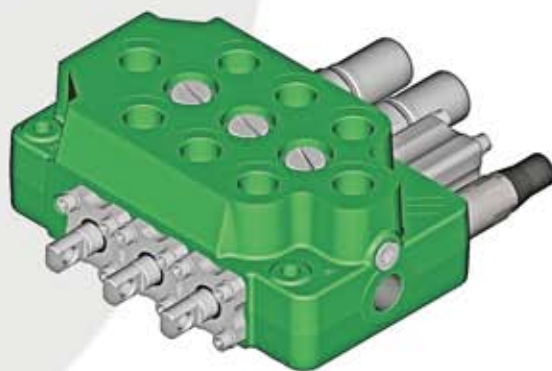
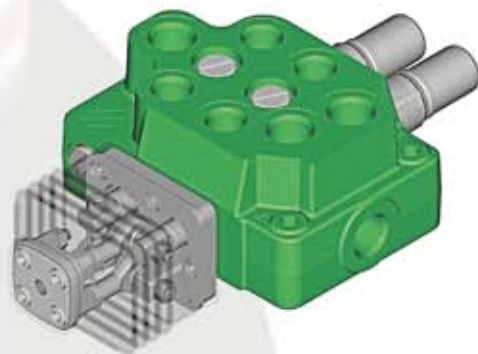
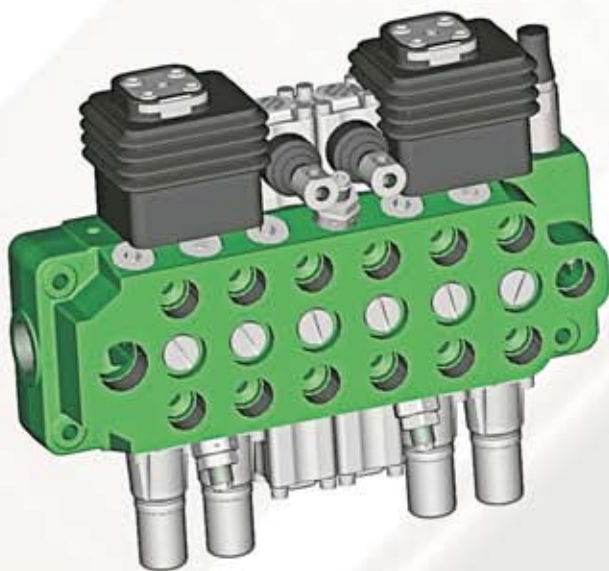


## VDM6A - MONOBLOCK DIRECTIONAL CONTROL VALVE

### Technical catalogue





## Page 1 - GENERAL INDEX

Page 2 - General features

Page 3 - Technical data - Working conditions

Page 4 - Operating principle

Page 5 - Hydraulic fluids - Installation - Filtration - Pipes

Page 6 - Performance data - Metering curves - Valve working limit

Page 7 - Performance data - Pressure drop "P" to "T" - Pressure drop "P" to "A/B" and "A/B" to "T"

Page 8 - Dimensions from 1 to 7 working modules

Page 9 - Ports

Page 10 - Inlet configurations (hydraulic circuits)

Page 11 - Outlet configurations (hydraulic circuits)

Page 12 - 13 - Circuit and spool types

Page 14 - Main relief valves

Page 15 - Venting valves

Page 16 - Electric power beyond valve

Pages 17 - 18 - Auxiliary valves

Page 19 - Spool controls and spool positionings

Page 20 - Spool controls - SL- NL

Page 21 - Spool control - L1/L2

Page 22 - Cable remote control - TC

Page 22 - Direct electric push-pull control and emergency devices - E7/E8 - ES - SL

Page 23 - Hydraulic controls - IP - IF

Page 24 - Pneumatic and electro-pneumatic controls - PP/P0 - P1/P2 - PQ

Page 25 - Spool positionings - C2 - C3 - C4 - C5 - C6 - C7 - C8

Page 26 - Spool positionings - R2 - R4 - R5 - R6 - R7 - R9 - C0

Page 27 - Spool positionings - F1 - F2 - F3 - F4 - F5 - F6 - F7 - F8

Page 28 - 29 - Spool positionings - CE - CM - CW - CD - PM

Page 30 - Spool positionings - G2 - G4 - G5 - G6 - G7 - G8

Page 31 - Identification label

Page 32 - 33 - How to order - VD6A

## Page 34 - WARRANTY

 When in our catalogues you will find this symbol, please read carefully

## E0.34.1011.02.02

The data in this catalogue refers to the standard product.

The policy of Salami S.p.A. consists of a continuous improvement of its products. It reserves the right to change the specifications of the different products whenever necessary and without giving prior information.

If any doubts, please get in touch with our sales department.

### GENERAL FEATURES

Among all hydraulic directional control valves used in the field of mobile equipment applications, the spool valve is the most popular. The monoblock valve type offers an excellent performance price ratio.

#### FEATURES

VDM6A directional control valve has the following:

- cast-iron monoblock construction up to 7 working sections
- parallel circuit, load check valve protection on each section
- series circuit, load check valve protection on each section (series line realized inside of the spool) **UNDER CONSTRUCTION**
- tandem circuit, load check valve protection on each section **UNDER CONSTRUCTION**
- possibility of venting valve
- possibility of power beyond configuration and possibility of closed center
- possibility of power beyond electrically operated
- spool construction in steel, hardened and nichel-plated to obtain a higher surface hardness and a better corrosion resistance
- several types of spool: double, single acting, spool motor, float position etc.
- minimum tolerance between the spools and the body to obtain a minimum internal leakage
- interchangeability of all the spools
- possibility of auxiliary valve either on port A or B or on both
- several spool control devices and spool positioning devices

#### VALVE AND DEVICE TYPES

In order to meet the most stringent demands and to offer a wider range of applications, the following types of valves and devices are available:





##### Valves

- direct main relief valve: controls the maximum pressure in the circuit when one or more spools are on end stroke located on "A" port side, can be:  
direct type version up to 370 bar - 5400 psi
- electric operated venting valve to cut the pump flow, is available as 12 or 24 Vdc and normally opened or normally closed version
- overload valve on port A or/and B: set at a higher value (in comparison with the main relief valve), it protects the working ports from peak pressure
- overload and anticavitation valve on port A or/and B: set at a higher value (in comparison with the main relief valve), it protects the working ports from peak pressure, moreover the anticavitation valve avoids cavitation caused by the inertial turning of motor
- anticavitation valve on port A or/and B: the anticavitation valve avoids cavitation caused by the inertial rotation of motor
- conversion valve on A or/and B port, allows to obtain single acting function starting from double acting spool
- fixed flow restrictor: directly fitted on the "A/B" ports orifice
- load check valve mechanically operated directly fitted on the A and/or B port  
(with this valve the VDM6A is available only with manual control)
- electric operated venting valve to switch from std. to power beyond circuit or from power beyond to std. circuit

##### Devices

- handle controls
- cross lever: allows to acting two spools with one manual joystick
- cable remote control
- control device for microswitches: for the operation with electric d.c. motor driven pumps at one or more rotation speeds
- hydraulic kick-out: returns the spool automatically to the neutral position when the pre-set pressure of port "A" or "B" is exceeded
- pneumatic proportional control available also with float position
- electropneumatic control
- hydraulic proportional control available also with float position
- direct electric on-off control with emergency manual device
- electrohydraulic on-off and proportional control
- several spool positionings device to return the spool to neutral position or to lock the spool in working position

## TECHNICAL DATA

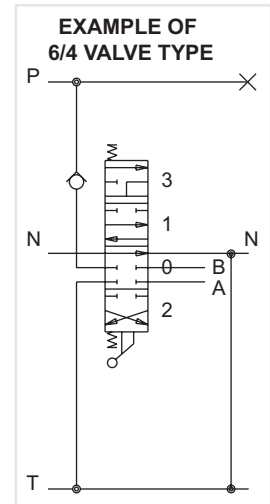
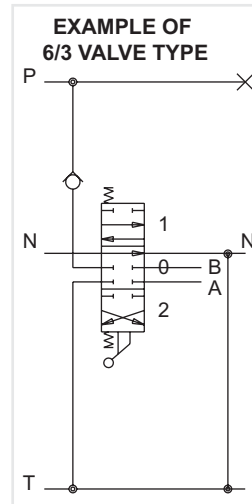
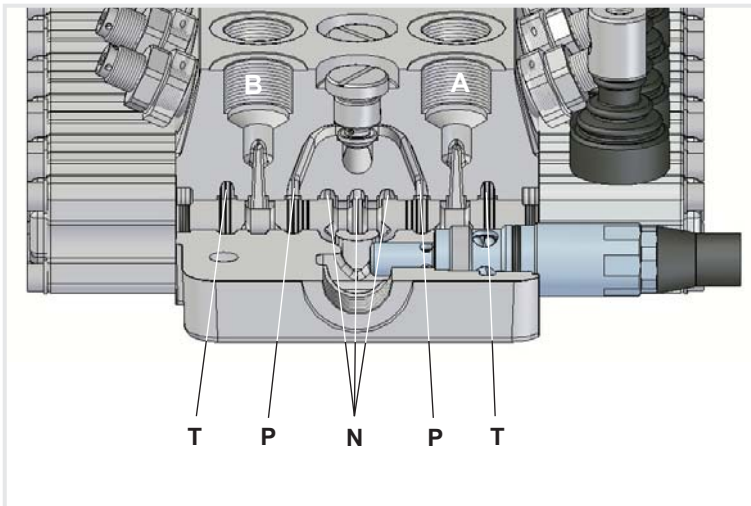
Spools		from 1 to 7 (for more working modules pls. contact our sales department)	
Nominal flow	Q	45 l/min	( 12 gpm US )
 Max flow		60 l/min	( 16 gpm US )
Max pressure	port P	370 bar	( 5400 psi )
	ports A/B	370 bar	( 5400 psi )
	 port T	25 bar	( 363 psi )
Internal leakage at 160 bar ( 2285 psi )		ports A/B → T	18 ÷ 25 cm <sup>3</sup> /min ( 1.1 ÷ 1.52 cu.in./min )
For lower leakage please contact our sales dept.			
Solenoid control 45W - 60W the leakage is		70 ÷ 90 cm <sup>3</sup> /min	( 4.3 ÷ 5.49 cu.in./min )
Solenoid control 31W the leakage is		100 ÷ 120 cm <sup>3</sup> /min	( 6.1 ÷ 7.32 cu.in./min )
Spool stroke (positions 1 and 2)		± 6 mm	( 0,236 in. )
Spool stroke (positions 1 and 2) spool 05 and 06		± 5 mm	( 0,197 in. )
Spool stroke (position 4, float or regenerative)		± 5 + 3 mm	( 0.236 + 0.118 in. )
For direct solenoid control - spool stroke		± 2.5 mm	( 0,098 in. )
	In case you need flows from 45 l/min to 60 l/min please contact our sales dept.		
	For higher back pressure please contact our sales dept.		

Nominal flow meaning: flow causing 1 bar (14.5 psi) pressure drop each section, with spools in neutral position

## WORKING CONDITIONS

Hydraulic fluid	mineral oil according to DIN 51524		
Viscosity			
	viscosity range	10...400 mm <sup>2</sup> /sec	( 0.15...7.13 sq.in./sec )
	optimal viscosity	12...75 mm <sup>2</sup> /sec	( 0.19...1.16 sq.in./sec )
Temperature			
	fluid range temperature	-20...85 °C	( -4...185 °F ) NBR seals
	suggested range	30...60 °C	( 86...140 °F ) NBR seals
Maximum contamination level	NAS 1683: class 9    ISO 4406: 19/16		
Room temperature	-30...60 °C                    ( -22...140 °F )		
Working limits	see diagrams at page 6		
Pressure drop	see diagrams at page 7		
For operation with fire resistant fluid, please contact our sales department			

### OPERATING PRINCIPLE



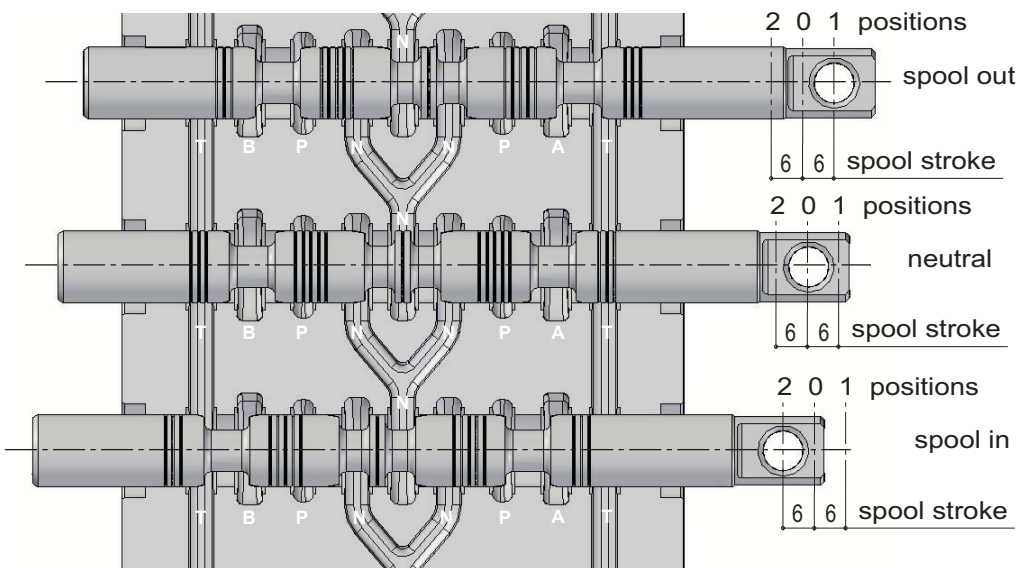
The picture show the P working module with the paths N - P - A - B - T.

Salami directional control valves belong to the 6/3 (or 6/4) type; they can control 6 gallery in 3 (or 4) spool positions simultaneously.

They are open circuit types: when the spool is in neutral position, the fluid flows directly to the tank with minimum internal pressure drops (approximately 1 bar / 14.5 psi for each spool at nominal flow).

When the spool is moved from this position, the neutral gallery is gradually throttled and the connection between pump and actuator, through the corresponding port, is made.

When pressure exceeds the value of the pressure existing in port A or B, the fluid flows through the load check valve to the actuator.



#### IMPORTANT

Looking at this side of the spool, we usually say: spool in when the spool is pushed into the valve and spool out when it is pulled out of the valve.

Depending on assembling of the spool on "A" or "B" side

There are two characteristic phases in the spool stroke (6 mm - 0,236 in.):

a) the overlap phase (about 18% of the stroke) guarantees minimum internal leakages in neutral position;

b) the progressive flow regulation phase (82% of the stroke).

Both pictures show a 6/3 valve type with double acting spool only as principle of functioning.

Salami VDM6A is available in different solutions.

## HYDRAULIC FLUIDS

Usually a mineral-base oil with a good viscosity index should be used, preferably with good lubricating properties and corrosion, oxidation and foaming resistant.

Sometimes the fluids supplied by the manufacturers do not satisfy purity requirements (see page 3 WORKING CONDITIONS). It is therefore necessary to filter the fluid carefully before filling. Your supplier can give you the information about NAS class of its fluids. To maintain the proper purity class, the use of filters of high dirt capacity with clogging indicator is recommended.

Under humidity conditions it is necessary to use hygroscopic salts.

For operation with fire resistant and ecological fluids, please contact our technical department.

## INSTALLATION

When proceeding to mount the unit on the structure and to connect fittings to work ports, it is necessary to comply with the values of tightening torques.

The attachment of linkages to spools should not affect their operation. The mounting position can be vertical with inlet module on the top or horizontal.

