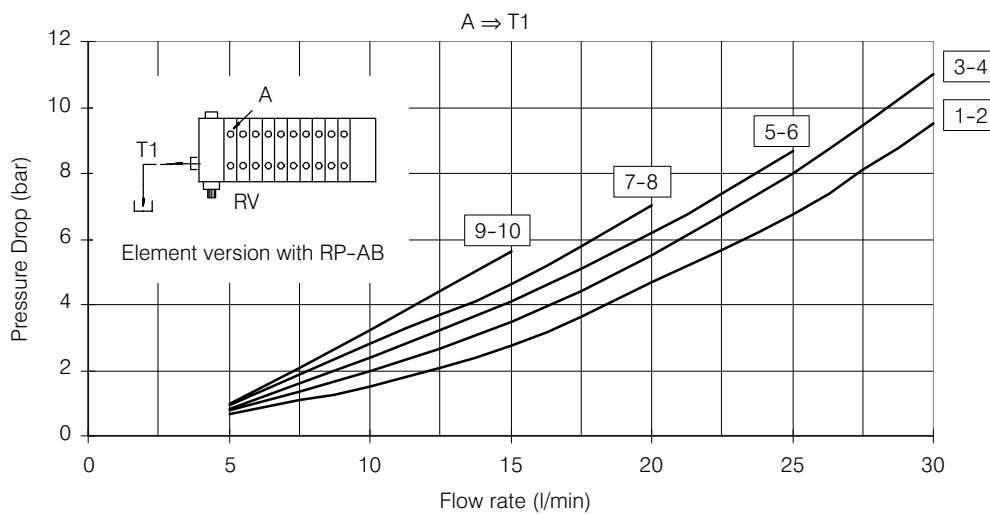
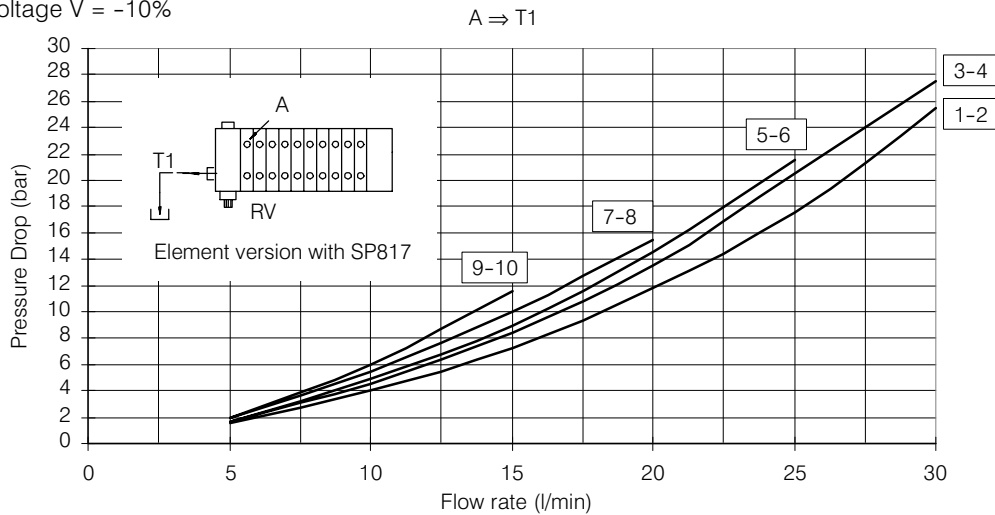
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Oil: Shell Tellus T37
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 Viscosity: 27 mm²/s
 Tested with voltage V = -10%



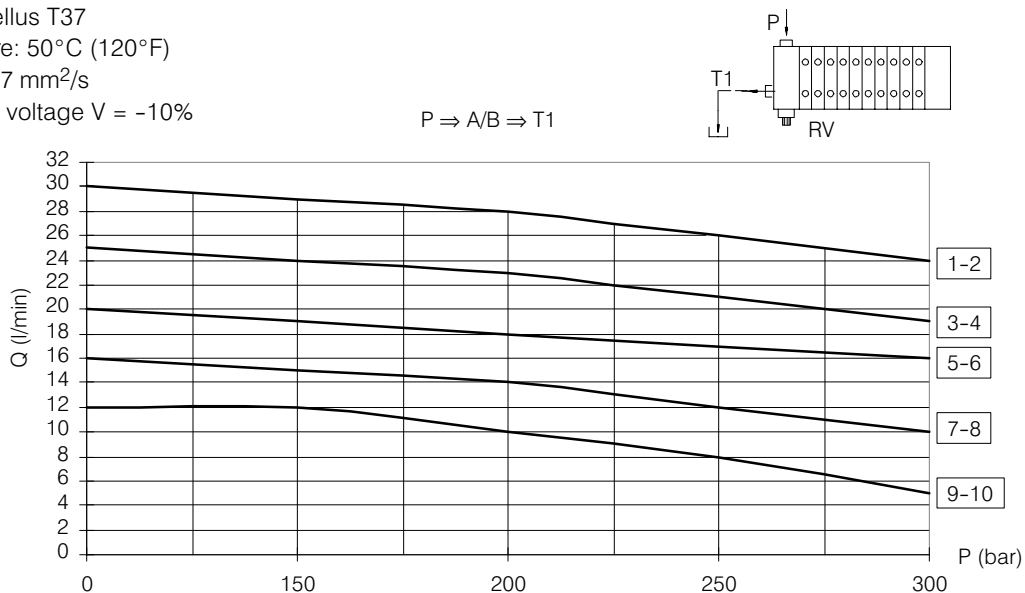
HDS07

Oil: Shell Tellus T37
 Temperature: 50°C (120°F)
 Viscosity: 27 mm²/s
 Tested with voltage V = -10%



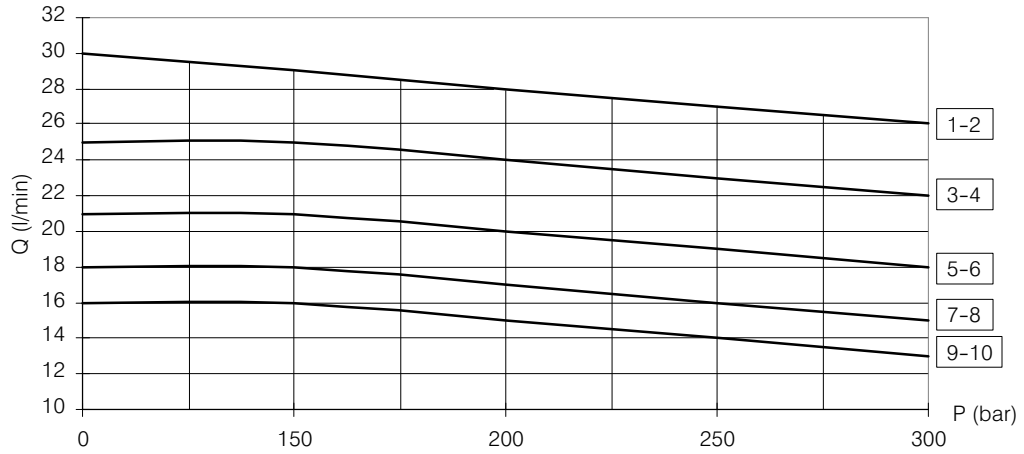
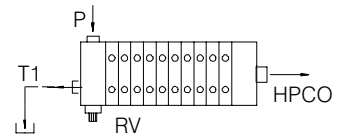
7.4 Operating limits

