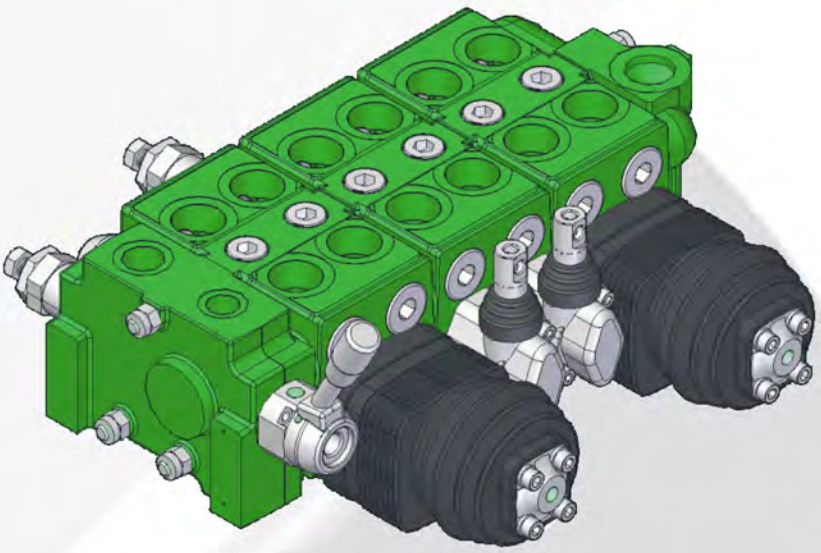
SECTIONAL VALVE

VD8A

Technical catalogue



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COMPANY
WITH QUALITY SYSTEM
CERTIFIED BY DNV
=ISO 9001/2000=

salami™

INDEX

E0.06.0911.02.02

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 departement.

GENERAL FEATURES

Among all hydraulic directional control valves used in the field of mobile equipment applications, the spool valve is the most popular.
The sectional valve type allows construction flexibility.Salami VD8A directional control valve is modular construction and consist of an inlet section, up to 8 working modules and an outlet section.All these elements are secured in one block by means of tie-rods.(For more than 8 working modules please contact our sales dept.)

FEATURES

VD8A directional control valve has the following:
- cast-iron body (inlet section, working section, outlet section)
- parallel circuit, load check valve protection on each section
- series circuit, load check valve protection on each section (possibility of 2nd load check valve on series line)
- tandem circuit, load check valve protection on each section
- several types of mid modules
- possibility of venting valve
- possibility of power beyond configuration
- spool construction in steel, hardened and chromium-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
- interchangeabilty 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" or "B" port side, can be:
  direct type version up to 260 bar - *3700 psi*
  pilot operated with anticavitation version up to 350 bar - *5000 psi*
- electric and external piloted venting valve: located in the opposite cavity of the main relief valve and is available as 12 or 24 Vdc and normally open or normally closed versions (available also as venting valve for the ports A and B)
- 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 load induced pressures , avoids cavitation in the system created by the inertia.
- anti-cavitation check valve on port A or/and B: avoids cavitation in the system created by the inertia.
- flow restrictor: directly fitted on the "A/B" ports orifice

Devices

- handle controls
- handle safety devices: avoids accidental operation of the spool
- 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 preset pressure of port "A" or "B" is exceeded
- anti-tilt device: the spool returns automatically in neutral position when the pressure reaches a pre-set value to avoid cranes from becoming unstable
- pneumatic proportional control
- electropneumatic control
- hydraulic proportional control
- 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 on working position

TECHNICAL DATA

Spools	from 1 to 8 (for more working modules pls. contact our sales department)		
Nominal flow Max flow*	Q	75 l/min 90 l/min	(*20 gpm US*) (*24 gpm US*)
Max pressure	port P ports A/B port T*	350 bar 350 bar 25 bar	(*5100 psi*) (*5100 psi*) (*363 psi*)
Internal leakage at 160 bar (*2285 psi*)	ports A/B → T	25 ÷ 35 cm^3/min	(*1.52 ÷ 2.13 cu.in./min*)
For lower leakage please contact our sales dept.			
In case of solenoid control the leakage is		120 ÷ 160 cm^3/min	(*7.32 ÷ 9.76 cu.in./min*)
Spool stroke (positions 1 and 2)		± 7 mm	(*0,28 in.*)
Spool stroke (position 4, float or regenerative)		± 7 + 5 mm	(*0.28 + 0.19 in.*)
For solenoid control - spool stroke		± 5 mm	(*0,19 in.*)

*In case you need the max flow please contact our sales dept.

*For higher back pressure please contact our sales dept.

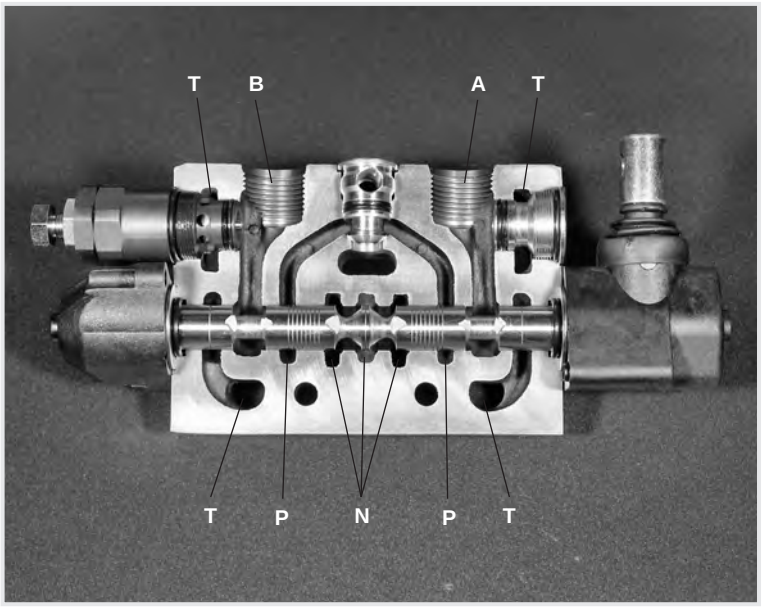
All technical data carried out using mineral oil with viscosity of 16 cSt and contamination level 19/16 as ISO 4406.

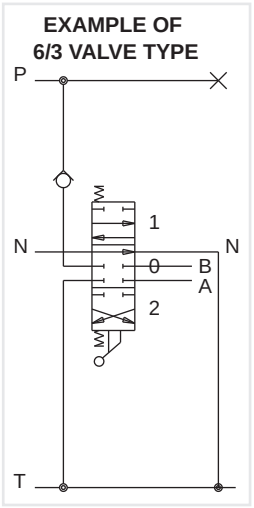
Nominal flow meaning: flow causing 1 bar (*14.5 psi*) pressure drop each section, with spools in neutral position

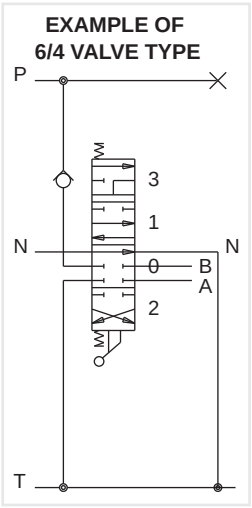
WORKING CONDITIONS

Hydraulic fluid	mineral oil according to DIN 51524		
Viscosity			
	viscosity range	10...400 mm^2/sec	(*0.15...7.13 sq.in./sec*)
	optimal viscosity	12...75 mm^2/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

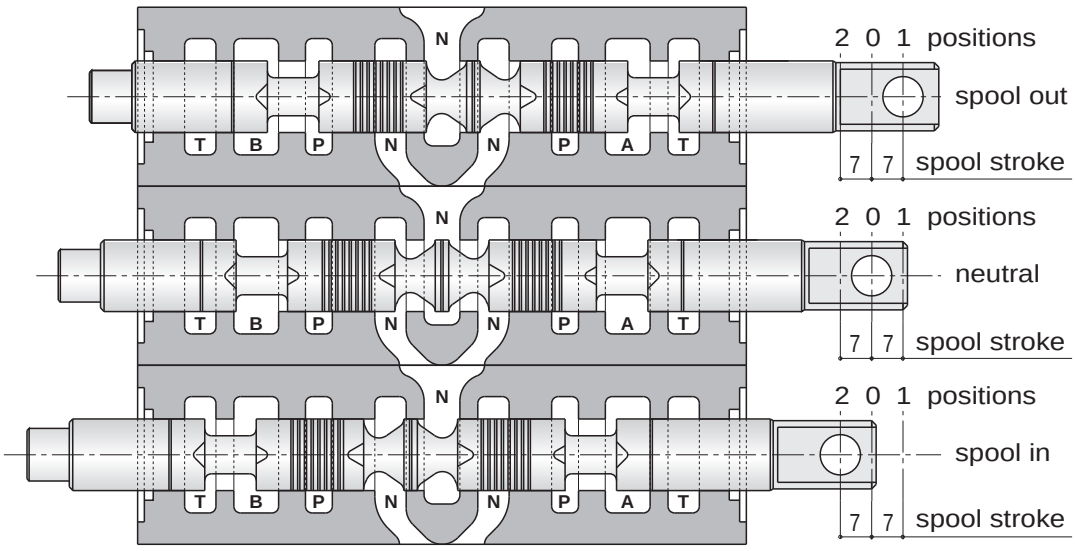






The picture show the P working module
with the paths N - P - A - B - T.

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 (approximatively 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 a 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. Independing on assembling of the spool on "A" or "B" side

There are two characteristic phases in the spool stroke (7 mm - 0,275 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 VD8A 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 3/4	G 1/2	G 3/4
with o-ring seal	**60 / *44.2***	50 / *36.9*	**60 / *44.2***
with copper washer	70 / *51.6*	60 / *44.3*	70 / *51.6*
with steel washer	70 / *51.6*	60 / *44.3*	70 / *51.6*
SAE	**SAE 10 (7/8-14 UNF)**	SAE 10 (7/8-14 UNF)	SAE 12 (1 1/16-12 UN)
with o-ring seal	**60 / *44.2***	60 / *44.2*	95 / *70.1*

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	inlet pipe
3 ÷ 5 m/sec	outlet pipe

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

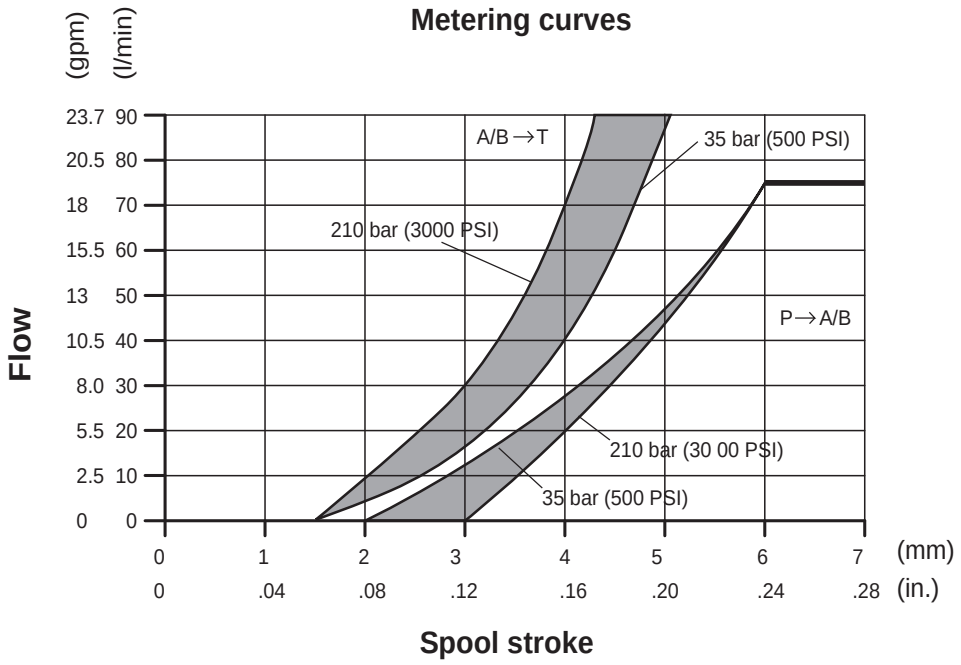
the lowest values of fluid speed are required in case of wide temperature range and/or for continuous duty.

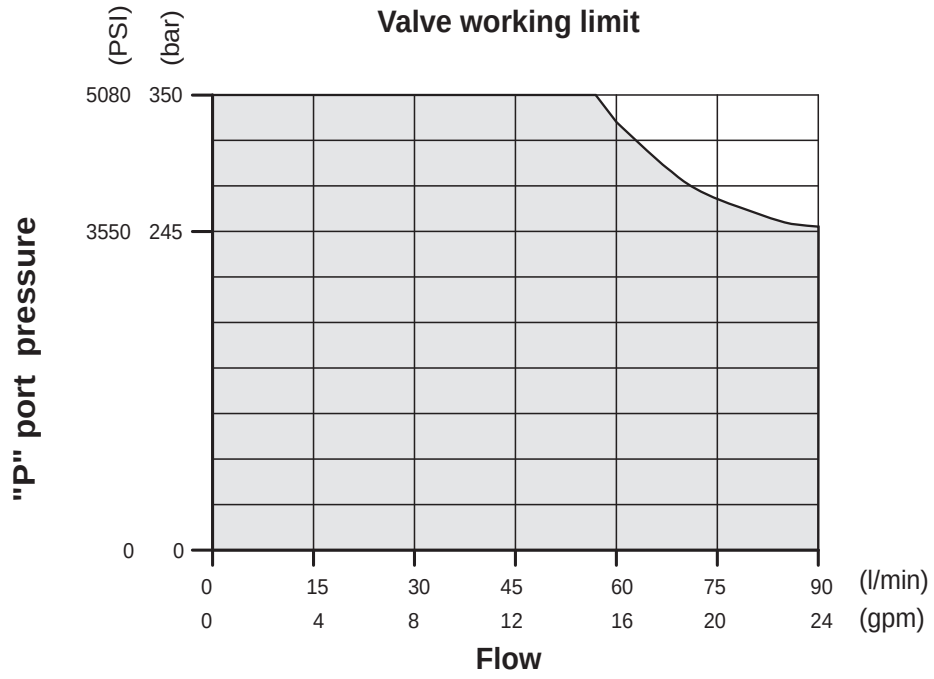
* $[v = \frac{21{,}2 \times Q}{d^2}$ v = fluid speed [m/sec],Q = flow [l/min], d = pipe internal diameter [mm]

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 120 N - stroke end 180 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.

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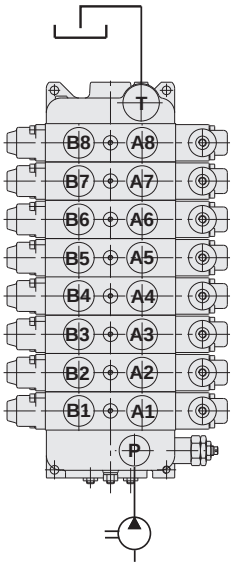
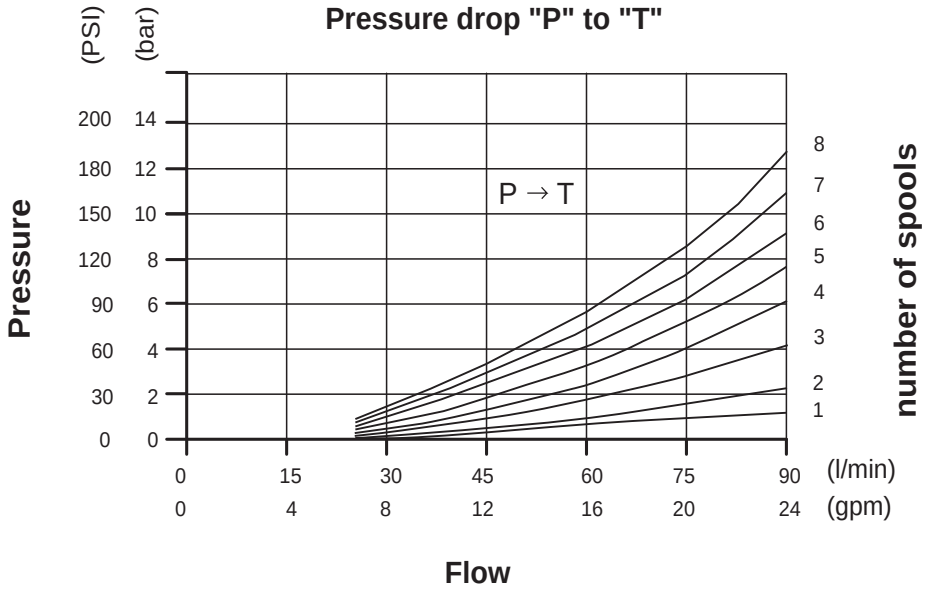
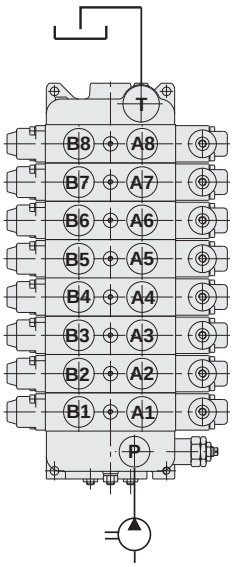
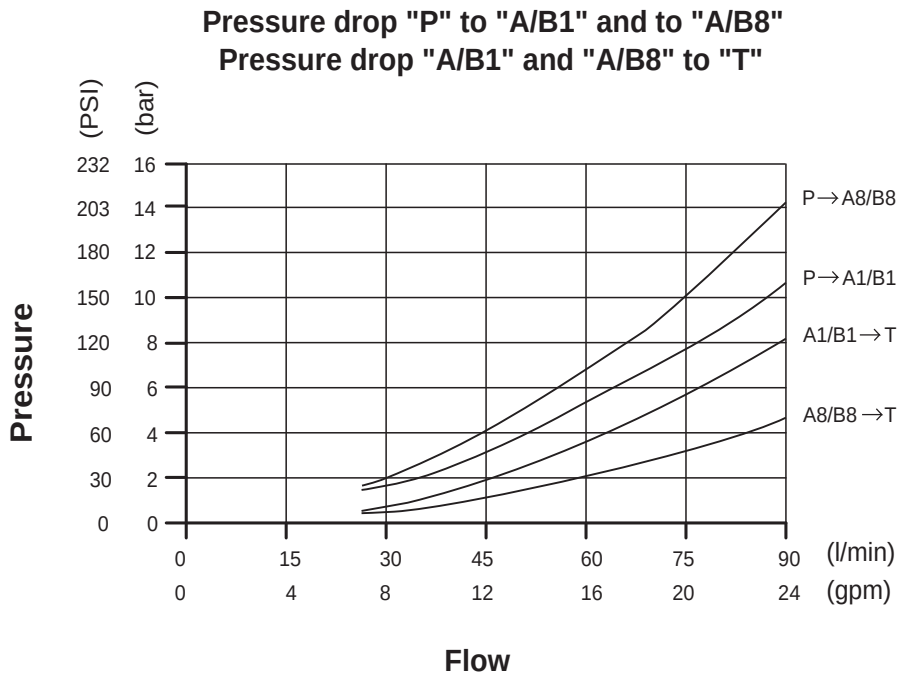