### Standard tightening torques - Nm / lbft

FITTING TYPE	P and PL ports	A and B ports	T and TL ports
BSP (ISO 228/1)	G 3/8	G 3/8	G 1/2
with o-ring seal	30 / 22.1	30 / 22.1	50 / 36.9
with copper washer	40 / 29.5	40 / 29.5	60 / 44.2
with steel washer	40 / 29.5	40 / 29.5	60 / 44.2
SAE	SAE 8 (3/4-16 UNF)	SAE 8 (3/4-16 UNF)	SAE 10 (7/8-14 UNF)
with o-ring seal	30 / 22.1	30 / 22.1	60 / 44.2

## FILTRATION

The contamination of the fluid in the system greatly affects the life of the unit. Above all, contamination may result in irregular operation, wear of seals in valve housings and failures. Once the initial contamination level of the system has been reached, it is necessary to limit any increase of contamination installing an efficient filtration system (see working conditions page 3).

## PIPES

Pipes should be as short as possible, without restrictions or sharp bends (especially the return lines). Before connecting pipes to the fittings of the corresponding components, make sure that they are free from burrs and other contamination.

As a first approximation, for a mobile machine with standard length pipes, their width should guarantee the following values of fluid speed\*:

6 ÷ 10 m/sec  
3 ÷ 5 m/sec

inlet pipe  
outlet pipe

19,7 ÷ 32,8 ft/sec  
9,9 ÷ 16,4 ft/sec

inlet pipe  
outlet pipe

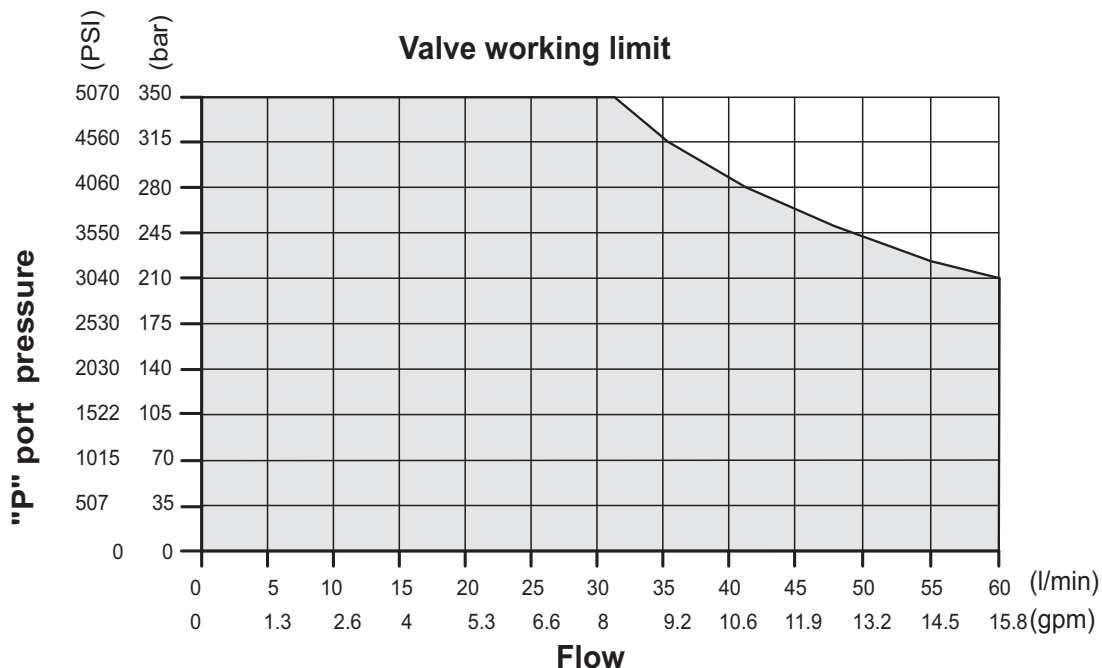
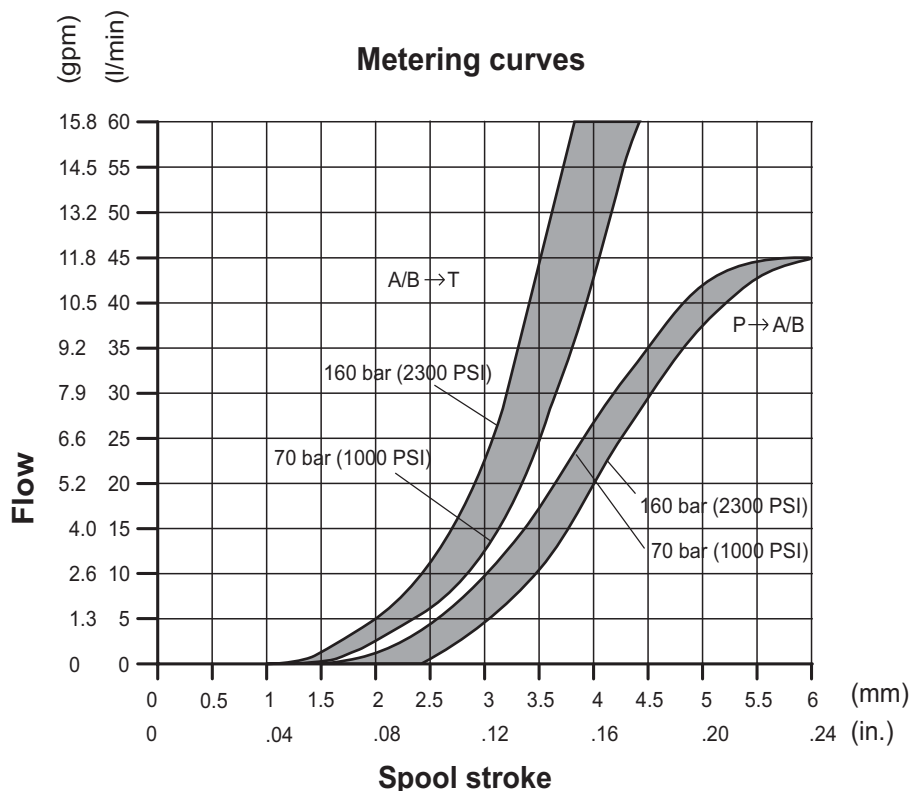
the lowest values of fluid speed are required in case of wide temperature range and/or for continuous duty.

$$* [v = \frac{21,2 \times Q}{d^2}]$$

v = fluid speed [m/sec], Q = flow [l/min], d = pipe internal diameter [mm]

### PERFORMANCE DATA

The characteristics in this catalogue are typical measured results.  
During measuring a mineral based hydraulic oil with a viscosity of 16 cSt at a temperature of 50°C was used.  
**FOR FURTHER DETAILS PLEASE CONTACT OUR SALES DEPARTEMENT**

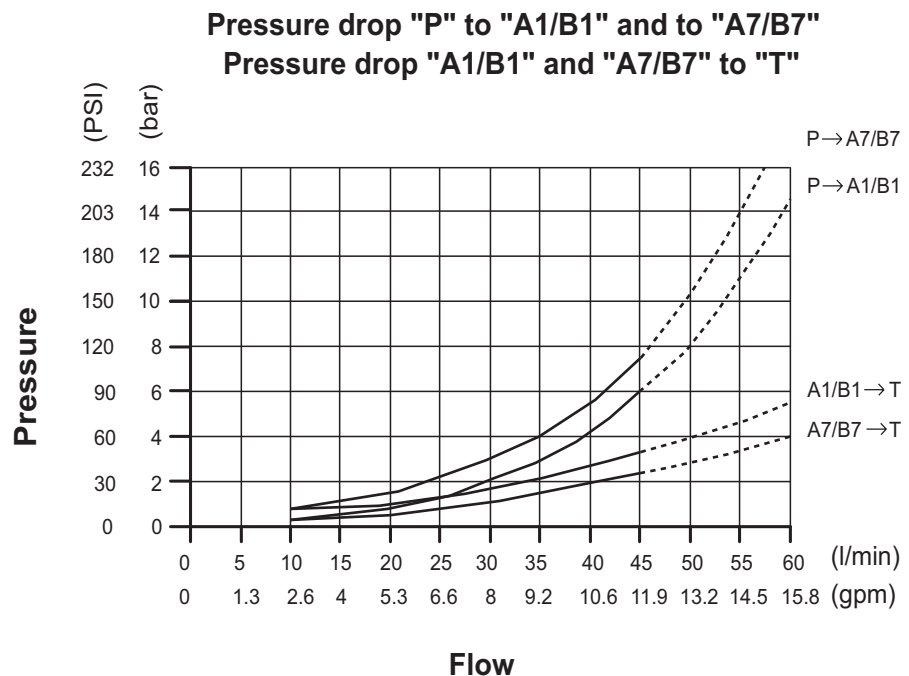
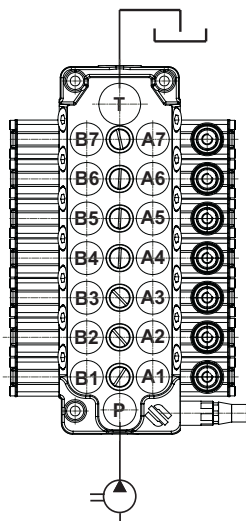
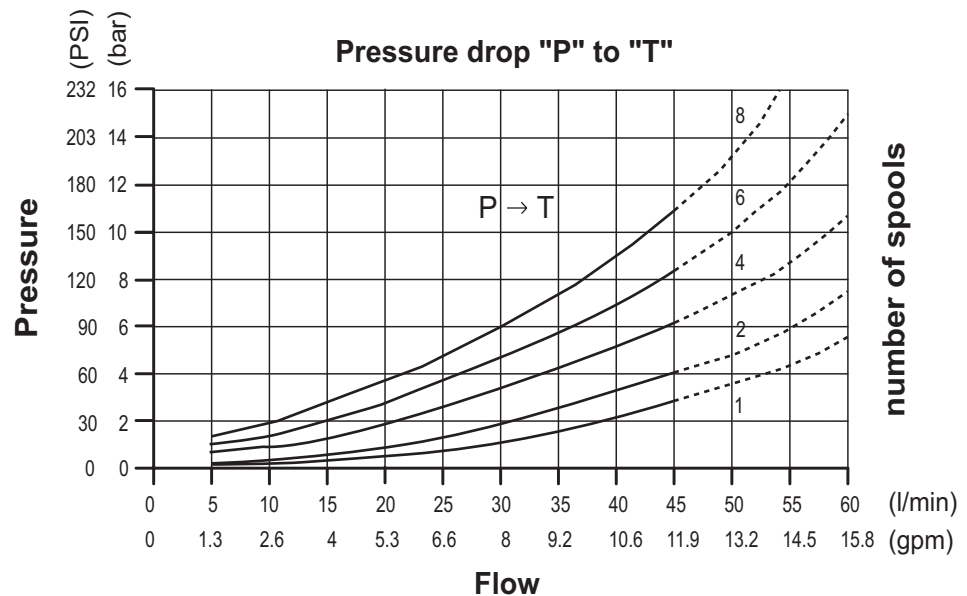
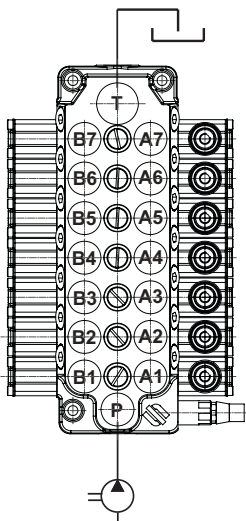


The data of this diagram have been obtained with a force of:  
stroke beginning 80 N - stroke end 105 N and standard leakage data.

## PERFORMANCE DATA

The characteristics in this catalogue are typical measured results.  
During measuring a mineral based hydraulic oil with a viscosity of 16 cSt at a temperature of 50°C was used.

FOR FURTHER DETAILS PLEASE CONTACT OUR SALES DEPARTEMENT

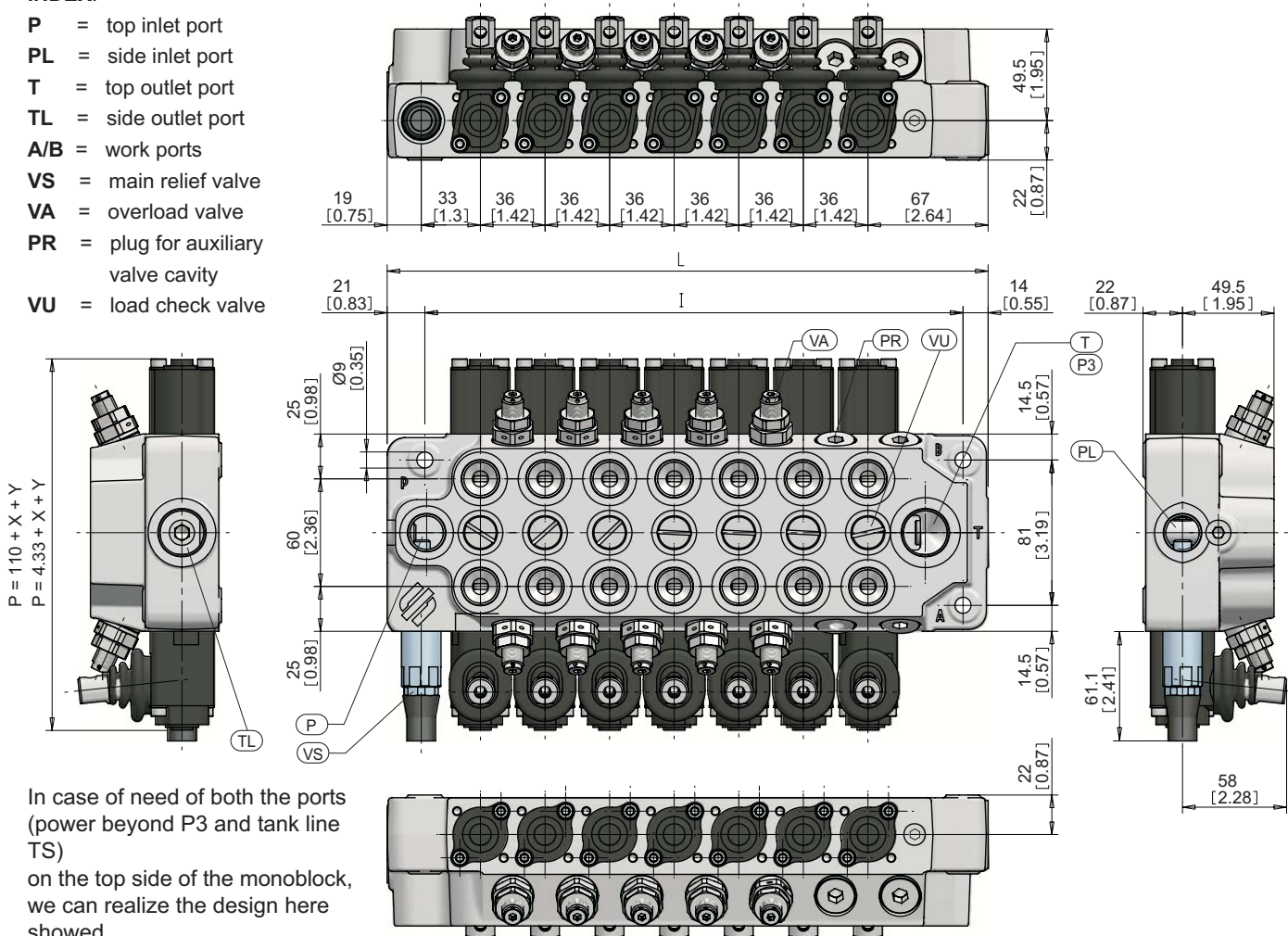


### DIMENSIONS FROM 1 TO 7 SECTIONS MONOBLOCK

You can see the dimensions of all spool controls and spool positionings from page 36 to page 51.

