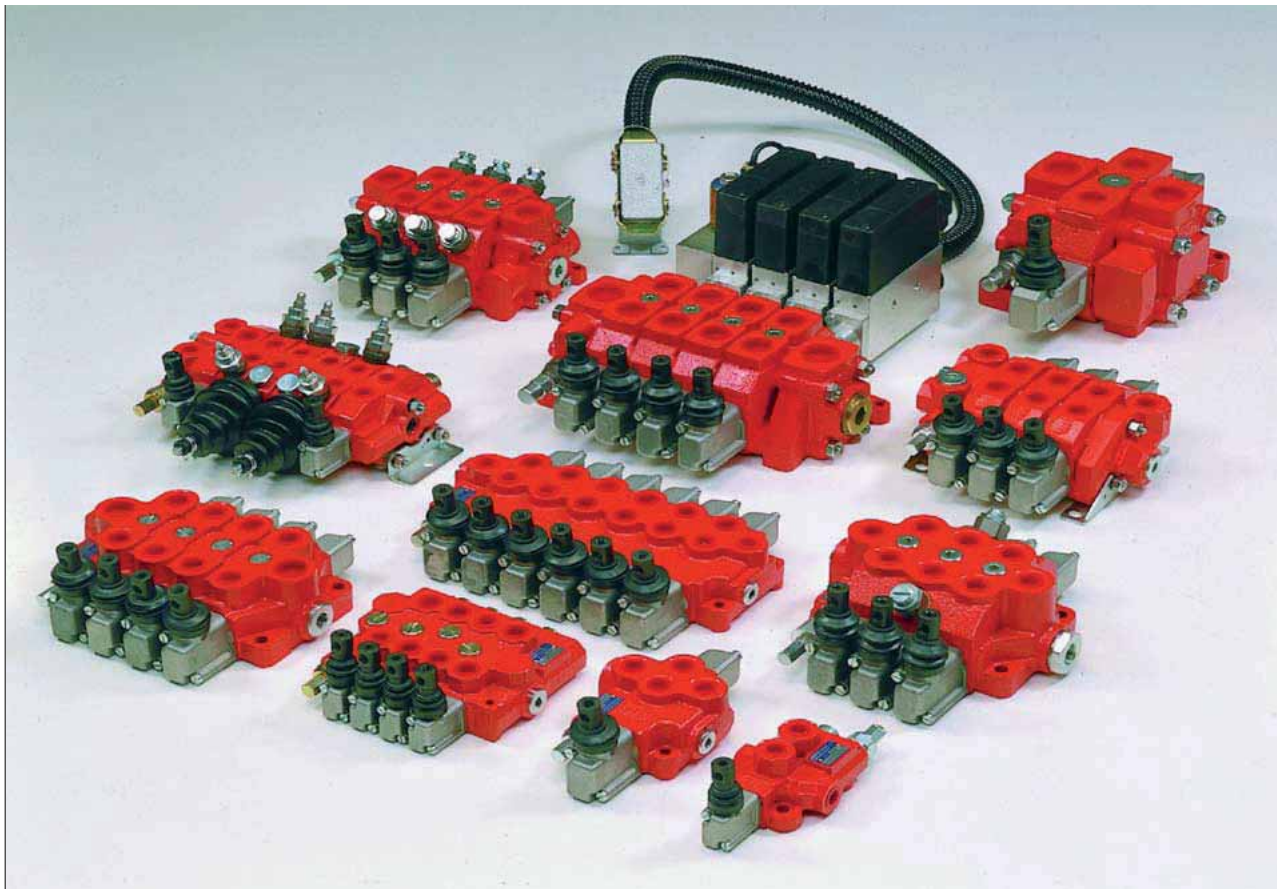


## Monoblock- und Selektional-Ventile

### *Monobloc- et sélecteurs de voies*



## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8 Sectional directional control valves HDS11

#### 8A Standard valves ..... p.101



#### Contents

8A.1	General specification	101
8A.2	Dimensional data	102
8A.3	Performance curves	103
8A.4	Inlet and outlet covers	105
8A.5	Adjustable direct acting Relief Valve RV	106
8A.6	End covers	107
8A.7	Sectional bodies	109
8A.8	Spool charts	109
8A.9	Hydraulic circuits	109
8A.10	Spool positioners	113
8A.11	Lever styles	115
8A.12	Port relief and anti-cavitation valves	116
8A.13	Hydraulic-Pneumatic control ON-OFF	117

#### 8B Electromagnetic control EMC - (ON-OFF) ..... p.117



#### Contents

8B.1	General specification	117
8B.2	Dimensional data	118
8B.3	Performance curves	119
8B.4	Operating limits	120
8B.5	Sectional bodies	121
8B.6	Spool charts	122
8B.7	Spool actions	123
8B.8	4 <sup>th</sup> Floating Position	123

#### 8C Elements with pressure and flow control PQ ..... p.125



#### Contents

8C.1	General specification	125
8C.2	Sectional body K100	126
8C.3	Inlet cover T100	127
8C.4	Sectional body K88	128
8C.5	Inlet cover T88	129
8C.6	Sectional body K90	130
8C.7	Inlet cover T90	131
8C.8	Inlet cover T89	132
8C.9	Proportional flow control PFCR11	133
8C.10	Special sectional bodies	134
8C.11	By-pass solenoid valve -BP3-	135
8C.12	End cover for K100 and T100	136

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8A Standard valves

#### 8A.1 General specifications

Technical specification		
Max flow rate	l/min U.S.G.P.M.	45 12
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	30 430
Oil temperature	° C ° F	-10 to +80 14 to 180
Oil viscosity	mm <sup>2</sup> /s	16 to 75
Oil filtration	μ	≤ 30
Spool leakage at 100 bar (1450 PSI), Temp. 50° C (120° F), viscosity 27 mm <sup>2</sup> /s:		
Maximum	cm <sup>3</sup> /min Cu. In./min	12 0.854
Average	cm <sup>3</sup> /min Cu. In./min	6 0.427
Number of spools		1 to 10
Adjustable direct operated relief valve (tamper-proof seal available on request)		RV
Load hold check valve in each section		LC
Cartridge anti-shock, anti-cavitation and service relief valve		OA-UC-C
Mechanical release check valve		RSM1

#### 8A.1.1 Weight

Version	kg	lb
Inlet with RV and P	1	2.21
1 spool section (standard without options)	1.30	2.86
End cover standard	0.65	1.43
End cover with T and H.P.C.O.	0.75	1.65

#### 8A.1.2 Material specification:

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

#### 8A.1.3 Standard features:

- 1) Internal load holding check valves (prevent reverse flow through valve when shifting)
- 2) Parallel circuit.
- 3) Balanced interchangeable spools (provides minimum leakage, smooth operation)
- 4) Wide selections inlets, work ports, and outlets threaded ports.
- 5) Negative overlapping of the spool.

#### 8A.1.4 Optional features available:

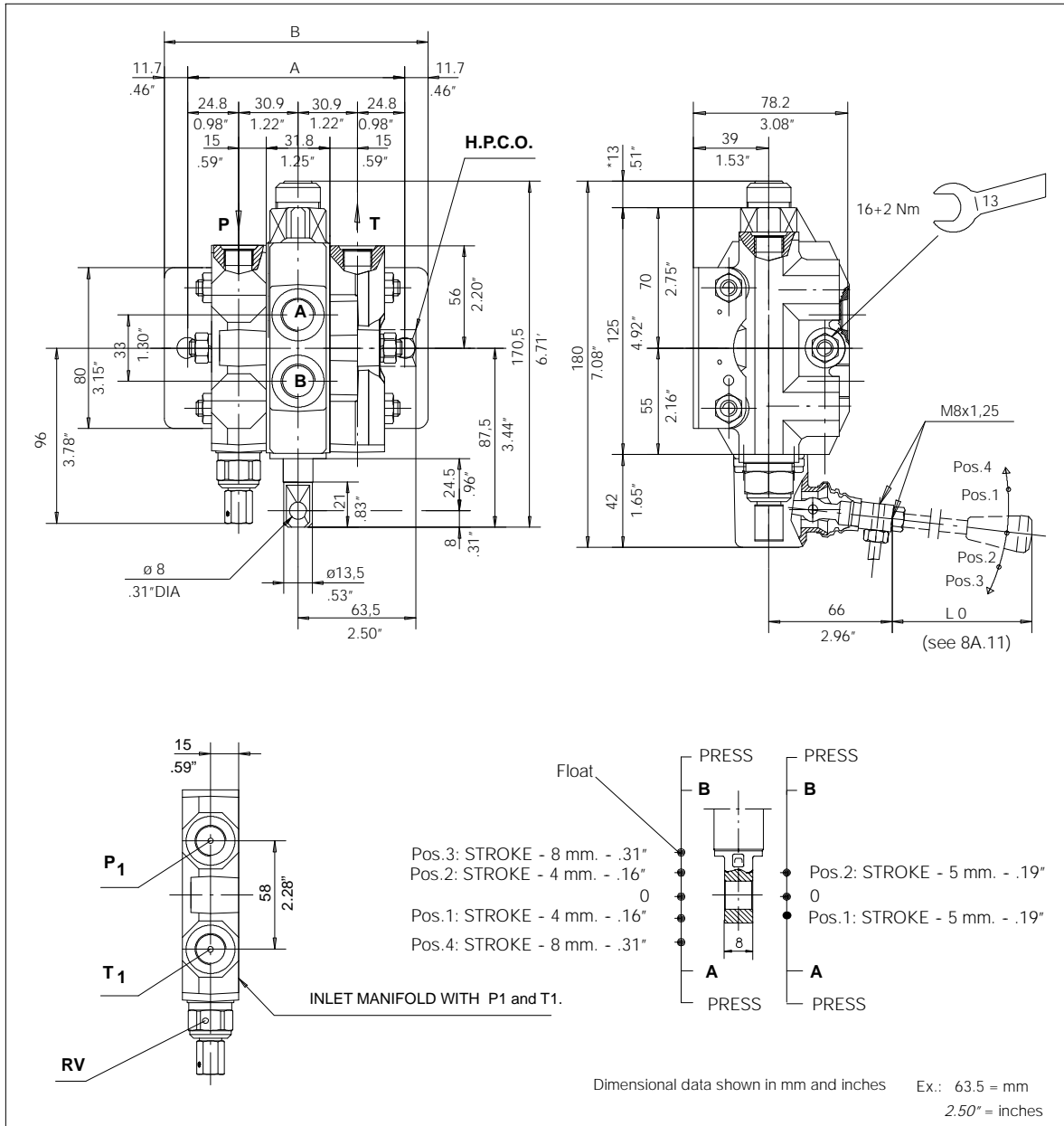
- 1) Open or closed centre positions, 3 or 4 way operations, 3 or 4 position (float position), full open centre (motoring spool) and other spool options.
- 2) Carry over.
- 3) Series connection and priority pressure.
- 4) Pressure compensated flow control.
- 5) Complete lever assembly.

#### 8A.1.5 Symbols:

**P:** inlet port  
**T:** outlet port  
**A/B:** work ports  
**H.P.C.O.:** carry-over  
**RV:** relief valve  
**P<sub>1</sub>T<sub>1</sub>:** top inlet and outlet  
**3.1.0.2:** spool position  
**P:** pressure line  
**T:** exhaust line  
**E:** centre line (by pass).

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

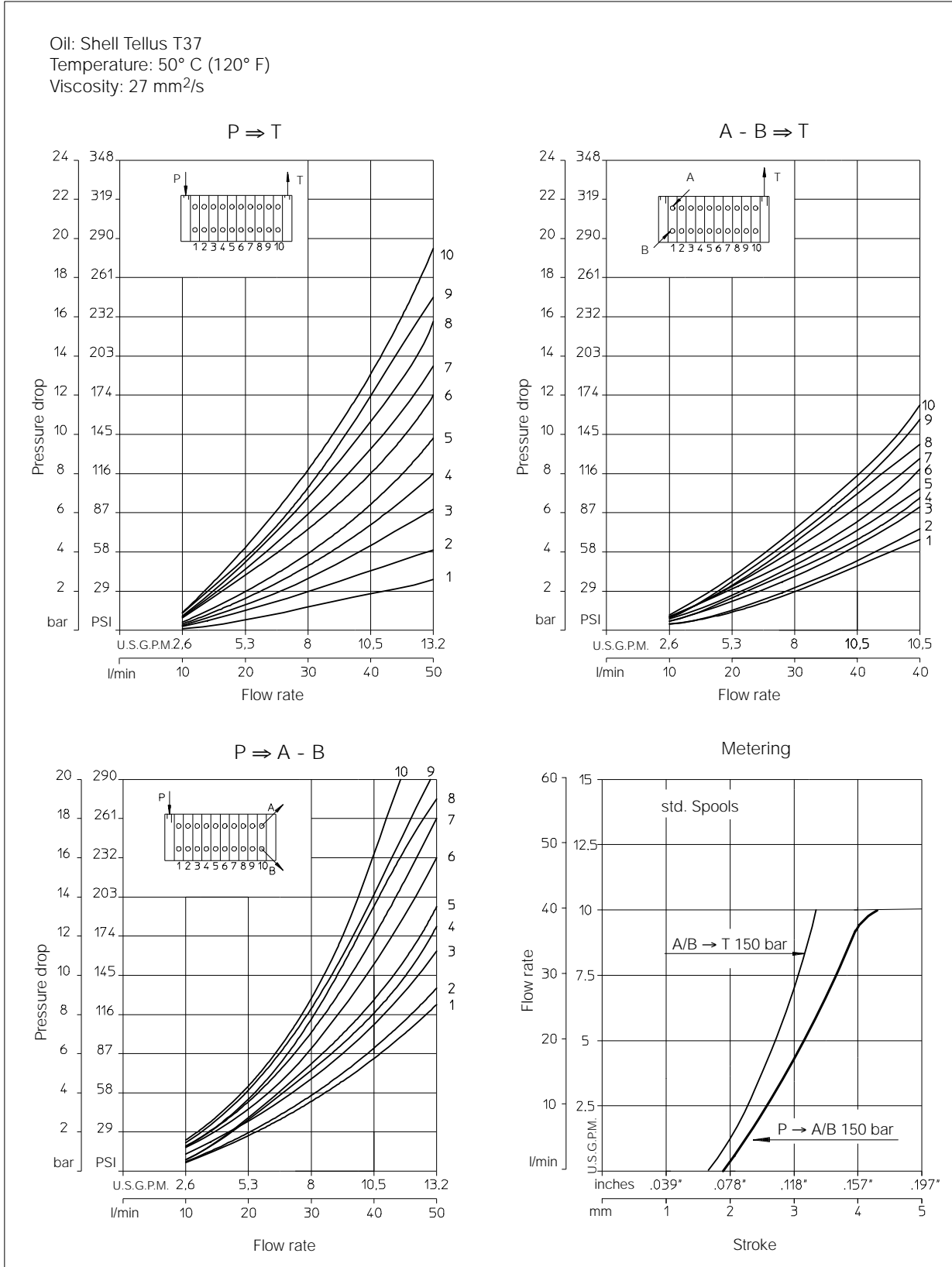
### 8A.2 Dimensional data



N. of sections		1	2	3	4	5	6	7	8	9	10
Dimension	A	111.4	143.2	175	206.8	238.6	270.4	302.2	334	365.8	397.6
		4.38"	5.64"	6.89"	8.14"	9.39"	10.64"	11.90"	13.15"	14.40"	15.65"
Dimension	B	134.8	166.6	198.4	230.2	262	293.8	325.6	357.4	389.2	421
		5.31"	6.56"	7.81"	9.06"	10.31"	11.57"	12.82"	14.07"	15.32"	16.57"

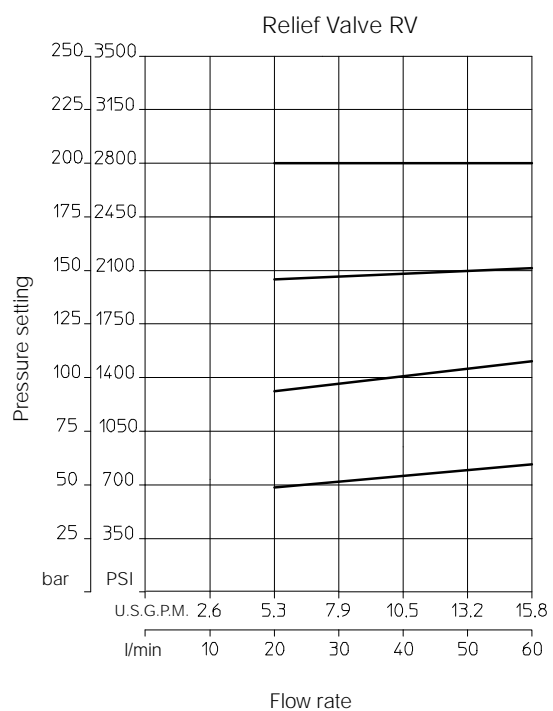
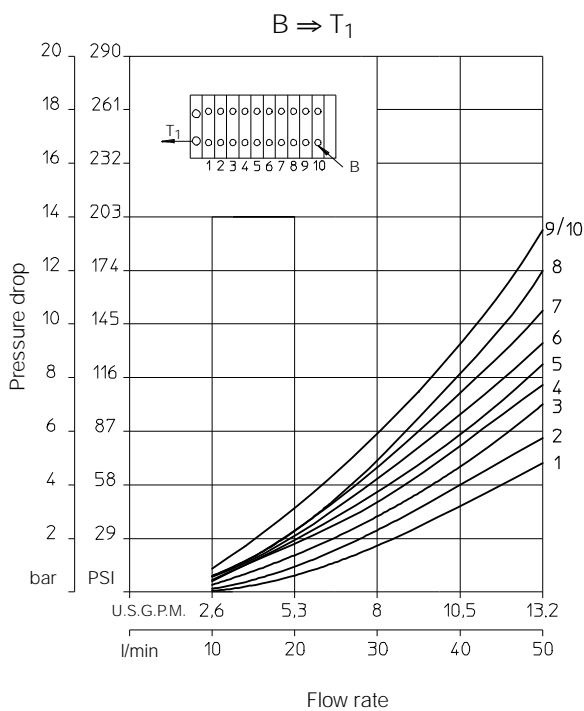
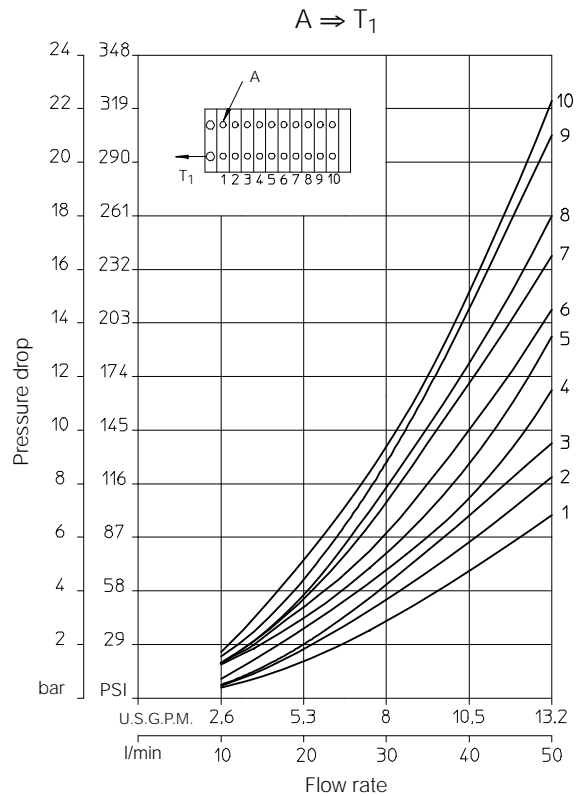
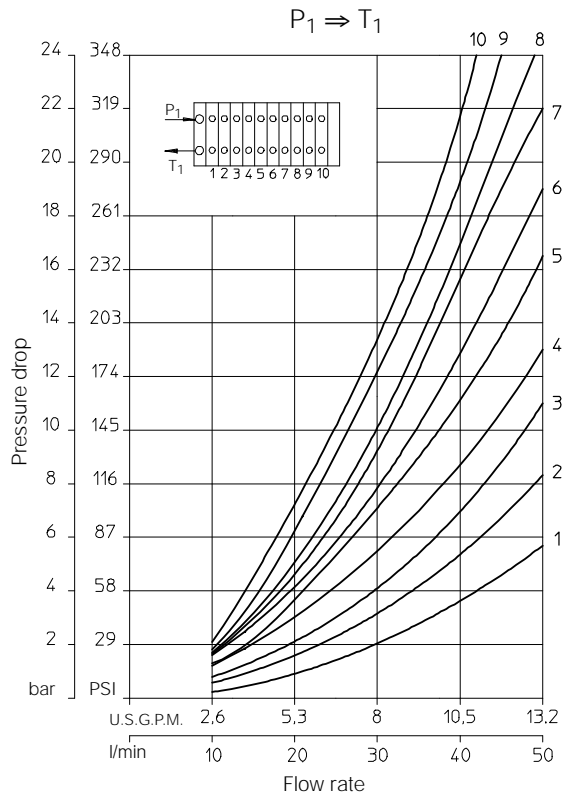
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8A.3 Performance curves



## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

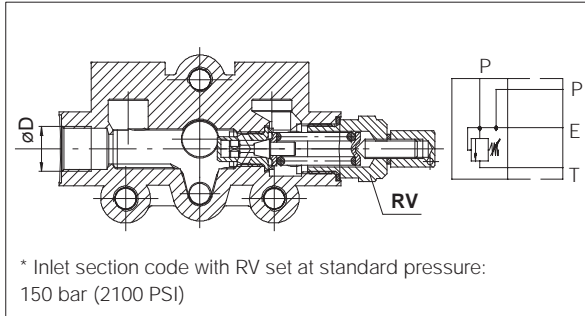
Oil: Shell Tellus T37  
 Temperature: 50° C (120° F)  
 Viscosity: 27 mm<sup>2</sup>/s



## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

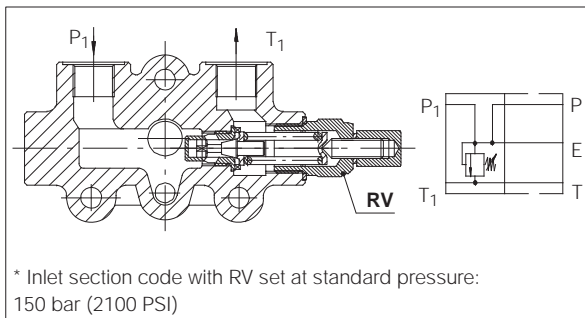
### 8A.4 Inlet and outlet covers

#### 8A.4.1 Inlet manifold (standard) with P and RV



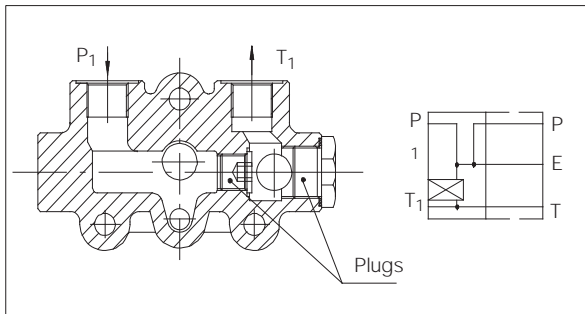
Ø D	Type	Code
SAE6	<b>T06</b>	* 200.9310.6002.0
SAE8	<b>T07</b>	* 200.9310.7003.0
3/8" BSP	<b>T09</b>	* 200.9310.2002.0
M18X1.5	<b>T10</b>	* 200.9310.1003.0

#### 8A.4.2 Inlet manifold with P<sub>1</sub> - T<sub>1</sub> - RV



Ø D	Type	Code
SAE6	<b>T11</b>	* 200.9310.6003.0
SAE8	<b>T12</b>	* 200.9310.7002.0
3/8" BSP	<b>T14</b>	* 200.9310.2003.0
M18X1.5	<b>T15</b>	* 200.9310.1002.0

#### 8A.4.3 Inlet manifold with P<sub>1</sub> - T<sub>1</sub>



Ø D	Type	Code
SAE6	<b>T16</b>	200.9310.6004.0
SAE8	<b>T17</b>	200.9310.7005.0
3/8" BSP	<b>T19</b>	200.9310.2004.0
M18X1.5	<b>T20</b>	200.9310.1004.0

### 8A.5 Adjustable direct acting pressure Relief Valve RV

Relief valve set at 30 l/min (8 U.S.G.P.M.)

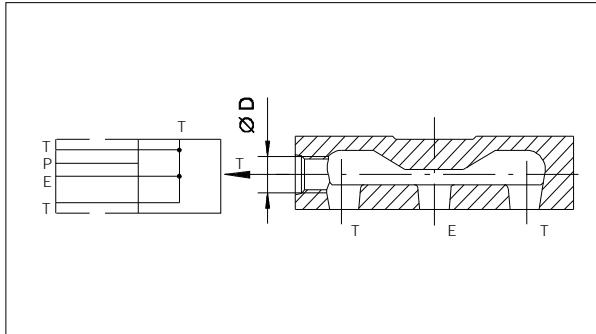
Pressure set range bar (PSI)	Std. setting bar (PSI)	Setting Code	Spring colour
30 - 95 (400 - 1300)	60 (860)	<b>06</b>	Yellow (YE)
96 - 210 (1300 - 3000)	150 (2100)	<b>15</b>	Green (GR)
** 211 - 320 (3000 - 4600)	260 (3700)	<b>26</b>	Blue (BL)

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

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

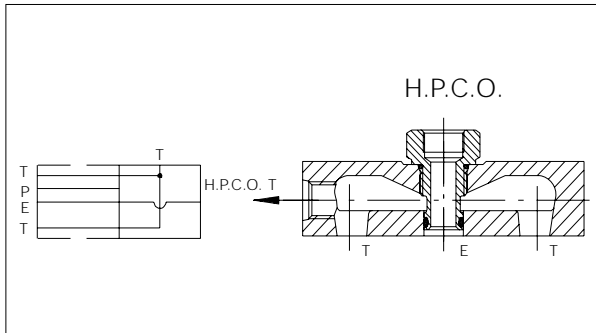
### 8A.6 End covers

#### 8A.6.1 Outlet manifold (std) with T and open center



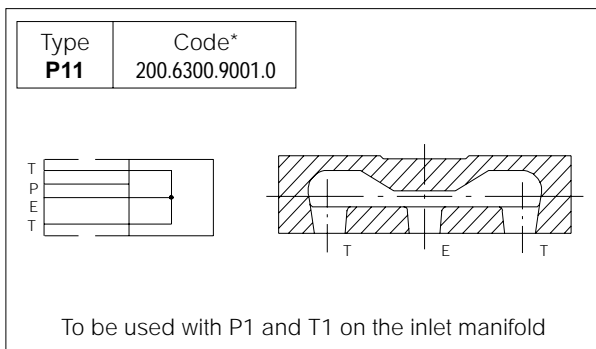
Ø D	Type	Code
SAE6	<b>P01</b>	200.6300.6001.1
SAE8	<b>P02</b>	200.6300.7001.0
3/8" BSP	<b>P04</b>	200.6300.2001.1
M18X1.5	<b>P05</b>	200.6300.1001.0

#### 8A.6.2 Outlet manifold with T and H.P.C.O. (power beyond)

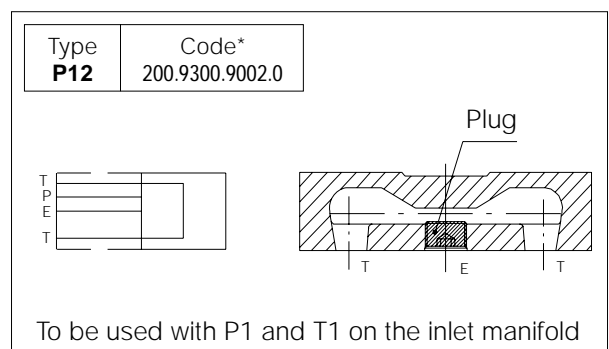


Ø D	Type	Code
SAE6	<b>P06</b>	200.9300.6002.0
SAE8	<b>P07</b>	200.9300.7002.0
3/8" BSP	<b>P09</b>	200.9300.2002.0
M18X1.5	<b>P10</b>	200.9300.1002.0

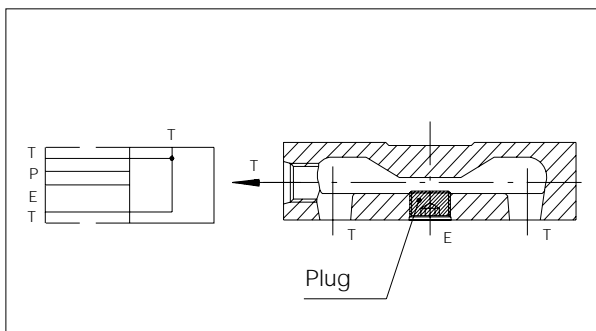
#### 8A.6.3 Outlet manifold with open center



#### 8A.6.4 Outlet manifold with closed center



#### 8A.6.5 Outlet manifold with T and closed center



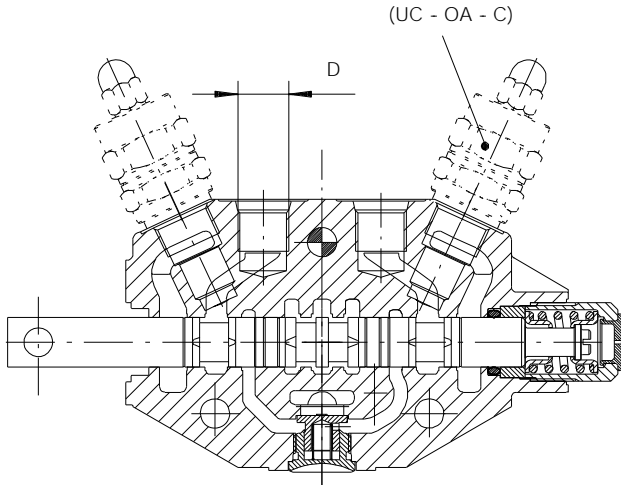
Ø D	Type	Code
SAE6	<b>P13</b>	200.9300.6003.0
SAE8	<b>P14</b>	200.9300.7003.0
3/8" BSP	<b>P16</b>	200.9300.2003.0
M18X1.5	<b>P17</b>	200.9300.1003.0



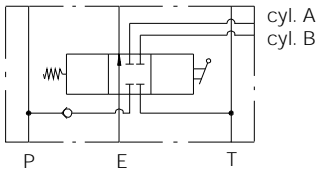
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8A.7 Sectional bodies

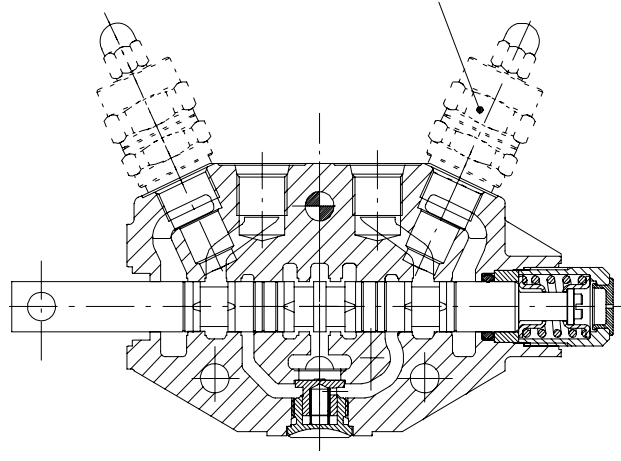
#### 8A.7.1 Standard circuit: parallel



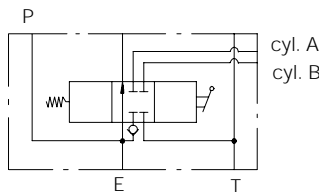
Ø D	Type/Code	
	Standard	Section with valve UC - OA - C
SAE6	<b>K01</b> 200.9413.6051.0	<b>K06</b> 200.9413.6053.0
SAE8	<b>K02</b> 200.9413.7027.0	<b>K07</b> 200.9413.7028.0
3/8" BSP	<b>K04</b> 200.9413.2624.0	<b>K09</b> 200.9413.2625.0
M18X1.5	<b>K05</b> 200.9413.1272.0	<b>K10</b> 200.9413.1273.0



#### 8A.7.2 Optional circuit: series and tandem



Ø D	Type/Code	
	Standard	Section with valve UC - OA - C
SAE6	<b>K47</b> 200.9413.6052.0	<b>K52</b> 200.9413.6054.0
SAE8	<b>K48</b> 200.9413.7029.0	<b>K53</b> 200.9413.7030.0
3/8" BSP	<b>K50</b> 200.9413.2626.0	<b>K55</b> 200.9413.2627.0
M18X1.5	<b>K51</b> 200.9413.1274.0	<b>K56</b> 200.9413.1275.0

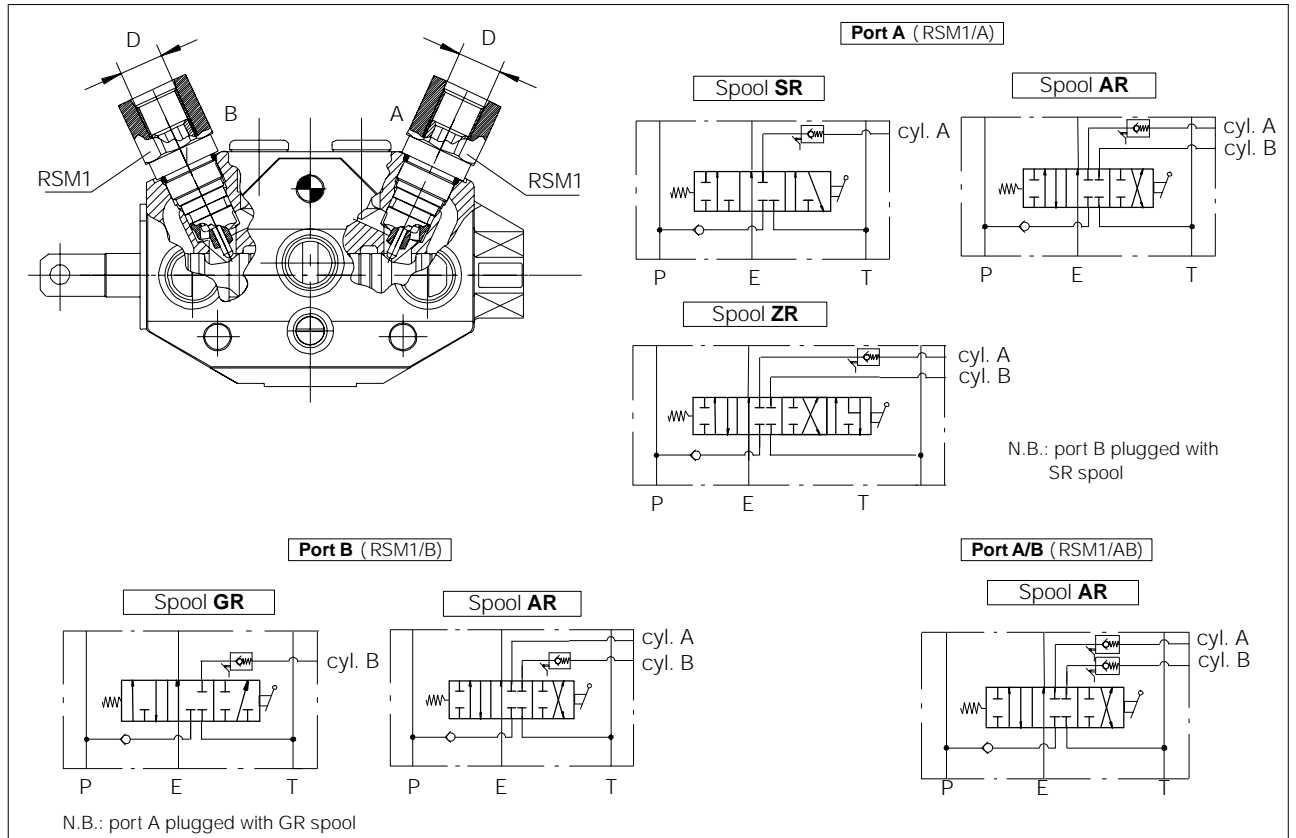


Note: Body code consist of machined casting, seals and hold check valve only. Not to be used for complete valve order.

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8A.7.3 Check valves with mechanical release RSM1 on A/B ports

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



### 8A.7.4 Directional control valve bodies for RSM1 valve

∅ D	RSM1/A		RSM1/B	RSM1/A-B	RSM1 Code
	Spool SR-AR	Spool ZR	Spool GR-AR	Spool AR	
	Type/Code	Type/Code	Type/Code	Type/Code	
SAE6	<b>K65</b> 200.9413.6061.0	—	<b>K66*</b> 200.9413.6062.0	<b>K62*</b> 200.9413.9014.0	200.7876.0192.0
3/8" BSP	<b>K63</b> 200.9413.2034.0	<b>K40**</b> 200.9413.2033.0	<b>K64*</b> 200.9413.2035.0		200.7876.0191.0
M18X1.5	<b>K60</b> 200.9413.1279.0	<b>K70**</b> 200.9413.1046.0	<b>K61*</b> 200.9413.1280.0		200.7876.0190.0

\*: K61 - K62 - K64 - K66 need special lever L153 - L353

\*\* : K40 - K70 need special lever L175-L375

Note: Body code consist of machined casting, seals and hold check valve only. Not to be used for complete valve order.