Oil: Shell Tellus T37
 Temperature: 50°C (120°F)
 Viscosity: 27 mm²/s
 Tested with voltage V = -10%

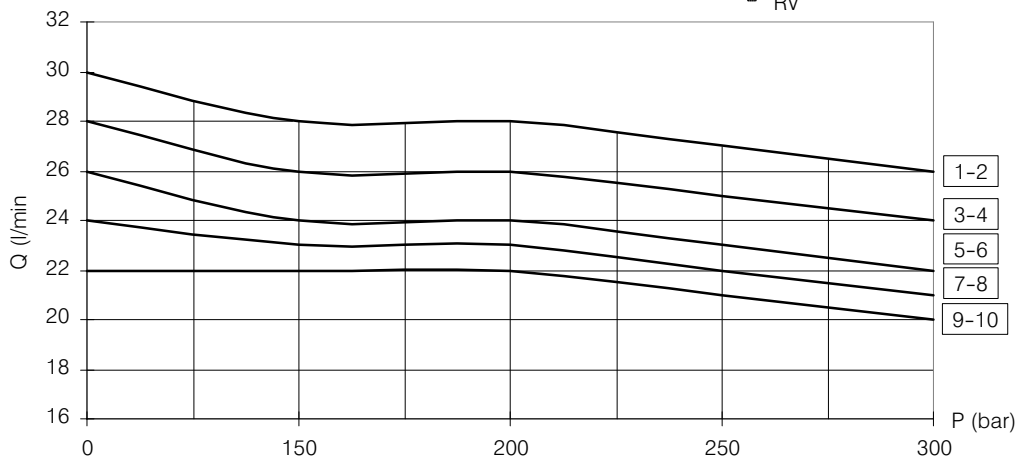
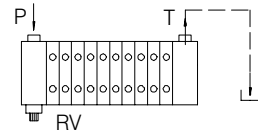


Oil: Shell Tellus T37
 Temperature: 50°C (120°F)
 Viscosity: 27 mm²/s
 Tested with voltage V = -10%

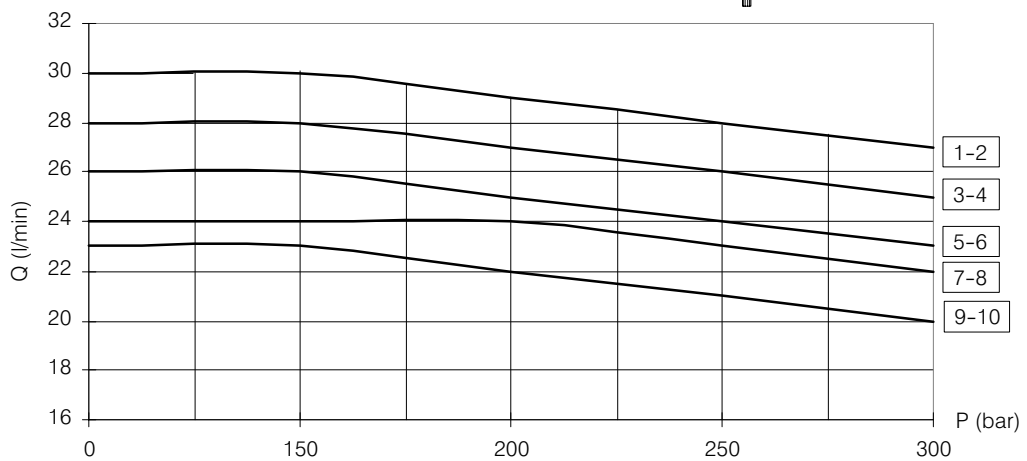
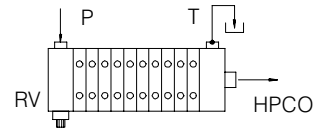
P ⇒ HPCO P ⇒ A/B ⇒ T1



P ⇒ A/B ⇒ T



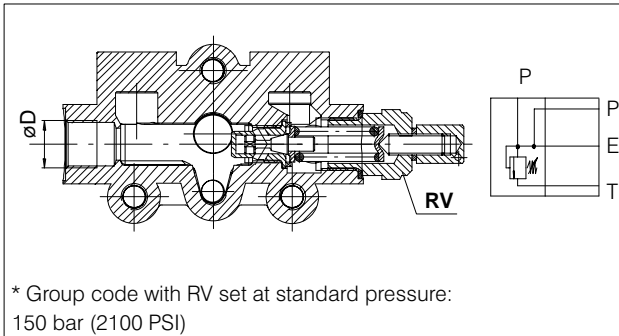
P ⇒ HPCO P ⇒ A/B ⇒ T



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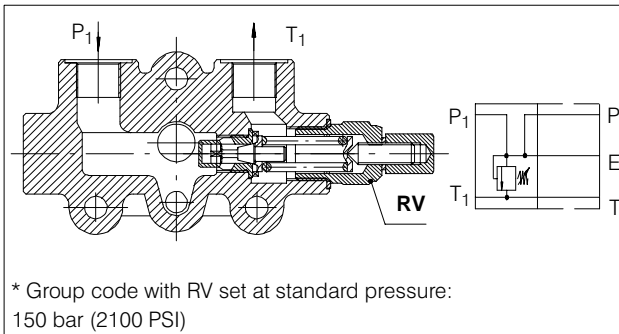
7.5 Inlet and outlet covers

7.5.1 Inlet cover (standard) with P and RV for parallel version



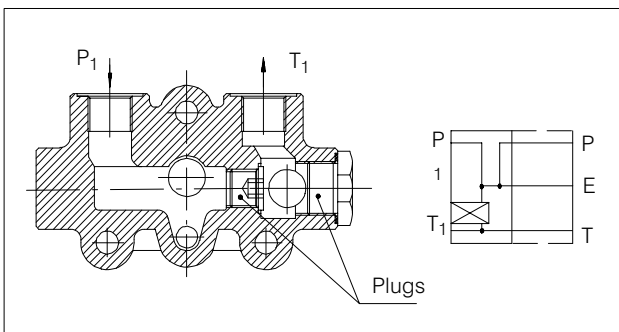
Ø D	Type	Code
SAE6	T06	* 200.9310.6002.0
3/8" BSP	T09	* 200.9310.2002.0
M18X1.5	T10	* 200.9310.1003.0

7.5.2 Inlet cover with P₁ – T₁ – RV for parallel version



Ø D	Type	Code
SAE6	T11	* 200.9310.6003.0
3/8" BSP	T14	* 200.9310.2003.0
M18X1.5	T15	* 200.9310.1002.0

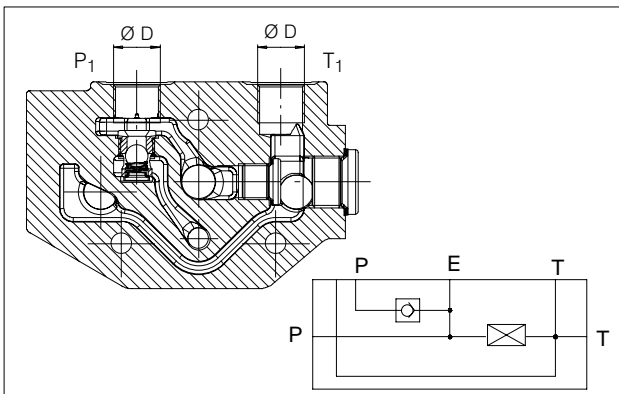
7.5.3 Inlet cover with P₁ – T₁ for parallel version



Ø D	Type	Code
SAE6	T16	200.9310.6004.0
3/8" BSP	T19	200.9310.2004.0
M18X1.5	T20	200.9310.1004.0

N.B.: For the best valve performances use always outlet cover with side T connection (T1 plugged)
T1 connection can reduce general performances of the valves. Please contact our Technical Dept.