#### INDEX:

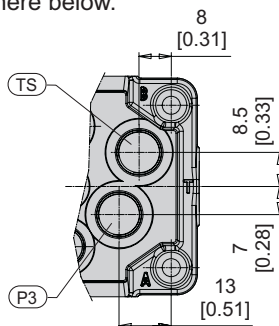
- P** = top inlet port
- PL** = side inlet port
- T** = top outlet port
- TL** = side outlet port
- A/B** = work ports
- VS** = main relief valve
- VA** = overload valve
- PR** = plug for auxiliary valve cavity
- VU** = load check valve



In case of need of both the ports (power beyond P3 and tank line TS)

on the top side of the monoblock, we can realize the design here showed.

Available threads in accordance with the table here below.



Spools		1	2	3	4	5	6	7
<b>I</b>	mm	84	120	156	192	228	264	300
	in	3.31	4.72	6.14	7.56	8.98	10.39	11.81
<b>L</b>	mm	119	155	191	227	263	299	335
	in	4.68	6.10	7.52	8.94	10.35	11.77	13.19

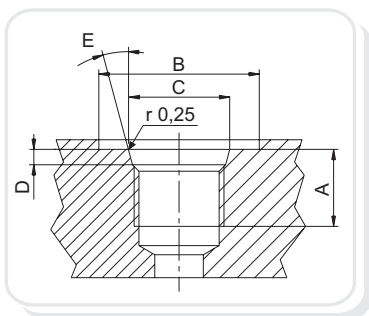
PORT SIZES	P - PL - P3 - TS	T - TL	A - B
<b>BSP ISO 228</b>	<b>G 3/8</b>	<b>G 1/2</b>	<b>G 3/8</b>
<b>SAE ISO 176</b>	<b>SAE#8 3/4 - 16 UNF</b>	<b>SAE#10 7/8 - 14 UNF</b>	<b>SAE#8 3/4 - 16 UNF</b>
<b>ISO 262 - ISO 6149</b>	<b>M 18 x 1.5</b>	<b>M 22 x 1.5</b>	<b>M 18 x 1.5</b>
<b>BSPF JIS B 2351</b>	<b>G 3/8</b>	<b>G 1/2</b>	<b>G 3/8</b>

The drawing shown is just an example. The overall dimensions you read are valid for all the VDM6A except the parametric dimensions "L" and "I" depending of the number of working sections. The parametric dimension "P" depends on a fixed dimension of 110 mm (4.33 in.) to which you have to add the "X" and "Y" dimensions that you can find in the spool controls and spool positionings pages.

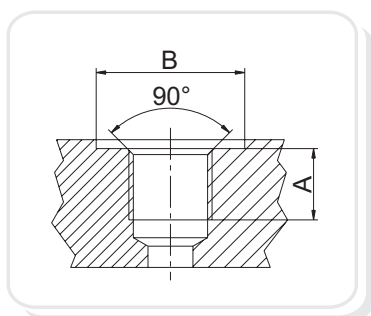
For smaller or bigger thread ports, please contact our sales department

## PORTS

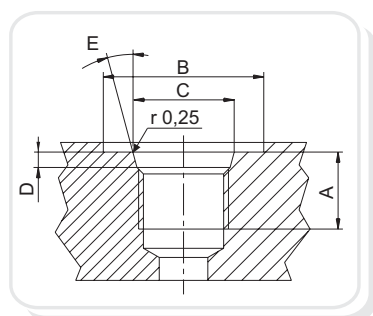
Following are standard ports. For different port types, please contact our sales department.



SAE UN-UNF (ISO 725)							
Dimensions		9/16 - 18 UNF SAE6		3/4 - 16 UNF SAE8		7/8 - 14 UNF SAE10	
mm	In.						
A		13	0,51	15	0,59	17	0,67
B		25	0.83	30	1,18	34	1,34
C		15.6	0.61	20.6	0.81	23.9	0.94
D		2,5	0,10	2.5	0.10	2.5	0.10
E		15°		15°		15°	

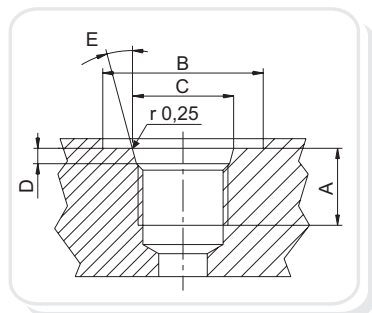


BSP (ISO 228)							
Dimensions		G1/4		G3/8		G1/2	
mm	In.						
A		14	0,55	14	0,55	16	0,63
B		19	1,75	23	1,91	27	1,06



METRIC (ISO 262 - ISO 6149)*									
Dimensions		M18 x 1.5				M22 x 1.5			
		ISO 262		ISO 6149		ISO 262		ISO 6149	
mm	In.								
A		14	0,55	14,5	0,57	16	0,63	16	0,63
B		27,5	1,08	29	1,14	31,5	1,24	34	1,34
C				19,8	0,78			23,8	0,94
D				2,4	0,09			2,4	0,09

\*Available for quantity, please contact our sales dept.

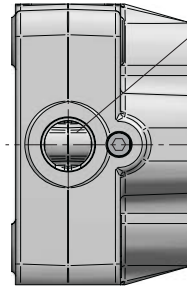
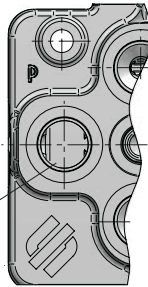


BSPF O-RING BOSS (JIS B 2351)							
Dimensions		G 1/4		G 3/8		G 1/2	
mm	In.						
A		12	0,47	12	0,47	16	0,63
B		24	0,94	28	1,10	34	1,34
C		15,6	0,61	18,6	0,73	22,6	0,89
D		2,5	0,10	2,5	0,10	2,5	0,10
E		15°		15°		15°	

### INLET TYPES



Top inlet port - P

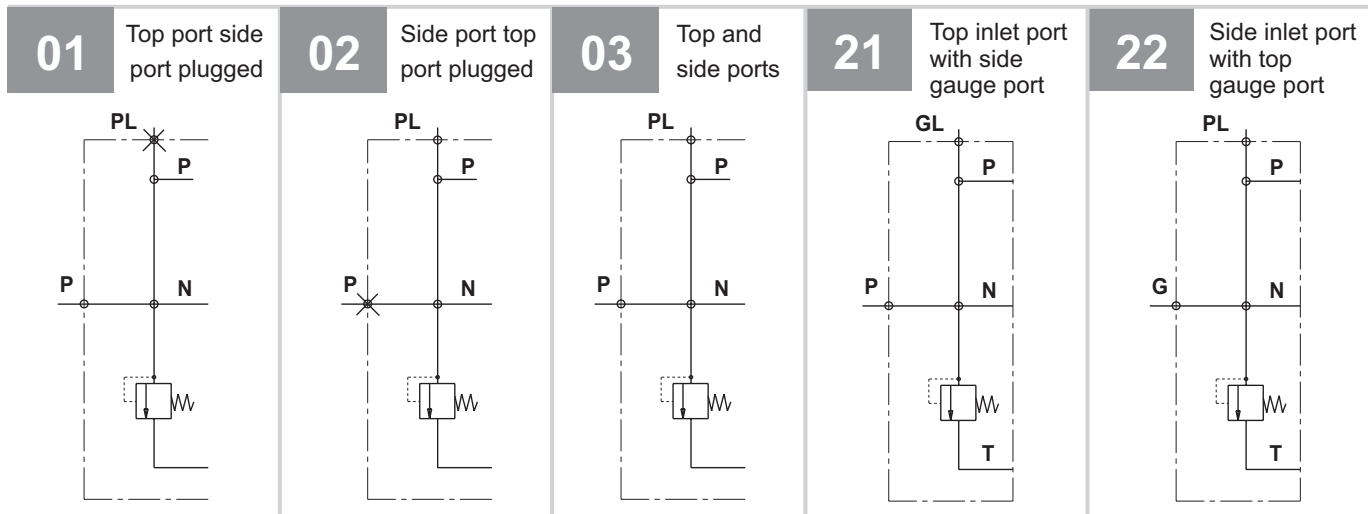


Side inlet port - PL

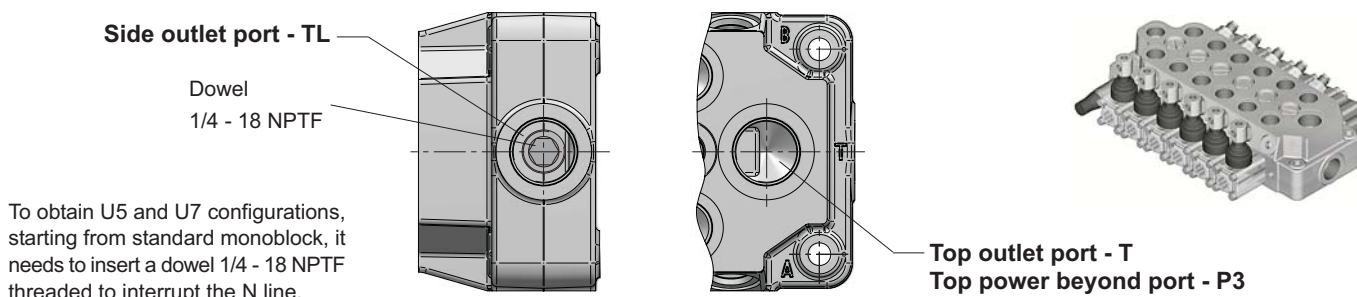
Top and side  
gauge port



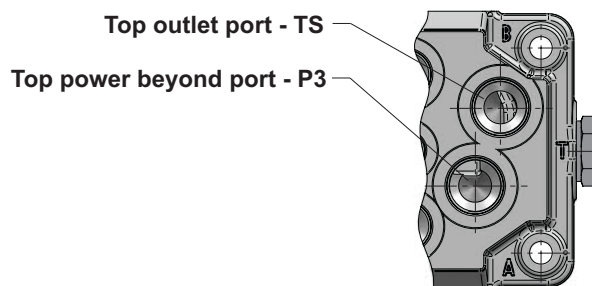
To obtain 21 and/or 22 commercial codes, we use a plug with the gauge port on the top, Both in case of BSPP and SAE threads.



## OUTLET TYPES

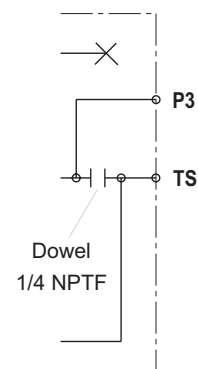


U8	Closed center configuration	U7	Power beyond configuration (side P3)	U5	Top port side port plugged	U4	Side port top port plugged	U3	Top and side ports	U2
Outlet type necessary for electro-hydraulic controls, please go to page 24 to see the drawing and hydraulic scheme.										

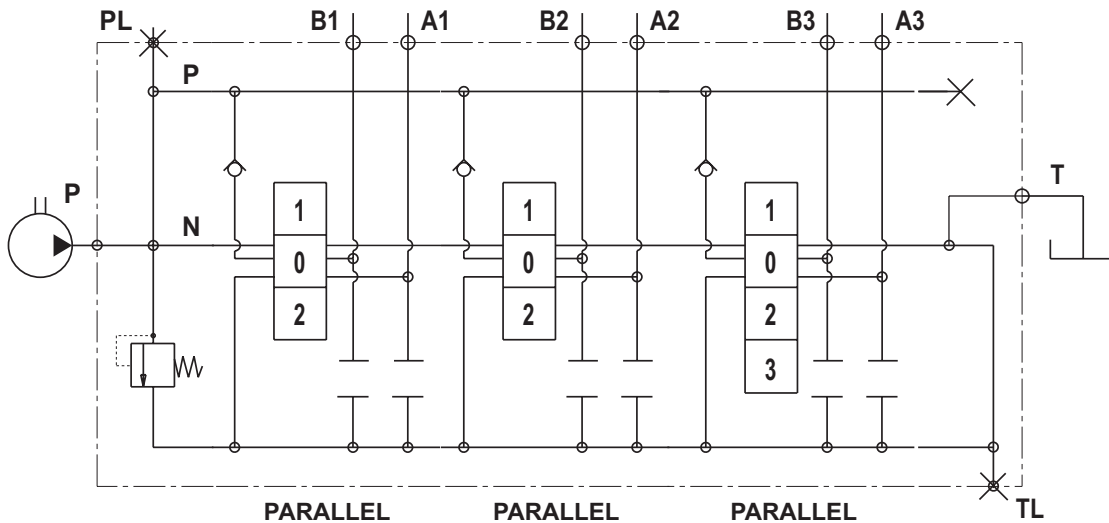


## Power beyond configuration Ports on the top side

**U9**



### CIRCUIT AND SPOOL TYPES



### SERIES AND TANDEM CIRCUIT, UNDER CONSTRUCTIONS

Available circuit parallel, as shown in the picture above. You can have main relief valve or venting valve in the inlet (see page xx), the working sections can have pre-arrangement for auxiliary valves.

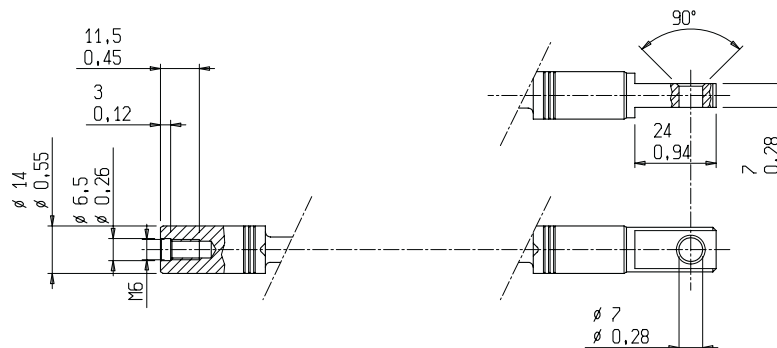
The spools can be 3 or 4 positions (as shown here below) moreover VDM6A is available for power beyond just insert a plug 1/4" - 18 NPTF (see page xx).

As you can read at page 52, the spools can be types "A" nominal flow or "C" 2/3 of nominal flow.

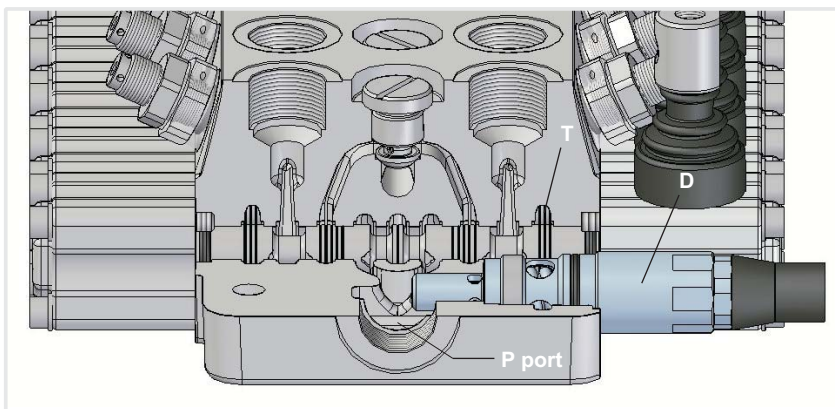
<div data-bbox="86 1170 199 1266">01</div> <div data-bbox="247 1170 375 1383"> </div> <div data-bbox="422 1170 774 1202">Double acting spool</div>	<div data-bbox="861 1170 1093 1244">Double acting motor spool</div> <div data-bbox="1157 1170 1284 1383"> </div> <div data-bbox="1348 1170 1458 1266">02</div>
<div data-bbox="86 1436 199 1532">03</div> <div data-bbox="247 1436 375 1649"> </div> <div data-bbox="422 1436 774 1553">Double acting motor spool ("B" port blocked)</div>	<div data-bbox="861 1436 1093 1553">Double acting motor spool ("A" port blocked)</div> <div data-bbox="1157 1436 1284 1649"> </div> <div data-bbox="1348 1436 1458 1532">04</div>
<div data-bbox="86 1702 199 1798">05</div> <div data-bbox="247 1702 375 1915"> </div> <div data-bbox="422 1702 774 1776">Single acting spool "A" working port</div> <div data-bbox="462 1830 686 1883">With this type of spool the stroke is 5 mm</div>	<div data-bbox="861 1702 1093 1776">Single acting spool "B" working port</div> <div data-bbox="1157 1702 1284 1915"> </div> <div data-bbox="1348 1702 1458 1798">06</div> <div data-bbox="877 1830 1101 1883">With this type of spool the stroke is 5 mm</div>

11		<p>Double acting spool with float function in 3rd position (spool in)</p> <p>With this type of spool a special machining of the body is required</p>	<p>Double acting spool with float function in 3rd position (spool out)</p> <p>With this type of spool a special machining of the body is required</p>		12
13		<p>Double acting spool with regenerative function in 3rd position (spool in)</p> <p>With this type of spool a special machining of the body is required</p>			
17		<p>Double acting spool with regenerative function in position 2 (spool in)</p> <p>With this type of spool a special machining of the body is required</p>	<p>Double acting spool with regenerative function in position 1 (spool out)</p> <p>With this type of spool a special machining of the body is required</p>		18
52		<p>Over center double acting spool "A" working port</p> <p><b>UNDER CONSTRUCTION</b></p>	<p>Over center double acting spool "B" working port</p> <p><b>UNDER CONSTRUCTION</b></p>		53

Salami standard spools have the ends as shown in this drawing. These ends spool are necessary to join it the controls and the positionings. With direct electric, hydraulic controls and in case of joystick control the ends spool are different as you can see at pages xx and xx.