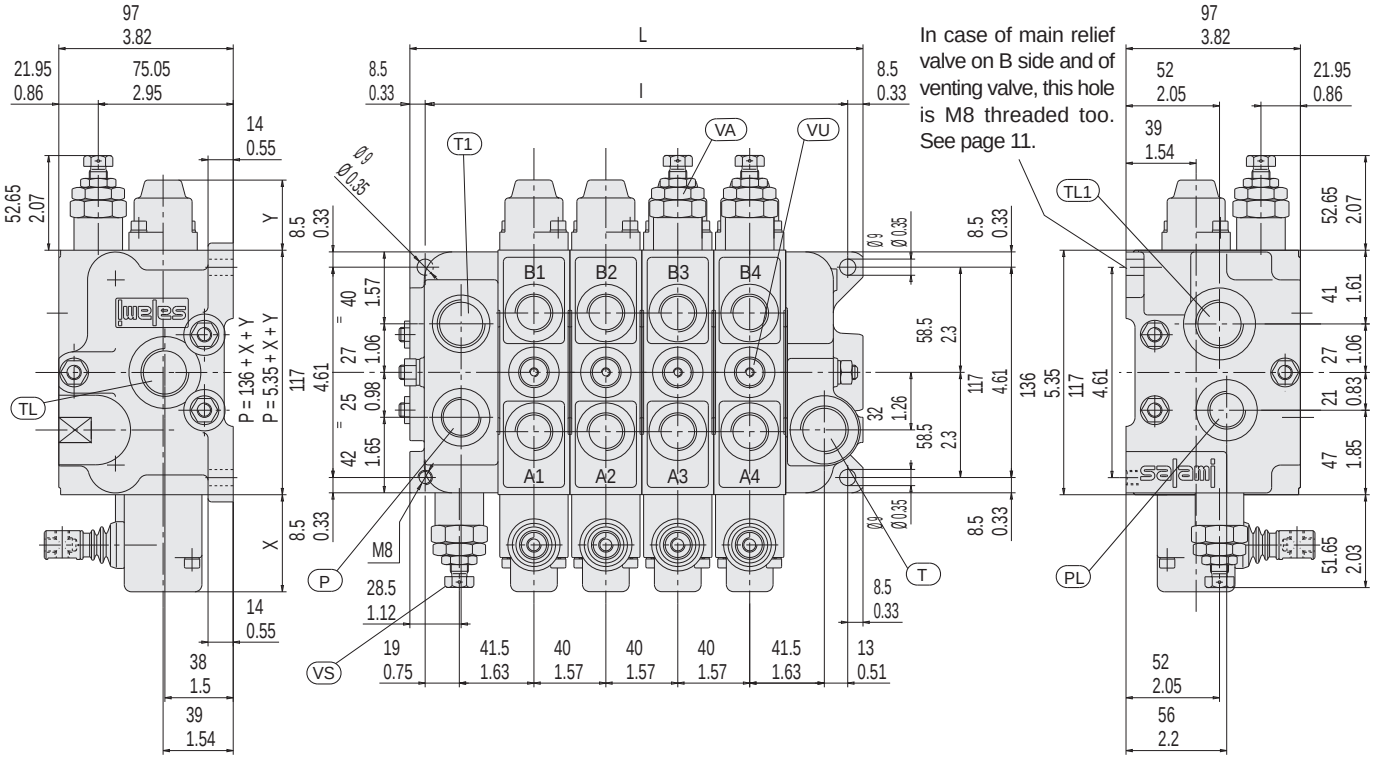




DIMENSIONS FROM 1 TO 8 WORKING MODULES

FIXING HOLES THREADS:
PORTS THREADED BSP (ISO 228) - M8x1.25 ISO 262
PORTS THREADED METRIC (ISO 262) - M8x1.25 ISO 262
PORTS THREADED SAE UN-UNF (ISO 725) - 5/16 18 UNC
PORTS THREADED BSPF O-RING BOSS (JIS B 2351) - M8x1.25 ISO 262

On request are available working modules with distance between axis of 38 mm - 1.49 inch. Please get in touch with our sales dept.



The drawing shown is just an example.The overall dimensions you read are valid for all the VD8A except the parametric dimensions "L" and "I" depending of the number of working sections.The parametric dimension "P" depends on a fixed dimension of 136 mm (11 in.) to wich you have to had the "X" and "Y" dimensions that you can find in the spool controls and spool positionings pages.

Spools		1	2	3	4	5	6	7	8
I	mm	115	155	195	235	275	315	355	395
	in	*4.53*	*6.10*	*7.68*	*9.25*	*10.83*	*12.40*	*19.97*	*15.55*
L	mm	143.5	183.5	223.5	263.5	303.5	343.5	383.5	423.5
	in	*5.65*	*7.22*	*8.80*	*10.37*	*11.95*	*13.52*	*15.10*	*16.67*
Mass	kg	11	14.5	18	21.5	25	28.5	32	35.5
	lb	*24.2*	*31.9*	*39.6*	*47.3*	*55*	*62.7*	*70.4*	*78.1*

INDEX:

P = top inlet port
PL = side inlet port
T = top outlet port
TL = side outlet port
T1 = top outlet port*
TL1 = side outlet port*
A/B = work ports
VS = main relief valve(adjustable)
VA = overload valve
VU = load check valve
*Only in case of inlet and outlet first module the end module is closed

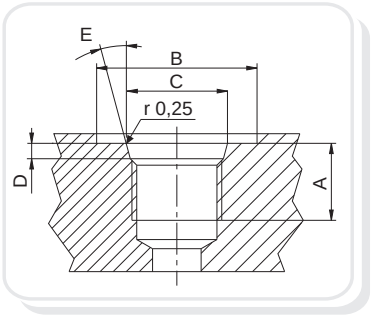
For different size and thread ports, please contact our sales departement

PORT SIZES	P - PL - P3	T - TL	A - B
BSP ISO 228	G 1/2	G 3/4	G 1/2
SAE ISO 176	SAE#10 7/8 - 14 UNF	SAE#12 1-1/16 - 12 UNF	SAE#10 7/8 - 14 UNF
ISO 262 - ISO 6149	M 22 x 1.5	M 27 x 2	M 22 x 1.5
BSPF JIS B 2351	G 1/2	G 3/4	G 1/2

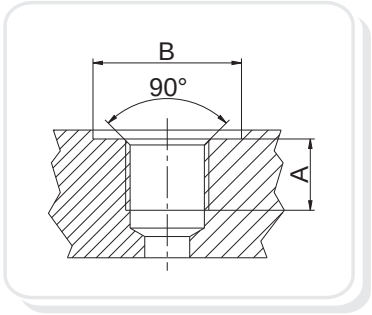
On request you can have all the ports **BSP ISO 228 - G 3/4** in this case auxiliary valves are not available.

PORTS

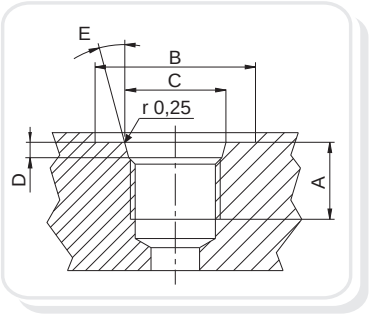
Following are standard ports. For different port types, please contact our sales department.



SAE UN-UNF (ISO 725)						
Dimensions		7/8 -14 UNF SAE10		1”1/16 -12 UN SAE12		1”5/16 -12 UN SAE16	
mm	In.						
A		17	0,67	20	0,79	20	0,79
B		34	1,34	41	1,61	49	1,92
C		23,9	0,94	29,2	1,15	35,5	1,40
D		2,5	0,10	3,3	0,13	3,3	0,13
E		15°		15°		15°	

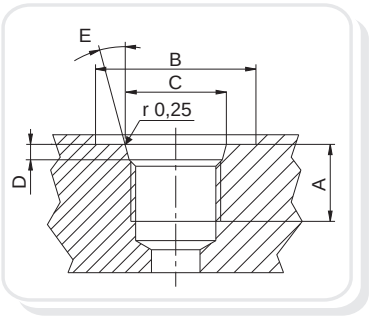


BSP (ISO 228)						
Dimensions		G1/2		G3/4		G1	
mm	In.						
A		16	0,63	18	0,71	20	0,79
B		27	1,06	33	1,30	40	1,57



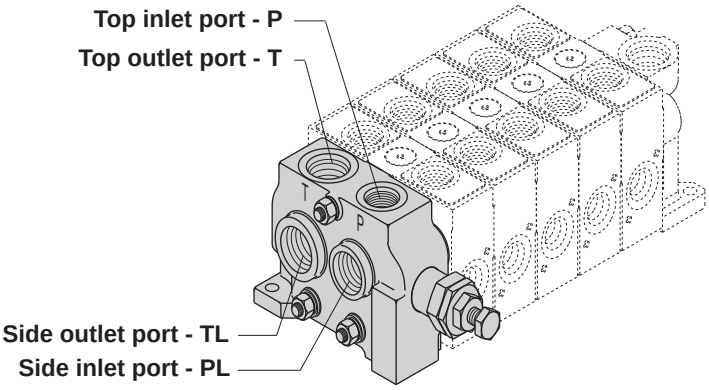
METRIC (ISO 262 - ISO 6149)*									
Dimensions		M22 x 1.5				M27 x 2			
mm	In.	ISO 262		ISO 6149		ISO 262		ISO 6149	
A		16	0.63	16	0,63	18	0,71	19	1,75
B		31,5	1.24	34	1,34	37,7	1,48	40	1,57
C				23,8	0,94			29,4	1,16
D				2,4	0.09			3,1	0,12

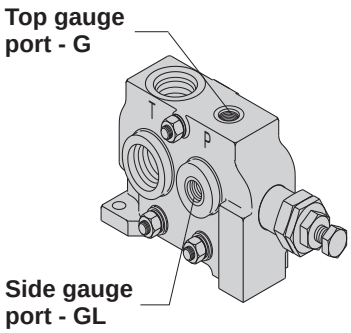
*Available for quantity, please contact our sales dept.



BSPF O-RING BOSS (JIS B 2351)						
Dimensions		G 1/2		G 3/4		G 1	
mm	In.						
A		16	0,63	17	0,67	21	0,83
B		34	1,34	45	1,77	51	2.01
C		22.6	0,89	29,8	1,17	35,8	1,41
D		2,5	0,10	3,5	0,14	3,5	0,14
E		15°		15°		15°	

INLET MODULE (HYDRAULIC CIRCUITS)

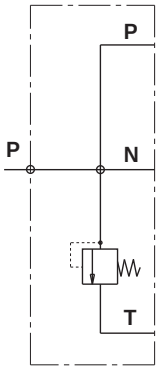




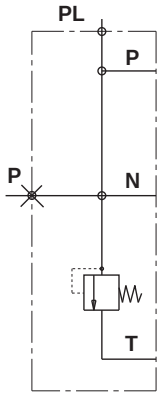
Gauge ports are available with the following threads:
BSP (ISO 228) - G 1/4
SAE UN-UNF (ISO725) - SAE 4

COMMERCIAL CODES

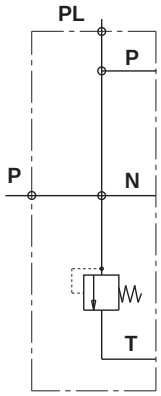
01 Top inlet port



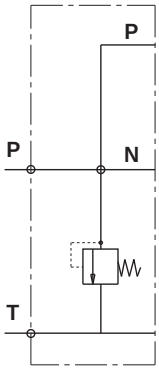
02 Side inlet port top inlet port plugged



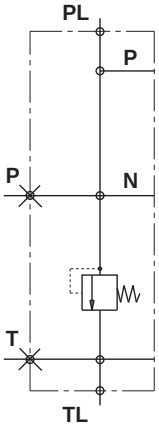
03 Top and side inlet ports



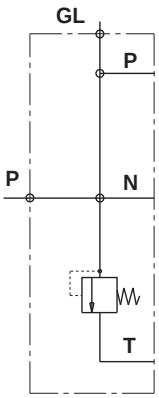
07 Top inlet and outlet ports



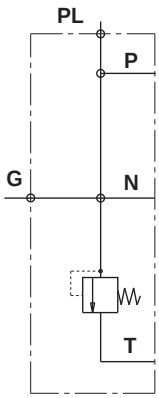
08 Side inlet and outlet ports top ports plugged



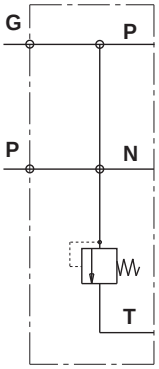
21 Top inlet port with side gauge port



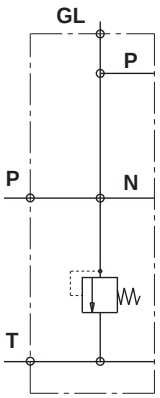
22 Side inlet port with top gauge port



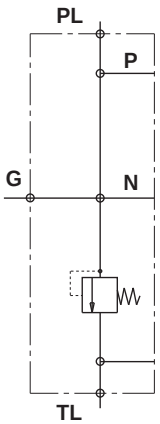
23 Top inlet port with top gauge port



27 Top inlet and outlet ports with side gauge port

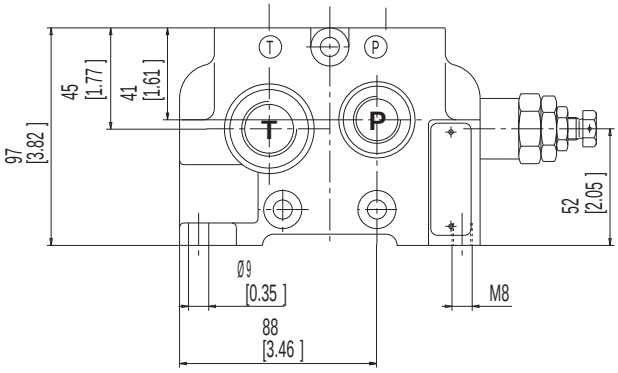


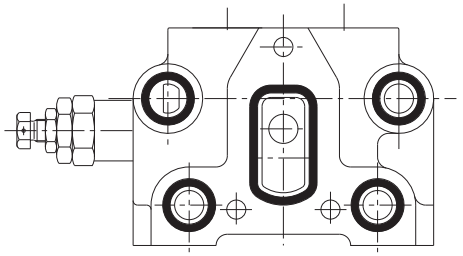
28 Side inlet and outlet ports with top gauge port



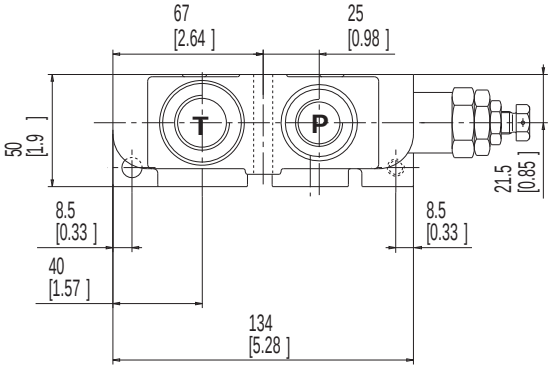
INLET MODULE (DIMENSIONS)

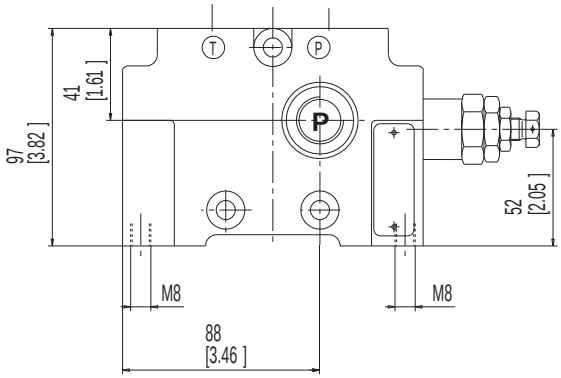
IN ALL THESE COMMERCIAL CODES PORT SIZE ARE SHOWN ON PAGE 8
PLEASE LOOK AT THE DIFFERENCES BETWEEN FIXING HOLES

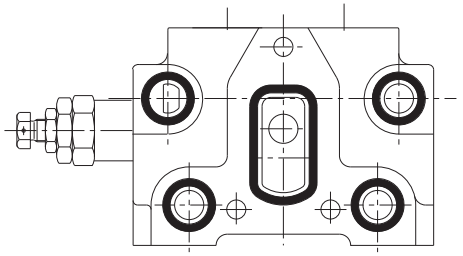




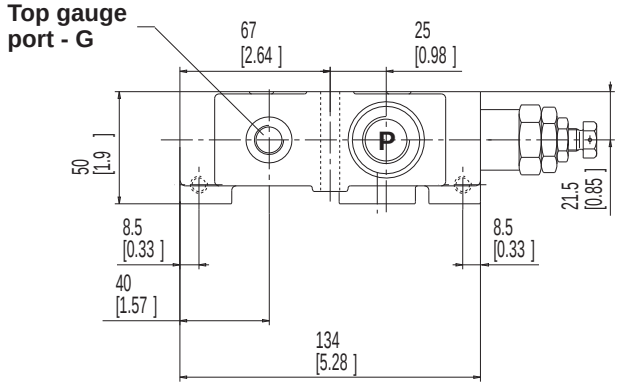
Inlet module:commercial codes
07 - 08 - 21 - 22 - 27 - 28
are built always with this dimensions drw.