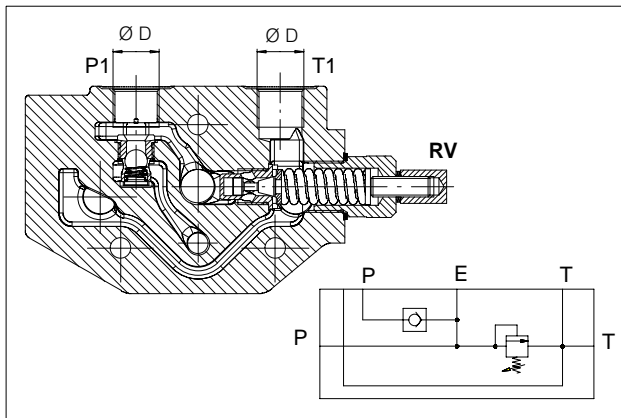
7.5.4 Inlet cover with check valve for parallel version



Inlet cover with P-T without RV		
Ø D	Type	Code
SAE6	T701	These versions are not available yet. Please contact our Sales Dept.
3/8" BSP	T704	
M18X1.5	T705	

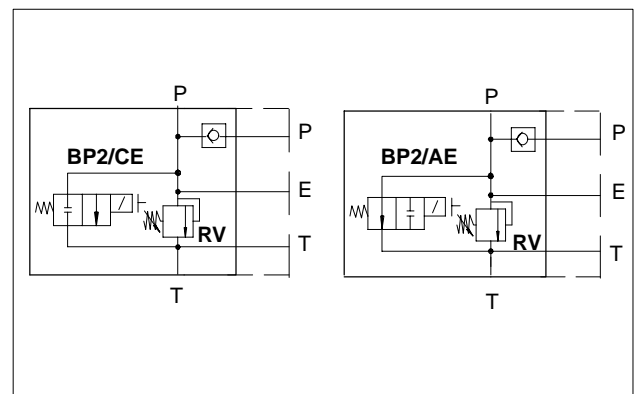
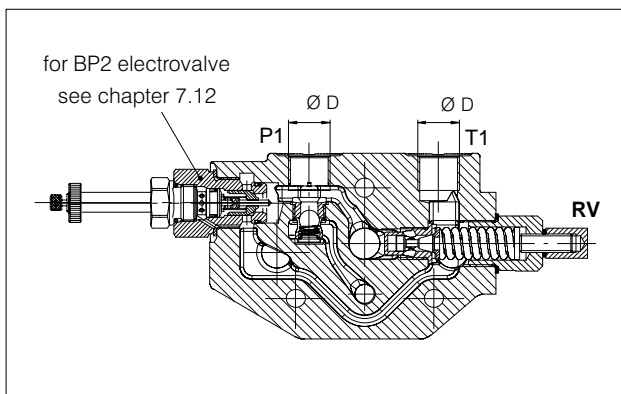
HDS07

7.5.5 Inlet cover with relief valve for parallel version



Inlet cover with P-T and RV		
Ø D	Type	Code
SAE6	T711	These versions are not available yet. Please contact our Sales Dept.
3/8" BSP	T714	
M18X1.5	T710	

7.5.6 Unloading solenoid valve BP2/CE and BP2/AE for parallel version

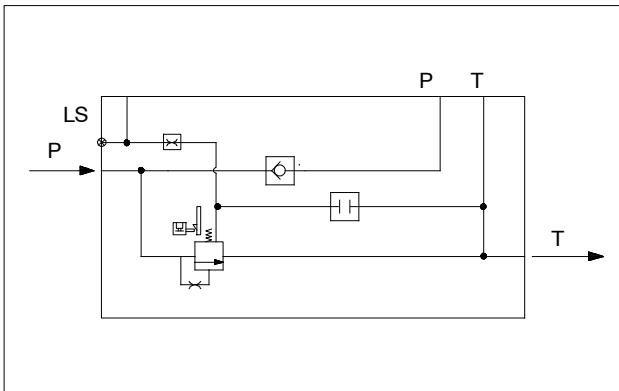


7.5.7 Inlet cover with P-T, RV, BY-PASS for parallel version Unloading solenoid valve BP2/CE and BP2/AE (coil not included)

Version with BP2				Version with BP2 and RV			
Ø D	By-pass solenoid valve circuit	Type	Code	Ø D	By-pass solenoid valve circuit	Type	Code
M18X1.5	BP2/AE BP2/CE	T720	These versions are not available yet. Please contact our Sales Dept.	M18X1.5	BP2/AE BP2/CE	T730	These versions are not available yet. Please contact our Sales Dept.
SAE6	BP2/AE BP2/CE	T721		SAE6	BP2/AE BP2/CE	T731	
3/8" BSP	BP2/AE BP2/CE	T724		3/8" BSP	BP2/AE BP2/CE	T734	

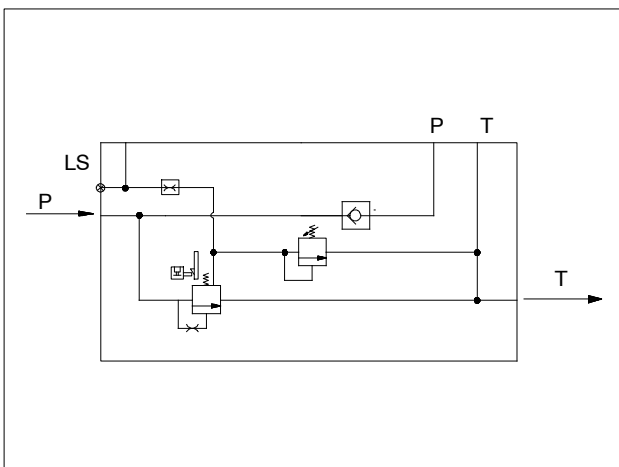
HDS07

7.5.8 Inlet cover Load Sensing version without RV



Inlet cover with P-T without RV		
Ø D	Type	Code
SAE6	T751	These versions are not available yet. Please contact our Sales Dept.
3/8" BSP	T754	
M18X1.5	T755	

7.5.9 Inlet cover Load Sensing version with RV



Inlet cover with P-T with RV		
Ø D	Type	Code
SAE6	T761	These versions are not available yet. Please contact our Sales Dept.
3/8" BSP	T764	
M18X1.5	T760	
M22X1.5	T764	

7.6 Adjustable direct acting Relief Valve RV

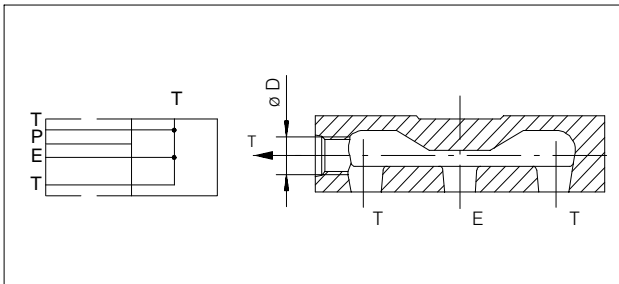
Pressure set range bar (PSI)	Std. setting bar (PSI)	Setting Code	Spring colour
30 - 95 (400 - 1300)	60 (850)	06	Yellow (YE)
96 - 210 (1300 - 3000)	150 (2100)	15	Green (GR)
* 211 - 320 (3000 - 4600)	260 (3700)	26	Blue (BL)

* The maximum operating pressure for each valve series is indicated in the "Technical specification" at the first page of each valve section.