### MAIN RELIEF VALVE

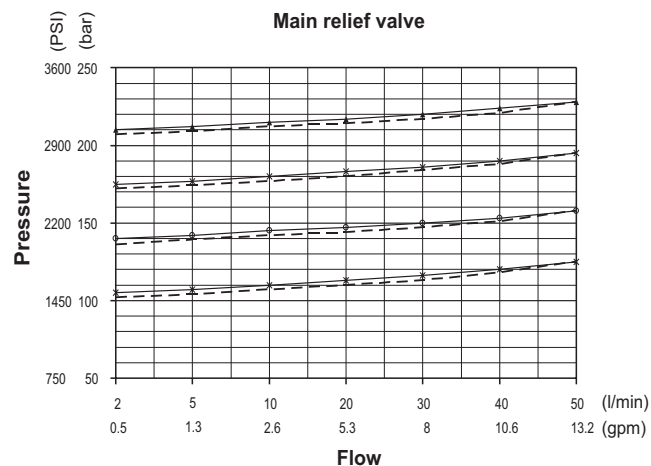
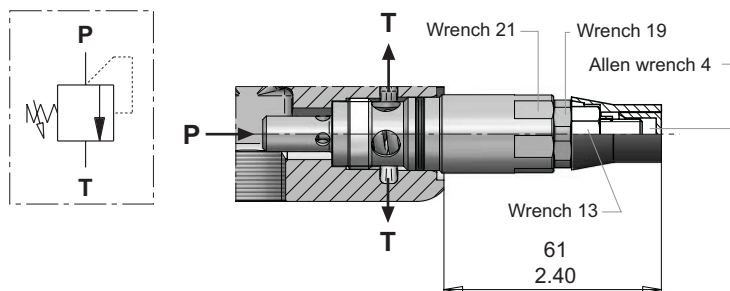


Max tightening torque:  
 wrench 10 - 18 Nm  
 wrench 13 - 24 Nm  
 wrench 22 - 35 Nm  
 wrench 24 - 30 Nm  
 wrench 26 - 30 Nm  
 wrench 27 - 30 Nm  
 Allen wrench 6 - 30 Nm  
 Allen wrench 8 - 30 Nm

The main relief valve can be mounted only on "A" side, in case of venting valve this is at the opposite side of the main relief. All the testing values of this page have been obtained with nominal flow of 35 L/min - 9.25 gpm, viscosity 16cST and oil temperature 50°C - 122°F.

**D**

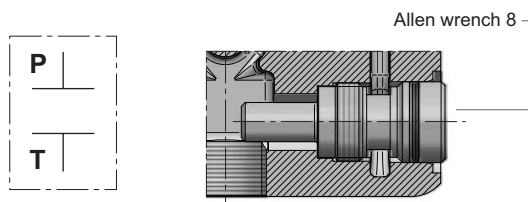
**MAIN RELIEF VALVE DIRECT OPERATED**  
 (setting range from 51 to 350 bar - 740 to 5100 psi)



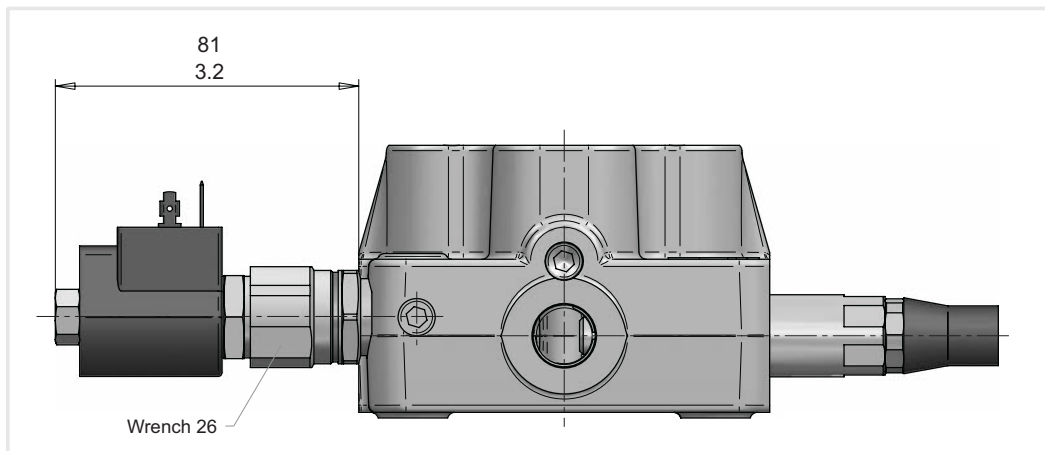
Wrench 21 - tightening torque 30 Nm - 22 lbf.ft  
 This valve is adjustable without oil leaking.

**W**

**PLUG FOR MAIN RELIEF SEAT  
WITHOUT VALVE**

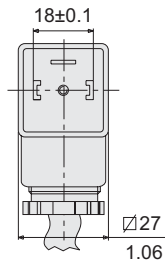


## VENTING VALVES



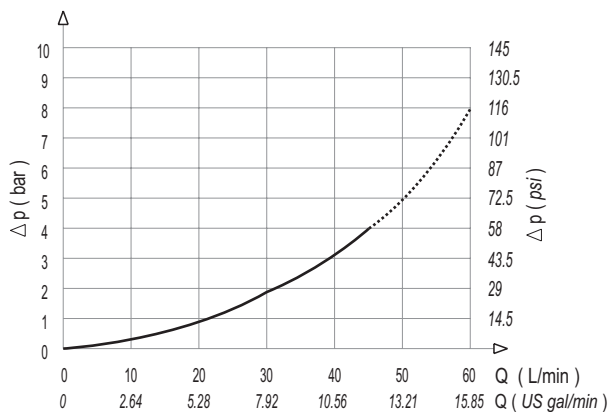
This valve is located in a different cavity from main relief valve and at the opposite side or without main relief. For all the test conditions, please refer you to page 28.

**CONNECTOR**  
DIN 43650 - A/ISO 4400

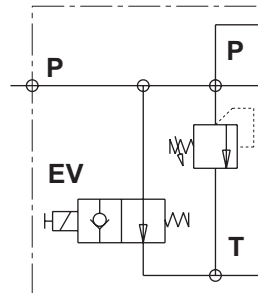


### SPECIFICATIONS

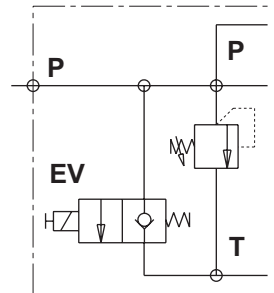
- MAX PRESSURE IN "P"	280 bar
- MAX FLOW	60 l/min
- OIL LEAKAGE-max pressure-32cST	131 cm <sup>3</sup> /min
- VISCOSITY RANGE	3 to 647 cST
- FILTRATION	ISO 18/16/13
- AVAILABLE VOLTAGE	12 - 24 Vcc
- COIL POWER	20 W
- PROTECTION INDEX WITH STANDARD CONNECTOR	IP 65



**Normally opened**



**Normally closed**



### EV1

12 Vdc - Normally opened  
Without override

### EV2

24 Vdc - Normally opened  
Without override

### EV3

12 Vdc - Normally closed  
Without override

### EV4

24 Vdc - Normally closed  
Without override

### ELECTRIC POWER BEYOND VALVE

#### EPB1

12 Vdc - Normally opened  
Without override

#### EPB2

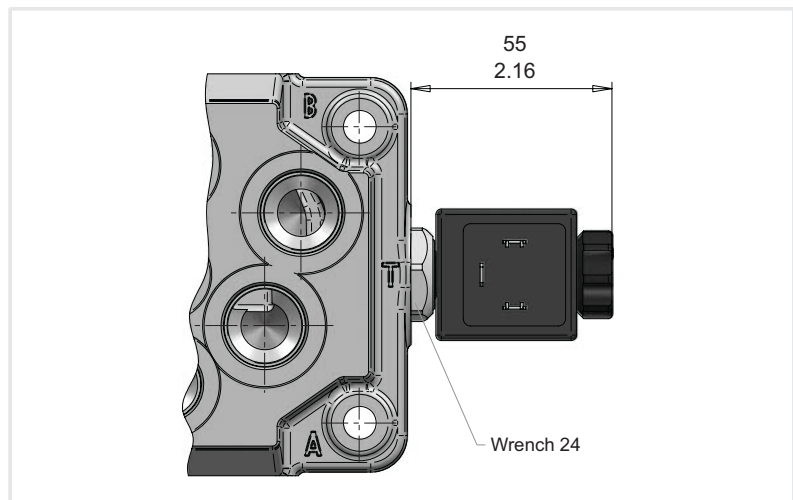
24 Vdc - Normally opened  
Without override

#### EPB3

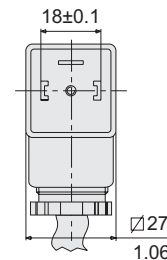
12 Vdc - Normally closed  
Without override

#### EPB4

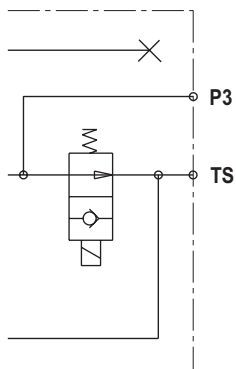
24 Vdc - Normally closed  
Without override



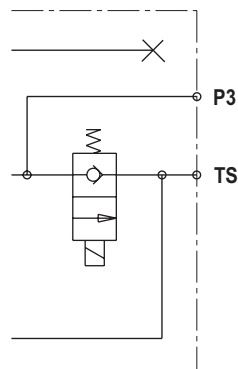
CONNECTOR  
DIN 43650 - A/ISO 4400



Normally opened



Normally closed

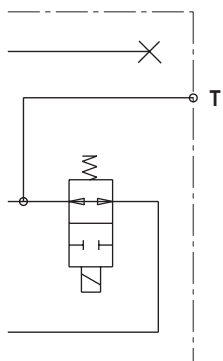


#### SPECIFICATIONS

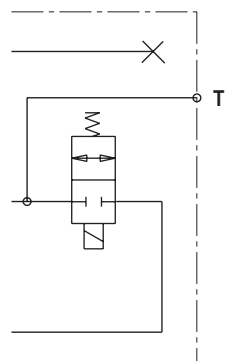
- MAX PRESSURE IN "P"	350 bar
- MAX FLOW	40 l/min
- OIL LEAKAGE-max pressure-46 cST	0.30 cm <sup>3</sup> /min
- AVAILABLE VOLTAGE	12 - 24 Vcc
- COIL RESISTANCE	12Vdc:8.7Ω - 24Vdc:33Ω
- COIL POWER	17 W
- PROTECTION INDEX WITH STANDARD CONNECTOR	IP 65

### ELECTRICAL SAFETY DEVICE

Normal working circuit



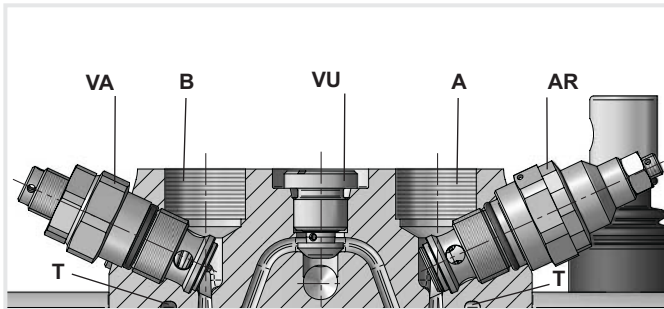
Lowering blocked off



Especially thought for forklift truck:

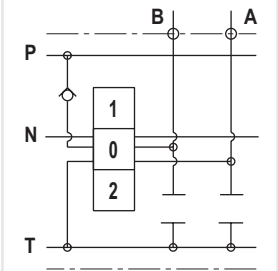
in order to preserve the truck safety, we can close the download line coming from the working ports. With this solution we can avoid accidental movement of the forks, especially when they are kept lifted.

## AUXILIARY VALVES



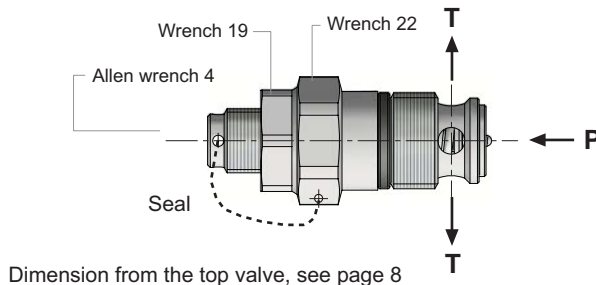
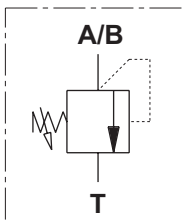
This picture shows the position of the auxiliary valves. For the tightening torque please see page 24.

The load check valve VU is built in every working section between ports and you need not to specify it in phase of ordering because it is part of the module.