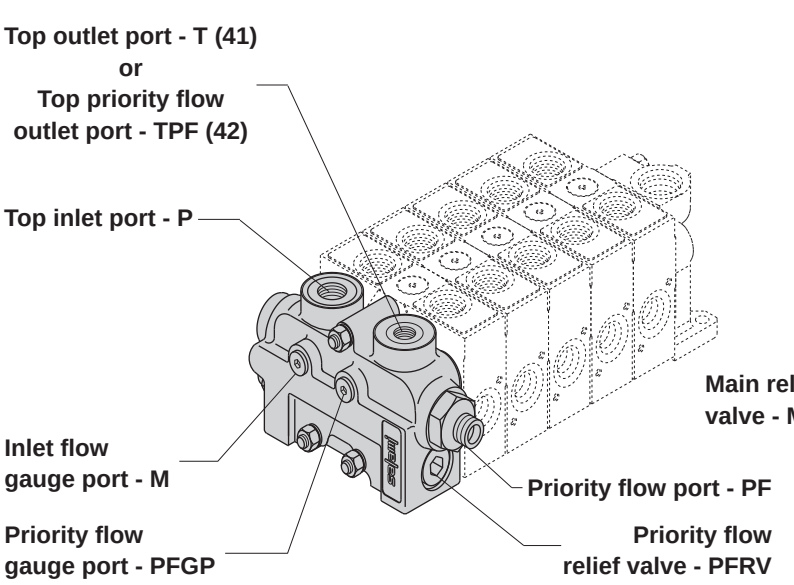


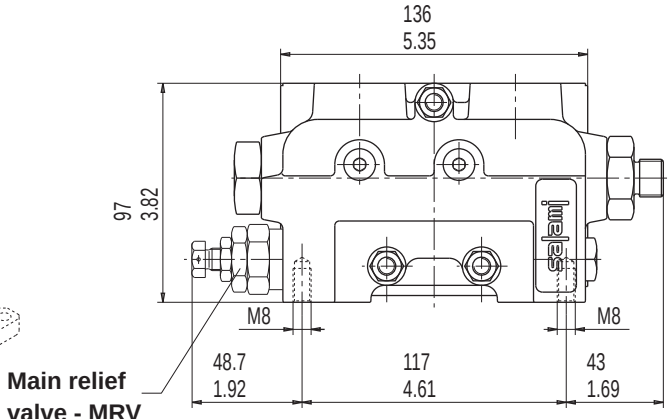


Inlet module: commercial code 23
is built always with this dimensions drw.
Moreover in case of venting valve or
in case you need to put the main relief
valve on "B" side this is the drawing.

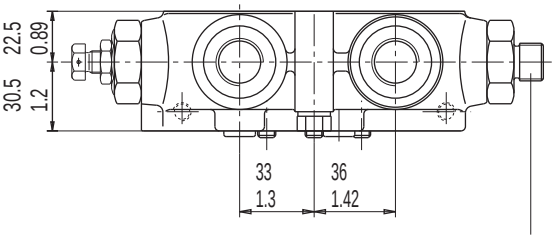


INLET MODULE WITH PRIORITY FLOW VALVE ADJUSTABLE BY POWER STEERING LOAD



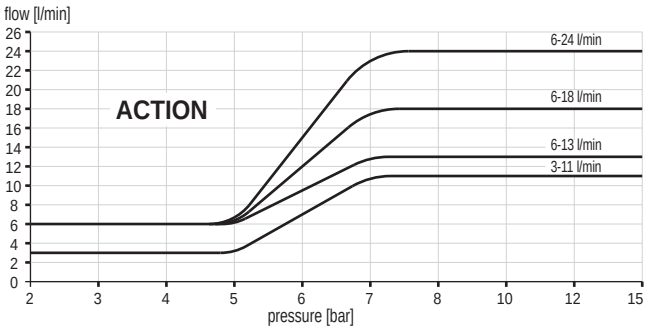


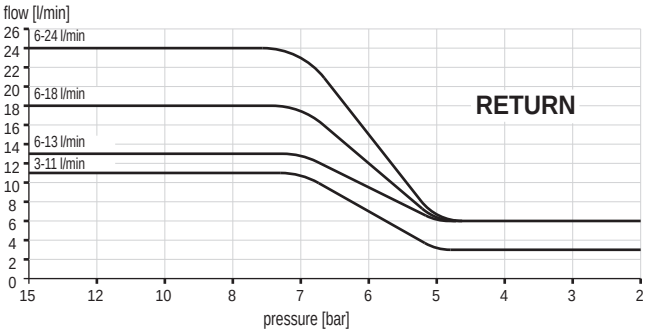
The back seal kit is the same of previous page



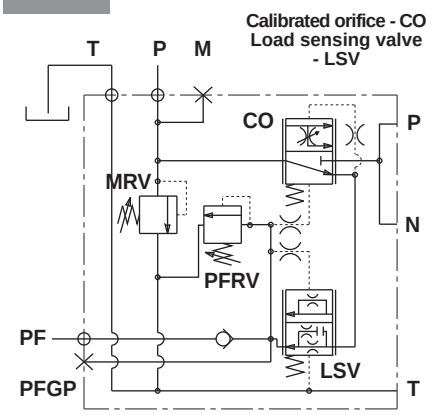
PORT SIZES	P	T	TPF
BSP ISO 228	G 1/2	G 3/4	G 3/8
BSP ISO 228	G 3/4	G 3/4	G 3/8
SAE ISO 176	SAE#10 7/8 - 14 UNF	SAE#10 7/8 - 14 UNF	SAE#6 9/16-18 UNF

Priority flow port is available with the following threads:
BSP (ISO 228) - G 1/4 or G 3/8
SAE UN-UNF (ISO 725) - SAE 4 or SAE 6

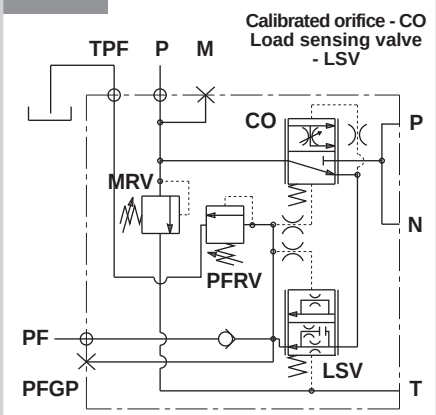




41 Top inlet and outlet ports priority flow outlet port

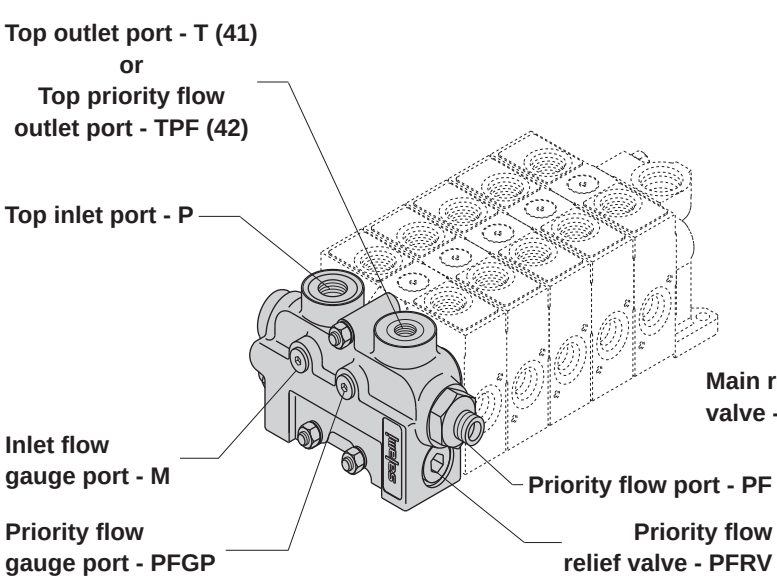


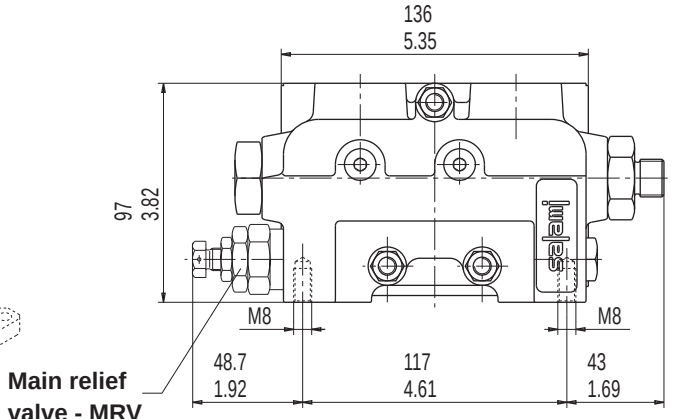
42 Top inlet port and priority flow outlet port



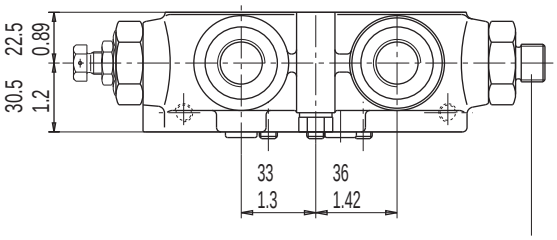
The built-in priority flow valve in this inlet module, supplies the oil to the power steering.This priority valve(**PF** port in dwg.) supplies always a stand by flow to the steering also when the unit is still.When the steering is operated the flow through the valve can increase or decrease according to the load induced by steering and setting range.
4 setting ranges are available:
from 3 to 11 l/min - *from 0.79 to 2.9 US gpm*
from 6 to 13 l/min - *from 1.58 to 3.43 US gpm*
from 6 to 18 l/min - *from 1.58 to 4.75 US gpm*
from 6 to 24 l/min - *from 1.58 to 6.34 US gpm*

INLET MODULE WITH PRIORITY FLOW VALVE (FIXED PRIORITY FLOW)





The back seal kit is the same of previous page

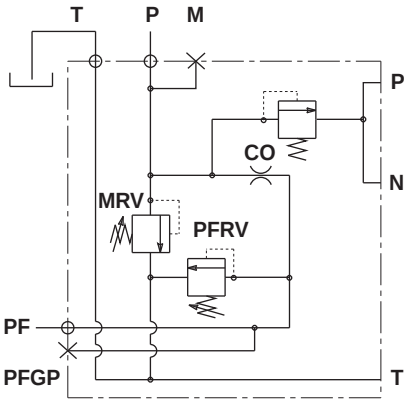


PORT SIZES	P	T	TPF
BSP ISO 228	G 1/2	G 3/4	G 3/8
BSP ISO 228	G 3/4	G 3/4	G 3/8
SAE ISO 176	SAE#10 7/8 - 14 UNF	SAE#10 7/8 - 14 UNF	SAE#6 9/16-18 UNF

Priority flow port is available with
the following threads:
BSP (ISO 228) - G 1/4 or G 3/8
SAE UN-UNF (ISO 725) - SAE 4 or SAE 6

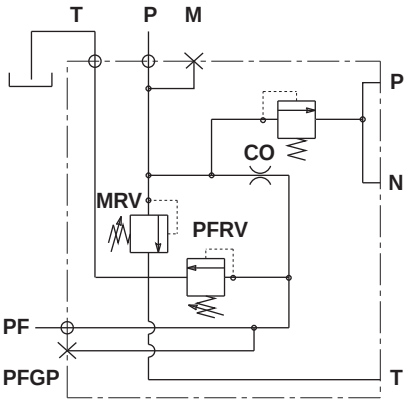
In this valve the pump flow goes trough a calibrated orifice, that allows to keep a priority constant flow value(**PF**).The exceeding pump flow goes to **P** line.
Priority flow values available are the following:
8 l/min - *2.11 gpm US*
11 l/min - *2.90 gpm US*
12.5 l/min - *3.30 gpm US*

Top inlet and outlet ports
priority flow outlet port **44**



Calibrated orifice - CO

Top inlet port and
priority flow outlet port **45**

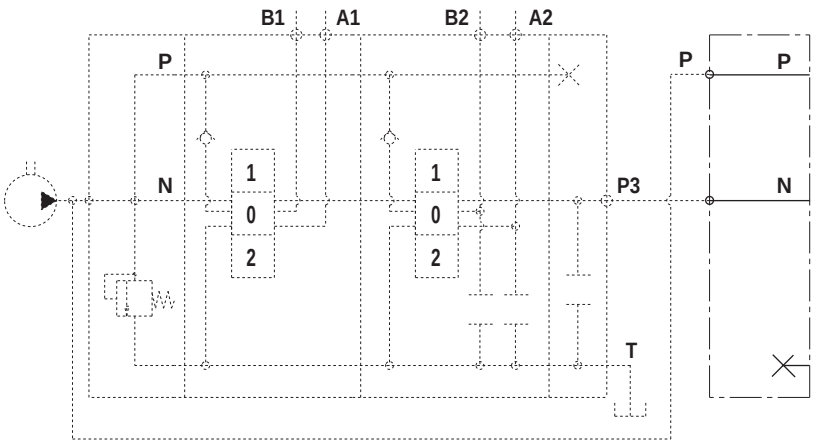


Calibrated orifice - CO

INLET MODULES

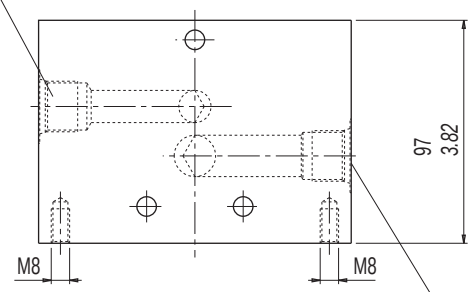
43

Inlet module to realize parallel circuit between two different directional control valves.It must be located on the upstream valve.