HDS07

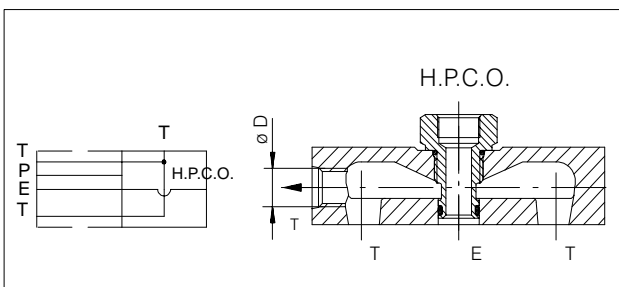
7.7 End covers

7.7.1 End cover (std) with T and open center for parallel version



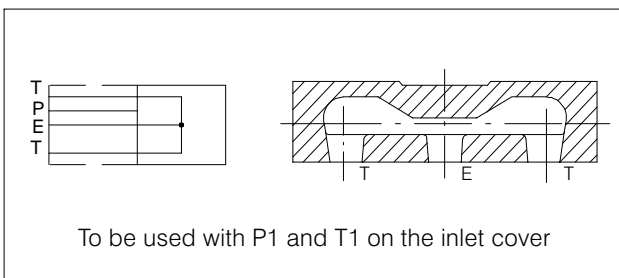
Ø D	Type	Code
SAE6	P01	200.6300.6001.1
3/8" BSP	P04	200.6300.2001.1
M18X1.5	P05	200.6300.1001.0

7.7.2 End cover with T and H.P.C.O. (power beyond) for parallel version



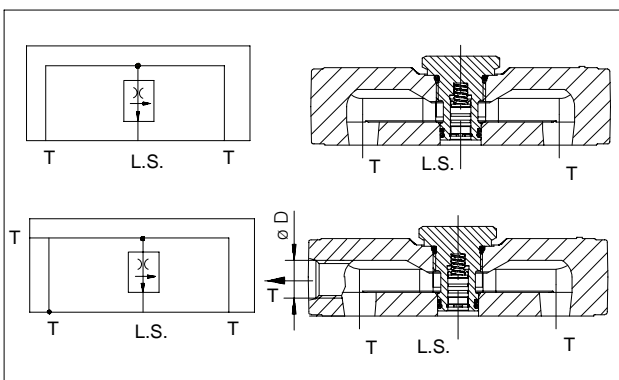
Ø D	Type	Code
SAE6	P06	200.9300.6002.0
3/8" BSP	P09	200.9300.2002.0
M18X1.5	P10	200.9300.1002.0

7.7.3 End cover with open center for parallel version



Ø D	Type	Code
-	P11	200.6300.9001.0

7.7.4 End cover for Load Sensing version

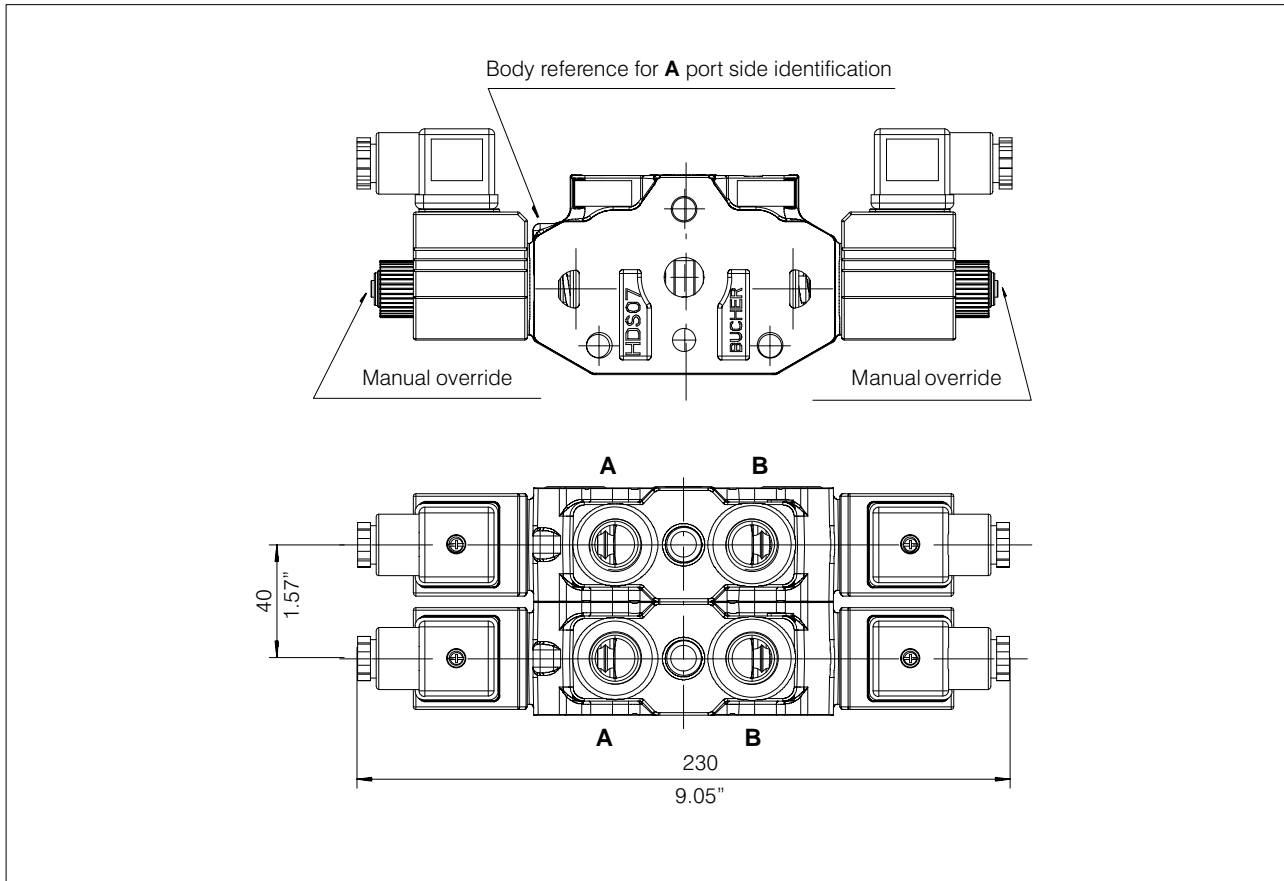


Ø D	Type	Code
-	P56	200.7302.9024.0
3/8" BSP	P57	200.7302.2010.0
M18X1.5	P58	200.7302.1016.0