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

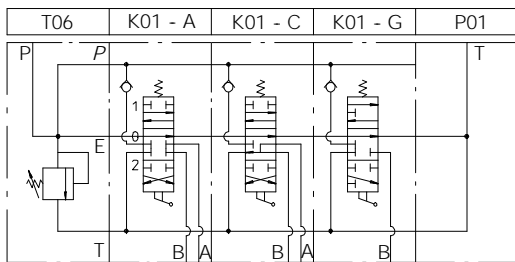
### 8A.8 Spool charts

Spool scheme	Spool features	Type
	4 way - 3 position A/B closed E open by pass	<b>A</b> <b>AR**</b>
	High metering spool (max flow suggested 15 l/min.)	<b>AS</b>
	4 way - 3 position A/B-E closed	<b>B</b>
	4 way - 3 position A/B to tank in neutral E open by pass	<b>C</b>
	3 way - 3 position B closed E open by pass	<b>G</b> <b>GR**</b>
	4 way - 4 position 4 <sup>th</sup> floating position	<b>Z</b> <b>ZR**</b>
	4 way - 4 position 4 <sup>th</sup> floating position	<b>WW</b> *

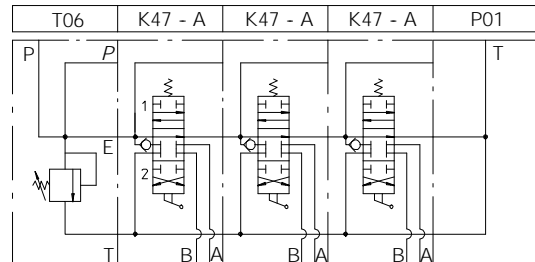
\*: "WW" spool require special body (K...), positioner (240) and lever (L192)  
 \*\*: special body required

### 8A.9 Hydraulic circuits

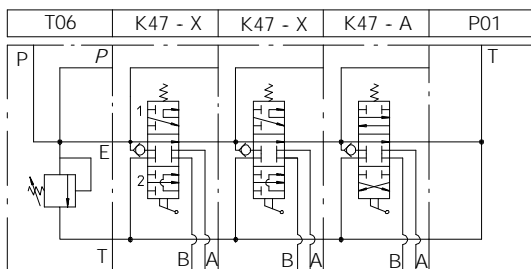
#### Standard parallel circuit



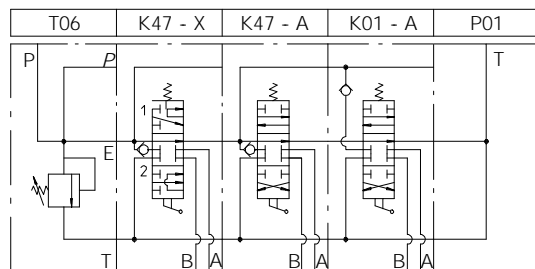
#### Optional tandem circuit



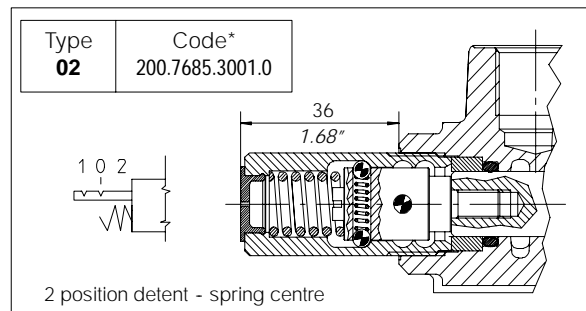
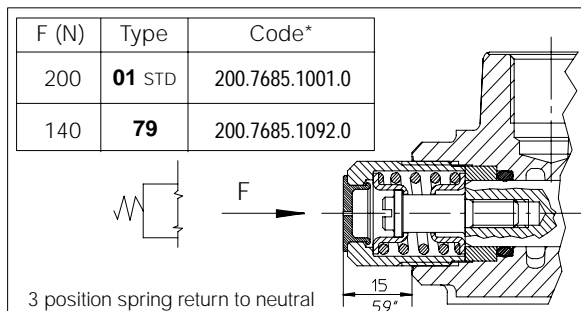
#### Optional series circuit



#### Combined parallel/series circuit

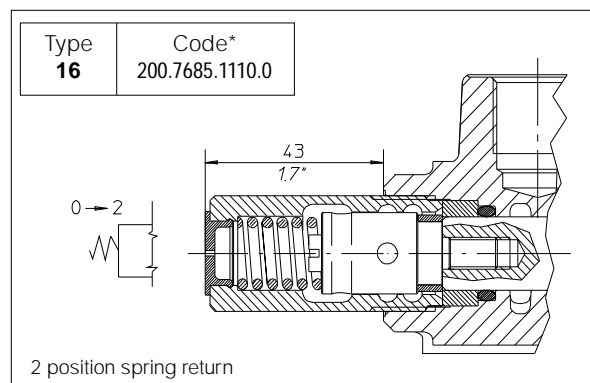
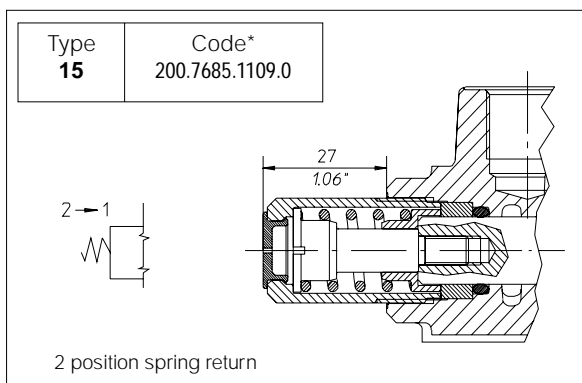
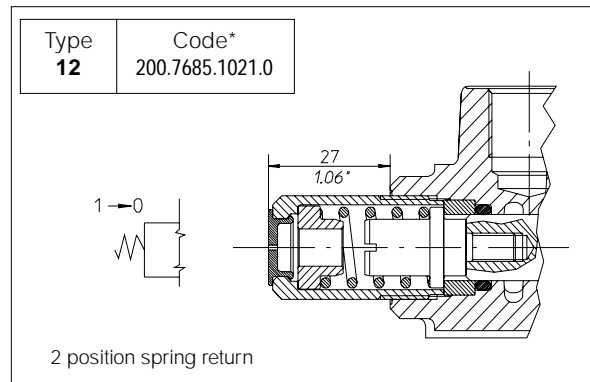
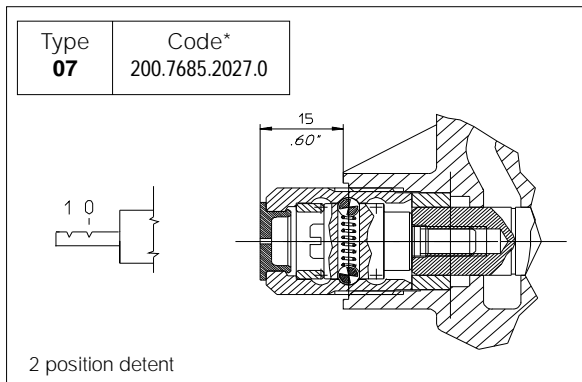
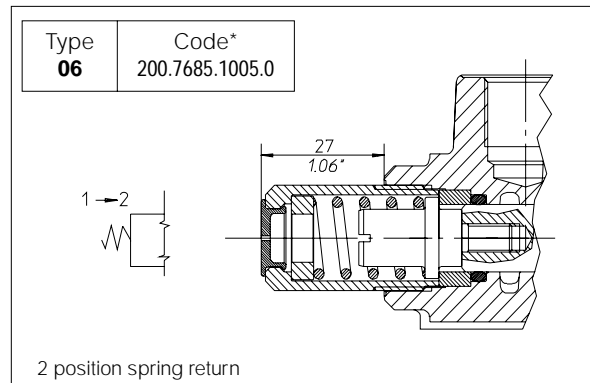
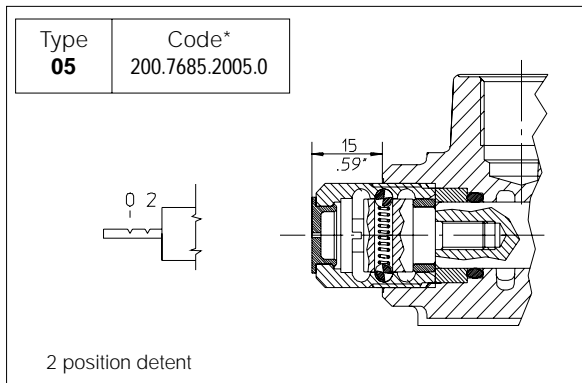
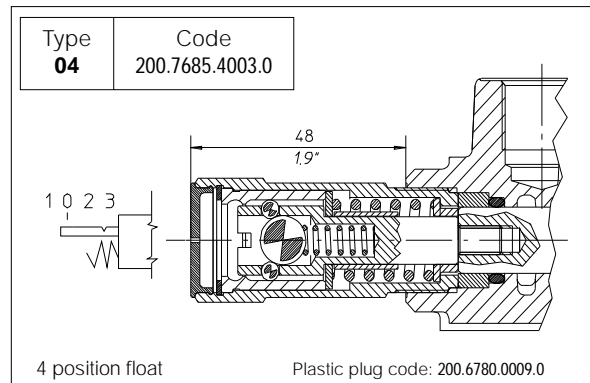
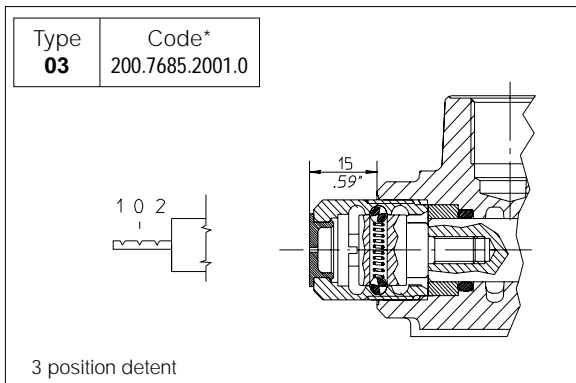


### 8A.10 Spool positioners



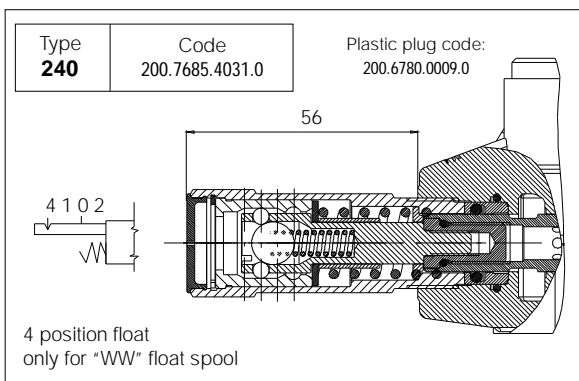
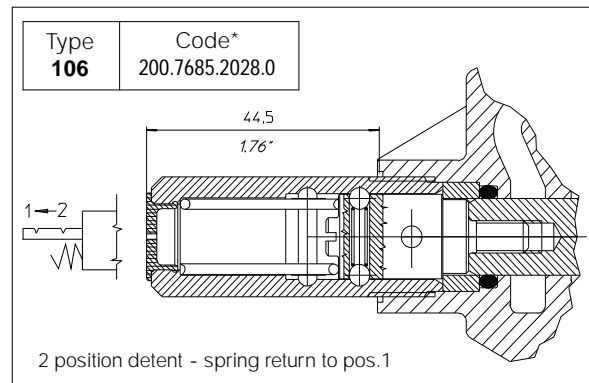
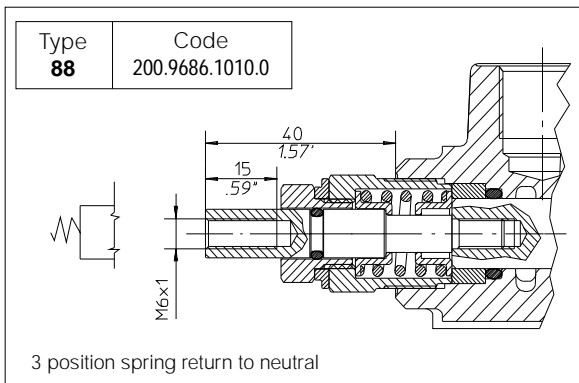
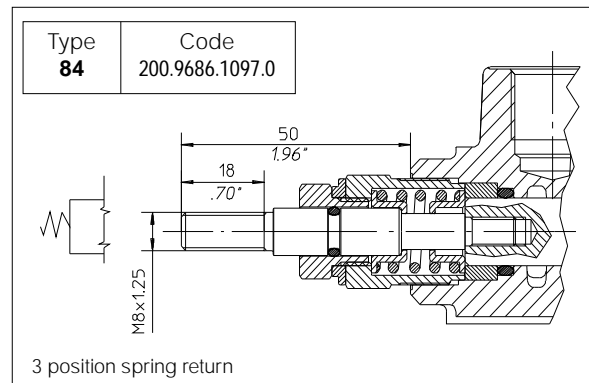
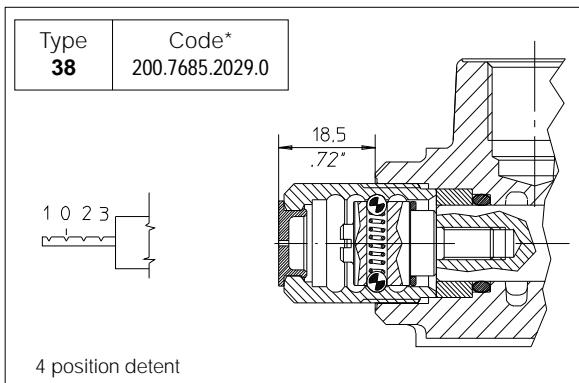
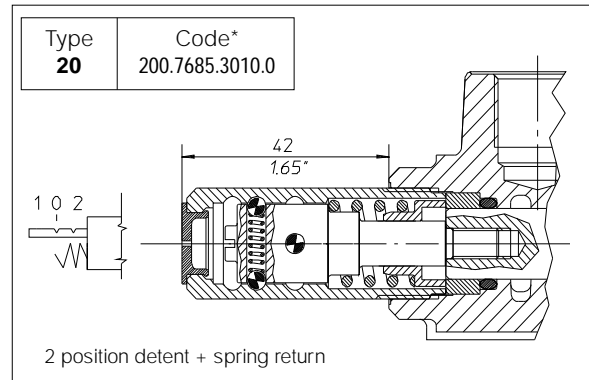
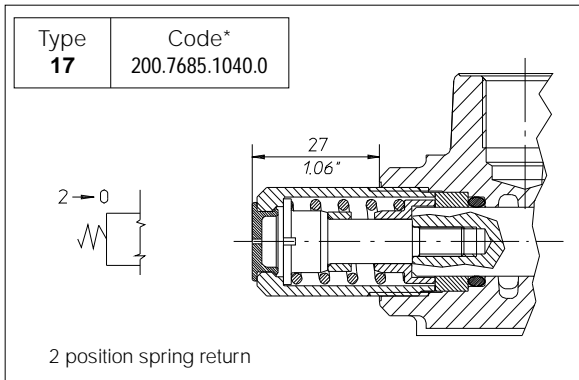
\*: code without plastic plug; plastic plug code: 200.6780.0008.0  
 Code F (N)\*\*: force in Newton (N) needed to operate the spool

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies



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

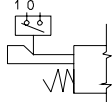
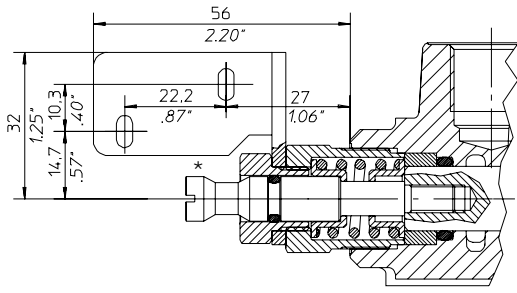
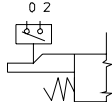
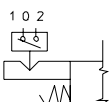
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies



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

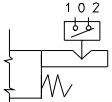
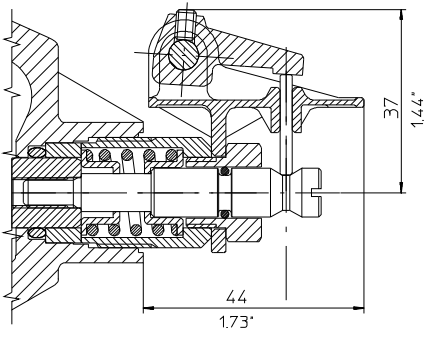
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8A.10.1 Microswitch control on each single element

Type <b>30</b>	Code 200.9686.1050.0	Microswitch is operated when the spool is in pos. 1		
Type <b>32</b>	Code 200.9686.1060.0	Microswitch is operated when the spool is in pos. 2		
Type <b>34</b>	Code 200.9686.1064.0	Microswitch is operated when the spool is in pos. 1 and 2		

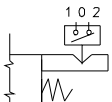
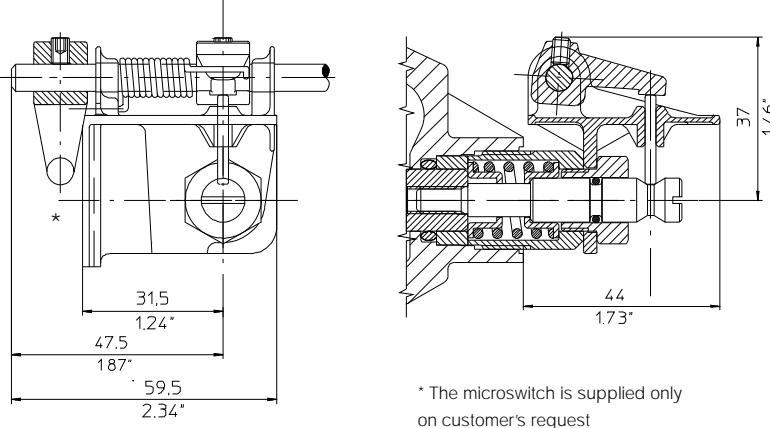
\* The microswitch is supplied only on customer's request

### 8A.10.2 Single microswitch control for multi-sectional valves (from 1<sup>st</sup> up to second-last element).

Type <b>39 (MSF)</b>	Code 200.9686.1139.0			
-------------------------	-------------------------	--	---	--

Microswitch is operated when the spool is in pos. 1 and 2

### 8A.10.3 Single microswitch control for multi-sectional valves (last element, T side).

Type <b>40 (MFL)</b>	Code 200.9686.1140.0			
-------------------------	-------------------------	--	---	--

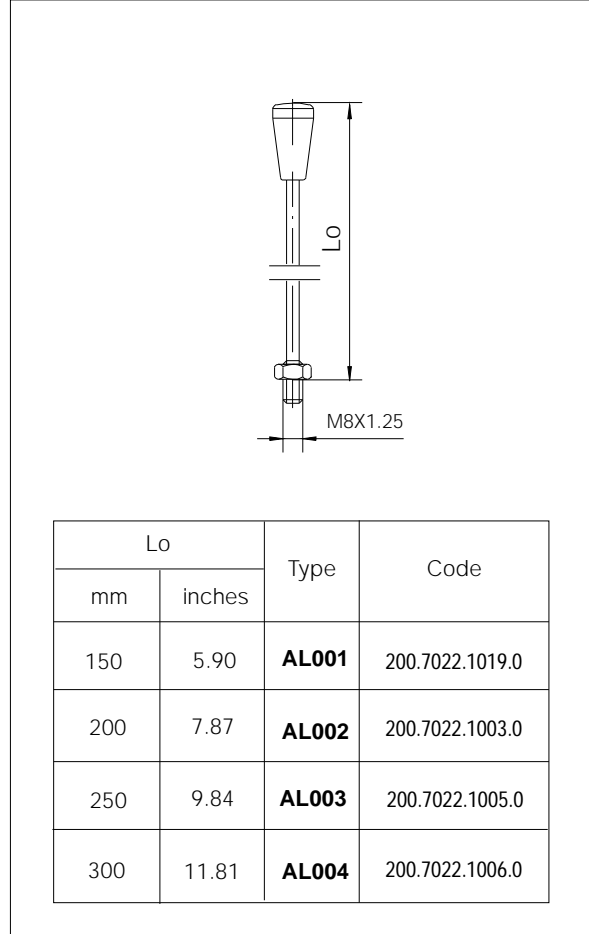
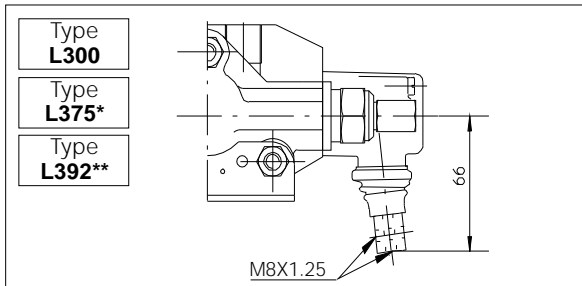
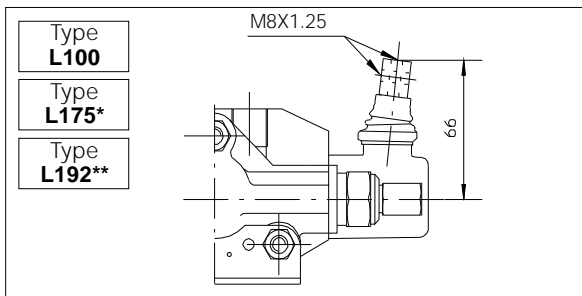
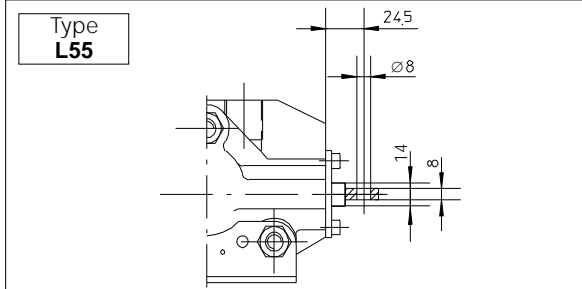
Microswitch is operated when the spool is in pos. 1 and 2