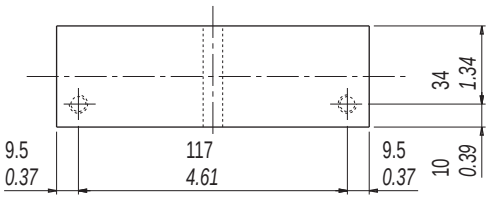


Pressure port - P

The back seal kit is the same of previous page

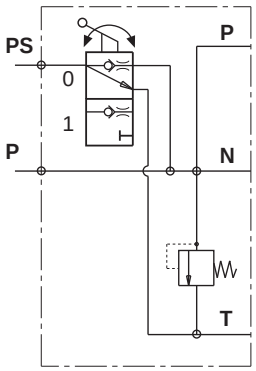


Feeding port from power beyond - P3

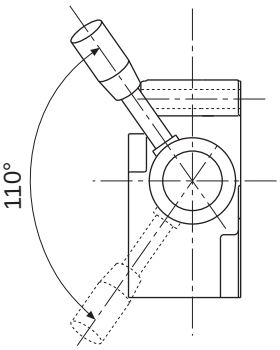


51

Top inlet port with manual pressure switch on "A" side and main relief valve on "B" side (see drw. besides)

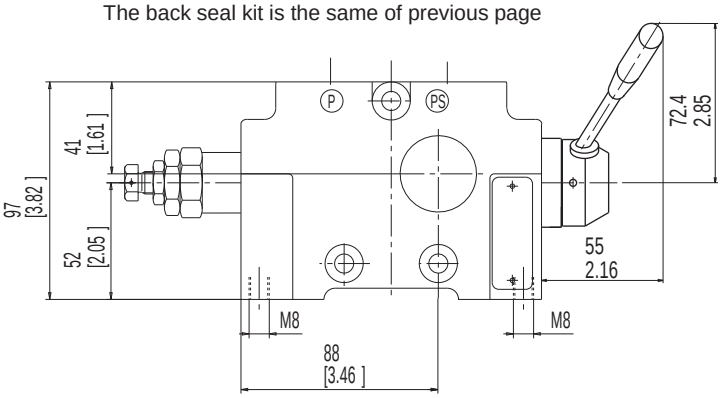


Pos. 0



Pos. 1

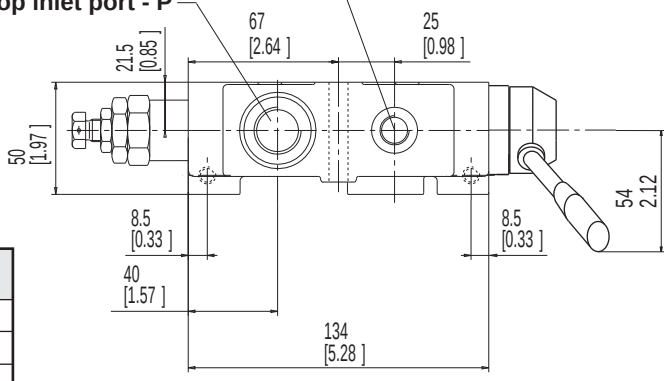
The back seal kit is the same of previous page



Important:
in 52 code **P** and **PS** ports are reversed

Manual pressure switch - PS

Top inlet port - P



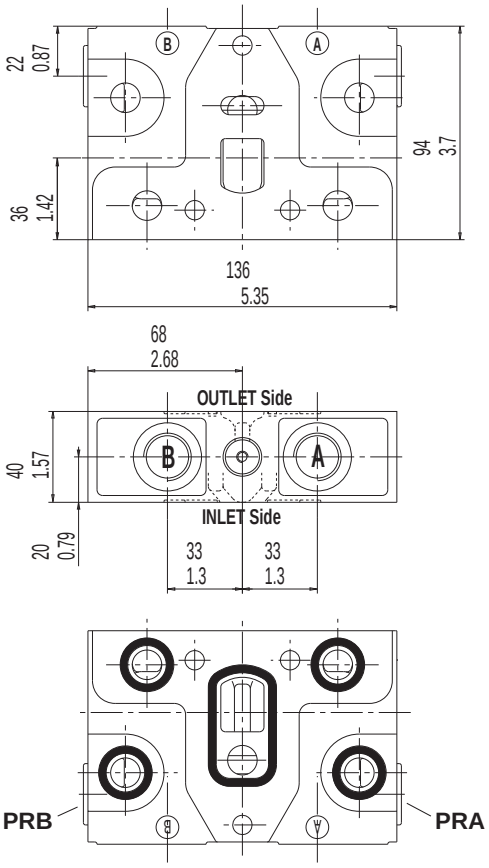
52

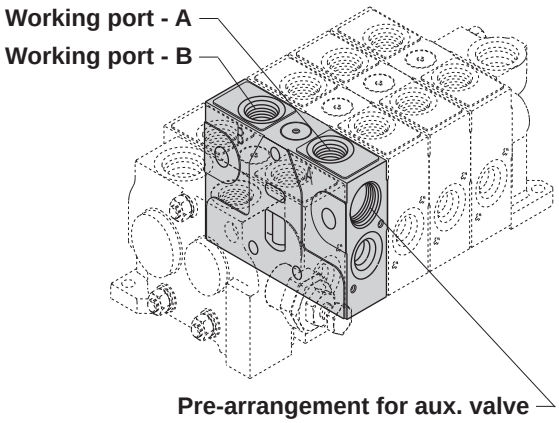
Top inlet port with manual pressure switch on "B" side and main relief valve on "A" side (same hydraulic circuit)

P port size see page 8

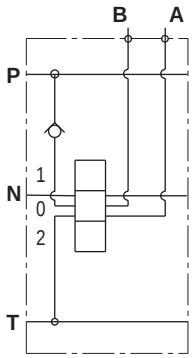
PORT SIZES	PS
BSP ISO 228	G 3/8
METRIC ISO 262	G 3/8
SAE ISO 176	SAE#6 9/16-18 UNF

SINGLE AND DOUBLE WORKING MODULE (PARALLEL CIRCUIT)



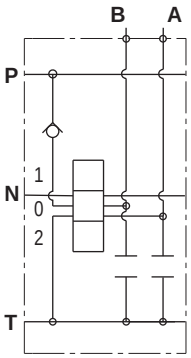


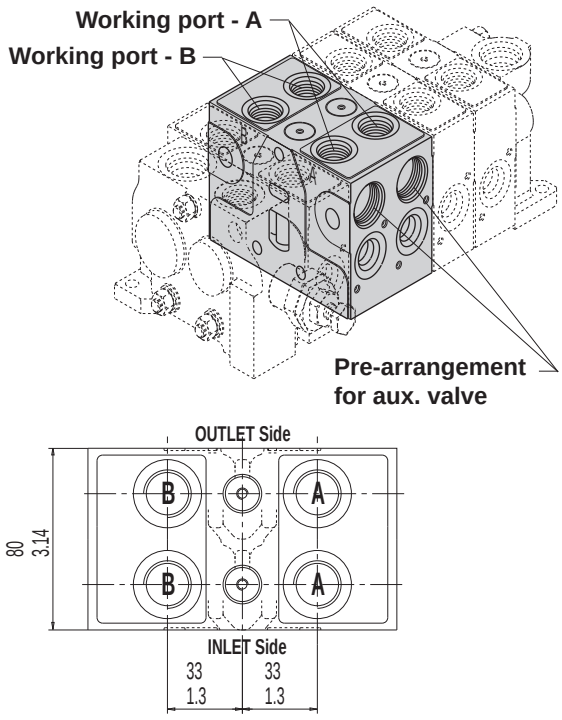
Parallel circuit without auxiliary valve



Parallel circuit pre-arranged for aux. valve

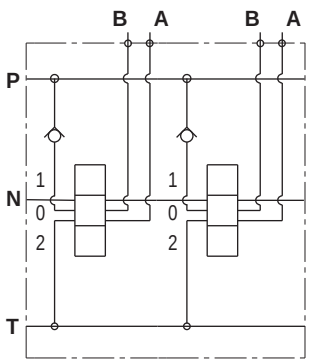
P





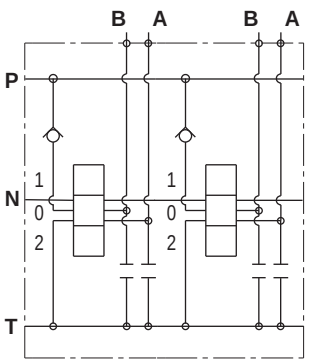
In phase of order you must specify single or double working module parallel circuit.

Parallel circuit without auxiliary valve

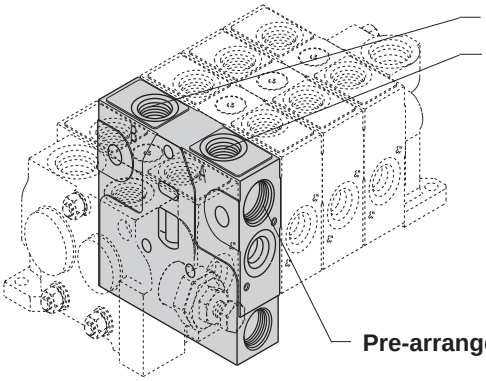


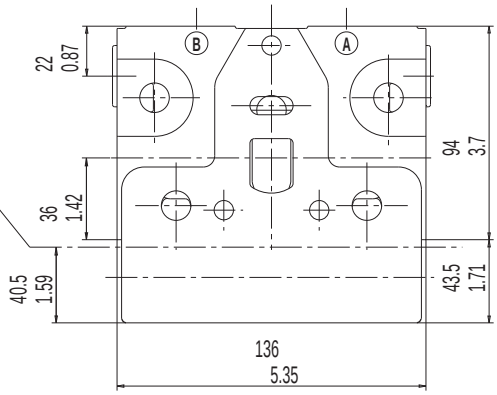
Parallel circuit pre-arranged for aux. valve

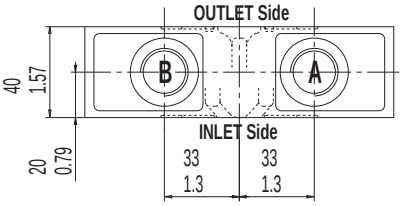
P



WORKING MODULE WITH ADJUSTABLE OR FIXED PRIORITY FLOW VALVE PRESSURE COMPENSATED



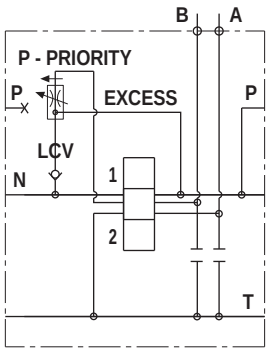




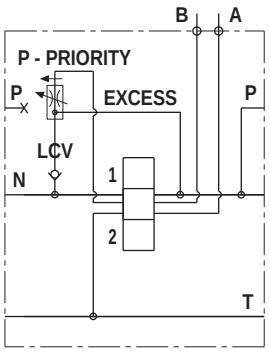
The back seal kit is the same of previous page

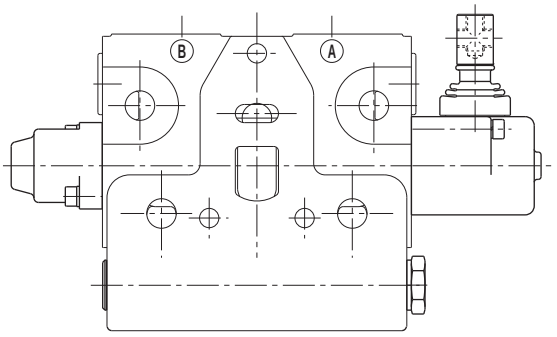
Important: the handle flow regulation is always available on "**A**" side
Available with or without load check valve - **LCV**

R Fixed priority flow pre-arranged for aux. valve



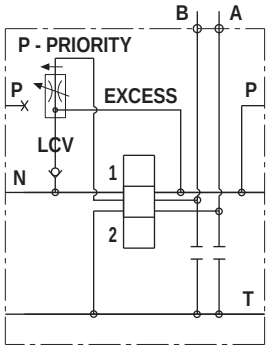
Fixed priority flow without aux. valve



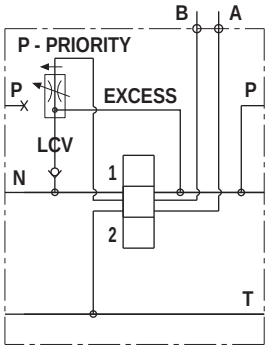


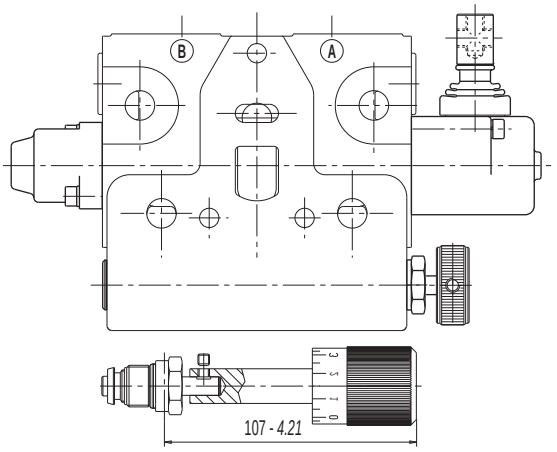
Available values of fixed flow					
l/min	4.5	6	9	10	16
US gpm	*1.9*	*1.6*	*2.4*	*2.6*	*4.2*

R Adjustable priority flow pre-arranged for aux. valve



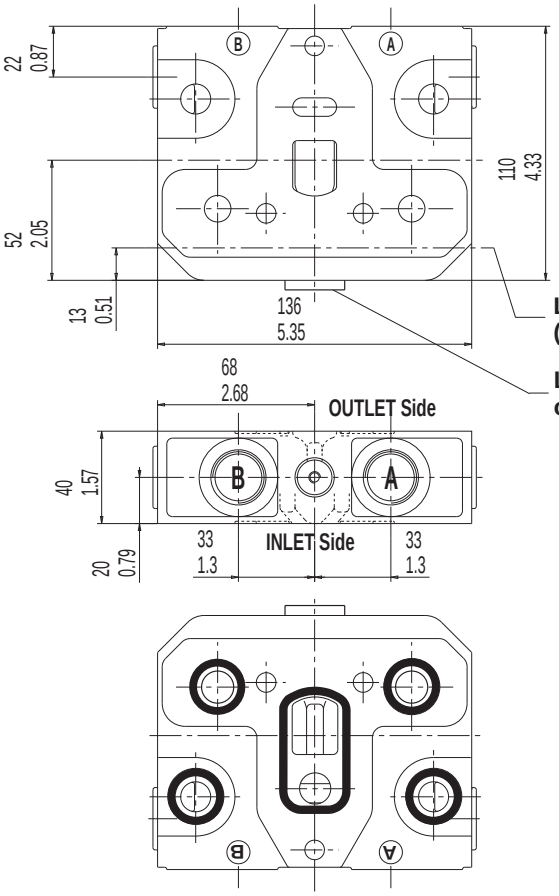
Adjustable priority flow without aux. valve





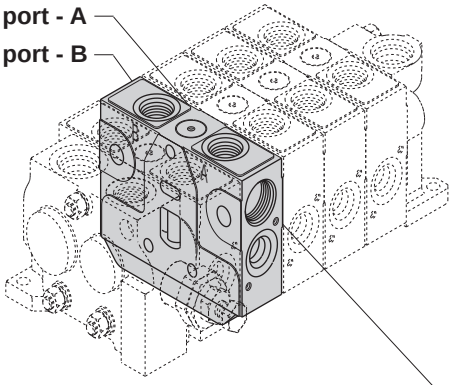
Adjustable flow with **LCV** : 45 l/min - *12 US gpm*
Adjustable flow without **LCV** : 60 l/min - *16 US gpm*

SINGLE AND DOUBLE WORKING MODULE (SERIES CIRCUIT)



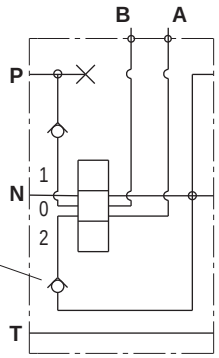
Line of the valve support feet (on the inlet/outlet)

Load check valve on series line



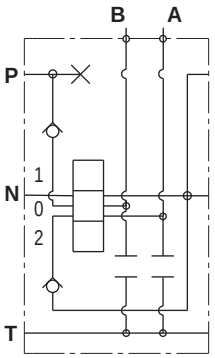
The series circuit working module is available with or without secondary load check valve on series gallery.
With spools commercial codes:
02 - 03 - 04 - 11 - 12
secondary load check valve on the series line, is always necessary

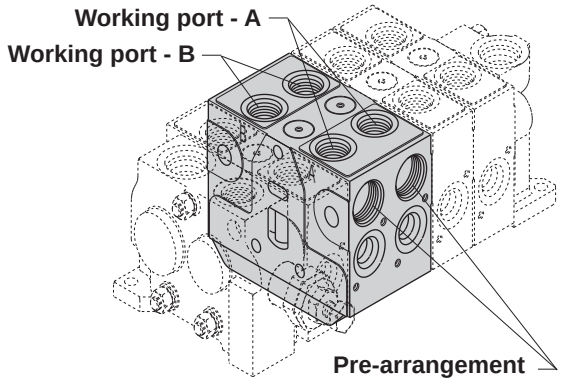
Series circuit without auxiliary valve



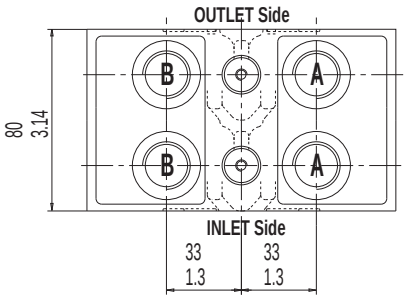
Series circuit pre-arranged for aux. valve

S

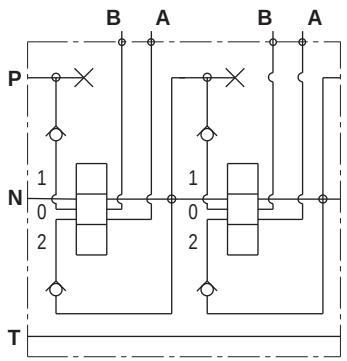




In phase of order you must specify single or double working module series circuit.
Available only for quantity, please contact our sales dept.