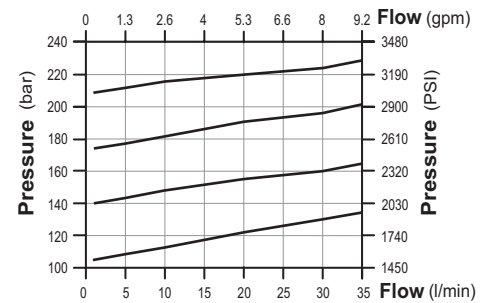


### VA

**OVERLOAD VALVE**  
(setting range from 50 to 275 bar - 725 to 4000 psi)

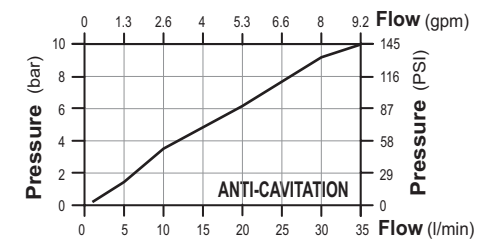
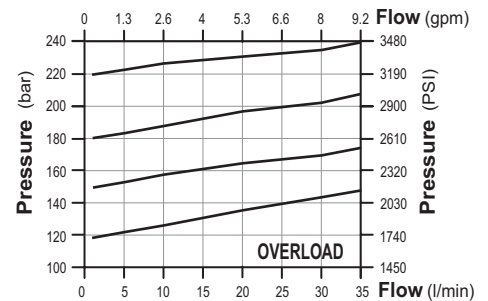
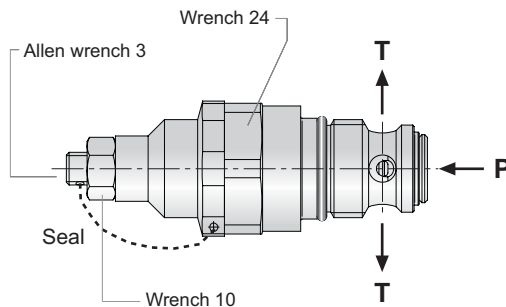
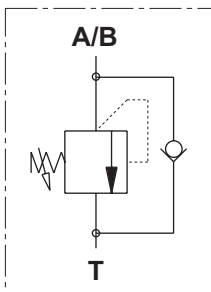


Dimension from the top valve, see page 8



### AR

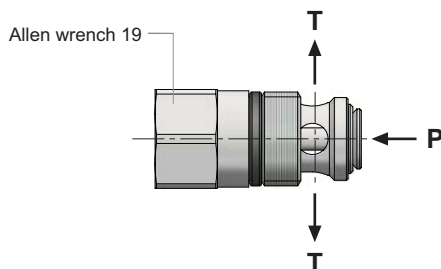
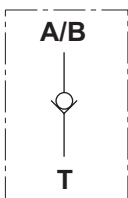
**OVERLOAD AND ANTI-CAVITATION VALVE**  
(setting range from 50 to 350 bar - 725 to 5075 psi)



Both valves VA and AR are adjustable without oil leaking. Further more, both have a security device to avoid valve sticking. Dimensions from the top valve, see page 8

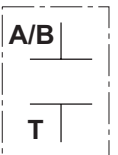
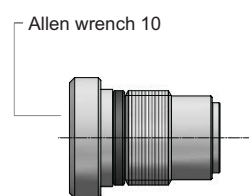
### VR

**ANTI-CAVITATION VALVE**



**PLUG FOR CAVITY**

### PR

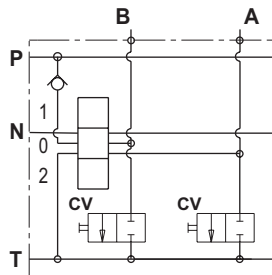
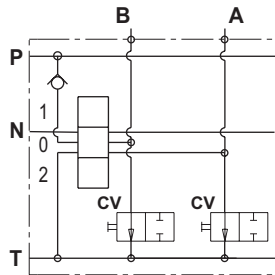


## AUXILIARY VALVES

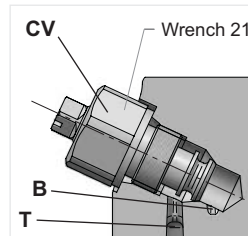
**CV**

### CONVERSION VALVE

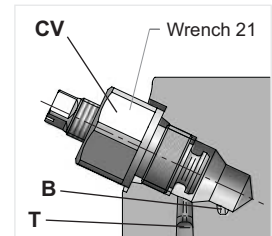
The conversion valve **CV** allows to obtain single acting function starting from double acting spool just connecting the port to tank. For example starting from a double acting spool to obtain a single acting "A" port function, we must open the **CV** valve sending "B" port to tank line.



### CLOSED



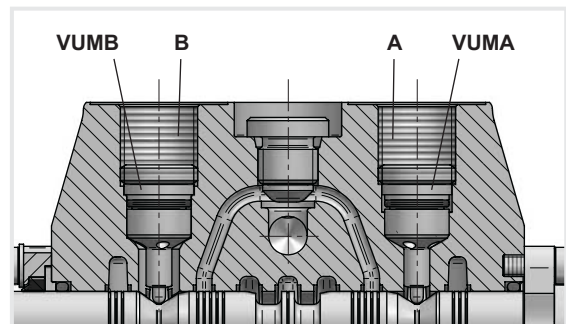
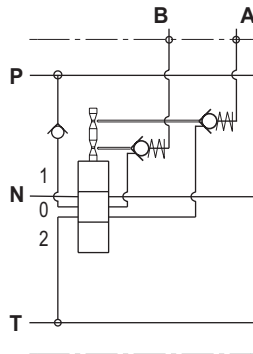
### OPENED



**VUM**

### LOAD CHECK VALVE MECHANICAL OPERATED

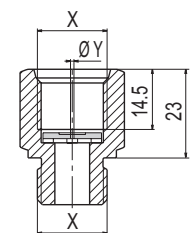
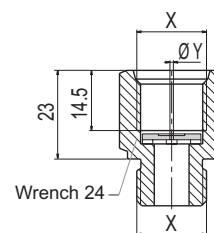
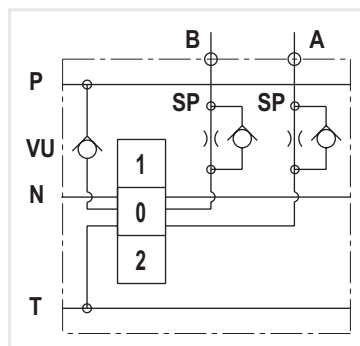
This working section is built with a special machining on the working port/ports to insert a load check valve piloted with a mechanical device into "A" and/or "B" port. When the spool is moved, a cam is pushed up by a tapered profile causing the starting opening of **VUM**. This type of circuit is created for customers which need to control the load in position when the spool returns in position 0. Moreover the mechanical device to pilot the **VUM** guarantees a very good metering. In this working section you can't have other auxiliary valves.



**Pay attention:**  
to insert these valves you need of a special machined monoblock.

**SP**

Flow restrictor P → A/B

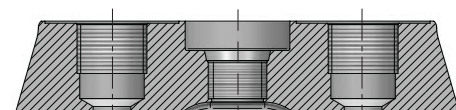
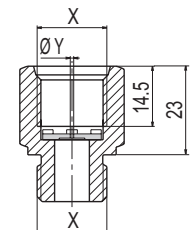
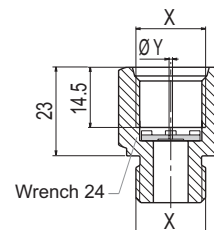
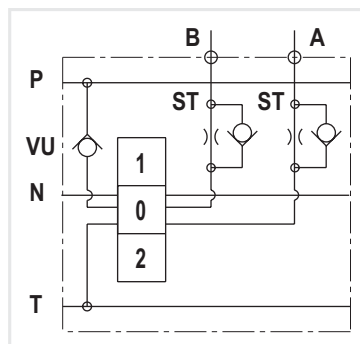


X	φ Y
available threads	available measures
*M18 x 1.5 SAE 8 G 3/8	φ 1.10 φ 1.25 φ 1.50

\*Available for quantity, please contact our sales dept.

**ST**

Flow restrictor A/B → T



For tightening torque, please refer you to page 5.

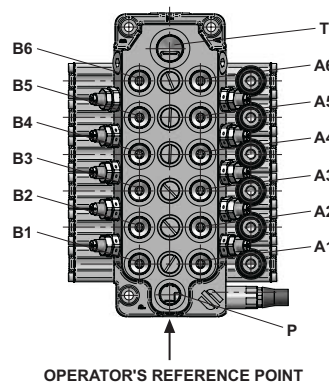
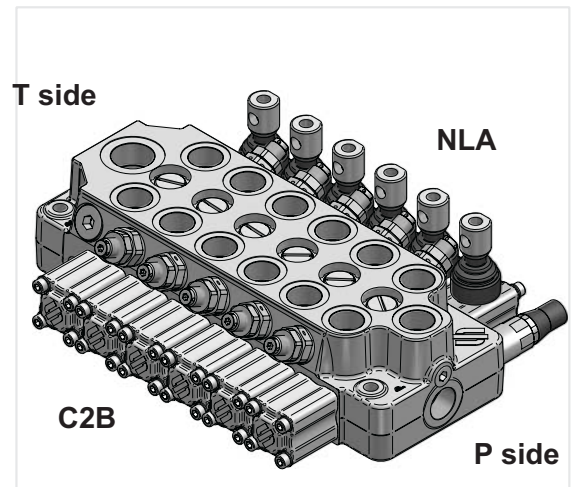
## SPOOL CONTROLS AND SPOOL POSITIONINGS

This picture shows the VDM6A assembled, in this case you have a manual control "NL" on A side and a spring return in neutral position "C2" on B port side. In this case the manual control "NL" is used directly to have the spool movement, in other case, for example with electro-hydraulic control, there is only a safety lever. Considering that VDM6A is a simmetrical valve, all spool controls and positionings can be placed on both sides A or B. In case of hydraulic kick-out or in case of spools types 13 - 17 - 18, you can also decide A or B port side but after that this is the final position because with this type of control and spools the working module have a special machining.

In this and following pages you can find all spool controls and spool positionings, they are all assembled with socket hexagon head screw or in some case hexagon head screw:

**M5 x 0.8 with tightening torque of  $4.5 \pm 0.5$  Nm.**

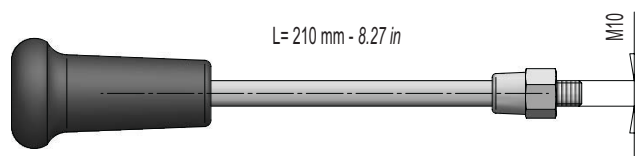
The drw. here below show the reference to fix A and B side from the point of view of the operator.



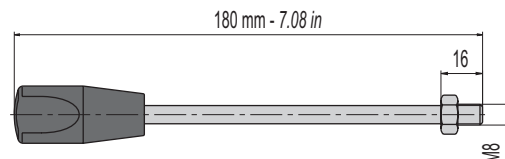
## STANDARD SHAFTS

For different diameter and/or length, please get in touch with our sales dept.

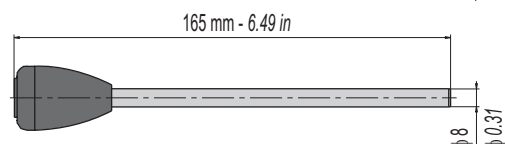
Shaft with ergonomic knob  
for cross lever L1/L2  
**R202 8996 0**



Shaft with threaded end  
**R202 9018 0**



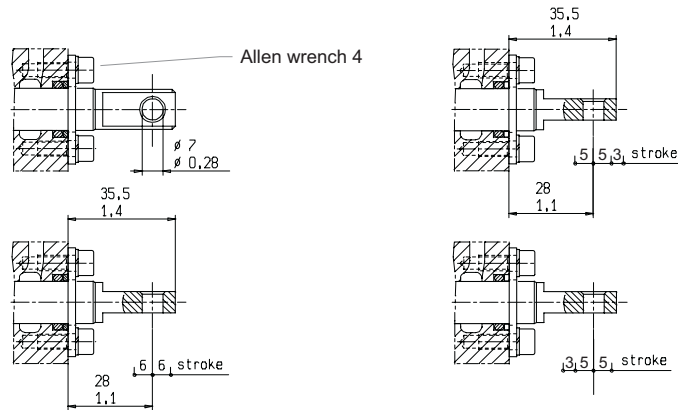
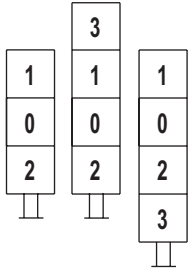
Shaft for clamp lever  
**R202 8839 0**



### SPOOL CONTROLS

**SL**

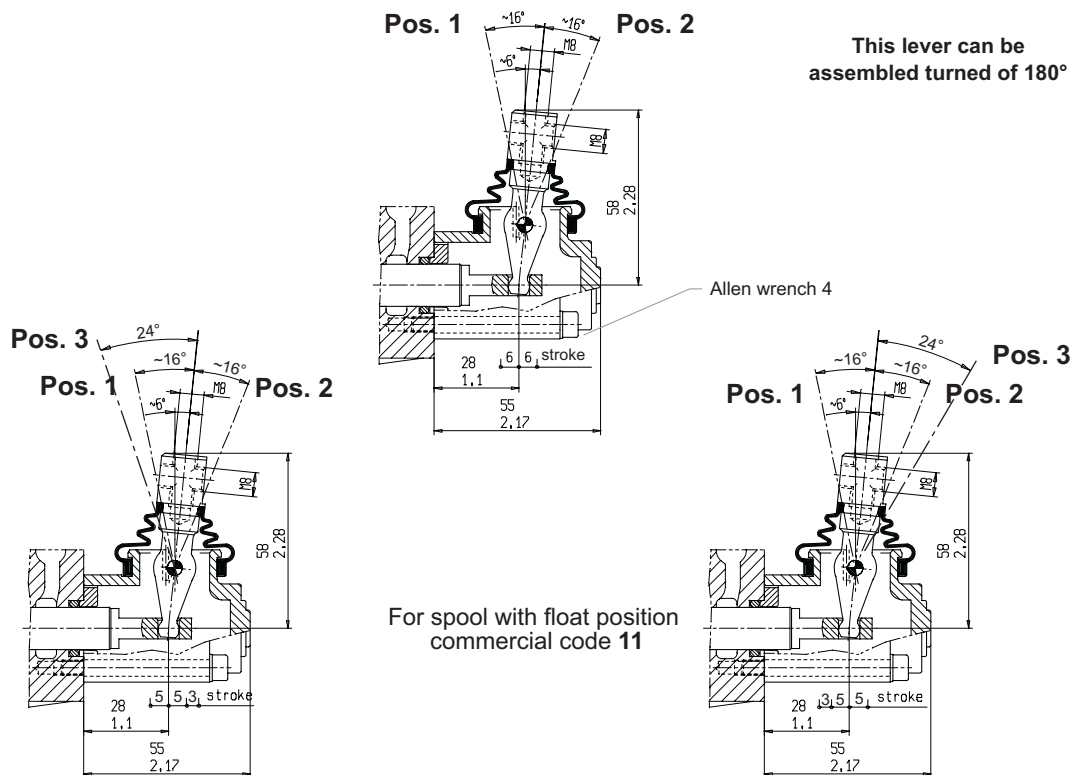
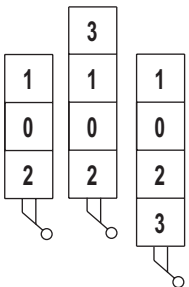
Without lever box



On request available with dust proof plate

**NL**

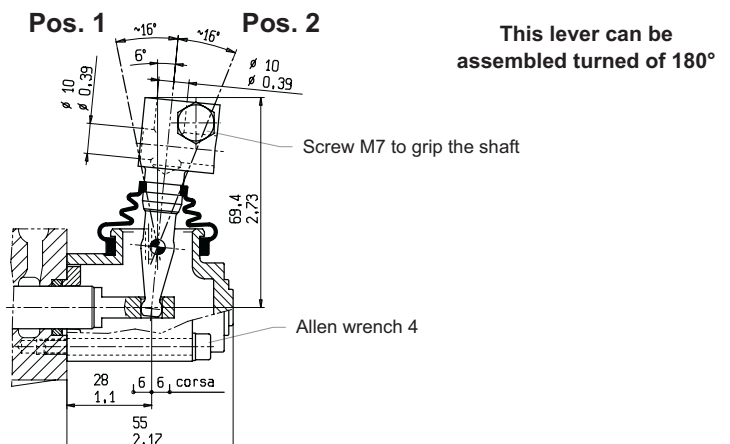
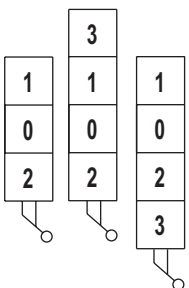
Standard  
protected lever



**MP**

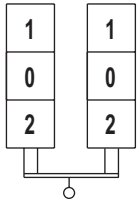
On request available for spools with float position: commercial codes 11 and 12 as shown in the drawing above