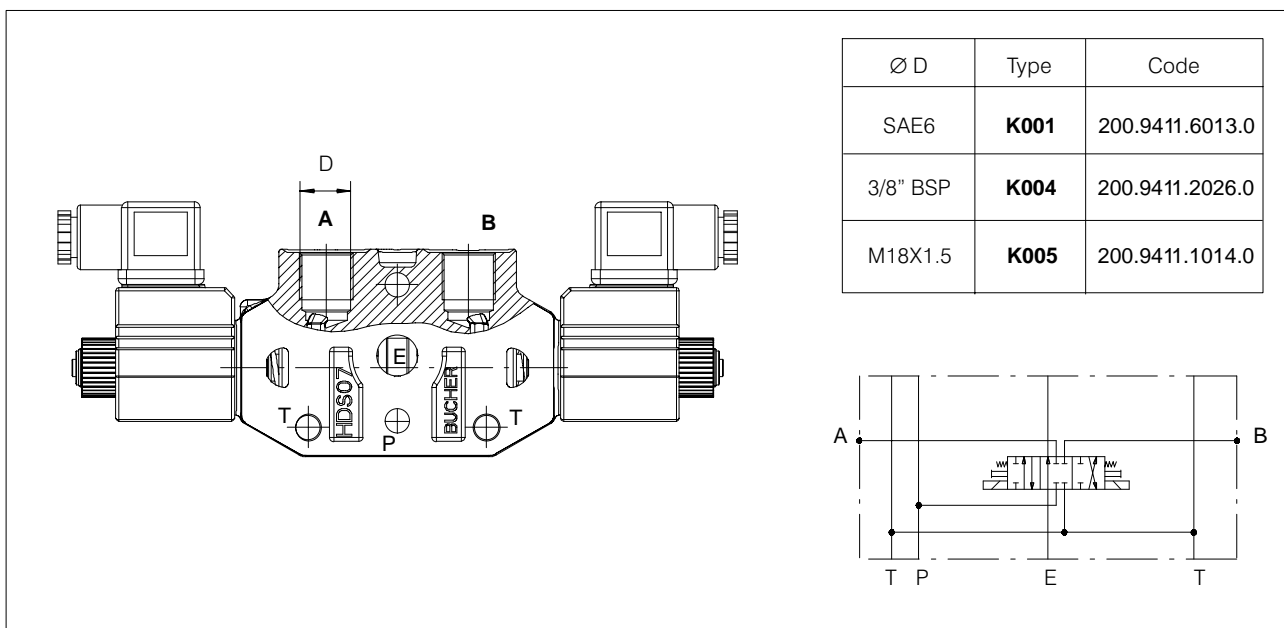
HDS07

7.8 Sectional bodies

7.8.1 Overall dimensions



7.8.2 Element version: standard parallel



HDS07

7.8.3 Element version with SP817/ TVR – TOR valves for standard parallel version

Ø D	Type	Code
SAE6	K101	200.9411.6014.0
3/8" BSP	K104	200.9411.2027.0
M18X1.5	K105	200.9411.1015.0

Normally open	Type
Double on A-B	TOR/A-B
Single on A	TOR/A
Single on B	TOR/B

Normally closed	Type
Double on A-B	TVR/A-B
Single on A	TVR/A
Single on B	TVR/B

7.8.4 Element version with RP/AB valves for standard parallel version

Ø D	Type	Code
SAE6	K201	200.9411.6015.0
3/8" BSP	K204	200.9411.2028.0
M18X1.5	K205	200.9411.1016.0

Pilot check valve	Type
Double on A-B	RP/A-B
Single on A	RP/A
Single on B	RP/B

HDS07

7.8.5 Element version: Load Sensing parallel

Ø D	Type	Code
SAE6	K051	200.9411.6019.0
3/8" BSP	K054	200.9411.2032.0
M18X1.5	K055	200.9411.1018.0

7.8.6 Element Load Sensing with SP817 / TVR – TOR valves

Ø D	Type	Code
SAE6	K151	200.9411.6020.0
3/8" BSP	K154	200.9411.2033.0
M18X1.5	K155	200.9411.1022.0

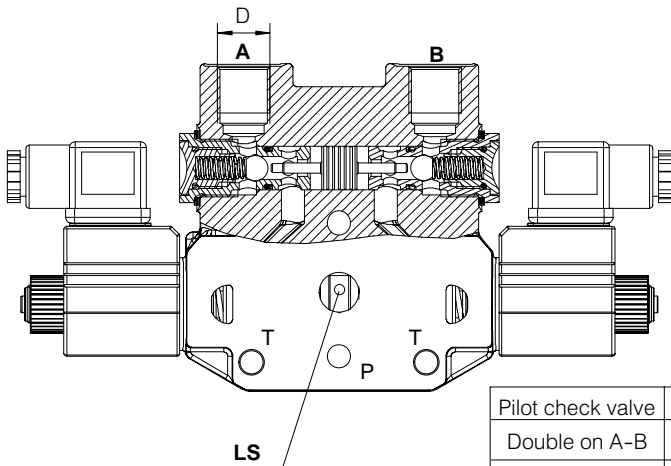
For SP/SPE817 solenoid valve see chapter 7.14

Normally closed	Type
Double on A-B	TVR/A-B
Single on A	TVR/A
Single on B	TVR/B

Normally open	Type
Double on A-B	TOR/A-B
Single on A	TOR/A
Single on B	TOR/B

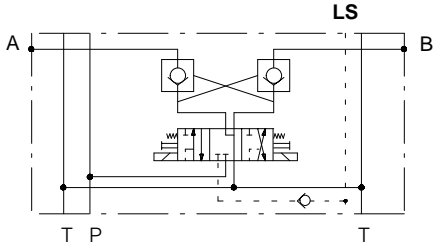
HDS07

7.8.7 Element Load Sensing with RP/AB valves

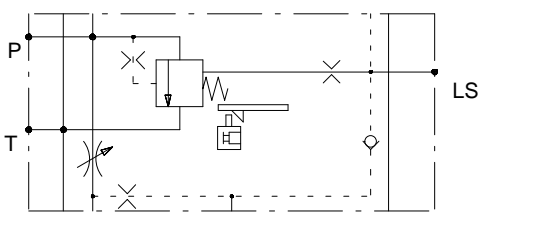


Ø D	Type	Code
SAE6	K251	200.9411.6021.0
3/8" BSP	K254	200.9411.2034.0
M18X1.5	K255	200.9411.1023.0

Pilot check valve	Type
Double on A-B	RP/A-B
Single on A	RP/A
Single on B	RP/B



7.8.8 Intermediate element Load Sensing version with RV

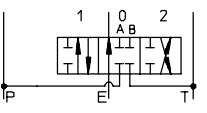
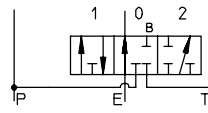
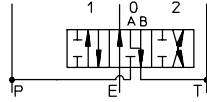
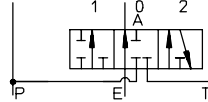


Inlet cover with P-T without RV		
Ø D (diameter)	Type	Code
-	K**	-

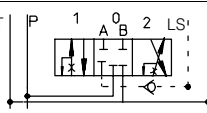
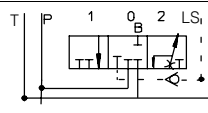
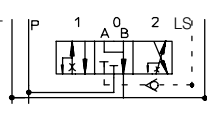
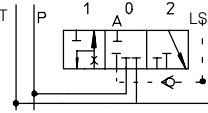
Note : For availability of intermediate element without ordering code please contact our Sales Department.