\* The microswitch is supplied only on customer's request

1 - Positioner 40 must be assembled only on the last element near T port  
2 - Positioner 40 require T port plugged. Use T1 on inlet cover

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

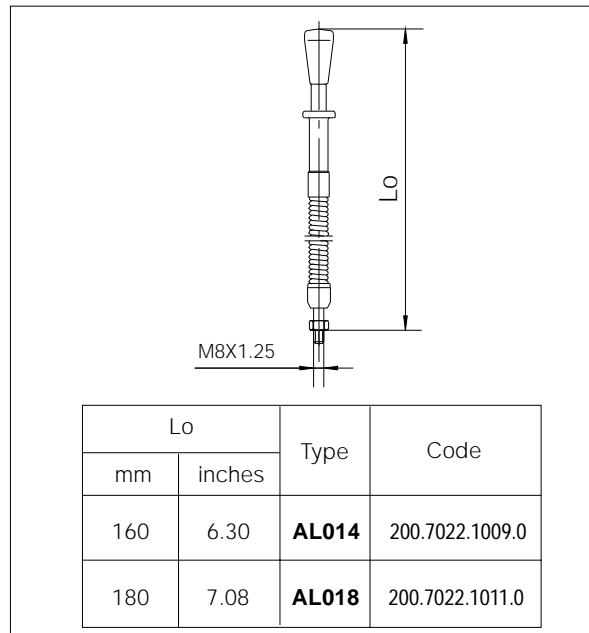
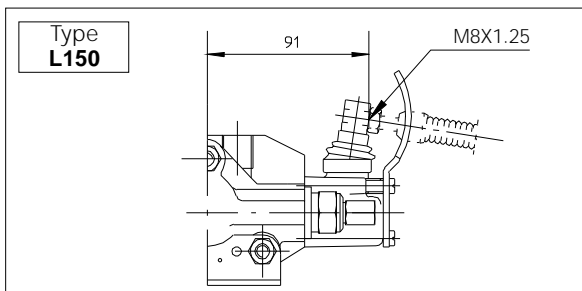
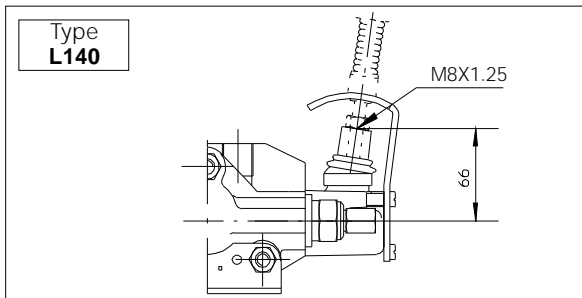
### 8A.11 Lever styles



\*: L175 - L375 only for "Z" spool application

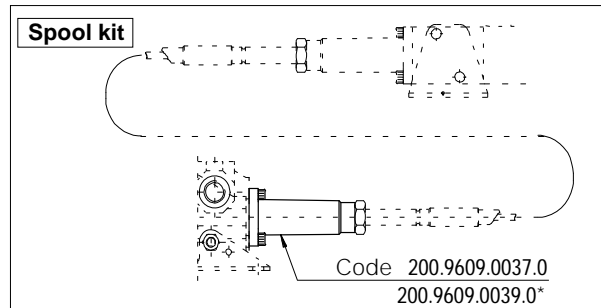
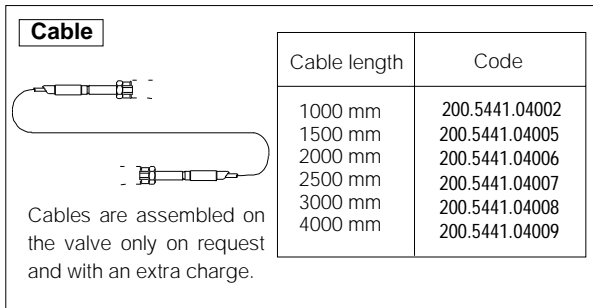
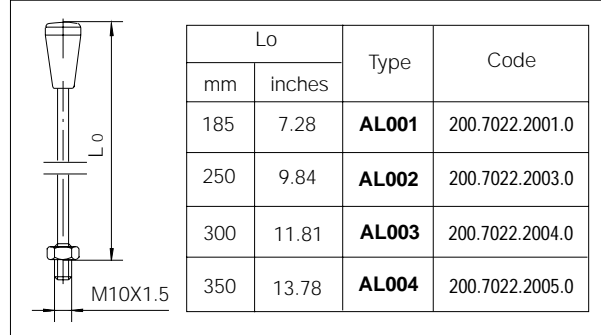
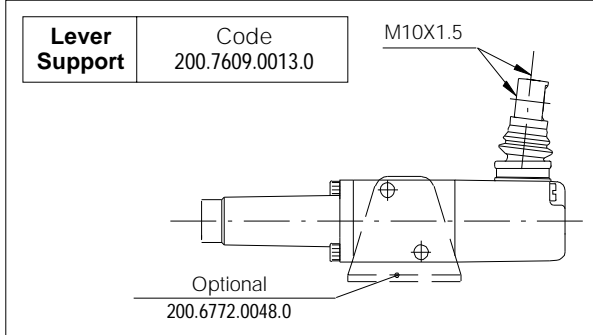
\*\* : L192 - L392 only for "WW" spool application

#### 8A.11.1 Safety levers

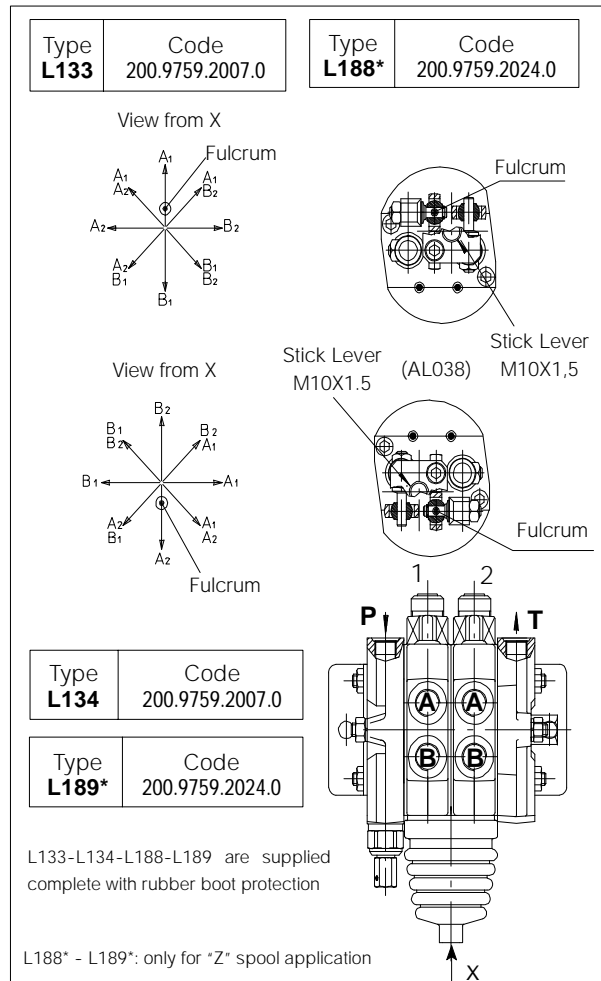
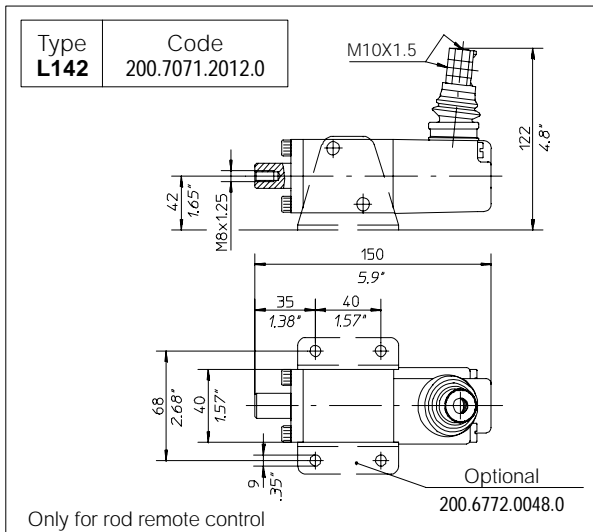


## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

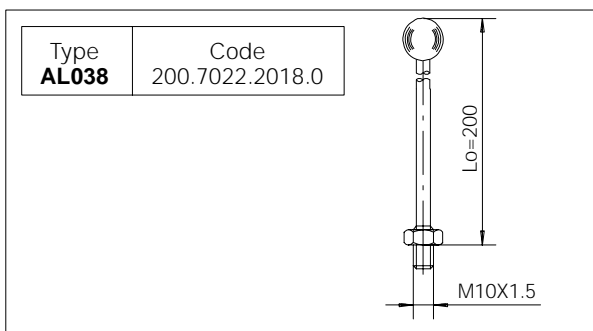
### 8A.11.2 Remote cable control



\* only for "Z" spool application



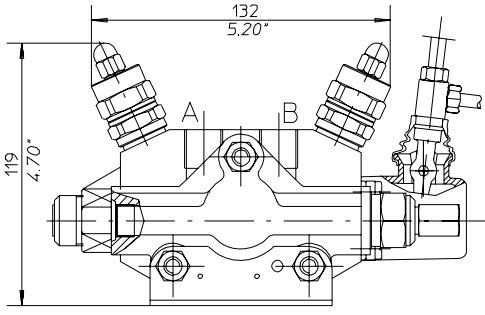
### 8A.11.3 Cross joystick for dual axis spool control





## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

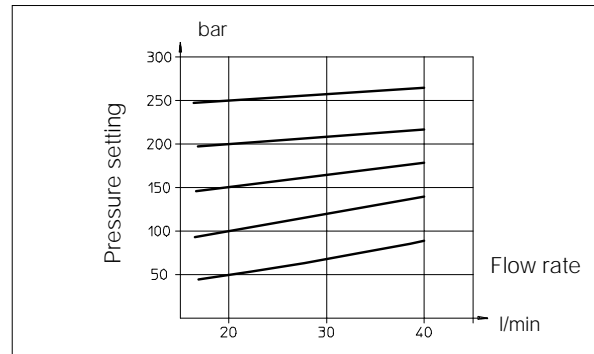
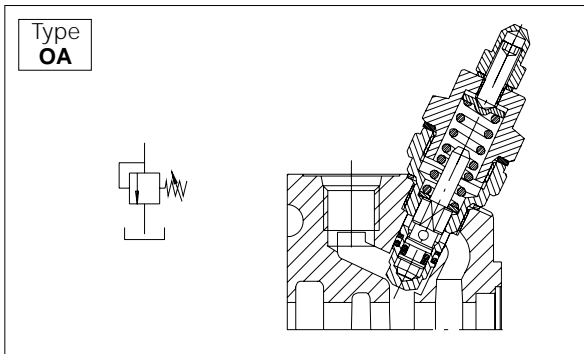
### 8A.12 Port relief and anti-cavitation valves



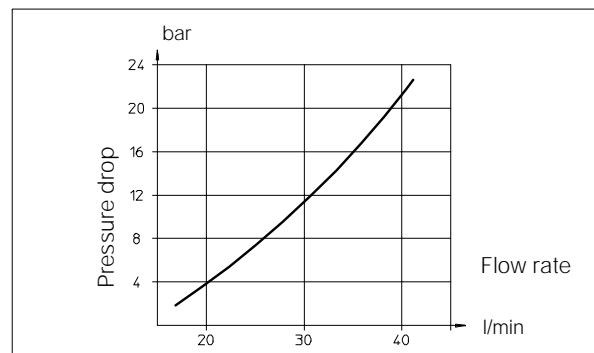
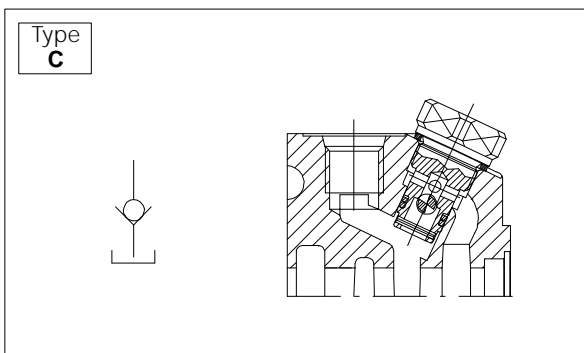
Port relief valve settings

Pressure set range bar (PSI)	Std. Setting bar (PSI)	Type	Spring colour
30 - 130 (400 - 1850)	60 (860)	<b>06</b>	Yellow (YE)
131 - 320 (1850 - 4600)	150 (2100)	<b>15</b>	Green (GR)

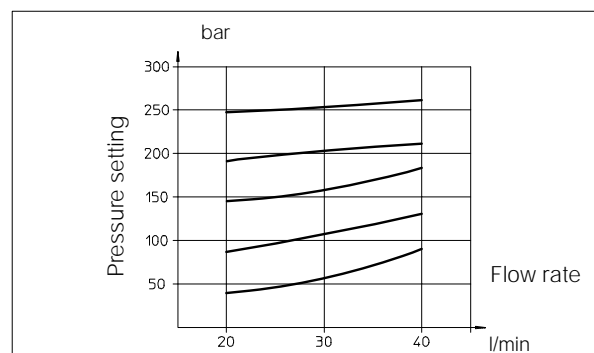
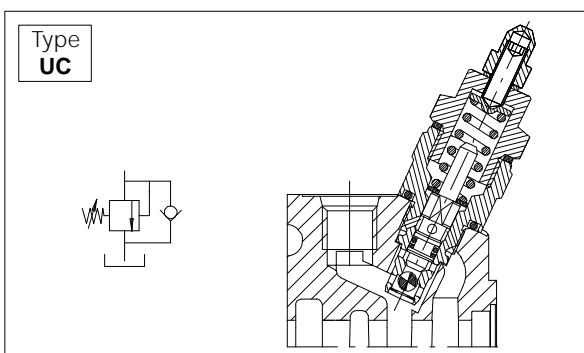
#### 8A.12.1 Port relief valve



#### 8A.12.2 Anti-cavitation valve



#### 8A.12.3 Combined port relief and anti-cavitation valve



## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8A.13 Hydraulic-Pneumatic control ON-OFF

Type	Code
<b>HP 24</b>	200.9686.5049.0

Operating conditions  
Hydraulic control:  
Pressure range: (bar) Min. 6 - Max. 15  
(PSI) Min. 85 - Max. 215  
Pneumatic control:  
Pressure range: (bar) Min. 6 - Max. 10  
(PSI) Min. 85 - Max. 145

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8B Electromagnetic control EMC (ON-OFF)

#### 8B.1 General specifications

Technical specification		
Max flow rate	l/min U.S.G.P.M.	40 11
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 on the channel "T"	bar PSI	20 290
Oil temperature	° C ° F	-10 to +80 14 to 180
Oil viscosity	mm <sup>2</sup> /sec	20 to 50
Oil filtration	μ	≤25

Spool leakage at 100 bar (1450 PSI), Temp. 50° C (120° F), viscosity 27 mm <sup>2</sup> /sec:		
Maximum	cm <sup>3</sup> /min Cu. In./min	16 1.138
Average	cm <sup>3</sup> /min Cu. In./min	12 0.854

Number of spools	1 to 10
Adjustable direct operated relief valve (tamper-proof seal available on request)	RV
Load hold check valve in each section	LC
Cartridge anti-shock, anti-cavitation and service relief valve	OA-UC-C

#### 8B.1.1 Material specification:

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

#### 8B.1.2 Optional features available

Series circuit;  
Load sensing circuit;  
Spool 3-way or 4-way at 2-3 positions;  
Port relief and anti-cavitation valves -OA-UC-C-  
Cross port relief valve - AA-

Pilot - Actuated Check Valve - RP-

#### 8B.1.3 Ports

P-T-P<sub>1</sub>-T<sub>1</sub>-A-B-HPCO . . . . . (M18X1.5 - 3/8" BSP  
-SAE6 - SAE8)

#### 8B.1.4 Input voltages

Continuous Current . . . . . 12VDC - 24VDC \*

#### 8B.1.5 Solenoid specification

Technical specification		
Continuous current voltage	V. D.C.	12 (24) +5% -10%
Power consumption	Watt (W)	36 (37)
Intensity of current	Ampere (A)	3 (1.55)
Resistance	Ohm (Ω)	4 (15.5)
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.