Protected clamp lever

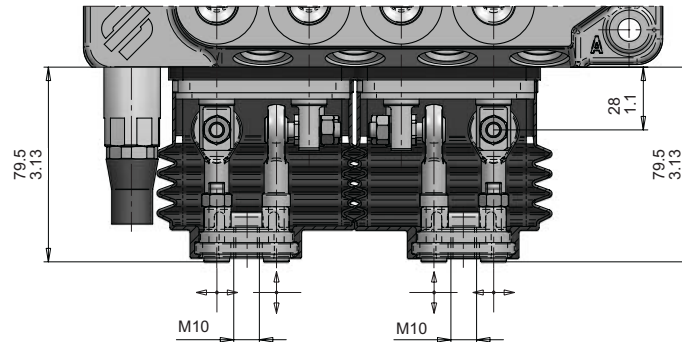
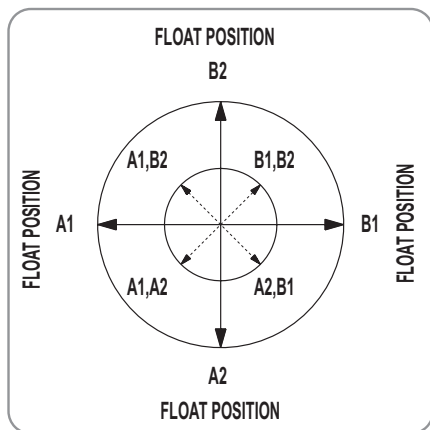


## L2

Cross lever for 2 spools  
fulcrum on down-stream spool



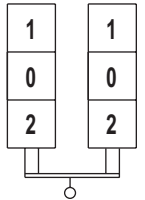
Standard movements  
from the operator's reference point



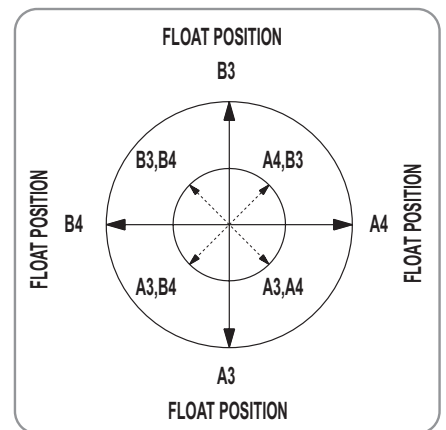
↑  
OPERATOR'S REFERENCE POINT  
↑

## L1

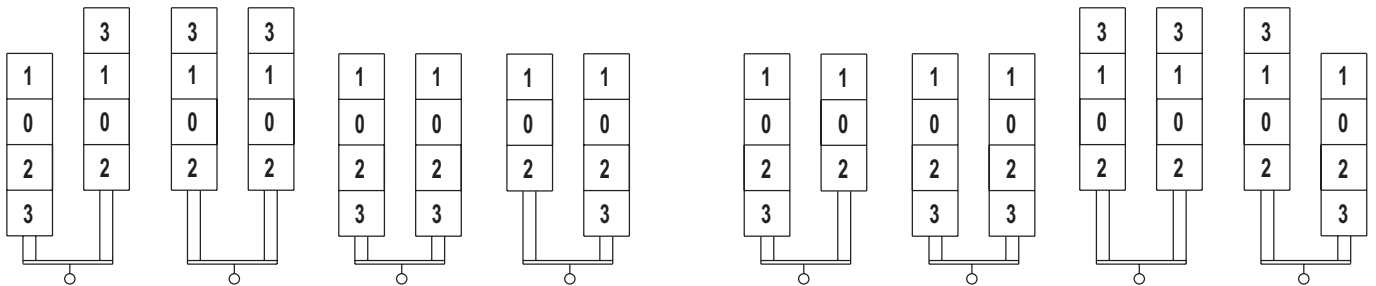
Cross lever for 2 spools  
fulcrum on up-stream spool



Standard movements  
from the operator's reference point



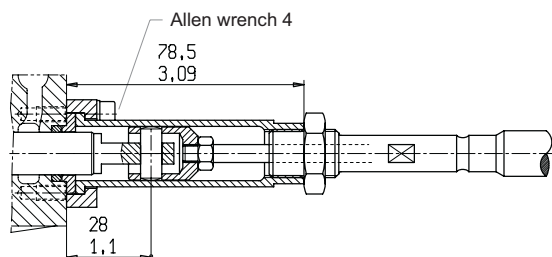
With both L1 and L2 cross levers you can do the 1 and 2 standard working positions, but you can do also the third working position.  
Below some of the movement options you can have.



## TC

Devices for cable remote control. For more details about cables, please consult our catalogue cable remote controls.

End spool with hole  $\phi$  7 mm. Control side.



Also for spool with (float-in) and (float-out) positions commercial codes 11 - 12

### E7

#### Working conditions for this control:

Flows up to 30 l/min (8 gpm)  
Pressure up to 190bar (2750psi)

Electric push-pull control 3 positions  
12 Vdc (coil power 31Watt at 20°C)

### E8

#### Working conditions for this control:

Flows up to 30l/min (18gpm)  
Pressure up to 2190ar (302750i)

Electric push-pull control 3 positions  
24 Vdc (coil power 31 Watt at 20°C)

### E9

#### Working conditions for this control:

Flows up to 40 l/min (10.6 gpm)  
Pressure up to 210 bar (3050 psi)

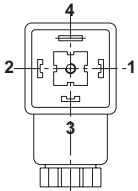
Electric push-pull control 3 positions  
12 Vdc (coil power 45 Watt at 20°C)

### E10

#### Working conditions for this control:

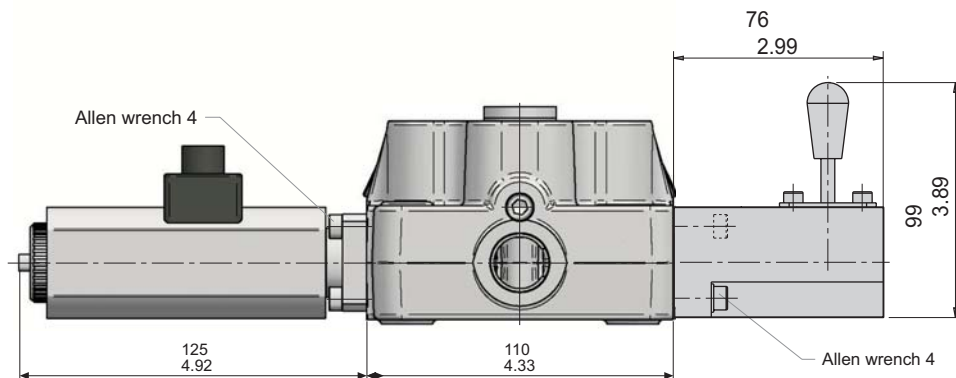
Flows up to 40 l/min (10.6 gpm)  
Pressure up to 210 bar (3050 psi)

Electric push-pull control 3 positions  
24 Vdc (coil power 45 Watt at 20°C)



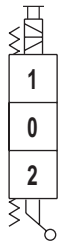
**CONNECTOR  
DIN 43650 - A/ISO 4400**

To avoid an excessive wearing of the contacts, depending on the sparking of these parts, we suggest a suitable protection( for example diodes)



### ES

Emergency lever for electric  
push-pull control



### E11

#### Working conditions for this control:

Flows up to 50 l/min (13.2 gpm)  
Pressure up to 210 bar (3050 psi)

Electric push-pull control 3 positions  
12 Vdc (coil power 60 Watt at 20°C)

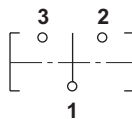
### E12

#### Working conditions for this control:

Flows up to 50 l/min (13.2 gpm)  
Pressure up to 210 bar (3050 psi)

Electric push-pull control 3 positions  
24 Vdc (coil power 60 Watt at 20°C)

#### ELECTRIC CONNECTIONS SCHEME

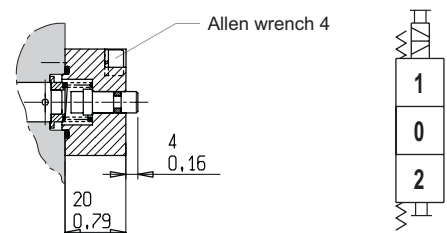


- 1) NEGATIVE POLE
- 2) SPOOL IN
- 3) SPOOL OUT
- 4) GROUND WIRE

**Important:** this lever was realized as emergency lever and it's not recommended a continuous use.

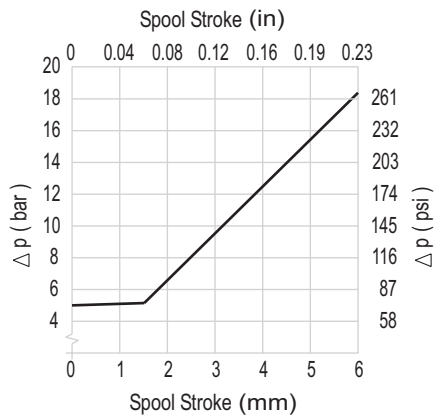
### SL

Without lever for electric  
push-pull control  
with override device

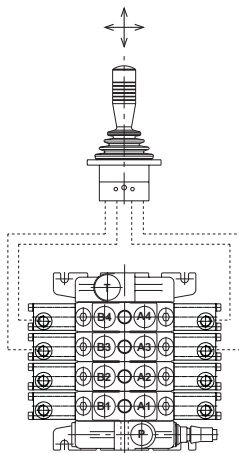


# DIRECTIONAL CONTROL VALVE MONOBLOCK TYPE

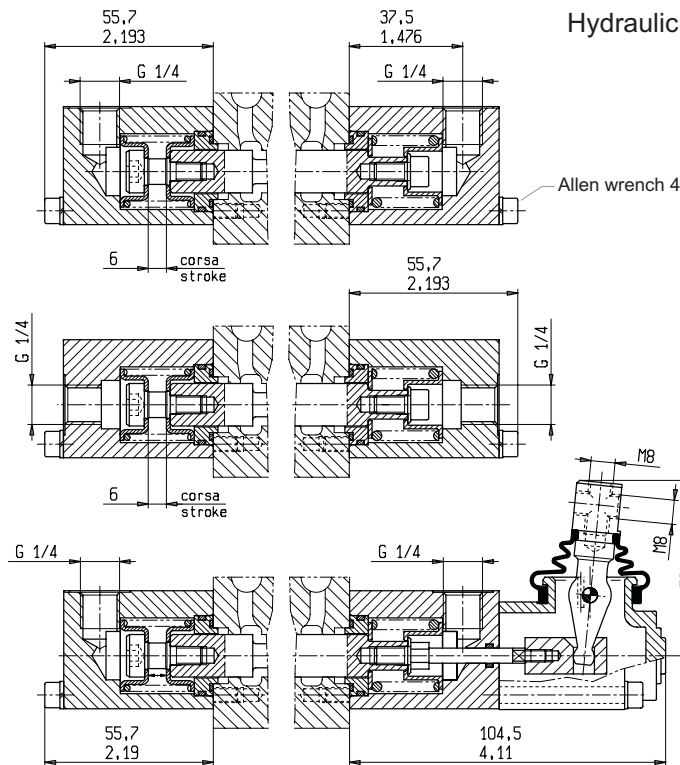
# VDM6A



**Salami hydraulic  
2 axis joystick**



**Important:**  
when you order please specify top or side ports



Hydraulic proportional control

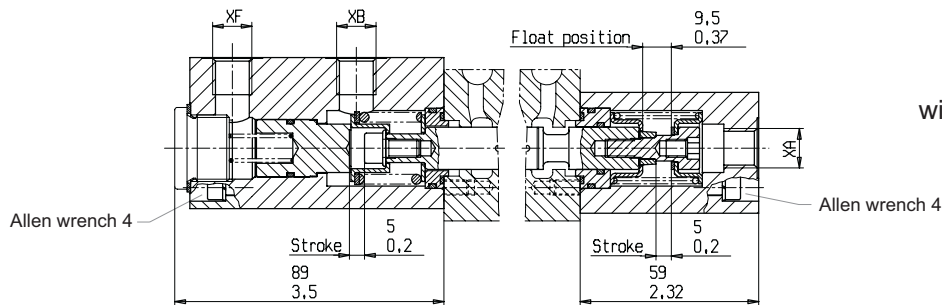


Hydraulic proportional control with emergency lever.  
Available for q.ty please get in touch with our sales dept.

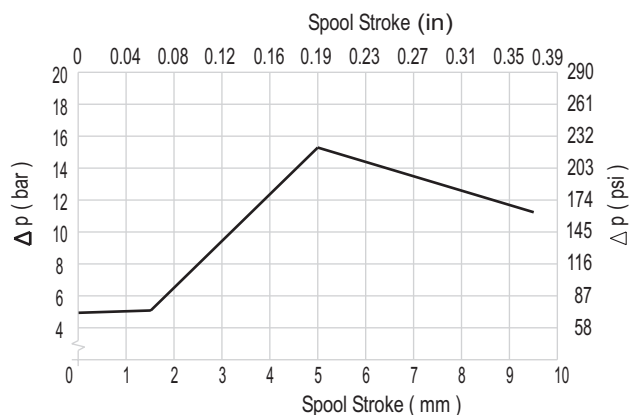


For more information please consult our catalogue SHRC hydraulic remote controls.

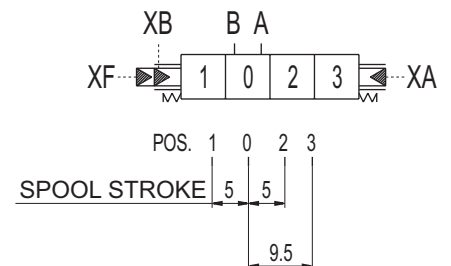
## XA, XB, XF PORTS : G 1/4



Hydraulic proportional control  
with third float position (spool in)



## OPERATING SCHEME



XA, XB, XF  $\rightarrow$  T  $\Rightarrow$  POS. 0

Pressure  $\rightarrow$  XB  $\Rightarrow$  POS. 1

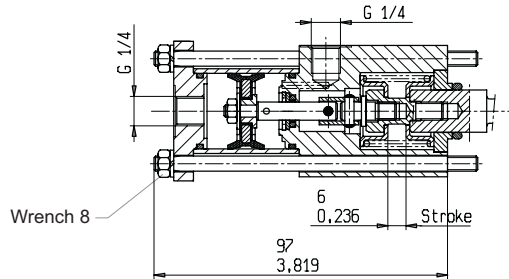
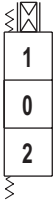
Pressure  $\rightarrow$  XA, XF  $\Rightarrow$  POS. 2

Pressure  $\rightarrow$  XA  $\Rightarrow$  POS. 3

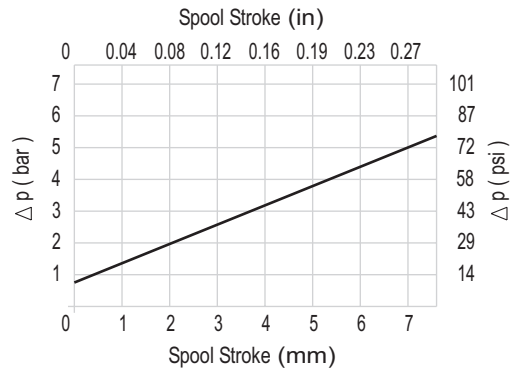
## PP/PO

Thought for all truck hydraulic applications

Pneumatic proportional/on-off control



Available also with ports threaded 1/8 NPT



Pneumatic proportional/on-off control

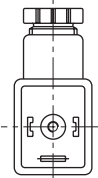
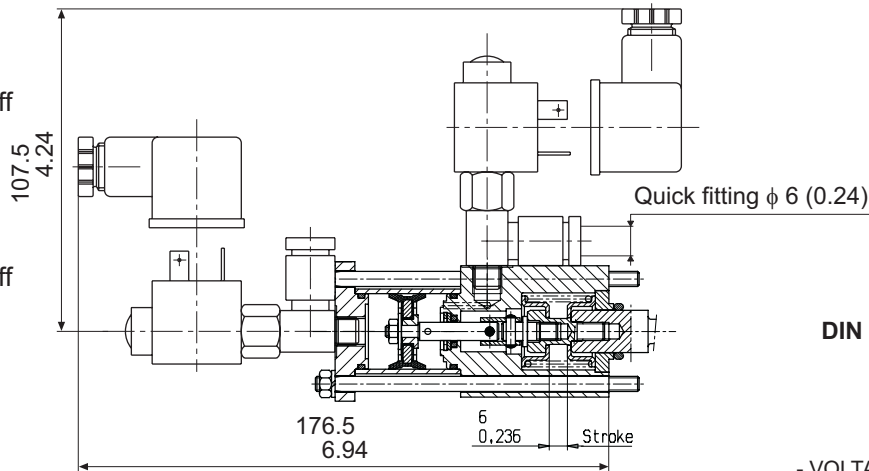
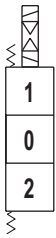
This control is at the same time proportional and on-off type, it depends if you use a pneumatic remote control proportional type (with the characteristic curve of diagram), or on-off type.