7.9 Spool charts

7.9.1 Spools for standard parallel elements

Spool scheme	Spool features	Type	Spool scheme	Spool features	Type
	4 way - 3 position A/B blocked E open by pass	AE		3 way - 3 position B blocked E open by pass	GE
	4 way - 3 position A/B to tank in neutral E open by pass	CE		3 way - 3 position A blocked E open by pass	SE

7.9.2 Spools for Load Sensing elements

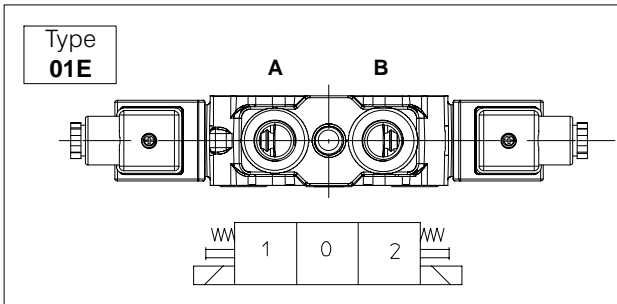
Spool scheme	Spool features	Type	Spool scheme	Spool features	Type
	4 way - 3 position A/B blocked Load Sensing	LAE LA**E		3 way - 3 position B blocked Load Sensing	LGE LG**E
	4 way - 3 position A/B to tank in neutral Load Sensing	LCE LC**E		3 way - 3 position A blocked Load Sensing	LSE LS**E

Full Flow L.S. spools	Flow calibrated L.S. spools
- LAE - LCE - LGE - LSE	- LA**E - LC**E - LG**E - LS**E
	Code: 02= 2 l/min 15= 15 l/min 05= 5 l/min 20= 20 l/min 10= 10 l/min 25= 25 l/min
	Ex.: LA10E (= spool LAE with 10 l/min regulated flow on ports A and B)

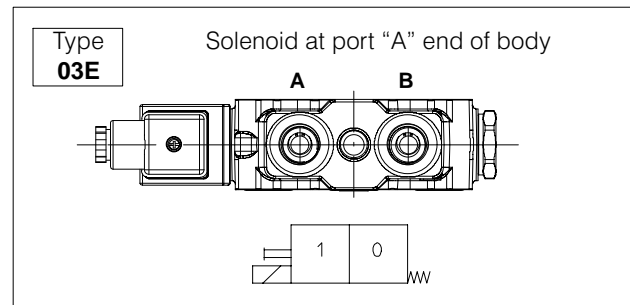
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7.10 Spool actions

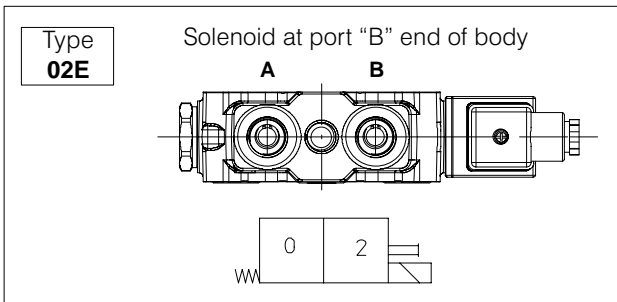
7.10.1 Double-Solenoid spring centered spool



7.10.3 Single solenoid A side, spring centered spool

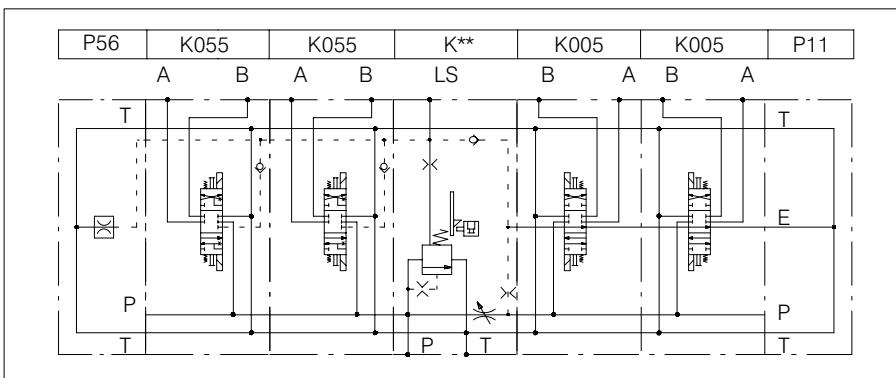


7.10.2 Single Solenoid B side, spring centered spool

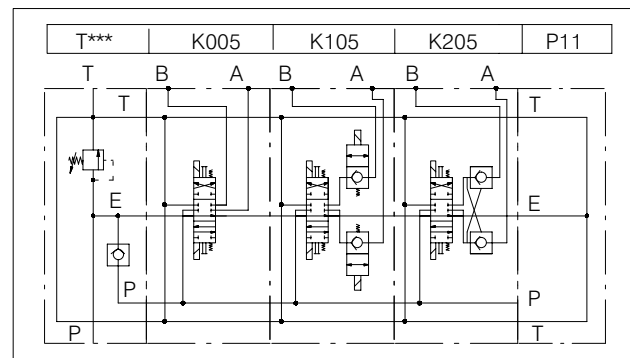
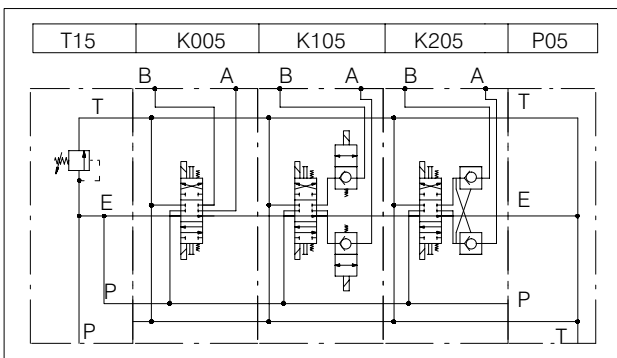


7.11 Examples of hydraulic circuits

7.11.1 Load sensing circuit



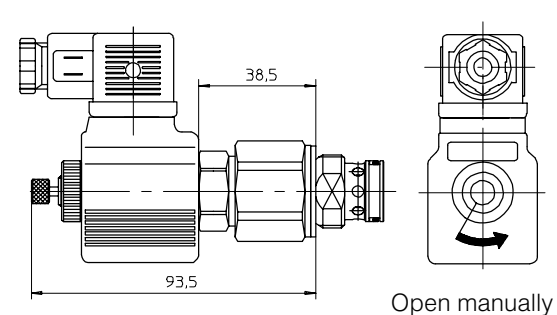
7.11.2 Standard/parallel circuit



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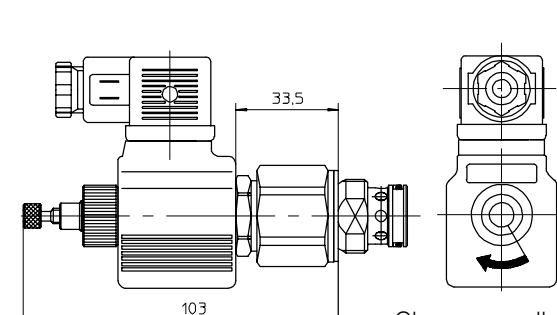
7.12 By-Pass solenoid valve - BP2 -