#### 8B.1.6 Mechanical specification

Spool diameter . . . . . 10 mm  
Spool stroke . . . . . 2.50 mm  
Overlapping . . . . . 1.25 mm  
Internal passage . . . . . 10 mm  
Dimensional section (width) . . . . . 40 mm

#### 8B.1.7 Weight

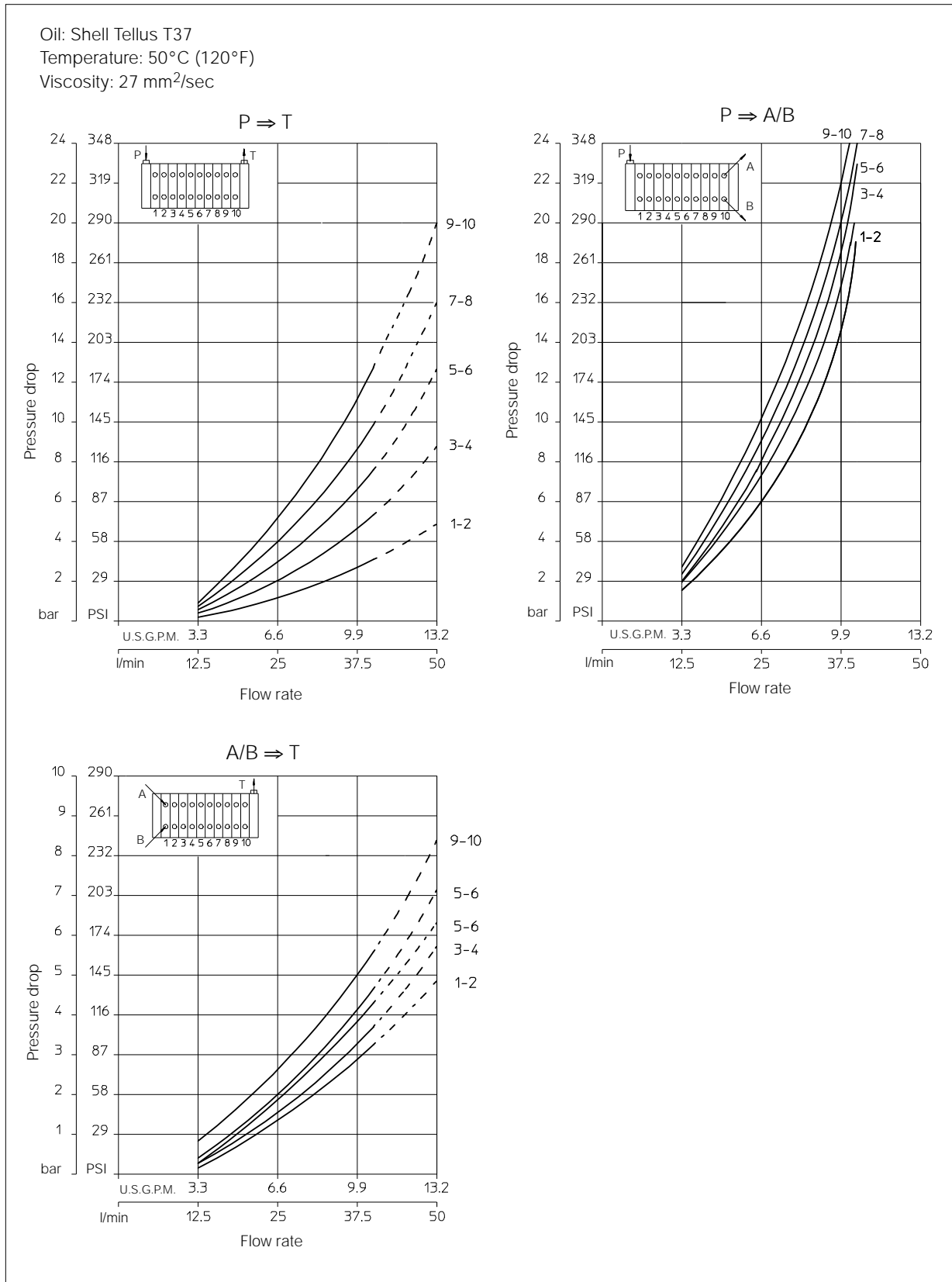
Version	kg	lb
Inlet with RV and P	1.0	2.23
1 spool section with 2 solenoid	2.50	5.50
1 spool with 1 solenoid	2.10	4.62
End cover with T and HPCO	0.75	1.65

\* for non indicated tension valves, please contact our Sales Department



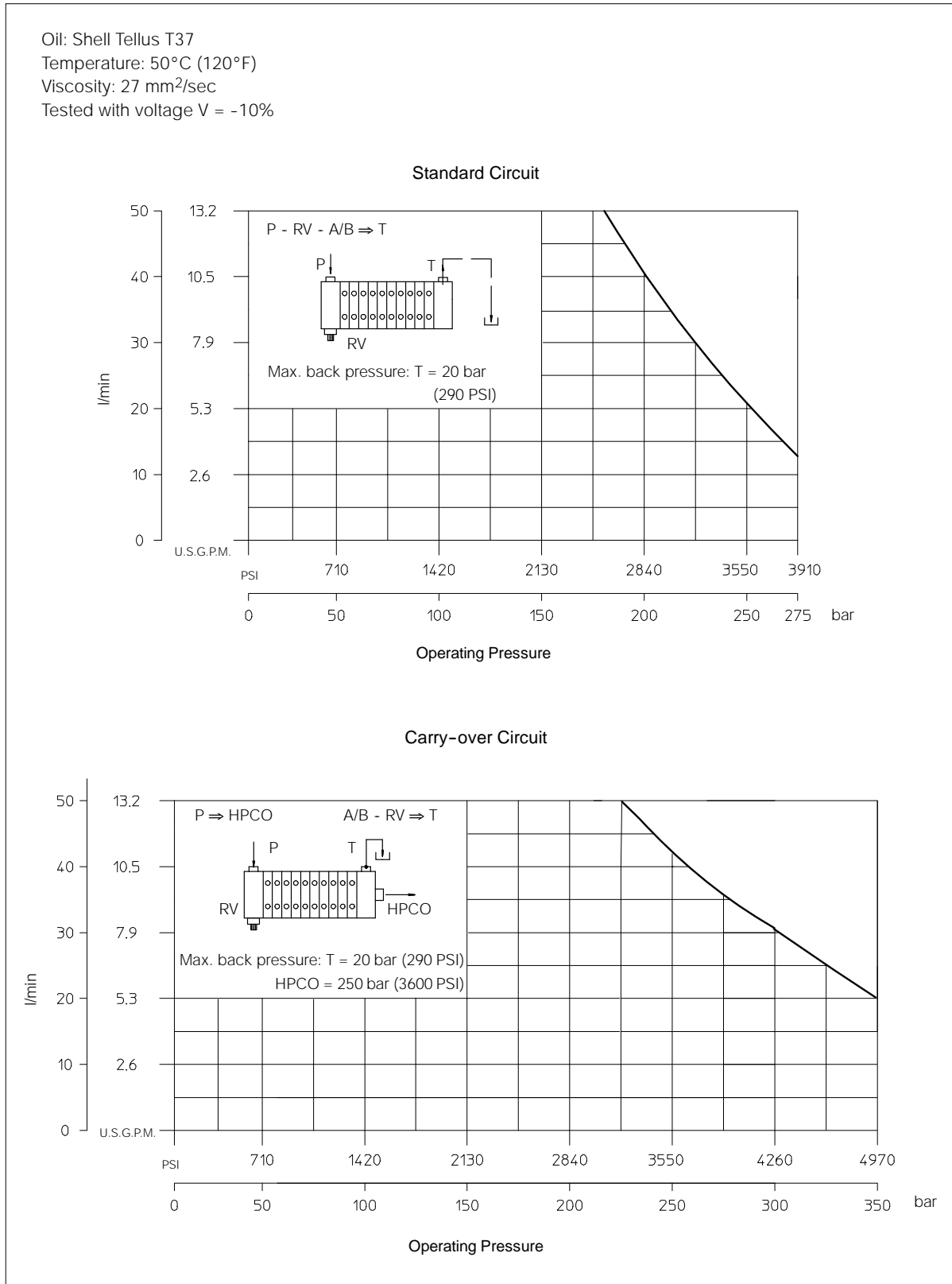
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8B.3 Performance curves



## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

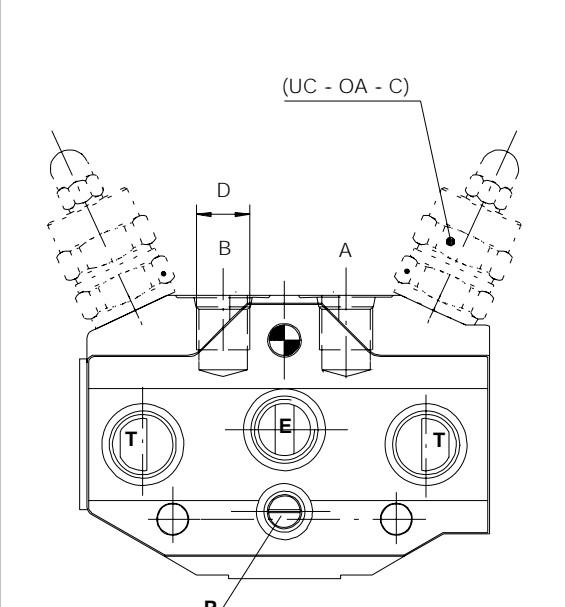
### 8B.4 Operating limits



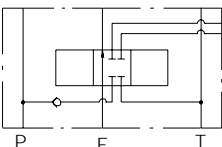
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8B.5 Sectional bodies

#### 8B.5.1 Standard circuit: parallel

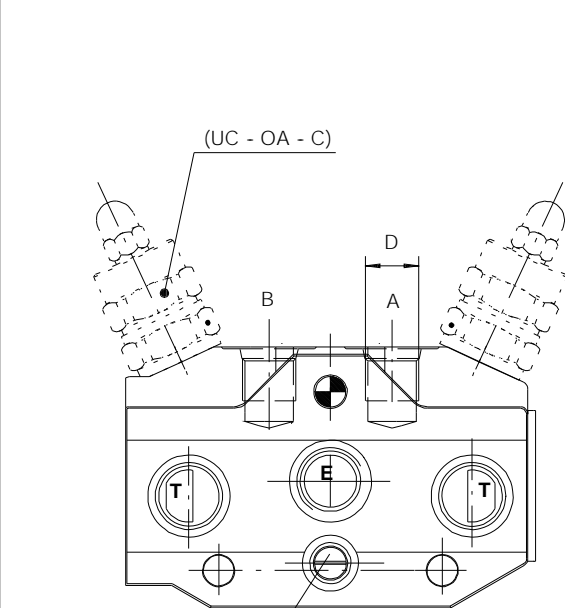


Ø D	Type/Code	
	Standard	Section with valve UC- OA- C
SAE6	<b>K201</b> 200.9413.6055.0	<b>K211</b> 200.9413.6060.0
SAE8	<b>K202</b> 200.9413.7031.0	<b>K212</b> 200.9413.7032.0
3/8" BSP	<b>K204</b> 200.9413.2628.0	<b>K214</b> 200.9413.2629.0
M18X1.5	<b>K205</b> 200.9413.1276.0	<b>K215</b> 200.9413.1277.0

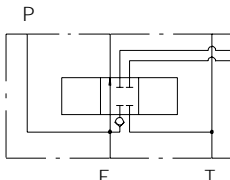


cyl. A  
cyl. B

#### 8B.5.2 Optional circuit: series and tandem



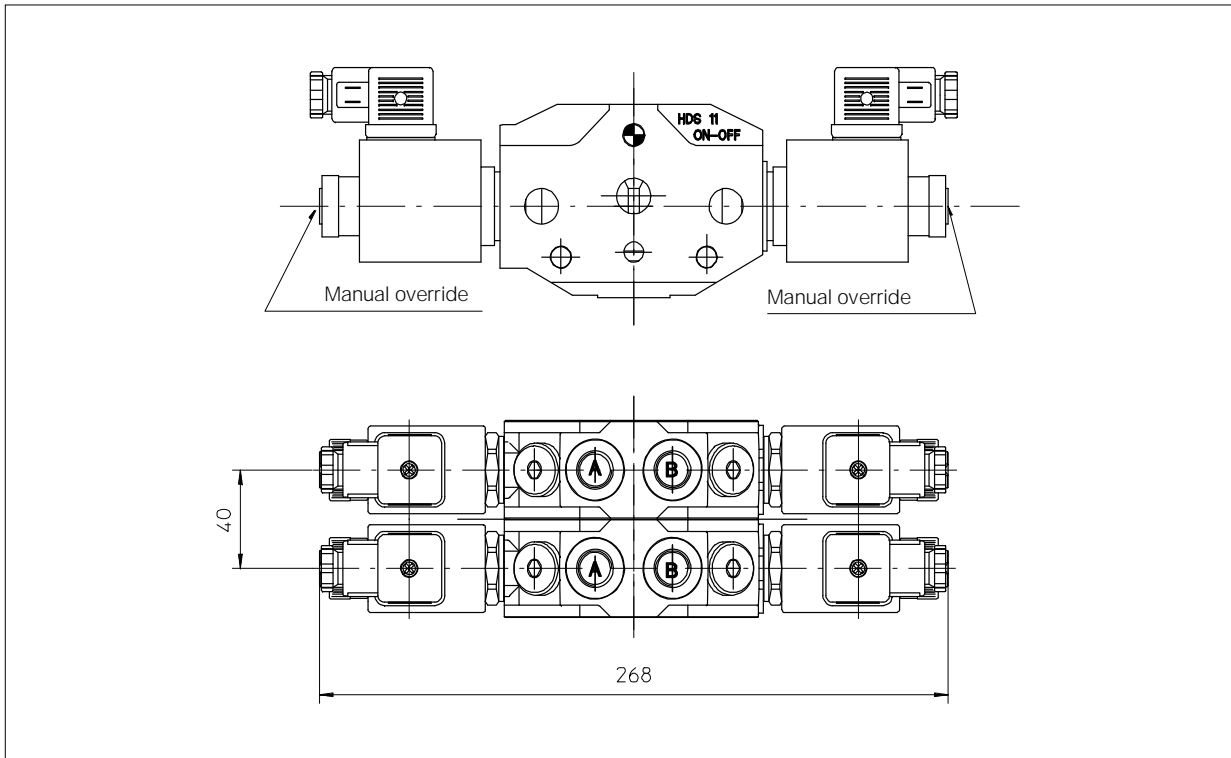
Ø D	Type/Code	
	Standard	Section with valve UC- OA- C
SAE6	<b>K247</b> 200.9413.6066.0	<b>K252</b> 200.9413.6070.0
SAE8	<b>K248</b> 200.9413.7039.0	<b>K253</b> 200.9413.7042.0
3/8" BSP	<b>K250</b> 200.9413.2042.0	<b>K255</b> 200.9413.2036.0
M18X1.5	<b>K251</b> 200.9413.1034.0	<b>K256</b> 200.9413.1037.0



cyl. A  
cyl. B

Note: Body code consist of machined casting, seals and hold check valve only. Not to be used for complete valve order.

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies



### 8B.6 Spool charts

Spool scheme	Spool features	Type
	4 way - 3 position A/B closed E open by pass	<b>AE</b>
	4 way - 3 position A/B-E closed	<b>BE</b>
	4 way - 3 position A/B to tank in neutral E open by pass	<b>CE</b>
	4 way - 3 position A closed B to tank in neutral	<b>DE</b>
	3 way - 3 position B closed E open by pass	<b>GE</b>
	4 way - 3 position B closed A to tank in neutral	<b>LE</b>
	3 way - 3 position A closed E open by pass	<b>SE</b>

	4 way - 3 position A/B closed series connection	<b>XE*</b>
	4 way - 3 position A/B to tank in neutral series connection	<b>XCE*</b>
	4 way - 3 position A/B closed Load Sensing	<b>LAE**</b>
	4 way - 3 position A/B to tank in neutral Load Sensing	<b>LCE**</b>
	3 way - 3 position B closed Load Sensing	<b>LGE**</b>
	3 way - 3 position A closed Load Sensing	<b>LSE**</b>
* series body required ** special body required		

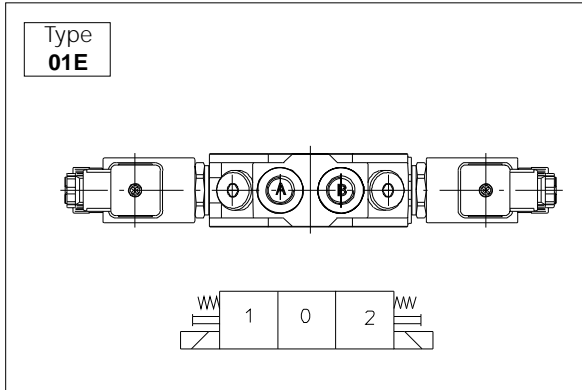
Note: For availability of L/S versions please contact our Sales Department



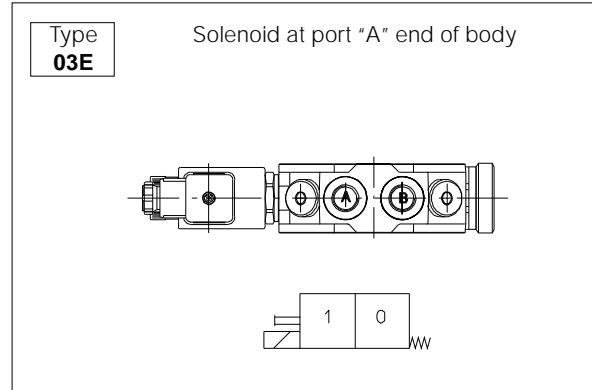
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8B.7 Spool actions

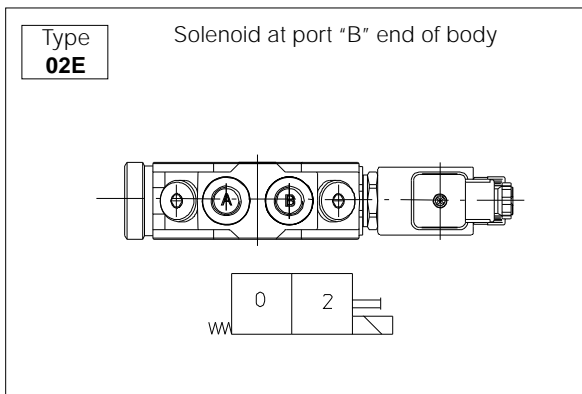
#### 8B.7.1 Double-Solenoid spring-centered valves



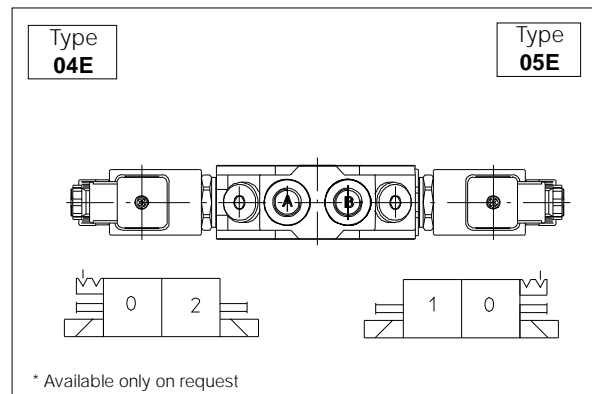
#### 8B.7.3 Single Solenoid spring offset valves



#### 8B.7.2 Single Solenoid spring offset valves



#### 8B.7.4 Double Solenoid, two detent position valves\*



### 8B.8 4<sup>th</sup> Floating position

#### 8B.8.1 Main features

Max operating pressure: ..... 250 bar  
 Max admitted flow: ..... 35 l/min

Average leakage: 30 cm<sup>3</sup>/min (100 bar, 50°C, 27 mm<sup>2</sup>s<sup>-1</sup>)  
 Solenoid power: ..... 48 Watt (12-24 Vdc)