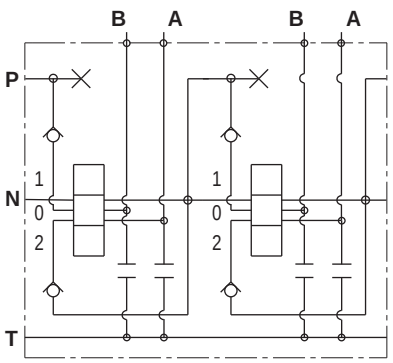


Series circuit without auxiliary valve

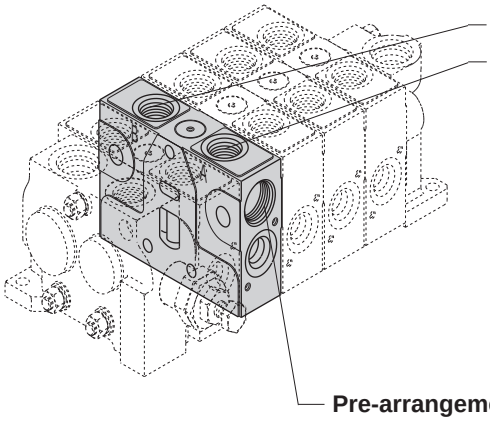


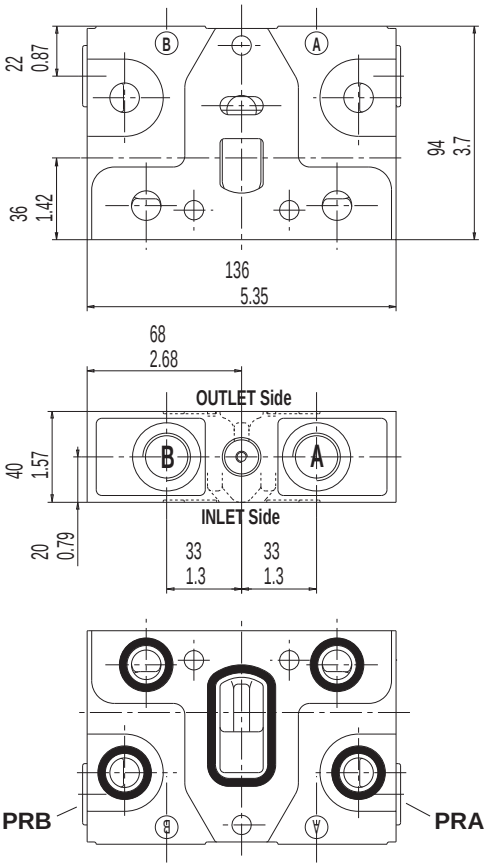
Series circuit pre-arranged for aux. valve

S



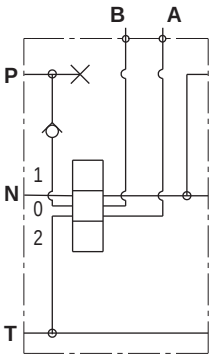
WORKING MODULE (TANDEM CIRCUIT)



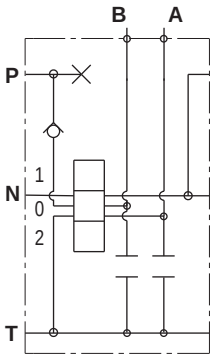


T

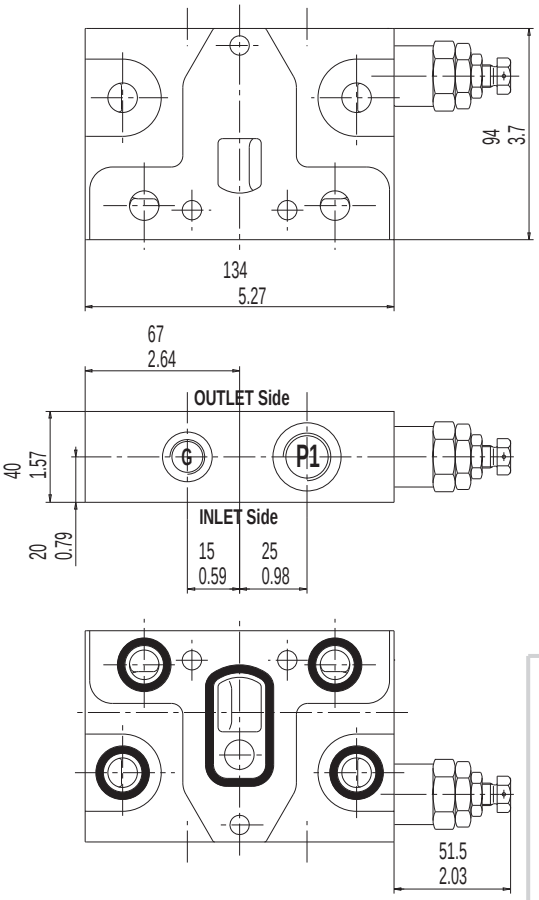
Tandem circuit
without auxiliary valve

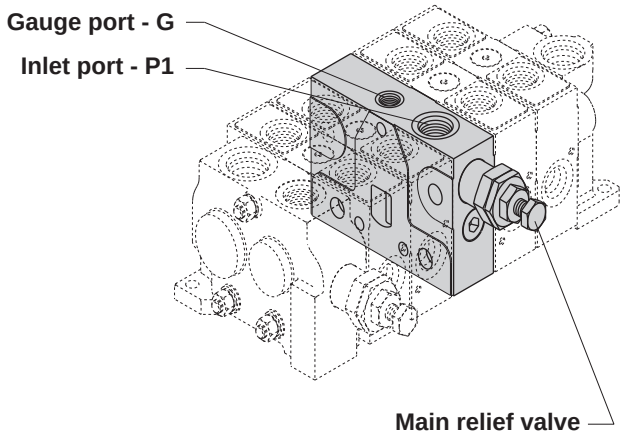


Tandem circuit
pre-arranged for aux. valve



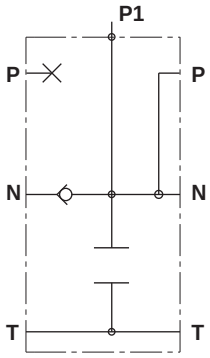
MID INLET MODULE (HYDRAULIC CIRCUITS)



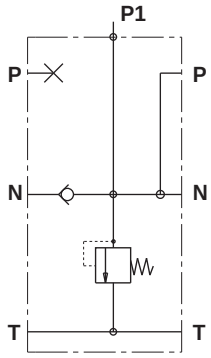


Gauge port is available with the following threads:
BSP (ISO 228) - G 1/4
SAE UN-UNF (ISO725) - SAE 4

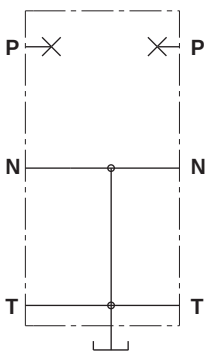
Mid inlet for second pump with combining flows without main relief valve **I2**



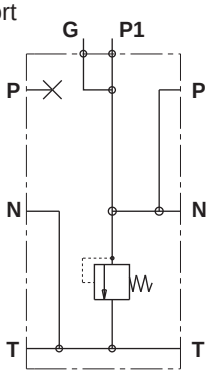
Mid inlet for second pump with combining flows and main relief valve **I1**



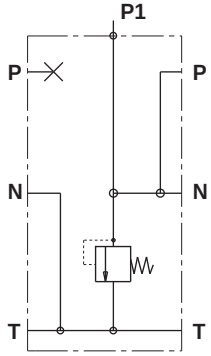
Mid outlet **I9**



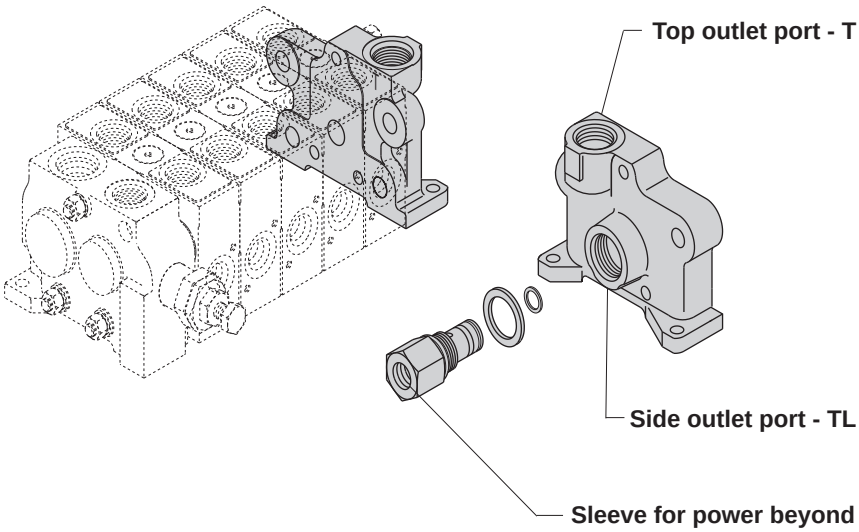
Mid inlet for second pump with split flows and main relief valve + gauge port **I4**

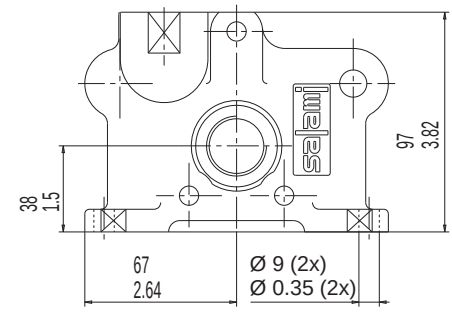


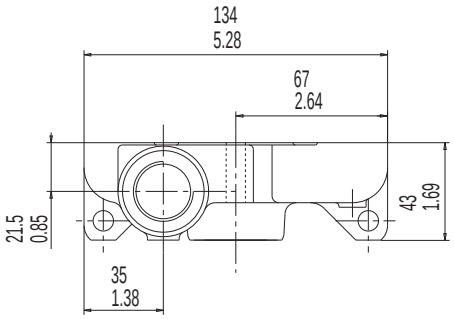
Mid inlet for second pump with split flows and main relief valve **I3**



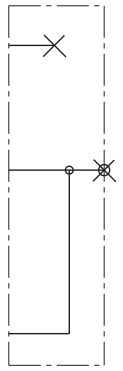
OUTLET MODULE (HYDRAULIC CIRCUITS)



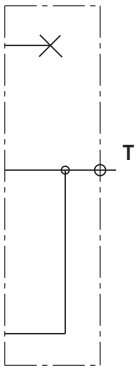




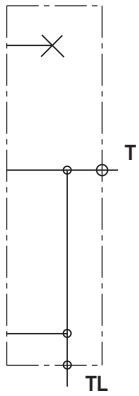
U0 Without port



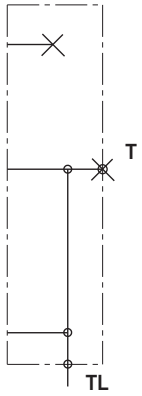
U1 Top port



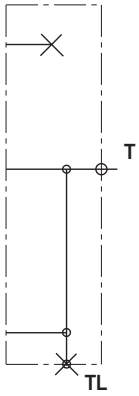
U2 Top and side ports



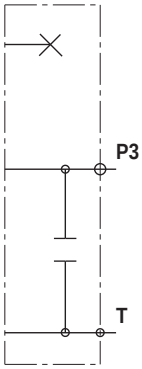
U3 Side port top port plugged



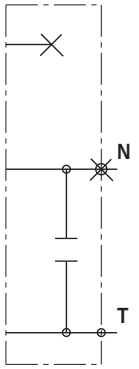
U4 Top port side port plugged



U5 Power beyond configuration (side P3)



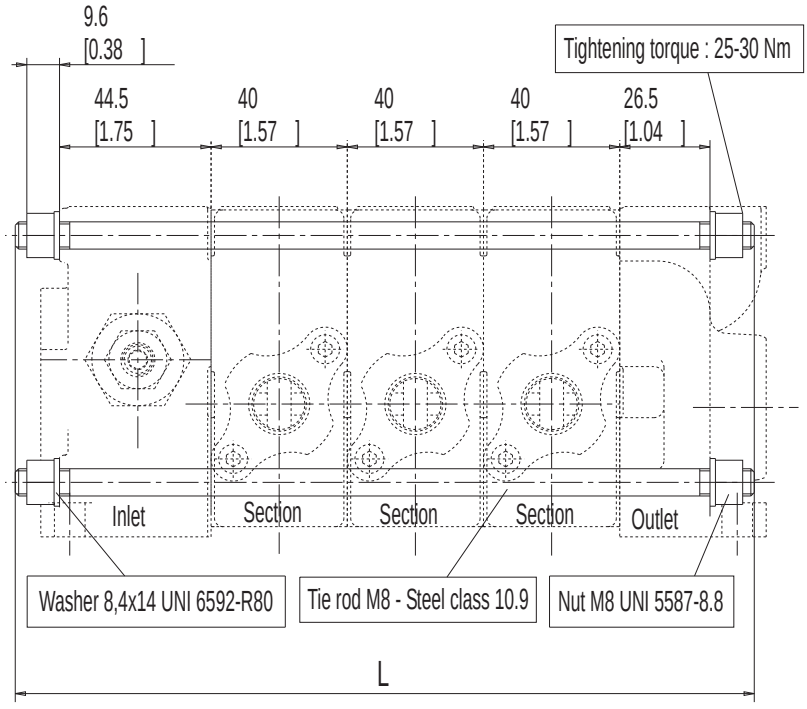
U7 Closed center circuit configuration



U8

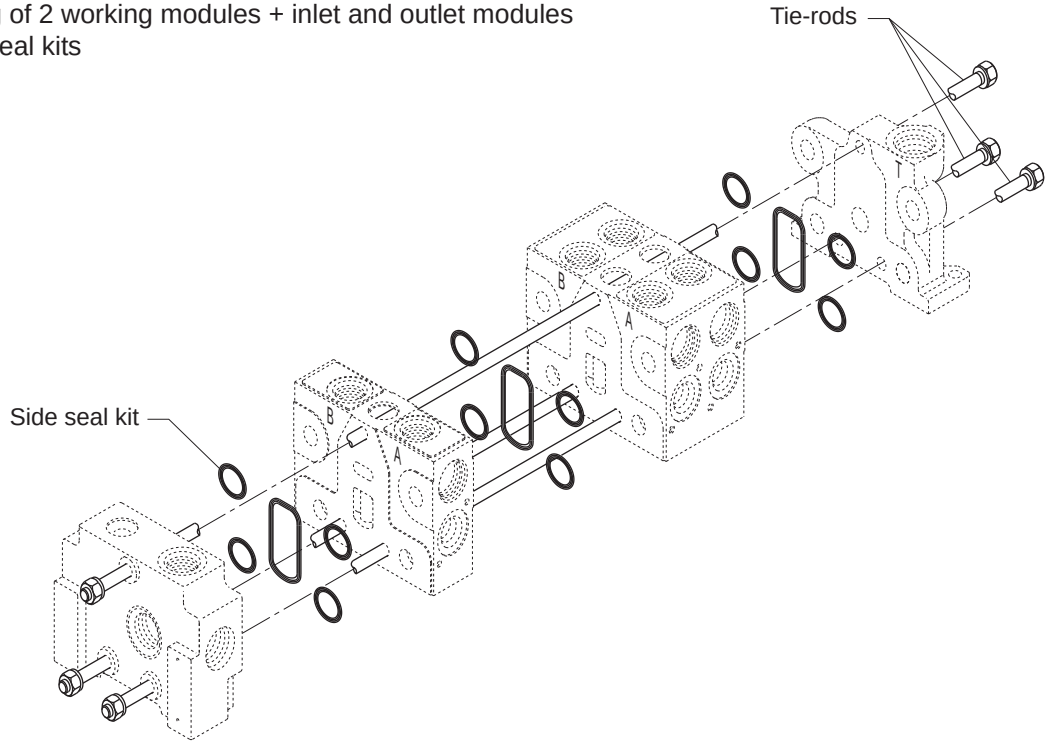
Outlet type necessary for electro-hydraulic controls, please go to page 36 to see the drawing and hydraulic scheme.