7.12.1 Normally closed with manual override



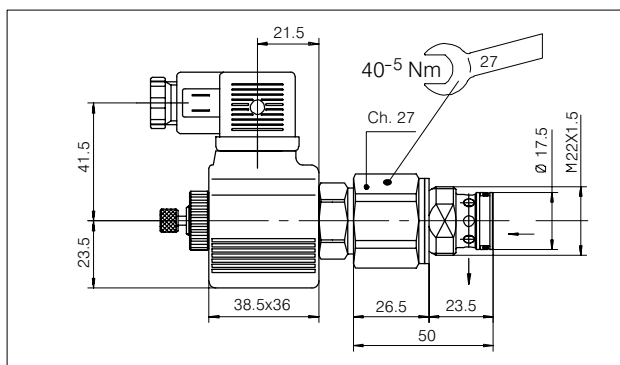
Tension	Type	Code
without coil	BP2/CE HDS15 p.m.	200.7572.0044.0
12 V. D.C.	BP2/CE 13HC HDS15	200.9570.1003.3
24 V. D.C.	BP2/CE 23HC HDS15	200.9570.2003.4

7.12.2 Normally open with manual override



Tension	Type	Code
without coil	BP2/AE HDS15 p.m.	200.7572.0045.0
12 V. D.C.	BP2/AE 13HC HDS15	200.9570.1003.4
24 V. D.C.	BP2/AE 23HC HDS15	200.9570.2003.5

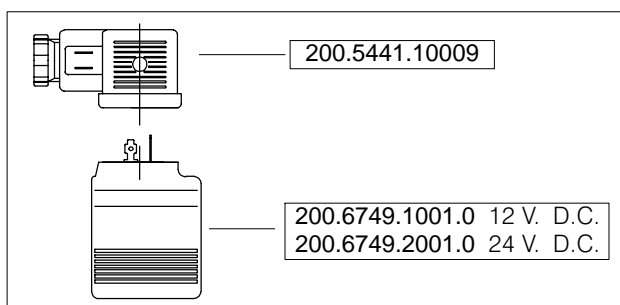
7.12.3 Dimensions



7.12.4 BP2 Solenoid valve performances

Max. pressure	315 bar
Max. flow	60 l/min
Power	22 Watt
Intermittence	ED 100%
Voltage tolerance	± 10%
Temperature range	-20/+80 °C
Oil filtration	≤ 25 micron
Pressure drop Q= 30 l/min	7.5 bar
Pressure drop Q= 50 l/min	12.7 bar

7.12.5 Spare parts



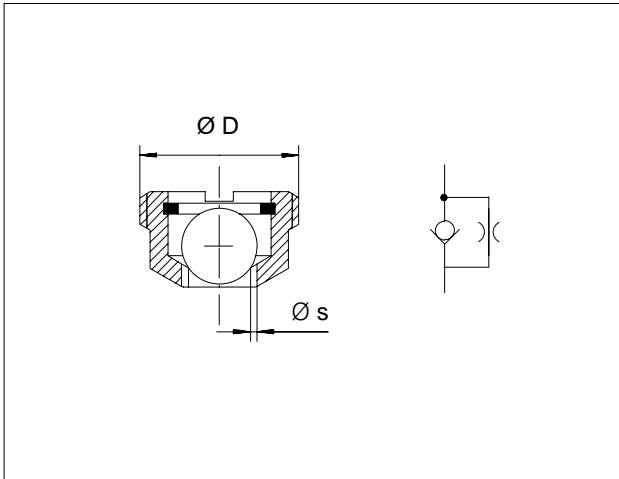
7.12.6 Coil specifications

Voltage	12	24	V. D.C.
Power	22.8	22.5	Watt
Resistance (Ambient Temp.)	6.3	25.6	Ohm
Resistance (Stabilized Temp.)	8.9	36.4	Ohm
Current (Ambient Temp.)	1.9	0.94	Ampere
Current (Stabilized Temp.)	1.35	0.66	Ampere

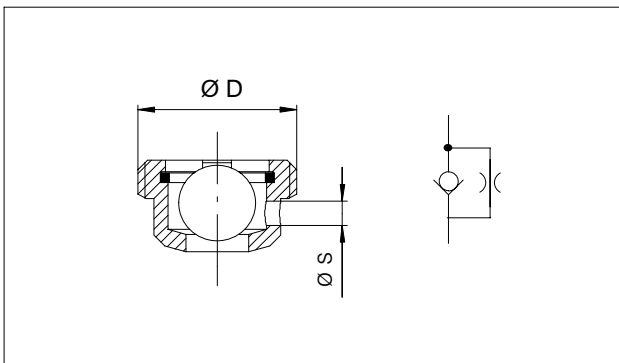
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7.13 Cartridge valves

7.13.1 Flow control valve series VS

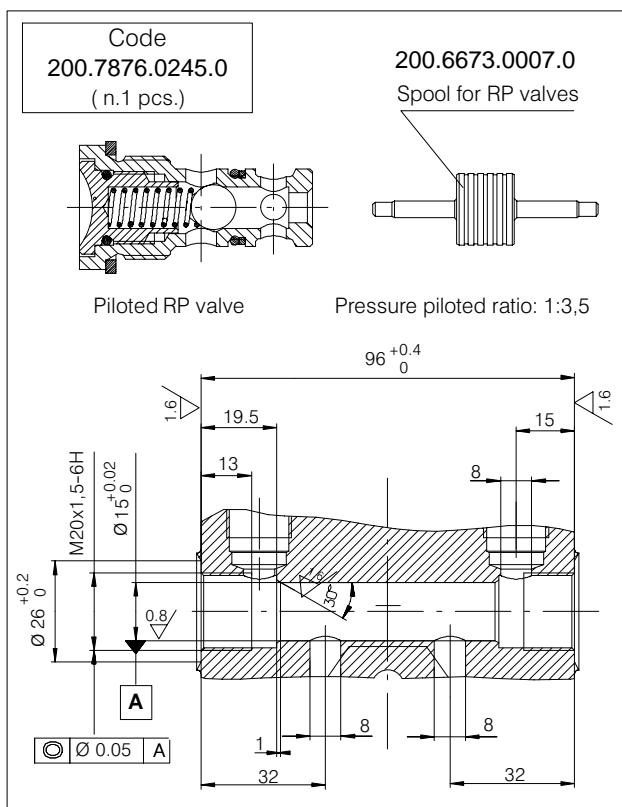


Ø D	Valve type	Code	Ø s
M18X1,5	VS4	200.7872.0043.0	1.4
	VS6	200.7872.0045.0	2
	VS11	200.7872.0033.0	2.5
3/8" BSP	VS15	200.7872.0037.0	1.4 (Ø 6.5)
	VS16	200.7872.0038.0	1.4
	VS17	200.7872.0039.0	1.4 (Ø 7.2)
	VS39	200.7872.0166.0	2.5
SAE6	VS18	200.7872.0040.0	1.5
	VS25	200.7872.0104.0	2
	VS26	200.7872.0105.0	2