## P1

Electro-pneumatic on-off control - 12 Vdc

## P2

Electro-pneumatic on-off control - 24 Vdc



**CONNECTOR**  
DIN 43650 - A/ISO 4400

### ELECTRICAL DATA

- VOLTAGE: 12Vdc OR 24Vdc

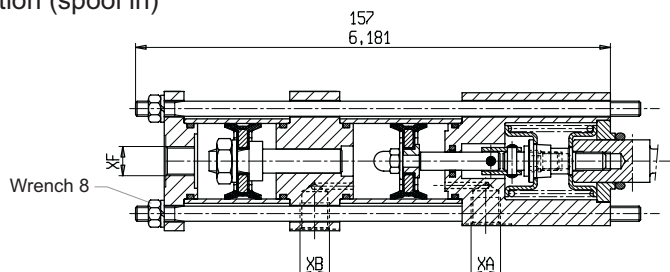
- COIL POWER: 6 Watt at 20°C

- PROTECTION INDEX WITH CONNECTOR: IP 65

Starting from PP/PO adding the electro-valves you get P1 or P2

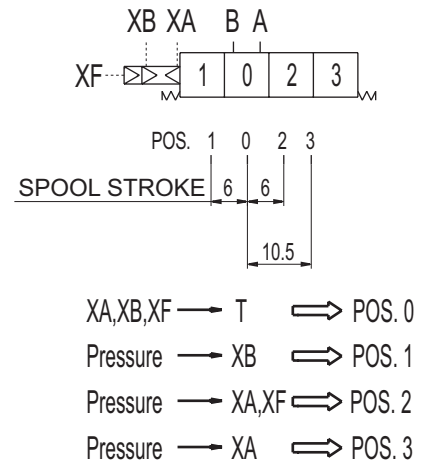
## PQ

Pneumatic on-off control with third float position (spool in)



XA, XB, XF PORTS : G 1/4

### OPERATING SCHEME

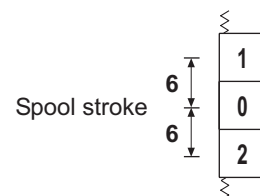
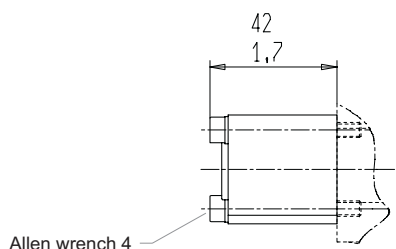


For electro-pneumatic control with third float position, please get in touch with our sales dept.

## SPOOL POSITIONINGS

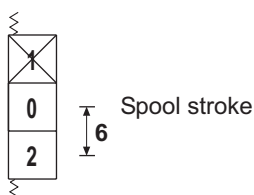
### C2

Spring centered to neutral position



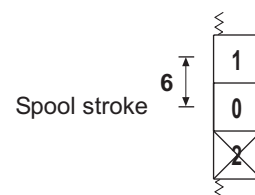
### C5

Two positions (neutral/pos. 2)  
with spring return in neutral



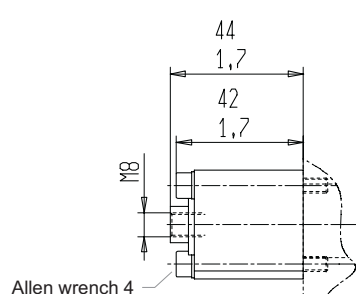
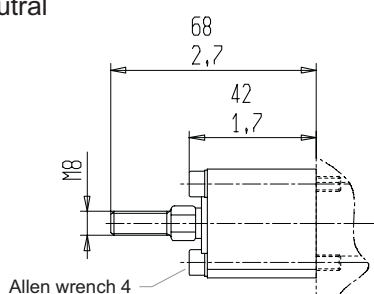
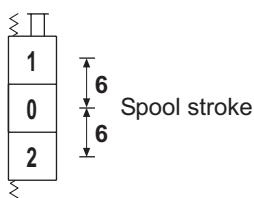
### C6

Two positions (neutral/pos. 1)  
with spring return in neutral



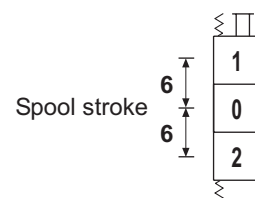
### C3

Spring centered to neutral  
(pivot threaded male  
for remote control)



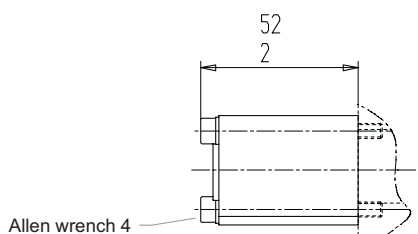
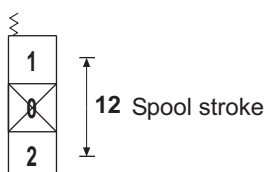
### C4

Spring centered to neutral  
(pivot threaded female  
for remote control)



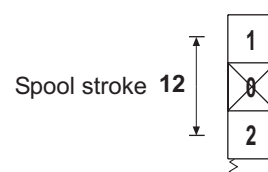
### C7

Two positions (pos. 1/pos. 2)  
with spring return in pos. 1



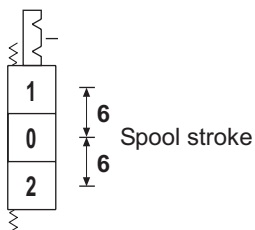
### C8

Two positions (pos1/pos. 2)  
with spring return in pos. 2



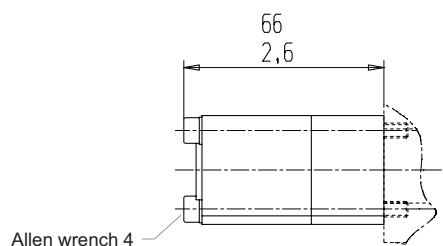
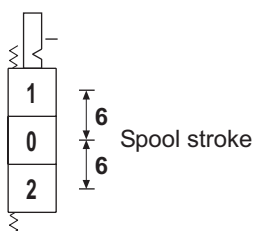
### R2

Detent on pos. 1/pos. 2  
with spring return in neutral



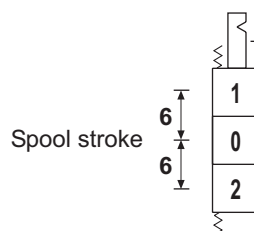
### R5

Detent on pos. 2  
with spring return in neutral



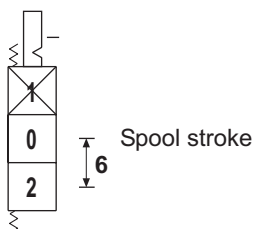
### R4

Detent on pos. 1  
with spring return in neutral



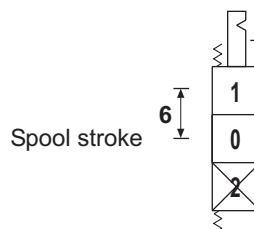
### R6

Two positions with detent on pos. 2  
with spring return in neutral



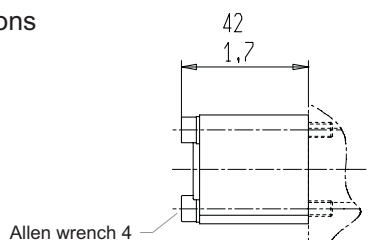
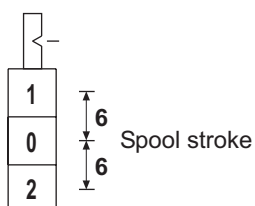
### R7

Two positions with detent on pos. 1  
with spring return in neutral



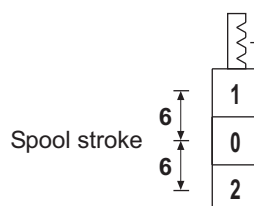
### CO

Detent on each intermediate positions



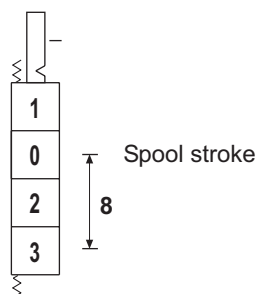
### R9

Detent on pos. 1/pos. 2  
and neutral position



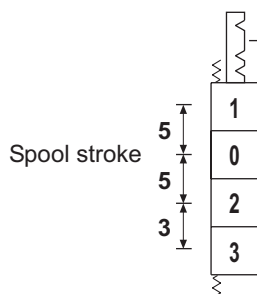
## F1

Detent on pos. 3  
with spring return in neutral



## F2

Detent on pos. 1/pos. 2/pos. 3  
with spring return in neutral

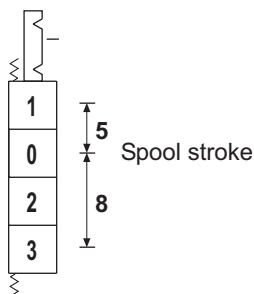


**UNDER CONSTRUCTION**

## F3

**UNDER CONSTRUCTION**

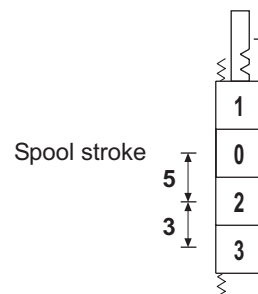
Detent on pos. 1/pos. 3  
with spring return in neutral



**UNDER CONSTRUCTION**

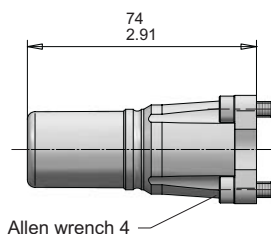
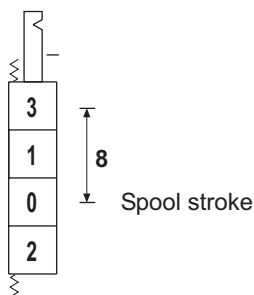
## F4

Detent on pos. 2/pos. 3  
with spring return in neutral



## F5

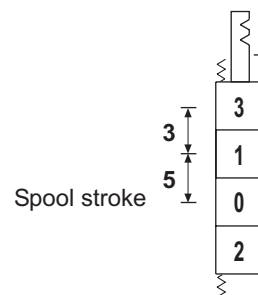
Detent on pos. 3  
with spring return in neutral



**UNDER CONSTRUCTION**

## F6

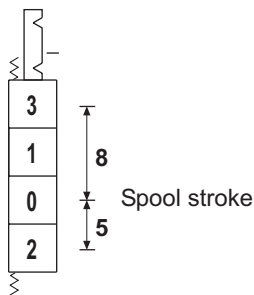
Detent on pos. 1/pos. 3  
with spring return in neutral



## F7

**UNDER CONSTRUCTION**

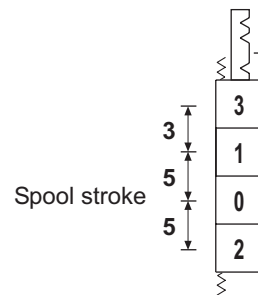
Detent on pos. 2/pos. 3  
with spring return in neutral

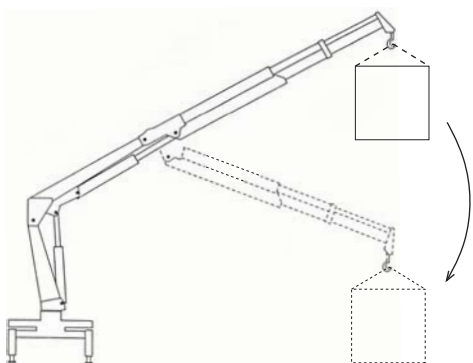


**UNDER CONSTRUCTION**

## F8

Detent on pos. 1/pos. 2/pos. 3  
with spring return in neutral



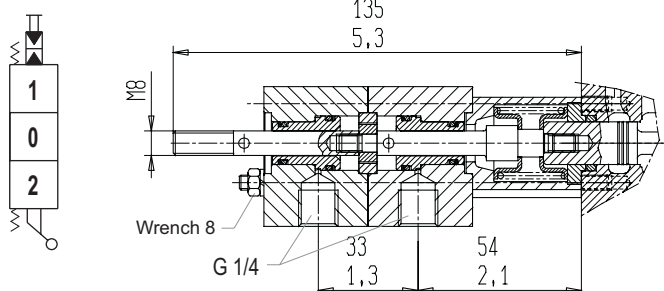


For manufacturers using load and overturning torque limiting device for hydraulically operated cranes, Salami VD6A valve is available with some devices that allow the manufacturer to supply a pressure signal inside itself. This pressure signal, acting on the area of a piston of 18 mm (0.71 inc.) diameter, reacts to the force of the manual control bringing back the spool at the position 0.

These devices are only available in combination with manual control.

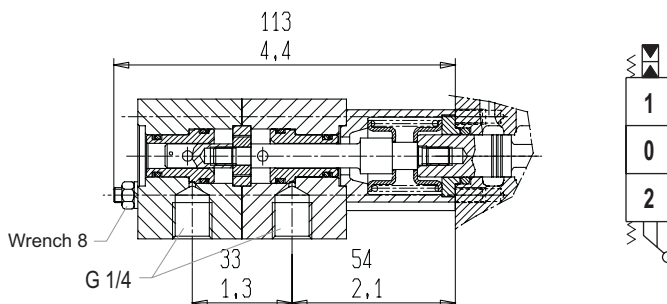
**D9**

Device for spool positioning in 0 from the positions 1 and 2 by an external pressure signal. For tie-rod connection.



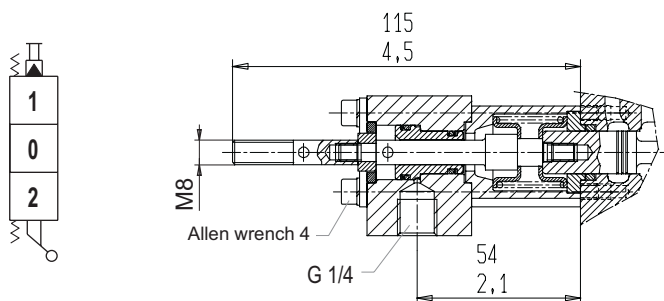
Device for spool positioning in 0 from the positions 1 and 2 by an external pressure signal.