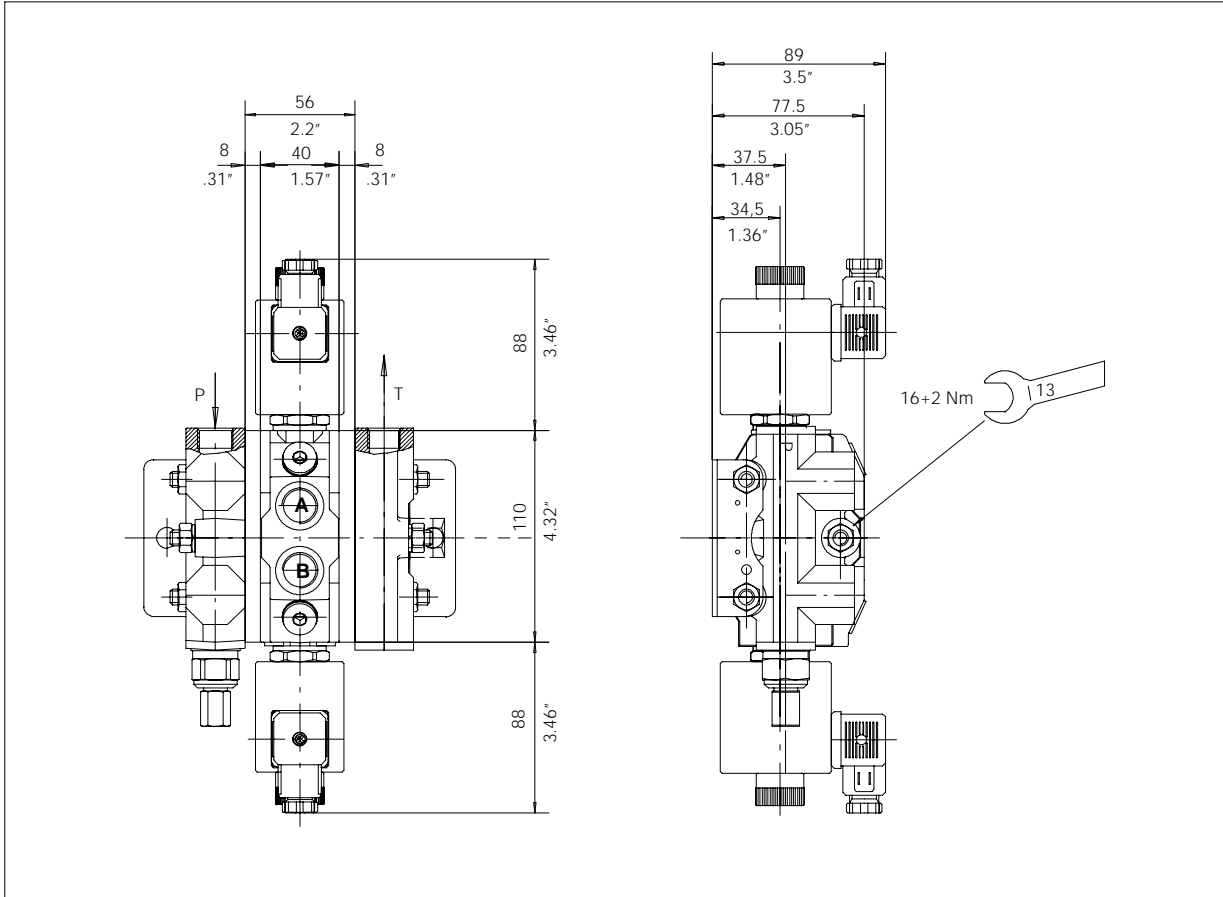
#### 8B.8.2 General specification

- Pressure drops with 35 lt/min:
- Pos 0
- P ⇒ T ..... 2 bar
- Pos 1 and 2
- P ⇒ A / P ⇒ B ..... 9 bar
- B ⇒ T / A ⇒ T ..... 5.5 bar
- Pos 3 (4<sup>th</sup> floating position)
- A ⇒ T / B ⇒ T ..... 12.5 bar
- Parallel circuit, electric operated
- Compatible for assembling on HDS11 valve series
- Intermediate spacers 15 mm width needed

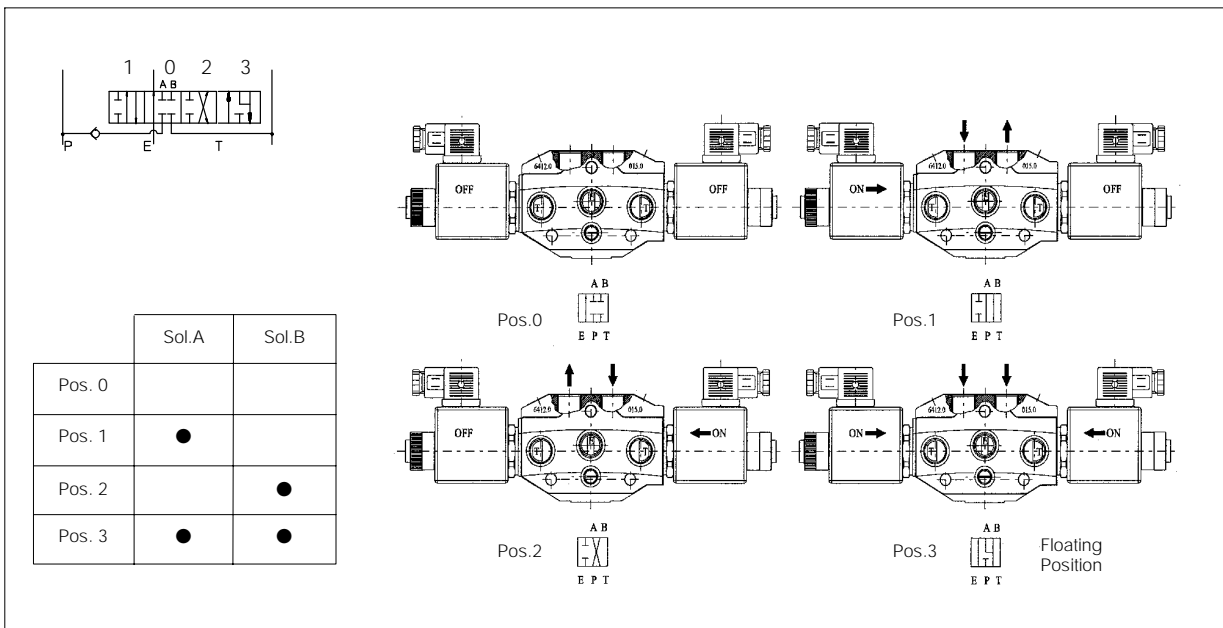
- In case the directional control valve consists of 2 or more sections, we suggest to position the section (or the sections) with 4<sup>th</sup> floating position as last section in the pack close to the "T" outlet cover.
- In the electric 4<sup>th</sup> floating position it is necessary to use always the cover with "T" side outlet (ex. P04, P05, etc.)
- To be used, if possible, in circuits without the carry-over version (on the contrary please contact our Sales Department)
- The 4<sup>th</sup> floating position must always be realized as from the "0" neutral position with both solenoids not energized.
- It is not possible to have versions with OA-C-UC valves with the 4<sup>th</sup> floating position section.

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8B.8.3 Dimensional data



### 8B.8.4 Hydraulic circuit



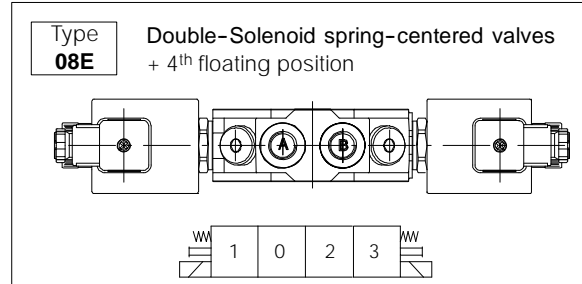
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8B.8.5 Spool chart

Spool scheme	Spool features	Type
	4 way - 4 position 4 <sup>th</sup> floating electric position	<b>ZE*</b>

\* Special body required

### 8B.8.6 Spool action



### 8B.8.7 Sectional body and manifold

Ø D	Type/Code
	Standard
SAE6	<b>K225</b> 200.9413.6071.0
SAE8	<b>K226</b> 200.9413.7043.0
3/8" BSP	<b>K227</b> 200.9413.2633.0
M18X1.5	<b>K228</b> 200.9413.1289.0

H	Code
8 mm	200.7649.0035.0

(\*) bodies with ports for OA-UC valves are not available

## 8C Elements with pressure and flow control PQ

### 8C.1 General specifications

Max continuous operating pressure supply port P ..... 250 bar  
 Max intermittent peak pressure work port A/B ..... 320 bar  
 Max back pressure tank port T ..... 30 bar  
 Nominal flow ..... max. 50 l/min

Adjustable setting flow range on 350° turning-knob:  
 Min flow ..... 0 l/min  
 Max flow (input) ..... 40 l/min

Fixed priority flow ..... VDPF = 0 to 40 l/min  
 Adjustable priority flow ..... VDP 06 = 0 to 6 l/min  
 ..... VDP 12 = 0 to 12 l/min  
 ..... VDP 25 = 0 to 25 l/min  
 ..... VDP 40 = 0 to 40 l/min

Control accuracy ..... ± 5 %  
 Pressure difference  $\Delta p$  ..... max. 6 bar  
 Oil temperature range ..... -10° to +80° C  
 Viscosity range ..... 16 to 75 mm<sup>2</sup>/sec  
 Recommended filtration ..... ≤ 25 micron

Adjustable direct acting:  
 Relief valve on the lines ..... Inlet flow: RV1  
 ..... Priority flow: RV2  
 ..... Residual flow: RV3

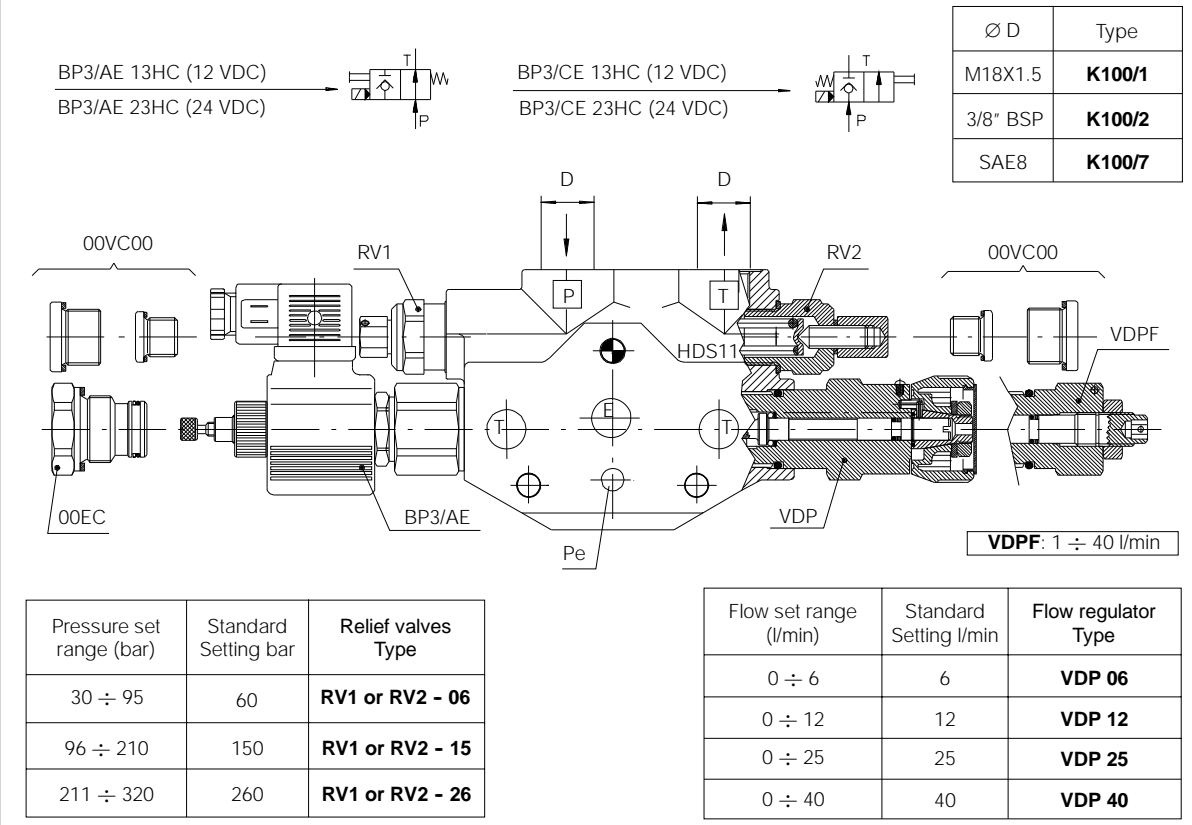
By-pass solenoid valve ..... BP3/AE  
 ..... BP3/CE

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

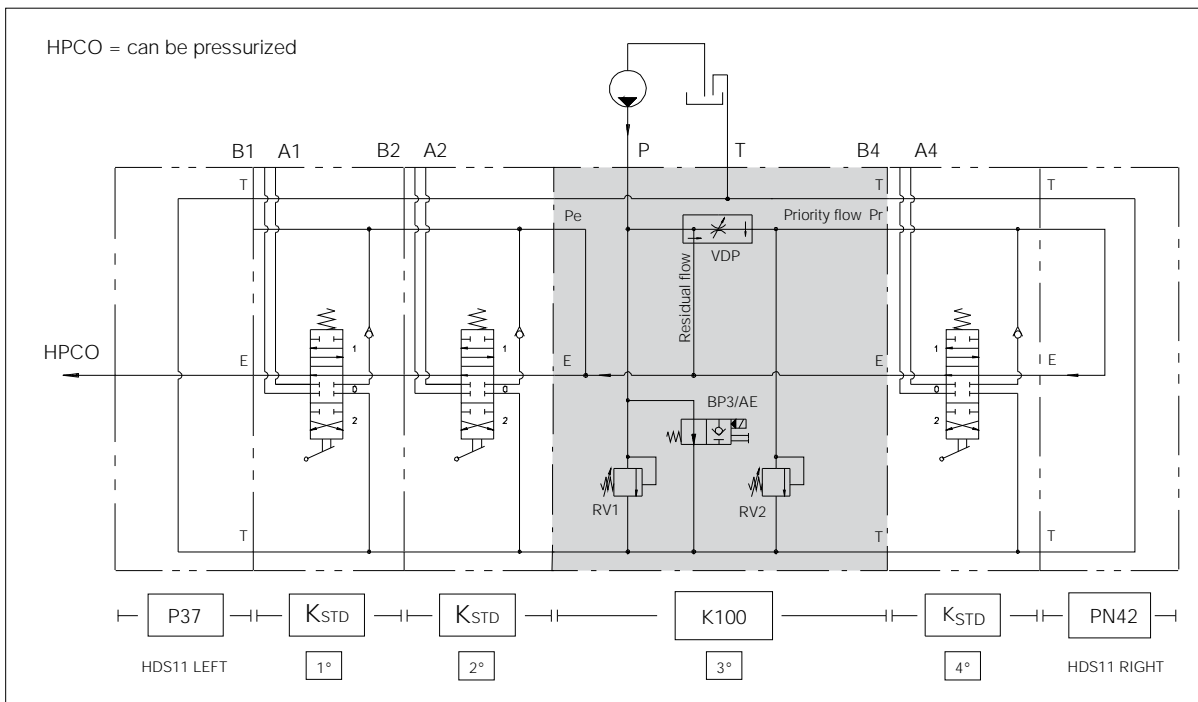
### 8C.2 Sectional body K100

#### 8C.2.1 Application variation

Intermediate section with priority flow divider pressure compensated valve, pressure relief valves and by-pass valve.



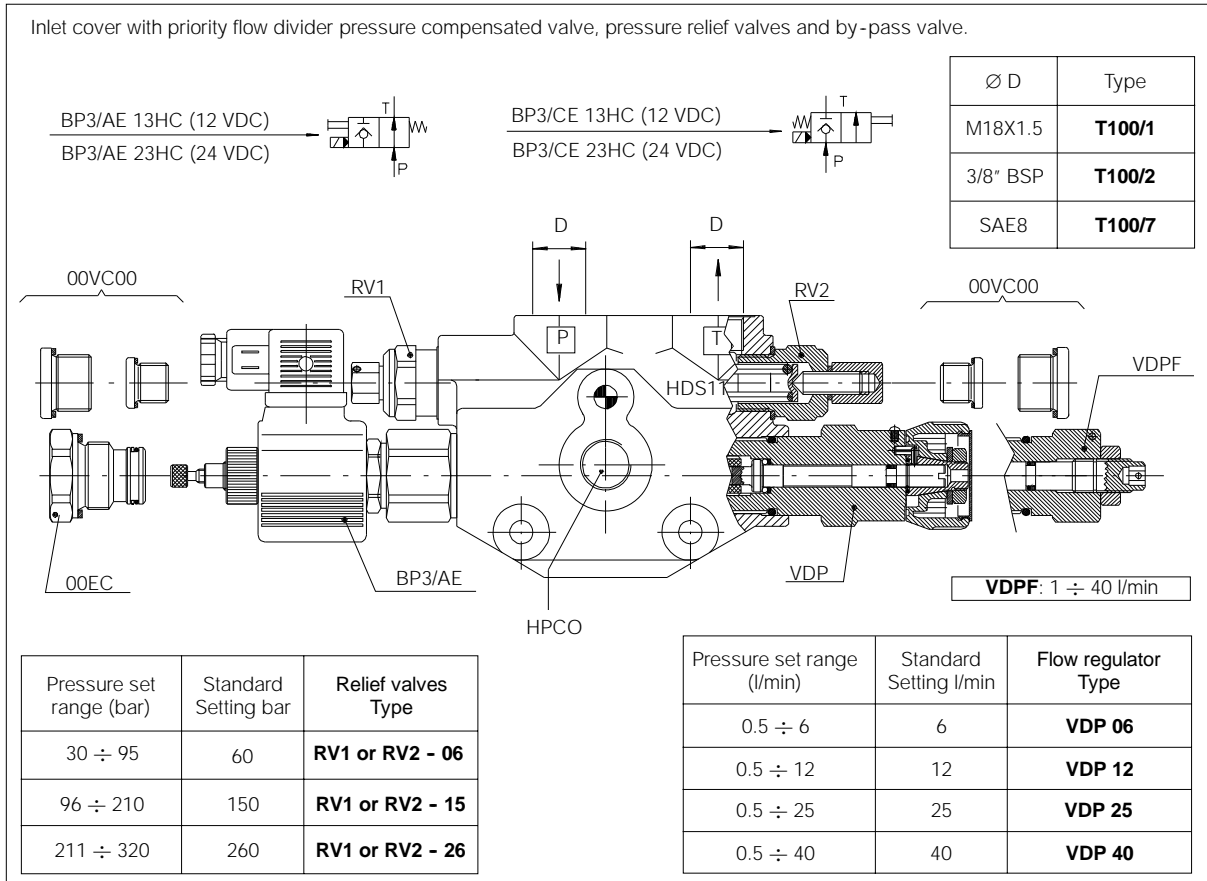
#### 8C.2.2 Scheme example



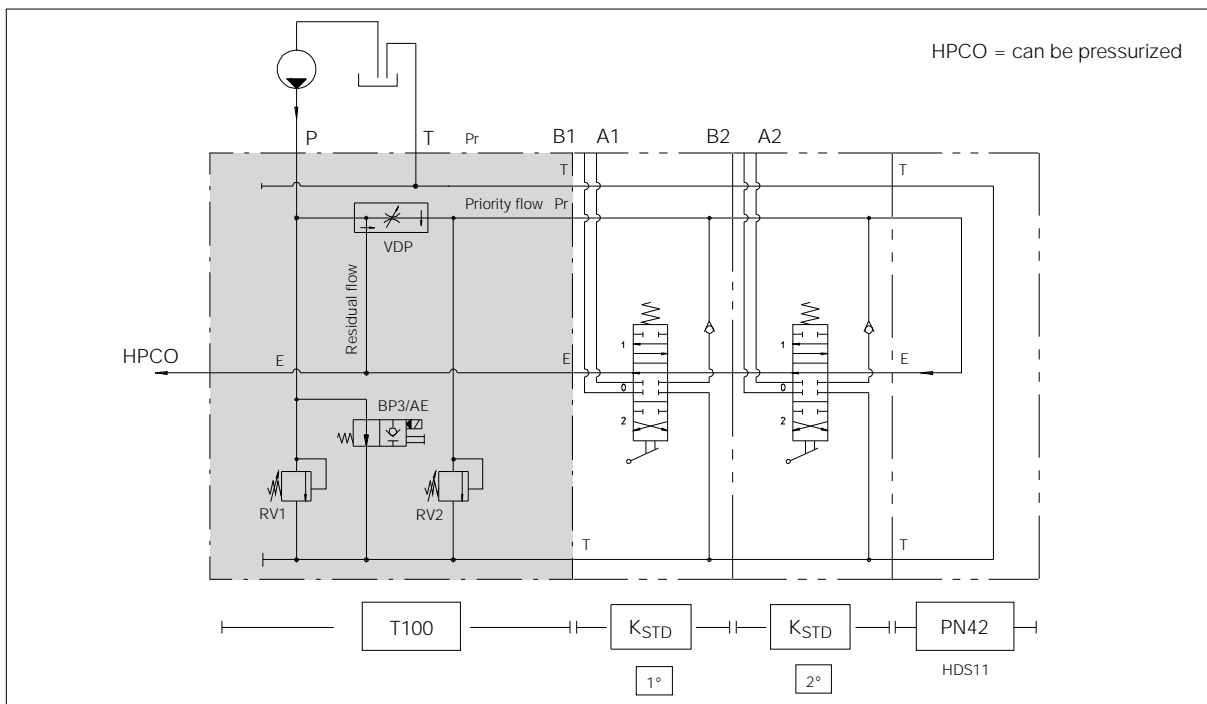
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8C.3 Inlet cover T100