ASSEMBLING TIE RODS

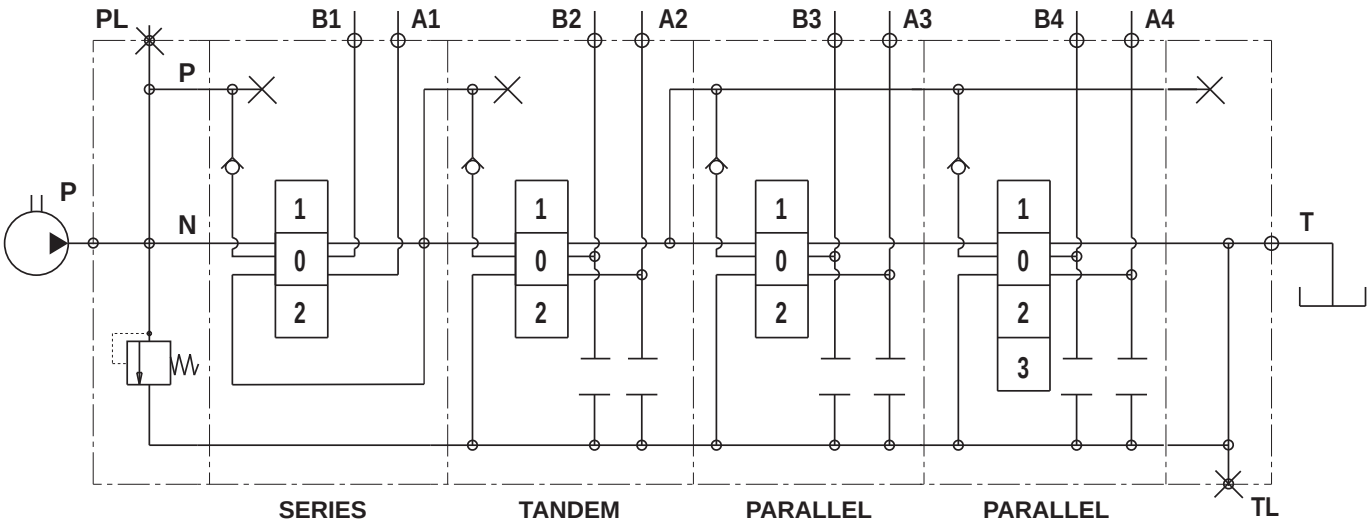


N° of sections	Length L
	mm. [inch]
1	137 [5.39]
2	177 [6.97]
3	217 [8.54]
4	257 [10.12]
5	297 [11.69]
6	337 [13.27]
7	377 [14.84]
8	417 [16.42]

Example of assembling of 2 working modules + inlet and outlet modules with tie-rods and side seal kits

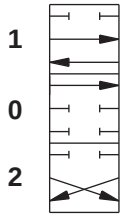


CIRCUIT AND SPOOL TYPES



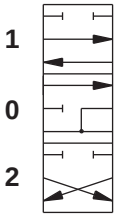
The circuits available are:
parallel type, series type, tandem type as shown in the picture above (tandem type with priority flow valve is available too, see page 16). You can have main relief valve or venting valve in the inlet(see page 14), the working sections can have pre-arrangement for auxiliary valves or not (you can mount venting valve too).
The spools can be 3 or 4 positions (as sown here below) moreover VD8A is available for power beyond just adding a sleeve (see page 20).
As you can read at page 44, the spools can be types "A" nominal flow or "C" 2/3 of nominal flow.

01



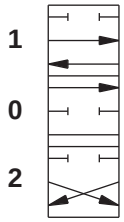
Double acting spool

Double acting
motor spool



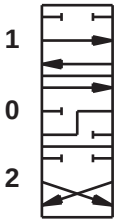
02

03



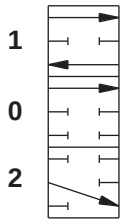
Double acting
motor spool
("B" port blocked)

Double acting
motor spool
("A" port blocked)



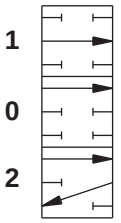
04

05



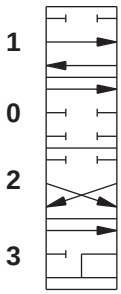
Single acting spool
"A" working port

Single acting spool
"B" working port



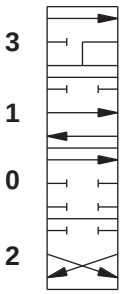
06

11



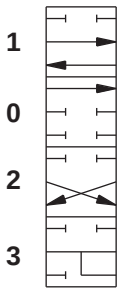
Double acting spool with float function in 3rd position (spool in)

Double acting spool with float function in 3rd position (spool out)



12

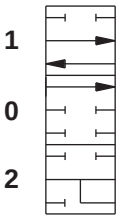
13



Double acting spool with regenerative function in 3rd position (spool in)

With this type of spool a special machining of the body is required

17

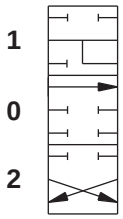


Double acting spool with regenerative function in position 2 (spool in)

With this type of spool a special machining of the body is required

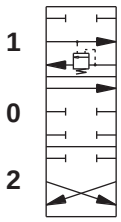
Double acting spool with regenerative function in position 1 (spool out)

With this type of spool a special machining of the body is required



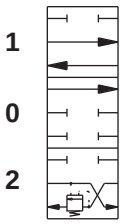
18

52



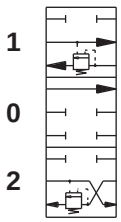
Over center double acting spool "A" working port

Over center double acting spool "B" working port



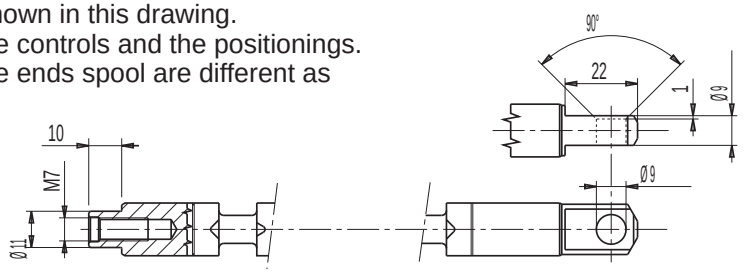
53

54

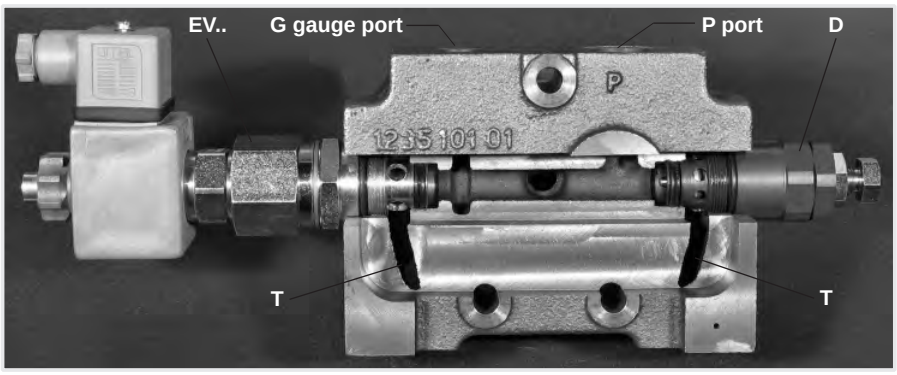


Over center double acting spool "A and B" working ports

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 and hydraulic controls the ends spool are different as you can see at pages 33 and 34.



MAIN RELIEF VALVES

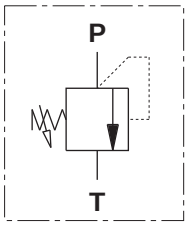


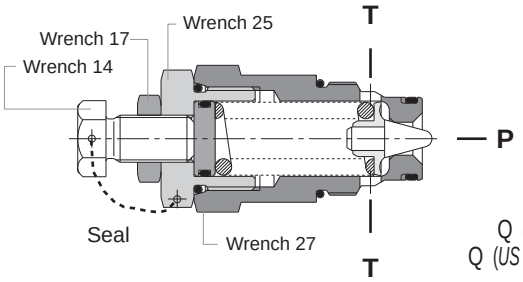
Max tightening torque:
wrench 13 - 24 Nm
wrench 17 - 27 Nm
wrench 25 - 35 Nm
wrench 27 - 40 Nm
wrench 30 - 75 Nm
Allen wrench 8 - 27 Nm

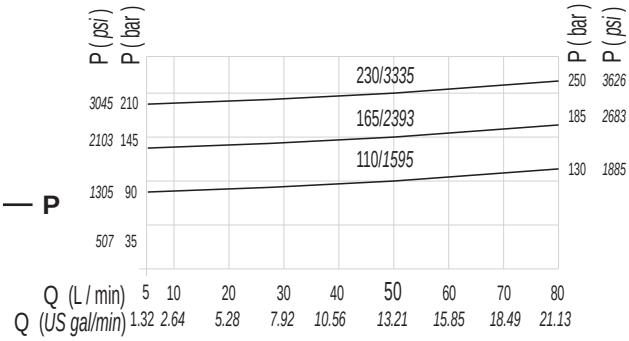
The main relief valve can be mounted on "A" or "B" side, in case of venting valve this is at the opposite side of the main relief.All the testing values of this page have been obtained with nominal flow of 50 L/min - *13.21 gpm*, viscosity 16cST and oil temperature 50°C - *122°F.*

D

MAIN RELIEF VALVE DIRECT OPERATED
(setting range from 25 to 250 bar - *362 to 3625 psi*)

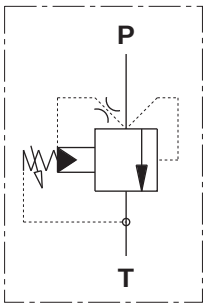


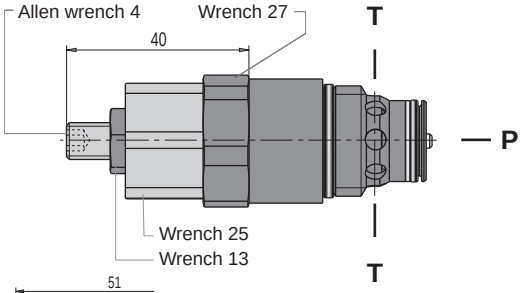


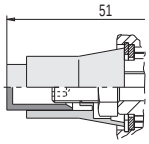


P

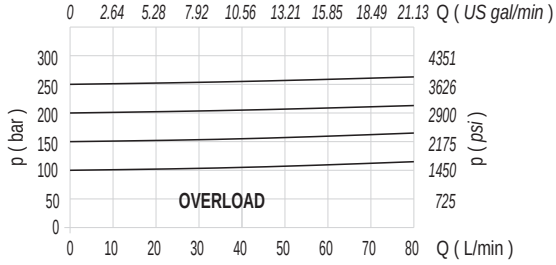
MAIN RELIEF VALVE PILOT OPERATED
(setting range from 25 to 280 bar - *362 to 4061 psi*) first spring
(setting range from 100 to 400 bar - *1450 to 5800 psi*) second spring

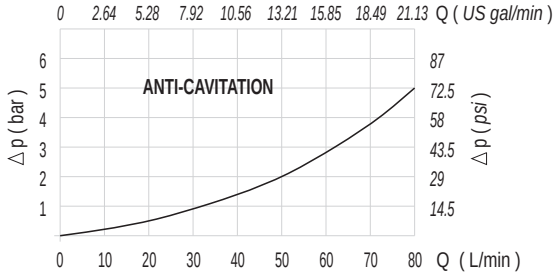






Sealing plug

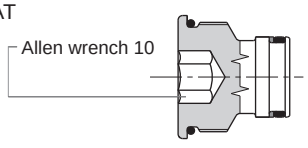


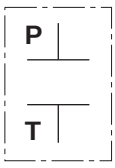


Both valves D and P are adjustable without oil leaking.
Further more, both have a security device to avoid valve sticking

W

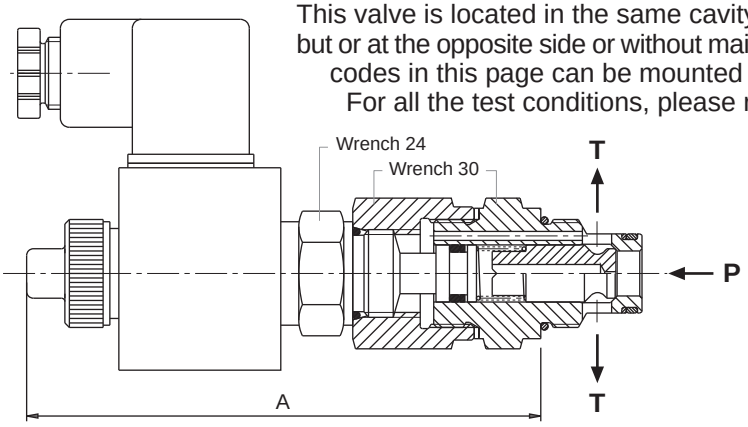
PLUG FOR MAIN RELIEF SEAT
WITHOUT VALVE

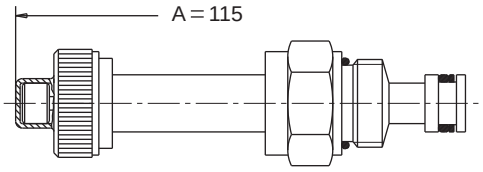




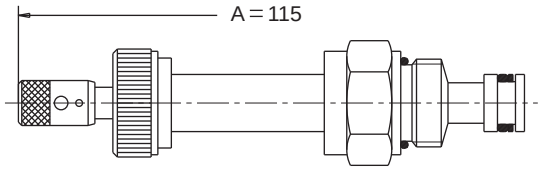
VENTING VALVES (AVAILABLE AS AUXILIARY VALVE TOO)

This valve is located in the same cavity of the main relief valve, but or at the opposite side or without main relief.All the commercial codes in this page can be mounted as auxiliary valve too.
For all the test conditions, please refer you to page 24.



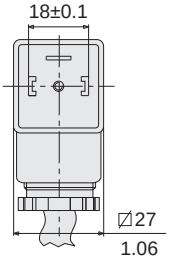


Push override

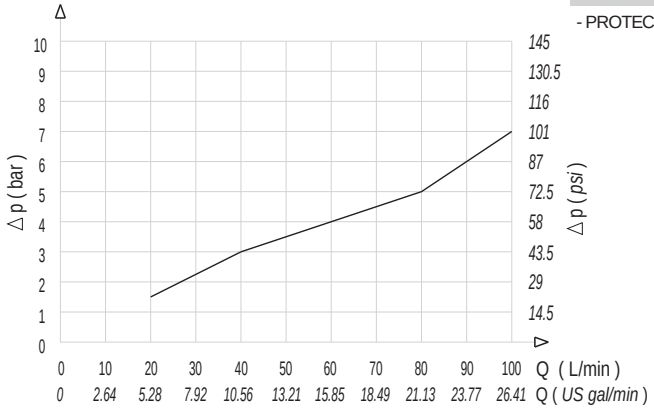


Push and twist override

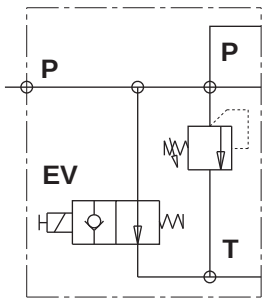
CONNECTOR
DIN 43650 - A/ISO 4400



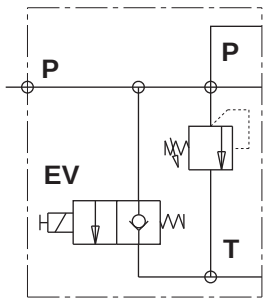
SPECIFICATIONS	
- MAX PRESSURE IN "P"	350 bar
- MAX FLOW	75 l/min
- OIL LEAKAGE-max pressure-46cST	1 cm^3/min
- AVAILABLE VOLTAGE	12 - 24 Vcc
- COIL RESISTANCE	12Vdc:8.7Ω - 24Vdc:33Ω
- COIL POWER	17 W
- PROTECTION INDEX WITH STANDARD CONNECTOR	IP 65



Normally opened



Normally closed



EV1
12 Vdc - Normally opened
Push override

EV2
24 Vdc - Normally opened
Push override

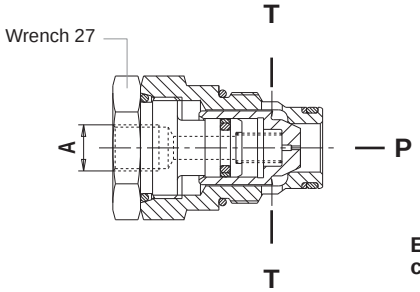
EV3
12 Vdc - Normally closed
Without override

EV4
24 Vdc - Normally closed
Without override

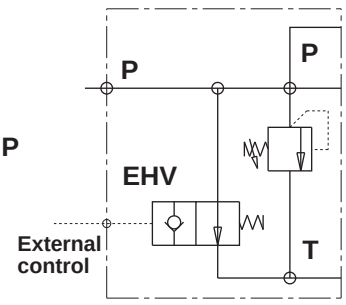
EV5
12 Vdc - Normally opened
Push and twist override

EV6
24 Vdc - Normally opened
Push and twist override

A available threads	
M10 x 1	SAE 6

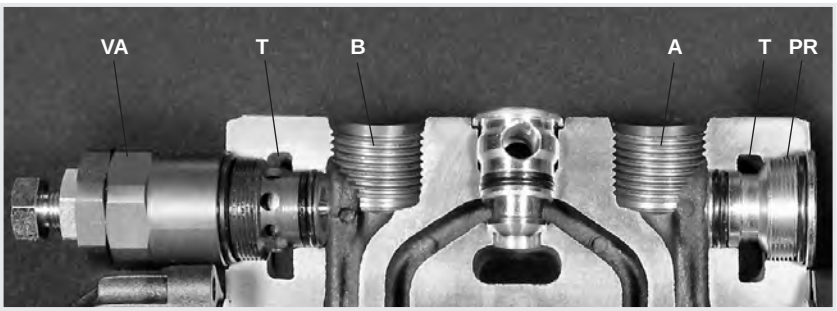


Normally opened

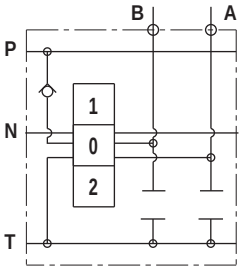


EHV
External piloted venting valve

AUXILIARY VALVES

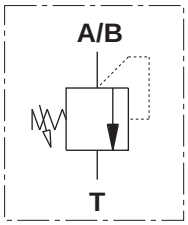


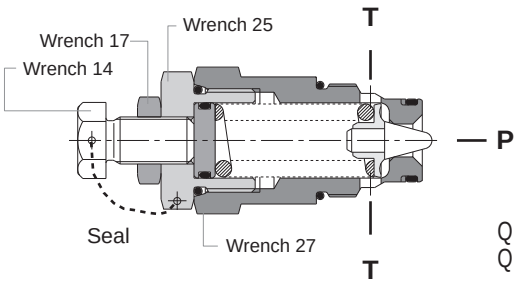
This picture shows the position of the auxiliary valves For the tightening torque please see page 24.