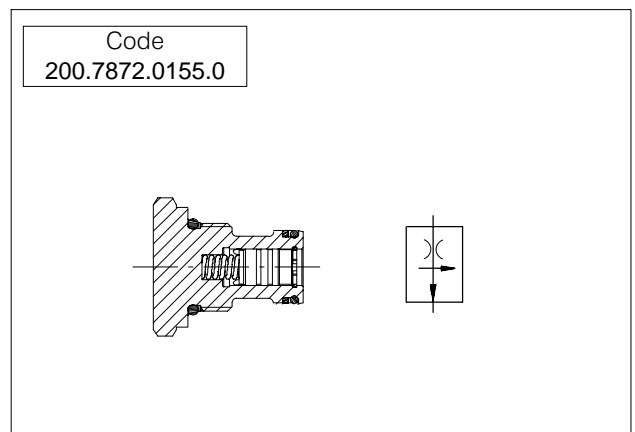


Ø D	Valve type	Code	Ø s
M18x1,5	VS105	200.7872.0169.0	0.5
	VS108	200.7872.0170.0	0.8
	VS112	200.7872.0171.0	1.2
	VS116	200.7872.0172.0	1.6
	VS125	200.7872.0173.0	2.5
3/8" BSP	VS225	200.7872.0174.0	2.5
SAE6	VS625	200.7872.0175.0	2.5

7.13.2 Piloted check valve



7.13.3 L.S. drain valve

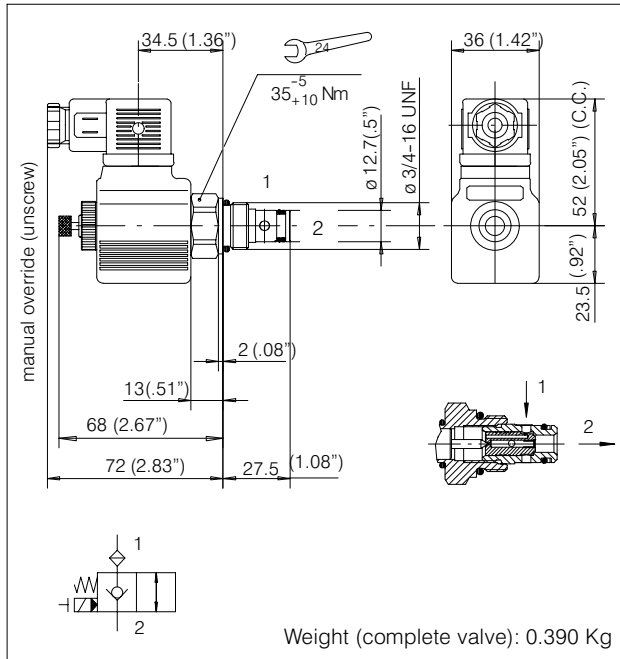


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7.14 Solenoid operated directional valve:

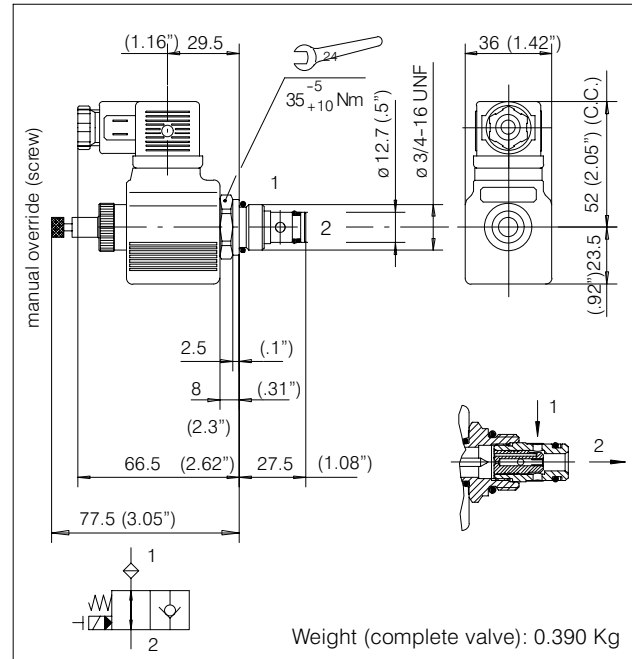
SPE817/22-TVR

Normally closed - Pilot type
Poppet type, bi-directional flow admitted



SPE817/22-TOR

Normally open- Pilot type
Poppet type, bi-directional flow admitted



Directional valve without coil and connector

SPE817/22-TVR	200.7572.0077.0
---------------	-----------------

Complete solenoid valve for D.C. current

SPE817/22-TVR-13-HC	200.9570.1004.6
SPE817/22-TVR-23-HC	200.9570.2004.8

Coil voltage

	D.C.	
Volt	12 V.	24 V.
Type	13	23

Directional valve without coil and connector

SPE817/22-TOR	200.7572.0078.0
---------------	-----------------

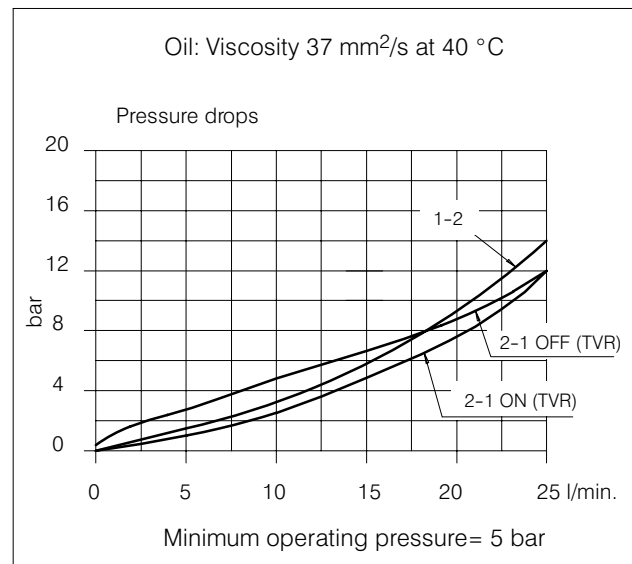
Complete solenoid valve for D.C. current

SPE817/22-TOR-13-HC	200.9570.1004.7
SPE817/22-TOR-23-HC	200.9570.2004.9

Coil voltage

	D.C.	
Volt	12 V.	24 V.
Type	13	23

Electric performances	
Max. pressure	300 bar
	4356 PSI
Max. flow	25 l/min.
	6.66 U.S.G.P.M.
Rated power	22 Watt
Intermittence	ED= 100%
Voltage tolerance	± 10%
Internal leakage	0-5 drops/min.
Temperature range	-20/+90° C
Connector type	DIN 43650
Time to open (50-210 bar)	15-100 ms.
Time to close (50-210 bar)	15-100 ms.
O-Ring replacement kit	200.9742.0014.0



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We reserve the right of modification without prior notice.

200-P-991210-EN-03/09.2015