#### 8C.3.1 Application variation



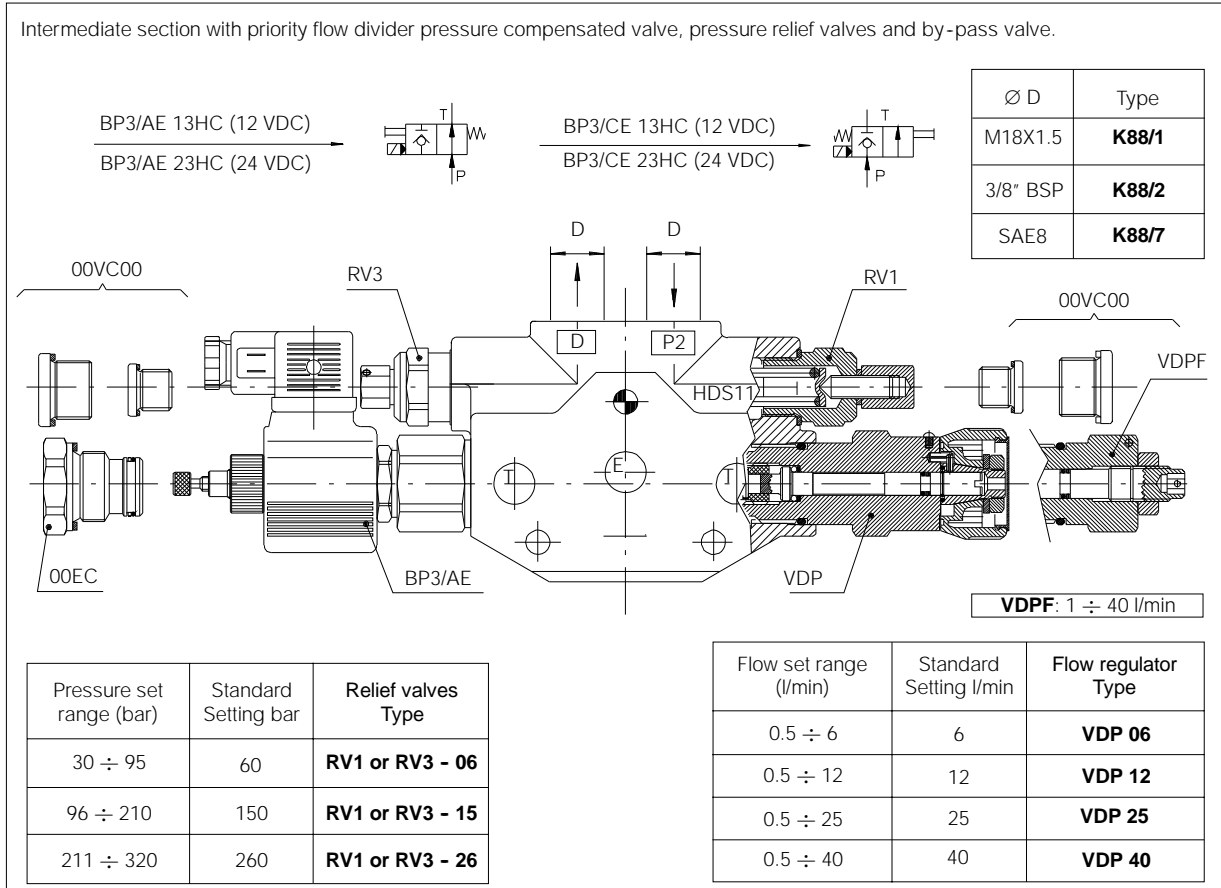
#### 8C.3.2 Scheme example



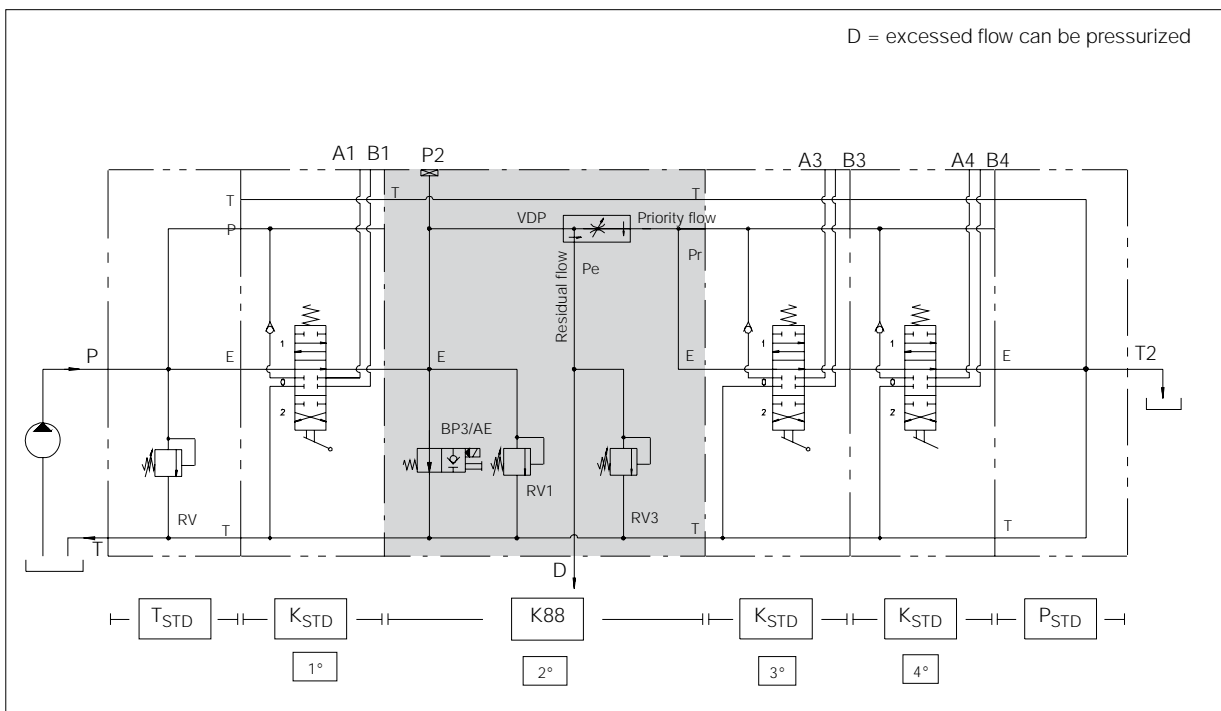
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8C.4 Sectional body K88

#### 8C.4.1 Application variation



#### 8C.4.2 Scheme example



## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8C.5 Inlet cover T88

#### 8C.5.1 Application variation

Inlet cover with priority flow divider pressure compensated valve, pressure relief valves and by-pass valve.

Ø D	Type
M18X1.5	<b>T88/1</b>
3/8" BSP	<b>T88/2</b>
SAE8	<b>T88/7</b>

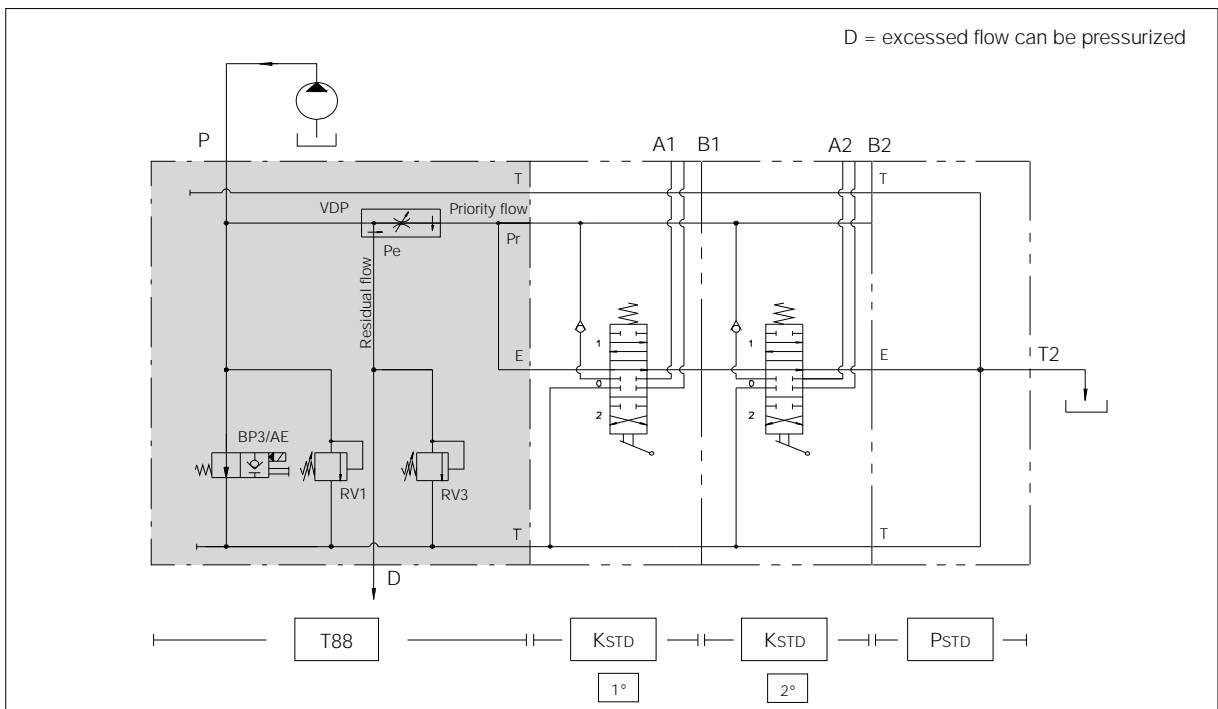
Pressure set range (bar)	Standard Setting bar	Relief valves Type
30 ÷ 95	60	<b>RV1 or RV3 - 06</b>
96 ÷ 210	150	<b>RV1 or RV3 - 15</b>
211 ÷ 320	260	<b>RV1 or RV3 - 26</b>

Flow set range (l/min)	Standard Setting l/min	Flow regulator Type
0.5 ÷ 6	6	<b>VDP 06</b>
0.5 ÷ 12	12	<b>VDP 12</b>
0.5 ÷ 25	25	<b>VDP 25</b>
0.5 ÷ 40	40	<b>VDP 40</b>

**VDPF: 1 ÷ 40 l/min**

#### 8C.5.2 Scheme example



## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8C.6 Sectional body K90

#### 8C.6.1 Application variation

Intermediate section with priority flow divider pressure compensated valve, pressure relief valves and by-pass valve.  
Excess flow to tank.

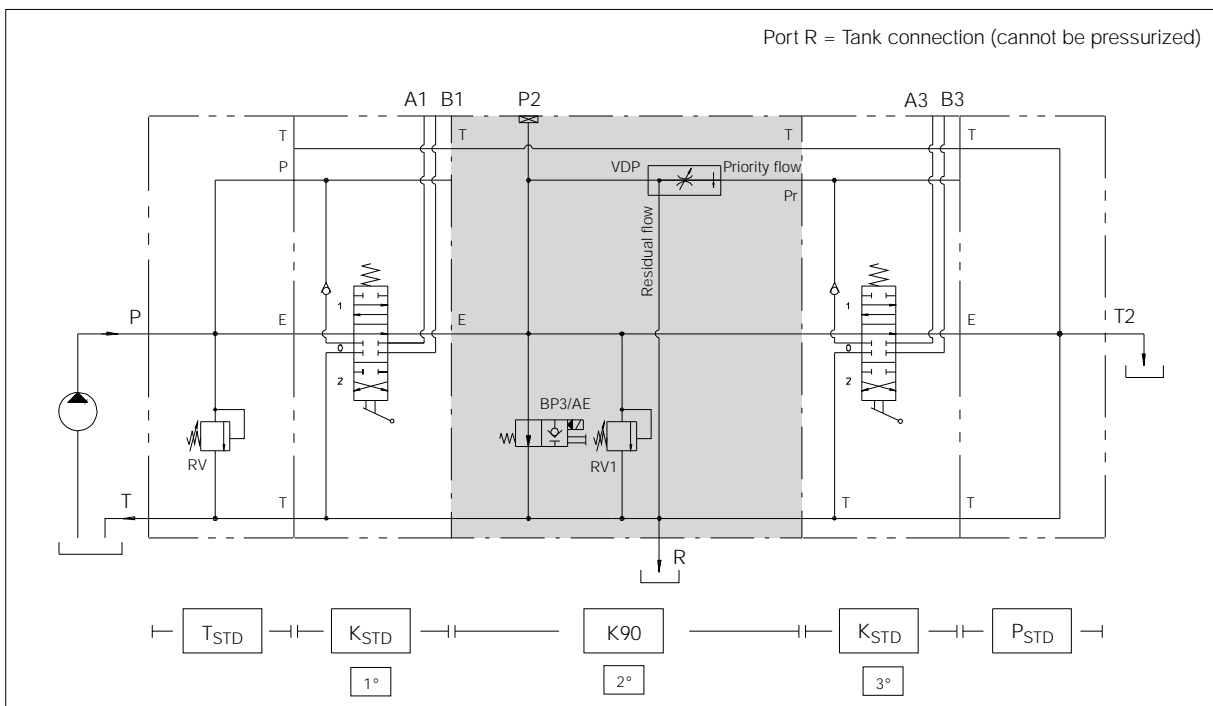
Ø D	Type
M18X1.5	<b>K90/1</b>
3/8" BSP	<b>K90/2</b>
SAE8	<b>K90/7</b>

Pressure set range (bar)	Standard Setting bar	Relief valves Type
30 ÷ 95	60	<b>RV1 - 06</b>
96 ÷ 210	150	<b>RV1 - 15</b>
211 ÷ 320	260	<b>RV1 - 26</b>

Flow set range (l/min)	Standard Setting l/min	Flow regulator Type
0.5 ÷ 6	6	<b>VDP 06</b>
0.5 ÷ 12	12	<b>VDP 12</b>
0.5 ÷ 25	25	<b>VDP 25</b>
0.5 ÷ 40	40	<b>VDP 40</b>

**VDPF: 1 ÷ 40 l/min**

#### 8C.6.2 Scheme example



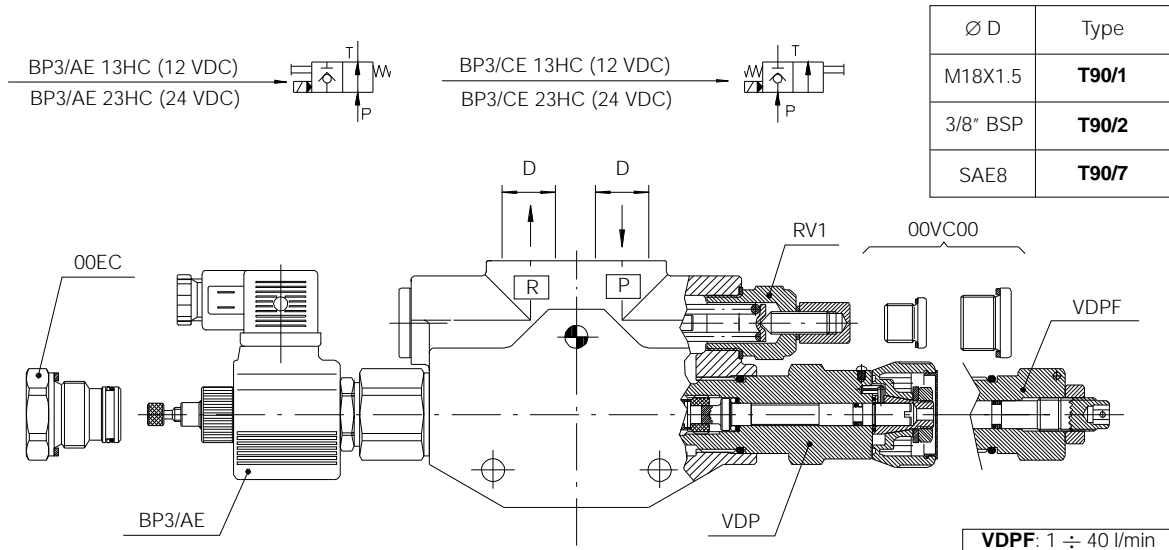


## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8C.7 Inlet cover T90

#### 8C.7.1 Application variation

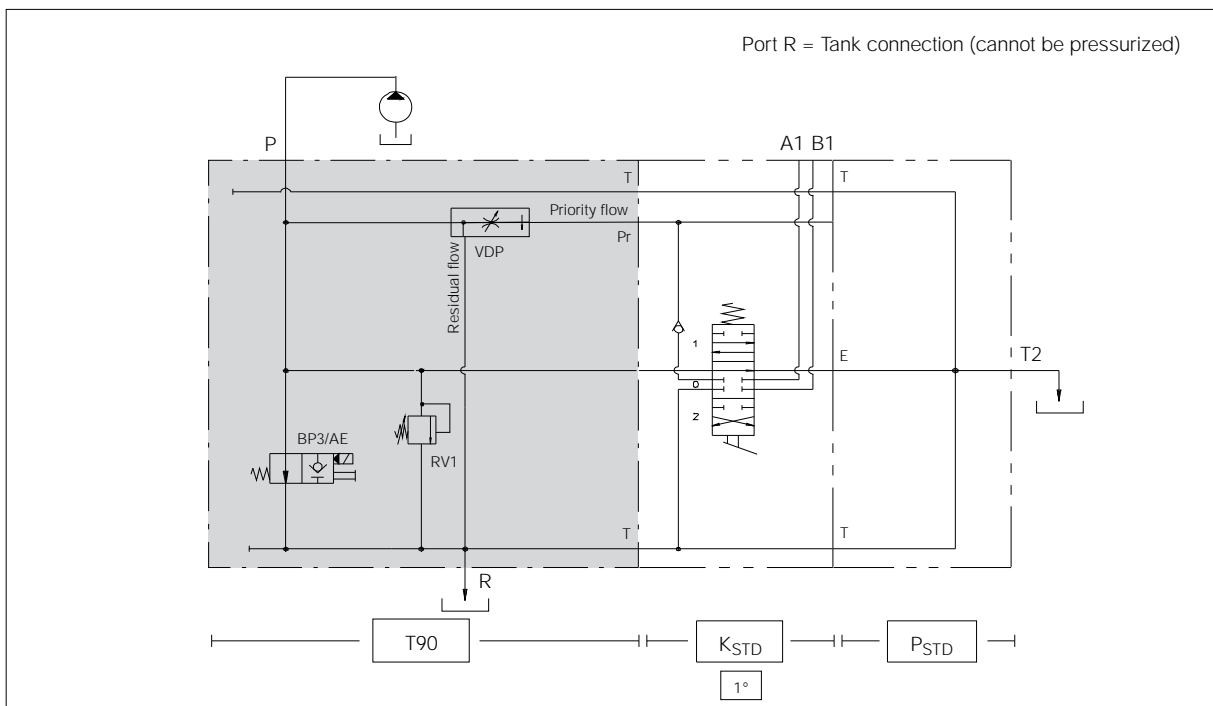
Inlet cover with priority flow divider pressure compensated valve, pressure relief valves and by-pass valve. Excess flow to tank.