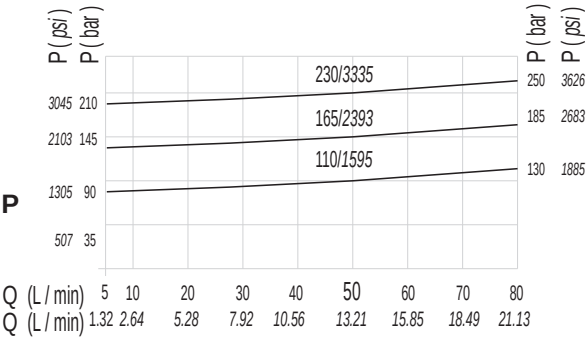


VA

OVERLOAD VALVE
(setting range from 25 to 250 bar - *362 to 3625 psi*)

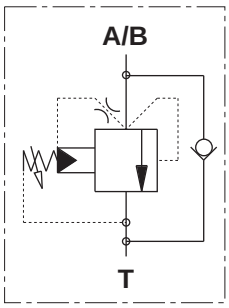


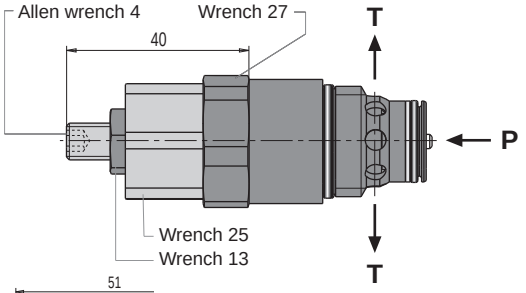


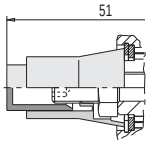


AR

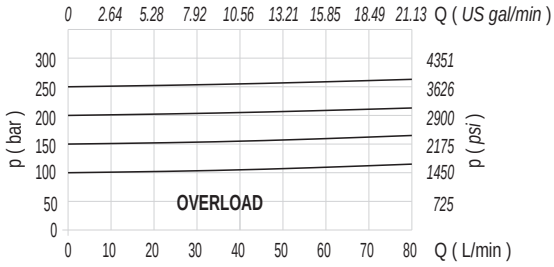
OVERLOAD AND ANTI-CAVITATION VALVE
(setting range from 25 to 280 bar - *362 to 4061 psi*) first spring
(setting range from 100 to 400 bar - *1450 to 5800 psi*) second spring

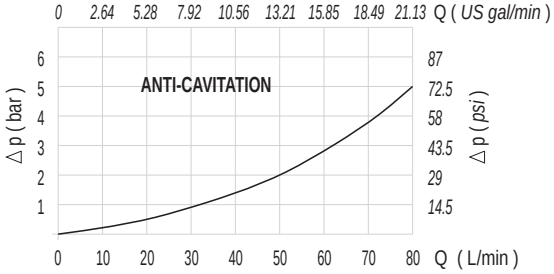






Sealing plug

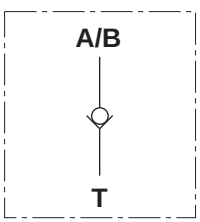


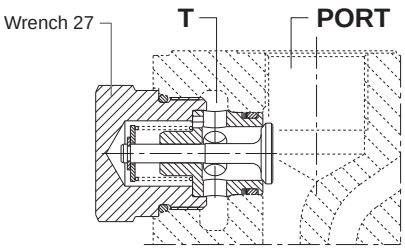


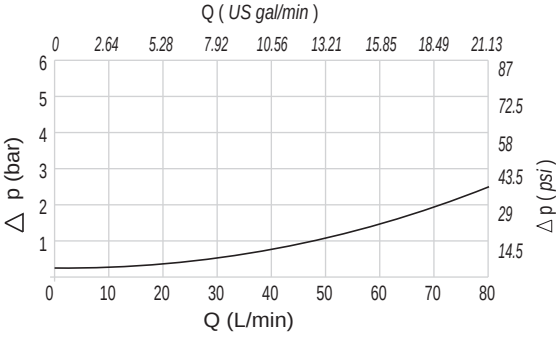
Both valves AR and VR are adjustable without oil leaking.
Further more, both have a security device to avoid valve sticking

VR

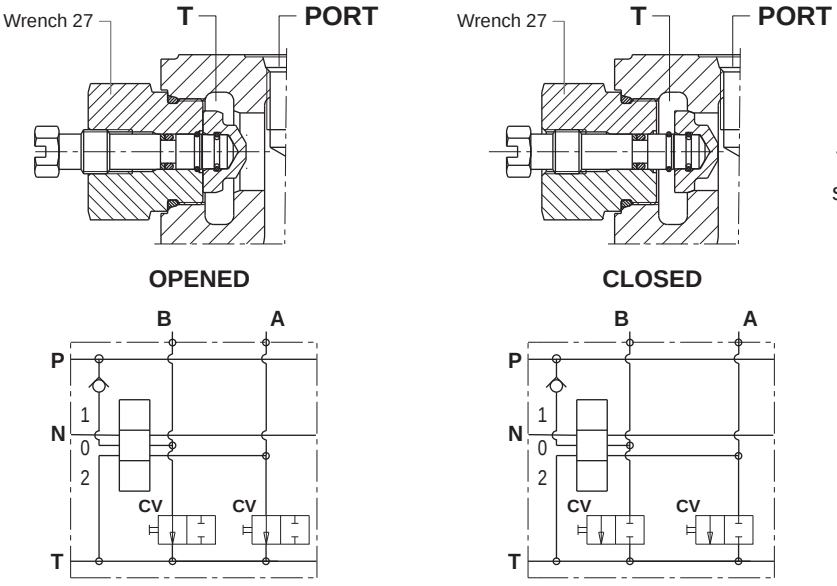
ANTI-CAVITATION VALVE







AUXILIARY VALVES

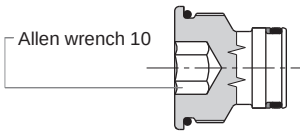


CV

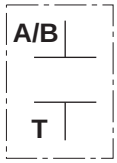
CONVERSION VALVE

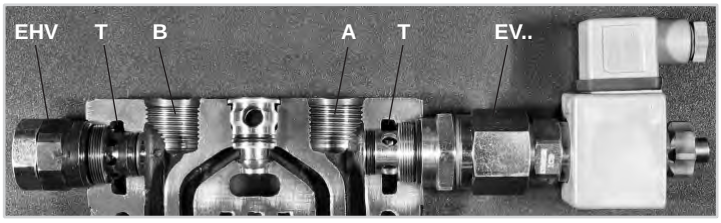
The conversion valve **CV** allows to obtain single acting function starting from double acting spool just connecting the port to tank.For example starting from a double acting spool to obtain a single acting "**A**" port function, we must open the **CV** valve sending "**B**" port to tank line.

PR

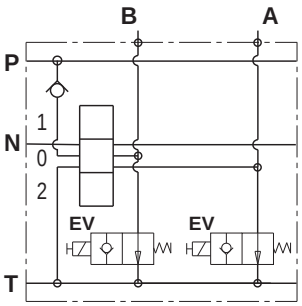


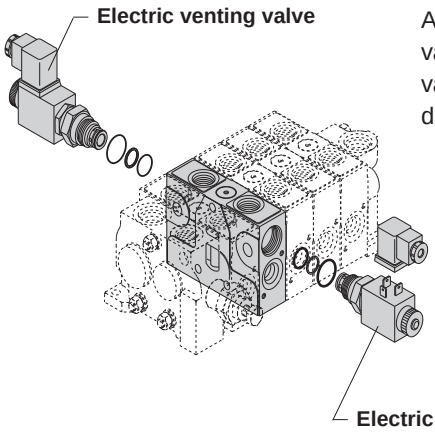
PLUG FOR CAVITY





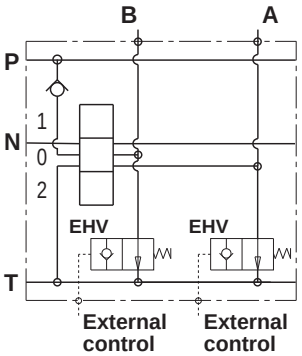
EV..



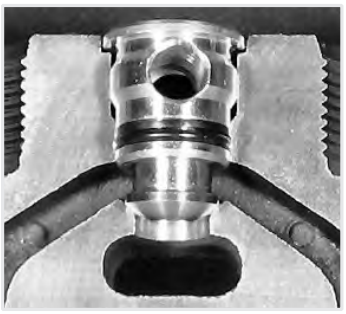


As you can read at page 25, all venting valve are also available as auxiliary venting valve, the commercial codes and technical data are the same of page 25.

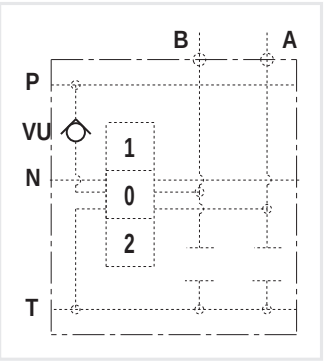
EHV



OTHER VALVES

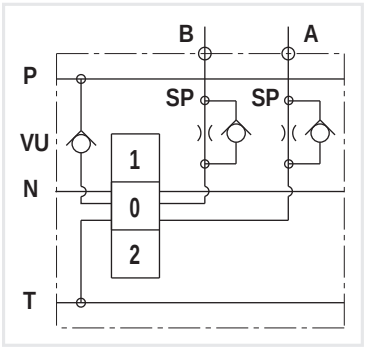


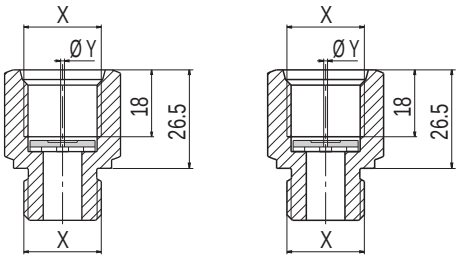
This is the load check valve VU which is built in every working module between ports and you need not to specify in phase of ordering because it is part of the module.
In the series circuit working module you can have another load check valve on the series line as you can see in the drawing of page 17.



SP

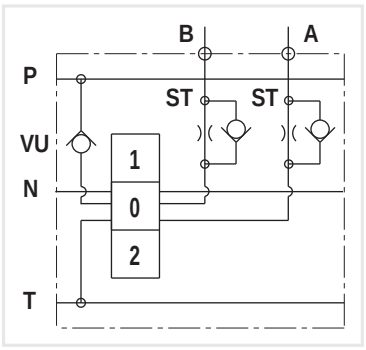
Flow restrictor P ⟶ A/B

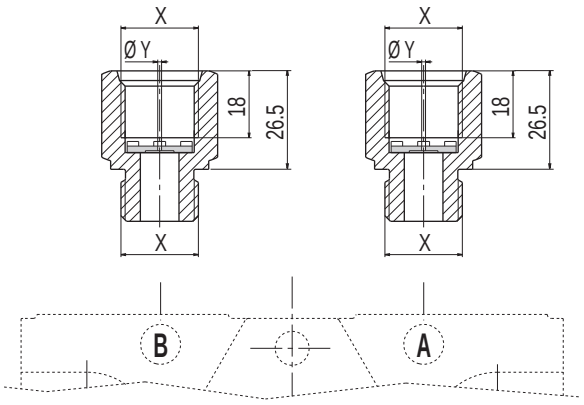




ST

Flow restrictor A/B ⟶ T



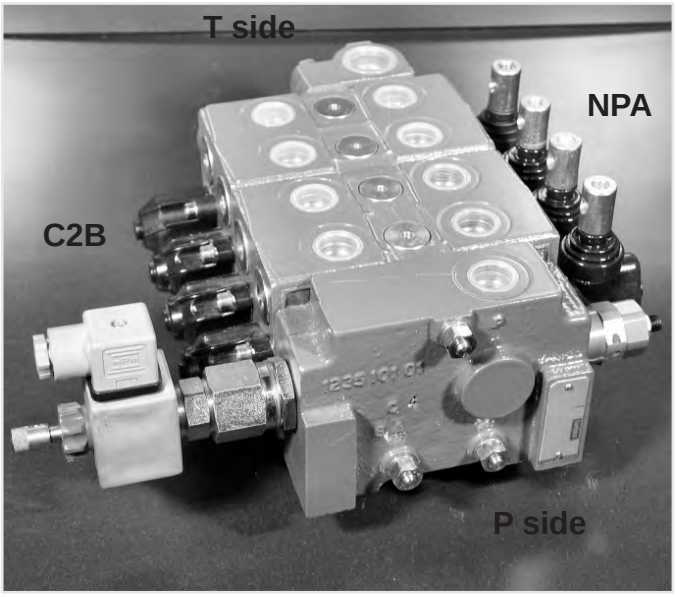


For tightening torque, please refer you to page 5.

X available threads			ϕ Y available measures					
*M22 x 1.5	SAE 10	G 1/2	ϕ 2	ϕ 2.5	ϕ 2.75	ϕ 3	ϕ 3.25	ϕ 4.5

*Available for quantity, please contact our sales dept.

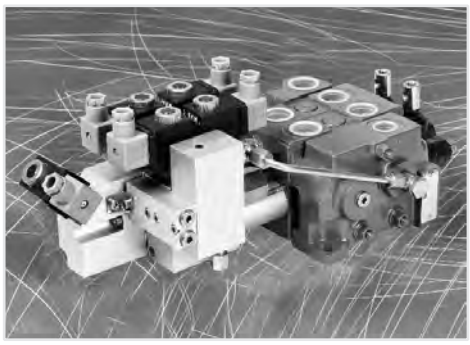
SPOOL CONTROLS AND SPOOL POSITIONINGS



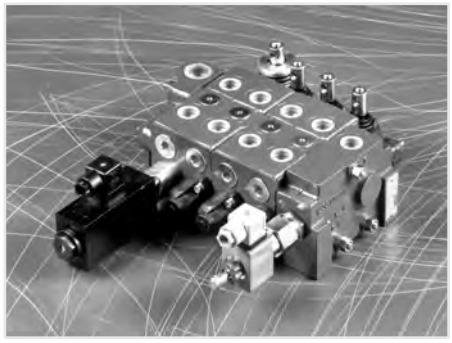
This picture shows the VD8A assembled, in this case you have a manual control "NP" on A side and a spring return in neutral position "C2" on B side.In this case the manual control "NP" is used directly to have the spool movement, in other case, for example with electro-hydraulic control, there is only a safety lever. Considering that VD8A is a simmetrical valve, all spool controls and positionings can be placed on both sides A or B.In case of hydraulic kick-out "G2 - G4 - G5" and with spools types 13 - 17 - 18, you can also decide A or B 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 ± 0.5 Nm.

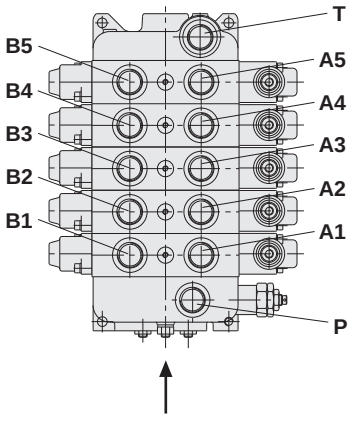
The drw. here below show the reference to fix A and B side from the point of view of the operator.



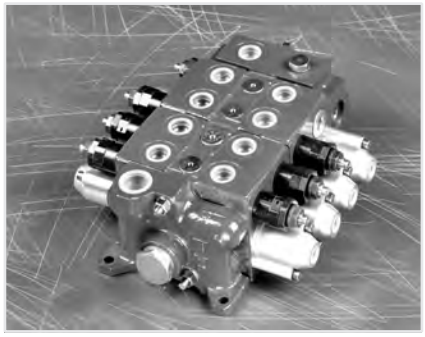
VD8A - 2 working modules with electro-hydraulic controls **H1/H2 - H3/H4**



VD8A - 4 working modules (2 bi-blocks) with miscellaneous of controls **NP - E7/E8 - C2** and **EV** on inlet m.