**M3**



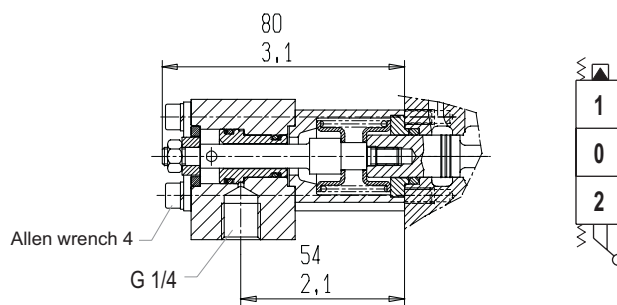
**D8**

Device for spool positioning in 0 from the position 1 by an external pressure signal. For tie-rod connection.



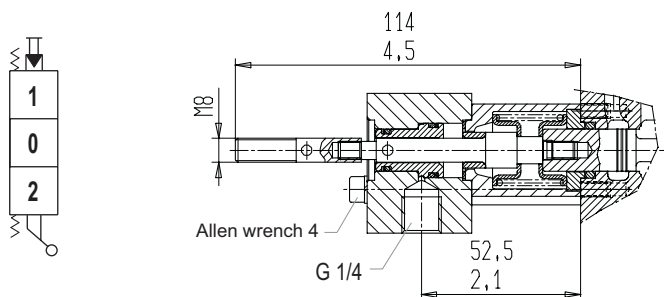
Device for spool positioning in 0 from the position 1 by an external pressure signal.

**M1**



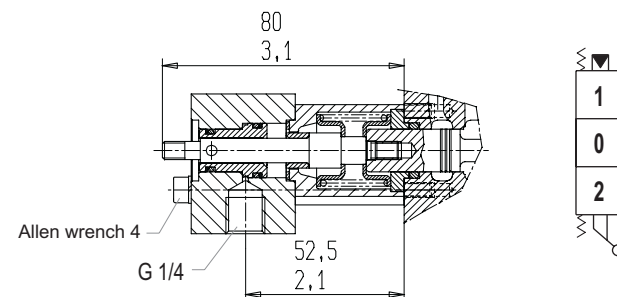
**D7**

Device for spool positioning in 0 from the position 2 by an external pressure signal. For tie-rod connection.



Device for spool positioning in 0 from the position 2 by an external pressure signal.

**M2**

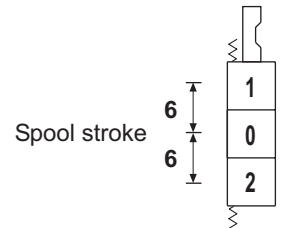
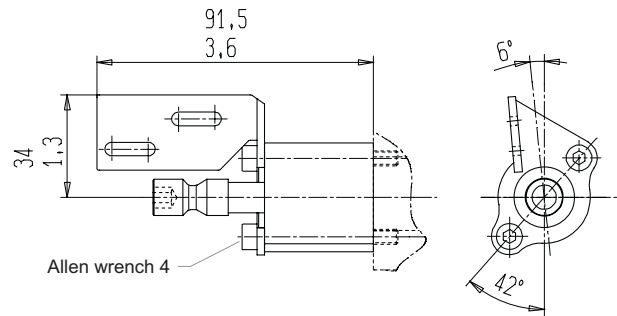


# DIRECTIONAL CONTROL VALVE MONOBLOCK TYPE

# VDM6A

**CE**

Pre-arrangement for  
electrical device



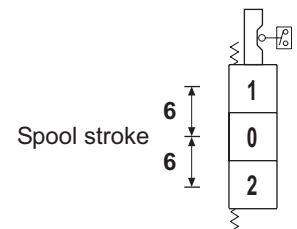
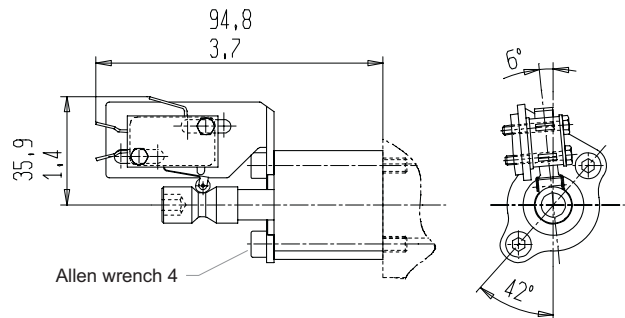
## MICROSWITCH TYPE: SAIA - BURGESS XGK - 88

For more information please get in touch with our sales dept.

**CM**

Spool positioning with microswitch  
to start an electric motor  
(available also for single acting spools)

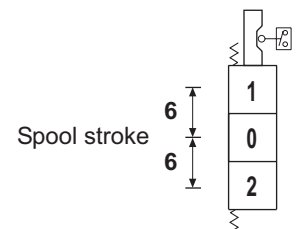
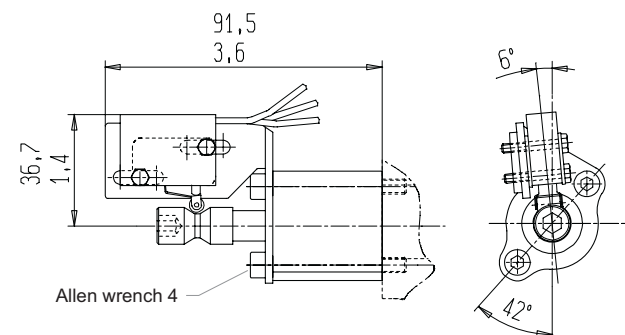
PROTECTION INDEX  
IP65



**CW**

Spool positioning with waterproof  
microswitch to start an electric motor  
(available also for single acting spools)

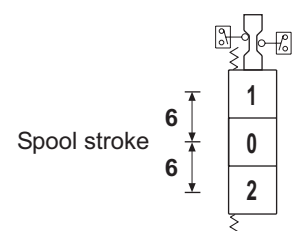
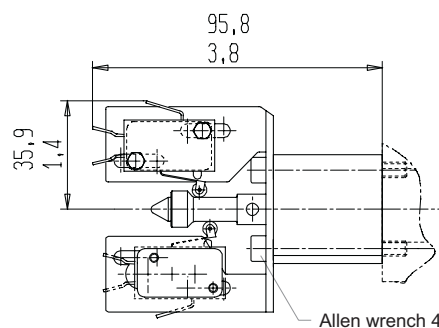
PROTECTION INDEX  
IP67



**CD**

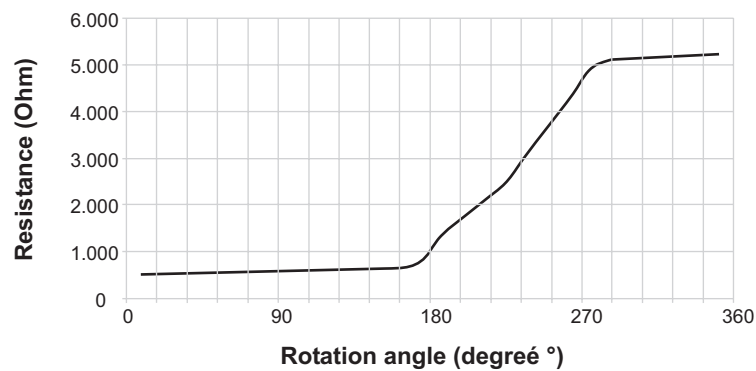
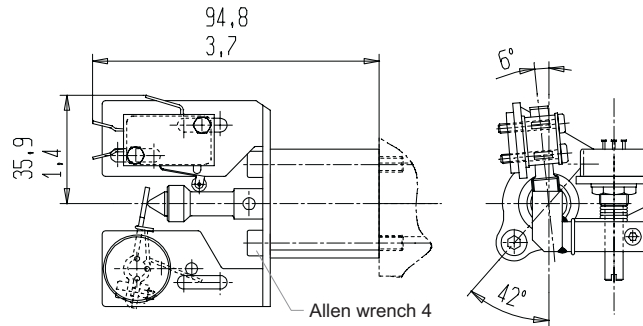
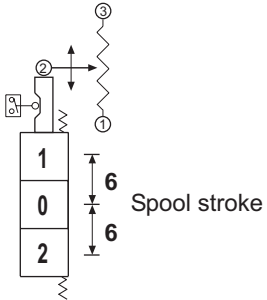
Spool positioning with double microswitch  
(available also for single acting spools)

PROTECTION INDEX  
IP65



### PM

Spool positioning with microswitch to start an electric motor and potentiometer to run up speed motor (available also for single acting spools)



## DESCRIPTION OF THE NEW PRODUCT IDENTIFICATION LABEL

Based on the firm certification ISO 9001 - UNI EN 29001, section 4.8 (identification and traceability of the product), we have adopted a new identification label starting from the 1<sup>st</sup> march 1995. Pls, see following example:

A			
B			
C		D	
E	salami		G

**A = Product short description** (eg. VD8A/FDD/U4G).

**B = Customer part number.**

**C = Salami part number** (eg. 6235 0025 0).

**D = Production code** (for Salami management)

**E = Rotation sense** (only for pumps).

**F = Production date** (see data sheet here below)

**G = Progressive number of assembling.**

Only for pumps 2PB and 2PZ  
(except triple 2PB) the identification product  
is marked on the top of the pump body  
as shown here below:

→  
**SALAMI 09/02**  
**MADE IN ITALY 4010998**  
**612271211 nr. 13**  
**2PB 19S B25 B5**

Product short description.

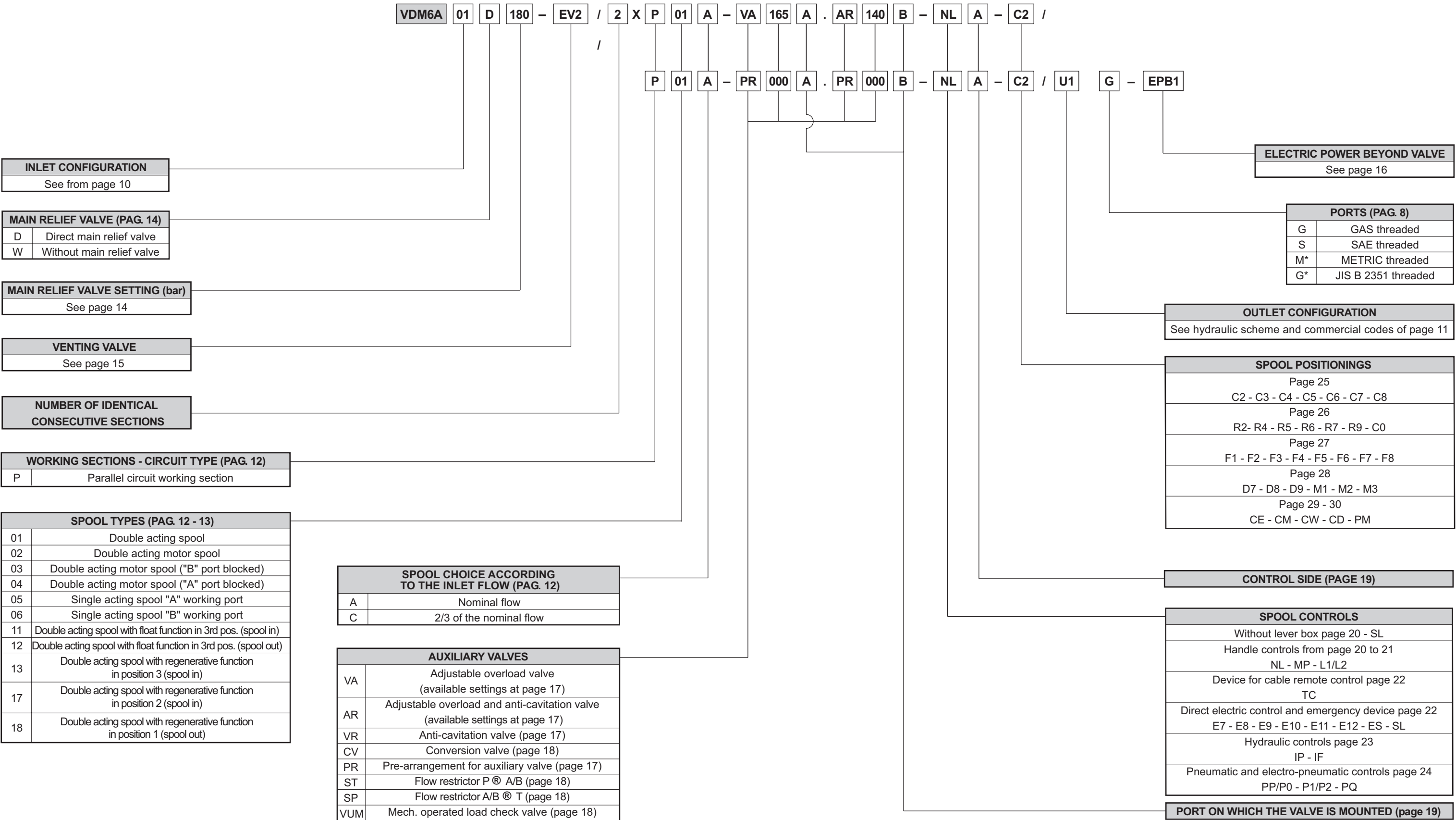
Salami part number and progressive number of assembling.

Production code (for Salami management).

Month and year of made: maybe in the future you can find this  
type of production date in the label beside too.

Rotation sense.

ASSEMBLED	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
JANUARY	7A	8M	9M	0M	1M	2M	3M	4M	5M	6M	7M	08M	09M	10M	11M	12M
FEBRUARY	7B	8N	9N	0N	1N	2N	3N	4N	5N	6N	7N	08N	09N	10N	11N	12N
MARCH	7C	8P	9P	0P	1P	2P	3P	4P	5P	6P	7P	08P	09P	10P	11P	12P
APRIL	7D	8Q	9Q	0Q	1Q	2Q	3Q	4Q	5Q	6Q	7Q	08Q	09Q	10Q	11Q	12Q
MAY	7E	8R	9R	0R	1R	2R	3R	4R	5R	6R	7R	08R	09R	10R	11R	12R
JUNE	7F	8S	9S	0S	1S	2S	3S	4S	5S	6S	7S	08S	09S	10S	11S	12S
JULY	7G	8T	9T	0T	1T	2T	3T	4T	5T	6T	7T	08T	09T	10T	11T	12T
AUGUST	7H	8U	9U	0U	1U	2U	3U	4U	5U	6U	7U	08U	09U	10U	11U	12U
SEPTEMBER	7I	8V	9V	0V	1V	2V	3V	4V	5V	6V	7V	08V	09V	10V	11V	12V
OCTOBER	7J	8Z	9Z	0Z	1Z	2Z	3Z	4Z	5Z	6Z	7Z	08Z	09Z	10Z	11Z	12Z
NOVEMBER	7K	8X	9X	0X	1X	2X	3X	4X	5X	6X	7X	08X	09X	10X	11X	12X
DECEMBER	7L	8Y	9Y	0Y	1Y	2Y	3Y	4Y	5Y	6Y	7Y	08Y	09Y	10Y	11Y	12Y



\*Available for quantity, please contact our sales dept.

## **WARRANTY**

- We warrant products sold by us to be free from defects in material and workmanship.
- Our sole obligation to buyer under this warranty is the repair or replacement, at our option, of any products or parts thereof which, under normal use and proper maintenance, have proven defective in material or workmanship, this warranty does not cover ordinary wear and tear, abuse, misuse, overloading, alteration.
- No claims under this warranty will be valid unless buyer notifies SALAMI in writing within a reasonable time of the buyer's discovery of such defects, but in no event later than twelve (12) months from date of shipment to buyer.
- Our obligation under this warranty shall not include any transportation charges or cost of installation, replacement, field repair, or other charges related to returning products to us; or any liability for direct, indirect or consequential damage or delay. If requested by us, products or parts for which a warranty claim is made are to be returned transportation prepaid to our factory. The risk of loss of any products or parts thereof returned to SALAMI will be on buyer.
- No employee or representative is authorized to change any warranty in any way or grant any other warranty unless such change is made in writing and signed by an officer of SALAMI.





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telefax +39-0444-240204  
salami.italia@salami.it



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