Pressure set range (bar)	Standard Setting bar	Relief valves Type
30 ÷ 95	60	<b>RV1 - 06</b>
96 ÷ 210	150	<b>RV1 - 15</b>
211 ÷ 320	260	<b>RV1 - 26</b>

Flow set range (l/min)	Standard Setting l/min	Flow regulator Type
0.5 ÷ 6	6	<b>VDP 06</b>
0.5 ÷ 12	12	<b>VDP 12</b>
0.5 ÷ 25	25	<b>VDP 25</b>
0.5 ÷ 40	40	<b>VDP 40</b>

#### 8C.7.2 Scheme example

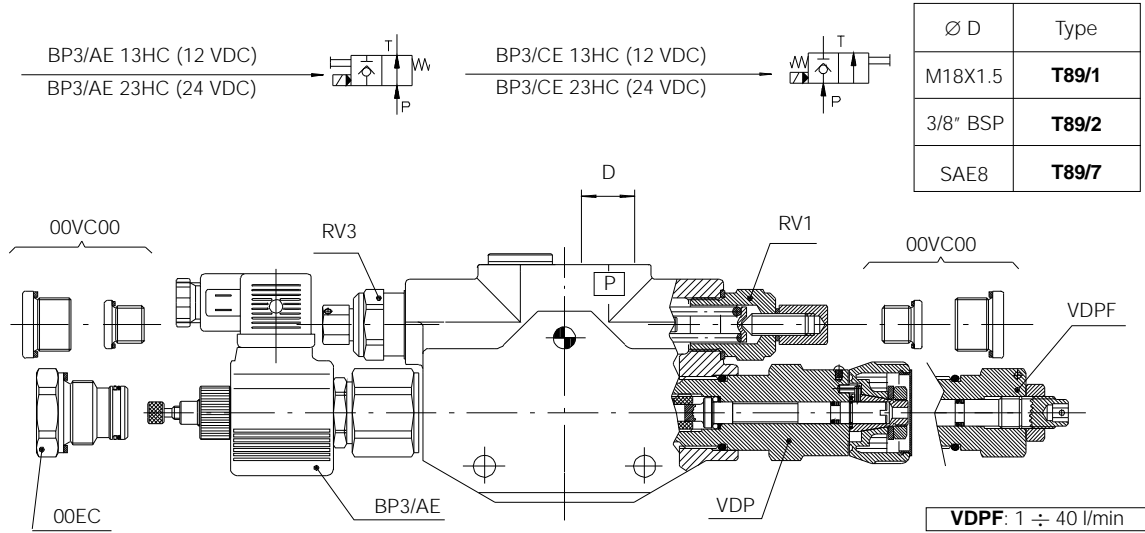


## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8C.8 Inlet cover T89\*

#### 8C.8.1 Application variation

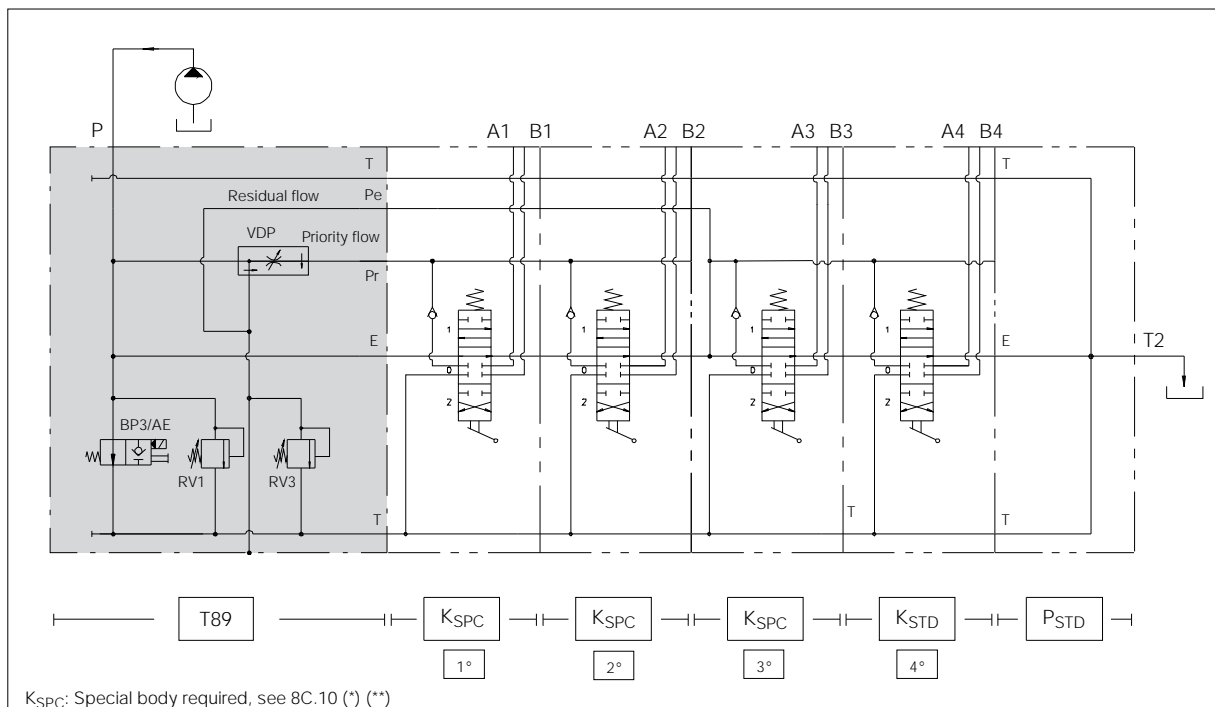
Inlet cover with priority flow divider pressure compensated valve, pressure relief valves and by-pass valve.



Pressure set range (bar)	Standard Setting bar	Relief valves Type
30 ÷ 95	60	<b>RV1 or RV3 - 06</b>
96 ÷ 210	150	<b>RV1 or RV3 - 15</b>
211 ÷ 320	260	<b>RV1 or RV3 - 26</b>

Flow set range (l/min)	Standard Setting l/min	Flow regulator Type
0.5 ÷ 6	6	<b>VDP 06</b>
0.5 ÷ 12	12	<b>VDP 12</b>
0.5 ÷ 25	25	<b>VDP 25</b>
0.5 ÷ 40	40	<b>VDP 40</b>

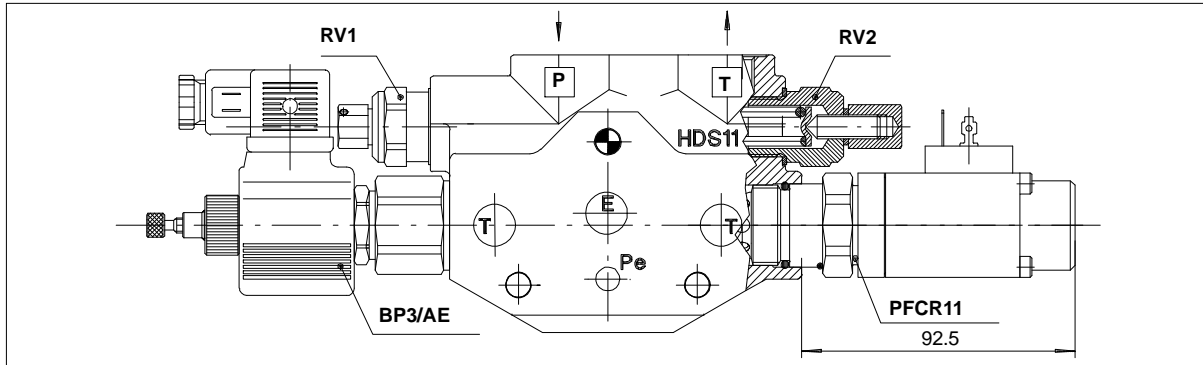
#### 8C.8.2 Scheme example



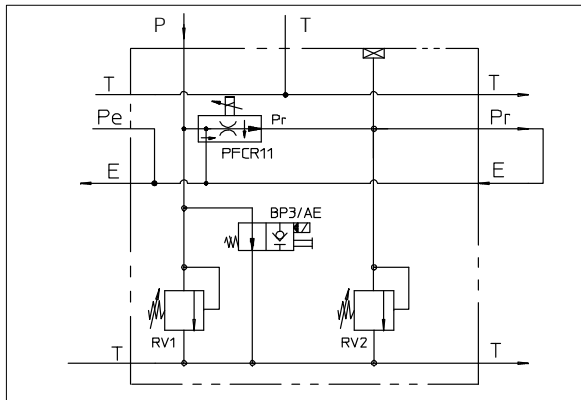
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8C.9 Proportional flow control PFCR11

#### 8C.9.1 Example of application on K100 body



#### 8C.9.2 Example of hydraulic scheme K100



#### 8C.9.3 Electric performances

Electric performances		
Coil according to	VDE 0580	
Connector type	DIN 43650	
Duty rating	ED=100%	
Suggested dither	0-150 Hertz (*)	
Insulation class	IP54 (DIN 40050) without connector IP65 (DIN 40050) with connector	
Coil winding class	F	
Voltage ±5%	12 V (DC)	24 V (DC)
Max. current	2.25 A.	1.08 A.
Resistance at 20 °C	2.8 Ohm	12.7 Ohm
Nominal power	17.2 Watt	17.4 Watt
Inductance	31 mH armature falling down	140 mH armature rising
	90 mH armature falling down	406 mH armature rising

#### 8C.9.4 Code

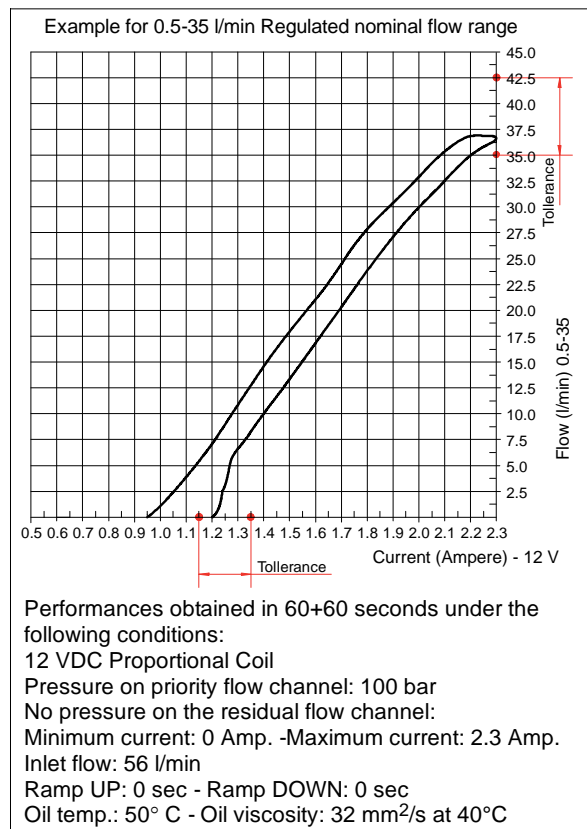
Flow l/min	Voltage	Type	Code**
14	12 V	<b>PFCR11/V2-14-P2-13</b>	200.7880.0011.0
14	24 V	<b>PFCR11/V2-14-P2-23</b>	200.7880.0012.0

35	12 V	<b>PFCR11/V8-35-P2-13</b>	200.7880.0007.0
35	24 V	<b>PFCR11/V8-35-P2-23</b>	200.7880.0008.0

#### 8C.9.5 Hydraulic performances

Max. pressure	270 bar
Max. recommended pressure	230 bar
Regulated nominal flow range	0.5 - 14 l/min
	0.5 - 35 l/min
Temperature range	-5/+70° C

#### 8C.9.6 Current/flow regulated diagram



(\*: frequency could affect the valve seal)

(\*\*: code without connector)

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8C.10 Special sectional bodies

#### 8C.10.1 Special element (priority flow): to be used only with T89 (\*) inlet cover

Ø D	Type/Code	
	Standard	Section with valve UC - OA - C
SAE6	<b>K111</b> 200.9413.6064.0	<b>K27</b> 200.9413.6056.0
SAE8	<b>K112</b> 200.9413.7038.0	<b>K24</b> 200.9413.7037.0
3/8" BSP	<b>K113</b> 200.9413.2041.0	<b>K58</b> 200.9413.2040.0
M18X1.5	<b>K114</b> 200.9413.1033.0	<b>K59</b> 200.9413.1032.0

#### 8C.10.2 Special element (residual flow): to be used only with T89 (\*\*\*) inlet cover

Ø D	Type/Code	
	Standard	Section with valve UC - OA - C
SAE6	<b>K116</b> 200.9413.6063.0	<b>K81</b> 200.9413.6059.0
SAE8	<b>K117</b> 200.9413.7036.0	<b>K82</b> 200.9413.7035.0
3/8" BSP	<b>K118</b> 200.9413.2039.0	
M18X1.5	<b>K119</b> 200.9413.1031.0	<b>K86</b> 200.9413.1030.0

Note: Body code consist of machined casting, seals and hold check valve only. Not to be used for complete valve order.

## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8C.11 By-Pass solenoid valve - BP3 -

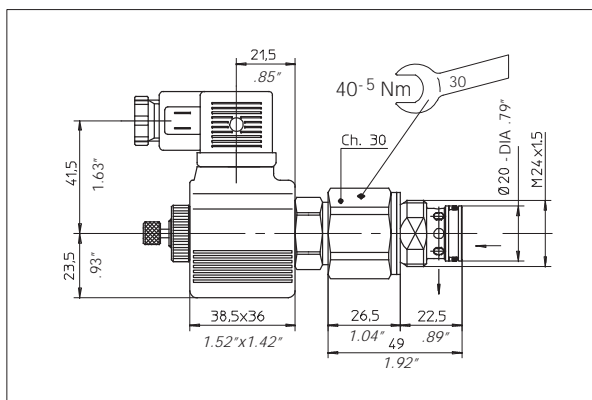
#### 8C.11.1 Normally closed with manual override

Voltage	Type	Code
without coil	<b>BP3/CE HDS11PQ p.m.</b>	200.7572.0048.0
12 V. D.C.	<b>BP3/CE 13- HC27 HDS11PQ</b>	200.9570.1007.4
24 V. D.C.	<b>BP3/CE 23- HC27 HDS11PQ</b>	200.9570.2007.1

#### 8C.11.2 Normally open with manual override

Voltage	Type	Code
without coil	<b>BP3/AE HDS11PQ p.m.</b>	200.7572.0049.0
12 V. D.C.	<b>BP3/AE 13- HC27 HDS11PQ</b>	200.9570.1008.3
24 V. D.C.	<b>BP3/AE 23- HC27 HDS11PQ</b>	200.9570.2007.2

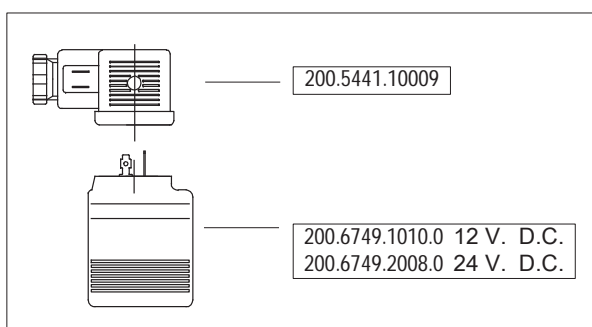
#### 8C.11.3 Dimension



#### 8C.11.4 BP3 Solenoid valve performances

Max. pressure	315 bar
Max. flow	60 l/min
Power	27 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

#### 8C.11.5 Spare parts



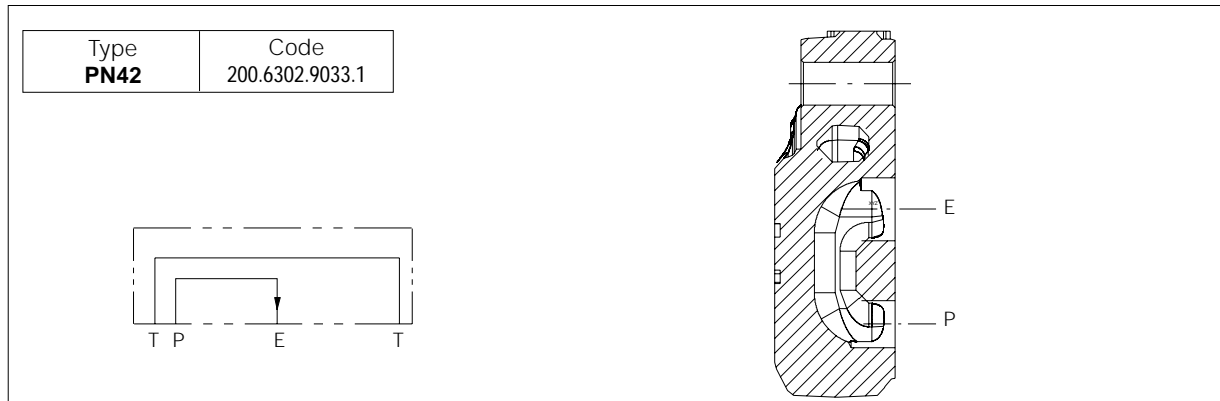
#### 8C.11.6 Coil specifications

Voltage	12	24	V. D.C.
Power	27.2	27	Watt
Resistance (Ambient Temp.)	5.3	21.3	Ohm
Resistance (Stabilized Temp.)	8	32	Ohm
Current (Ambient Temp.)	2.2	1.12	Ampere
Current (Stabilized Temp.)	1.5	0.75	Ampere

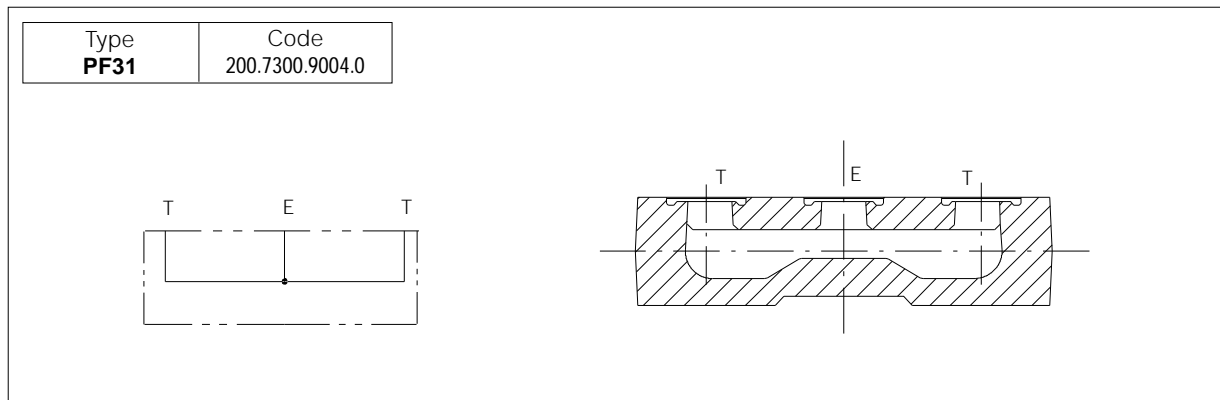
## Monoblock- und Selektional-Ventile / Monobloc- et sélecteurs de voies

### 8C.12 End cover for K100 and T100

#### 8C.12.1 Right cover



#### 8C.12.2 Standard left cover



#### 8C.12.3 Carry-over left cover