VD8A - 4 working modules with electro-pneumatic control **P1/P2**



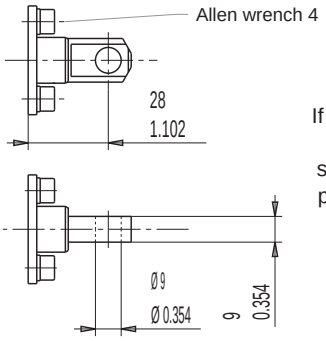
VD8A - 4 working modules (2 bi-blocks) with hydraulic prop. control **IP**

SPOOL CONTROLS

SL

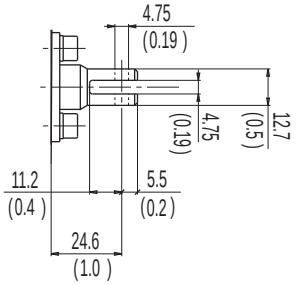
Without lever box

1
0
2



Male version

If you order SL we will supply the male version, which is the standard.For the female version please specify it when ordering.

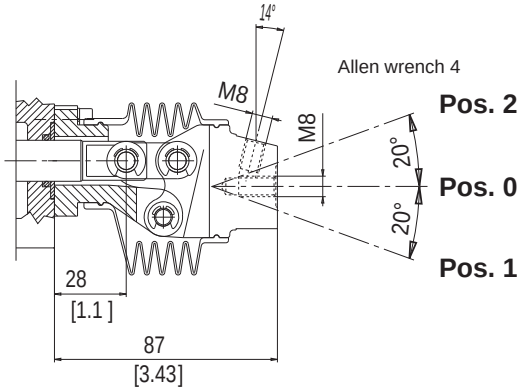


Female version
available for spools from 01 to 06
for the other spools please get in touch with our sales dept.

NL

Low effort
protected lever

1
0
2

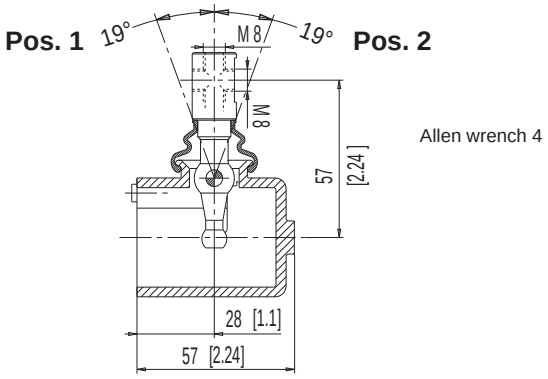


This lever can be assembled turned of 180°

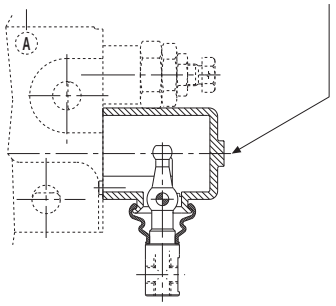
NP

Standard
protected lever

1
0
2



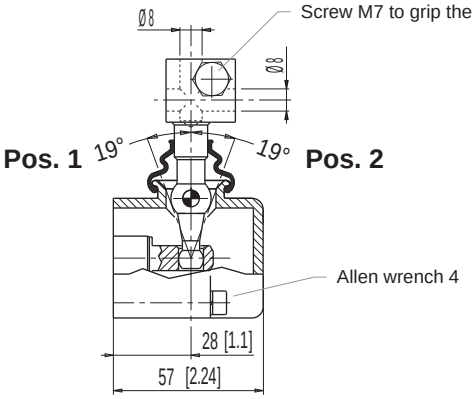
This lever can be assembled turned of 180°
In case of auxiliary valve it must be assembled turned of 180° with reference to this axis



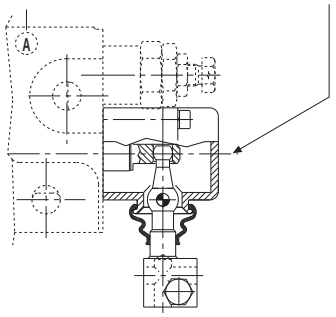
MP

Protected clamp lever

1
0
2

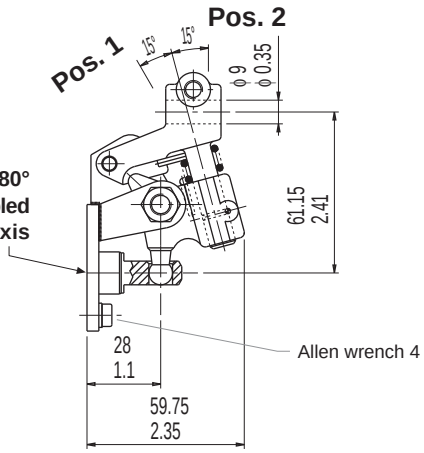


This lever can be assembled turned of 180°
In case of auxiliary valve it must be assembled turned of 180° with reference to this axis

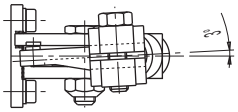


SS

Lever with security locking in neutral pos.
Side shift to unlock



**This lever can be assembled turned of 180°
In case of auxiliary valve it must be assembled
turned of 180° with reference to this axis**

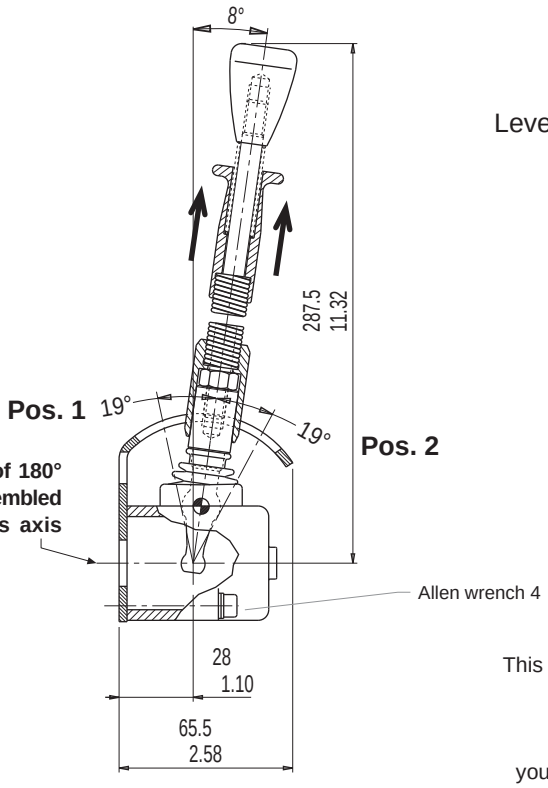


Necessary side shift to release
the security locking

This lever with security locking in neutral pos.
has been created to avoid its accidental
movement caused by vibrations of the
application.

FL

Lever with security locking in neutral pos.
Pull the grip to unlock.



**This lever can be assembled turned of 180°
In case of auxiliary valve it must be assembled
turned of 180° with reference to this axis**

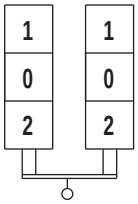
This lever with security locking in neutral has been
created to avoid its accidental movement
caused by vibrations of the application.
Before to put the lever in positions 1 and 2
you must release it by pulling it as per the arrows

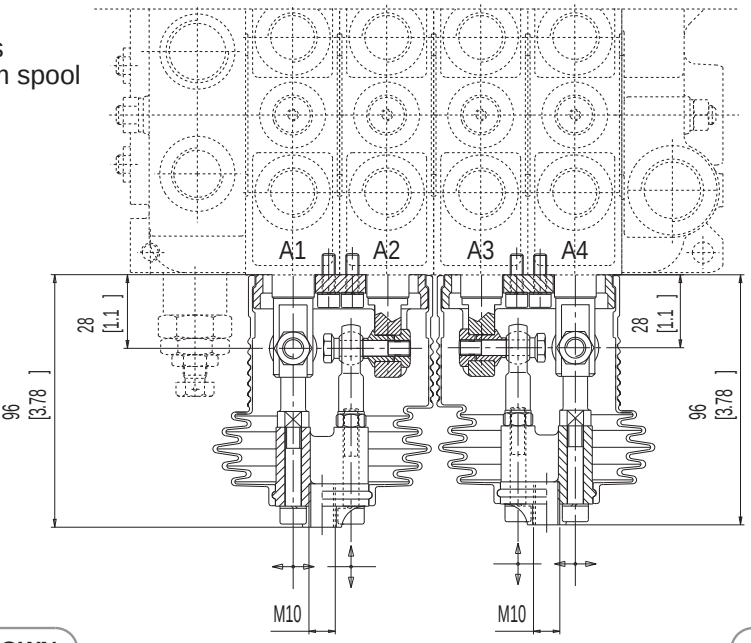
L2

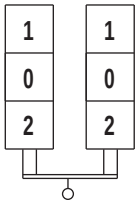
Cross lever for 2 spools
fulcrum on down-stream spool

L1

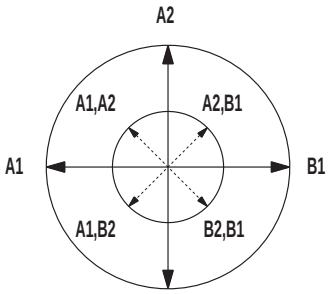
Cross lever for 2 spools
fulcrum on up-stream spool



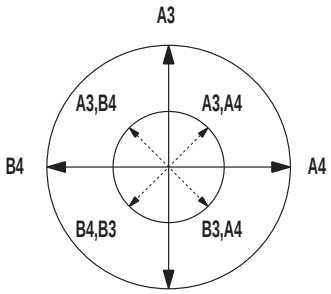




L2 - WITH FULCRUM DOWN



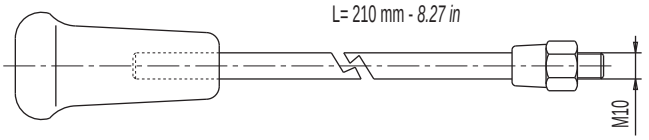
L1 - WITH FULCRUM DOWN



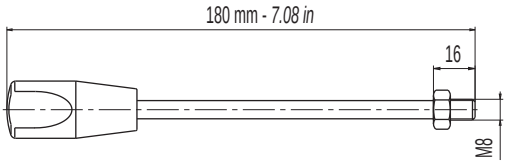
STANDARD SHAFTS

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

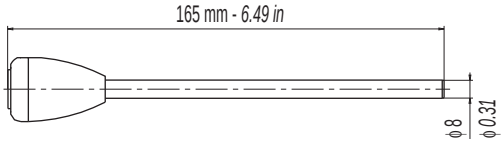
Shaft with ergonomic knob
for cross lever L1/L2
R202 8996 0



Shaft with threaded end
R202 9018 0



Shaft for clamp lever
R202 8839 0

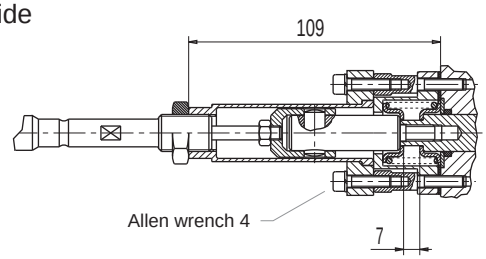


D1

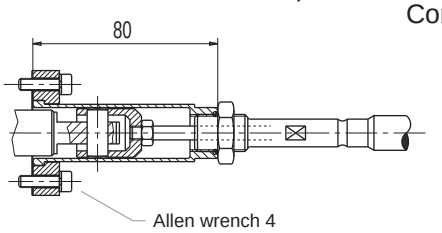
Devices for cable remote control for both the ends of spool.
For more details about cables, please consult our catalogue cable remote controls.

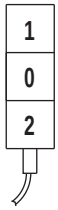
TC

End spool with threaded hole M7
Positionings side



End spool with hole ϕ 9 mm.
Controls side





E1

Electric push-pull control 3 positions
12 Vdc

Working conditions for this control:
Flows up to 70 l/min - *18.5 US gpm*
Pressure up to 240 bar - *3500 psi*

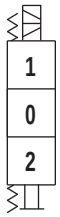
The stroke for this control is of 5 mm,
for this reason the spools are different of standard.
The available spools are from 01 to 06.

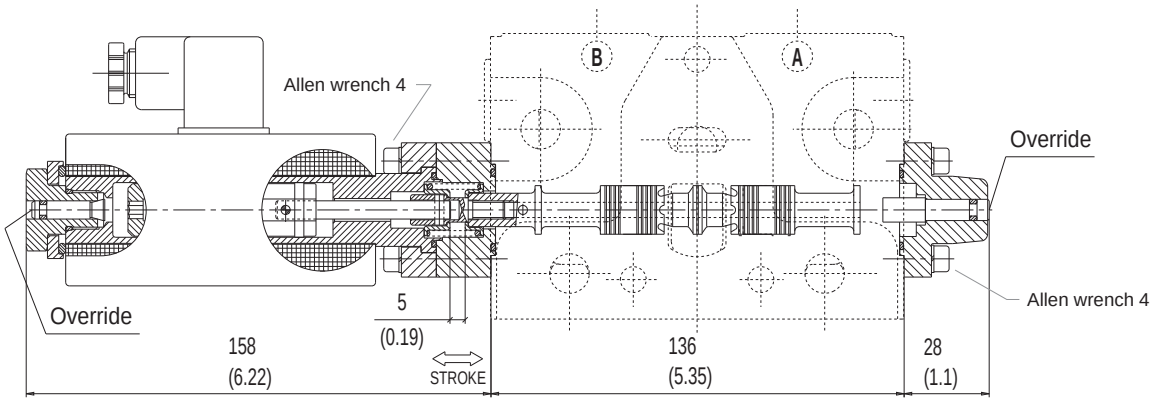
SL

Without lever for electric control
with override device

E2

Electric push-pull control 3 positions
24 Vdc

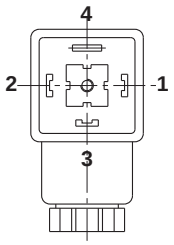




ELECTRICAL DATA

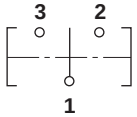
PUSH - PULL SOLENOID

- VOLTAGE: 12Vdc OR 24Vdc
- COIL POWER: 60 Watt at 20°C
- PROTECTION INDEX WITH CONNECTOR: IP 65
- HEAVY DUTY 70%



CONNECTOR
DIN 43650 - A/ISO 4400

ELECTRIC CONNECTIONS SCHEME

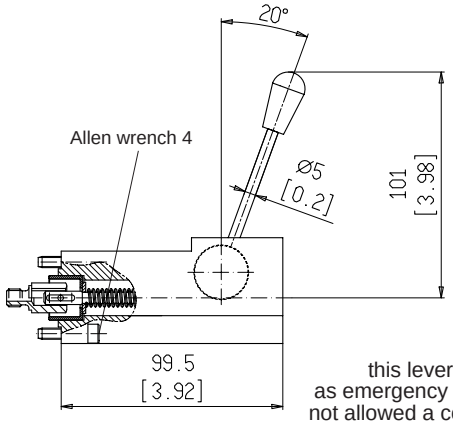


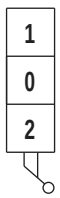
1) NEGATIVE POLE
2) SPOOL IN
3) SPOOL OUT
4) GROUND WIRE

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

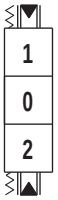




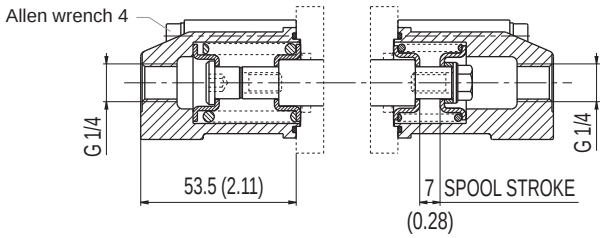
Important:
this lever was realized
as emergency lever and it'is
not allowed a continuos use.

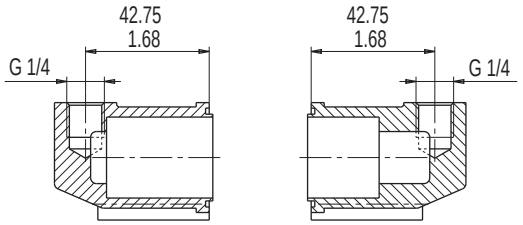
IP

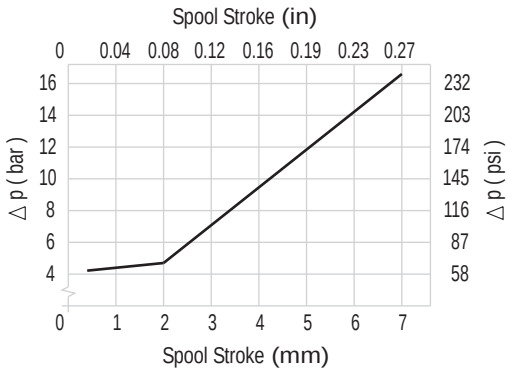
Hydraulic proportional control



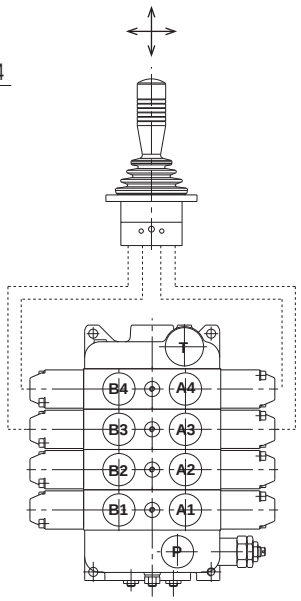
Important:
when you order please specify top or side ports







Salami hydraulic
2 axis joystick

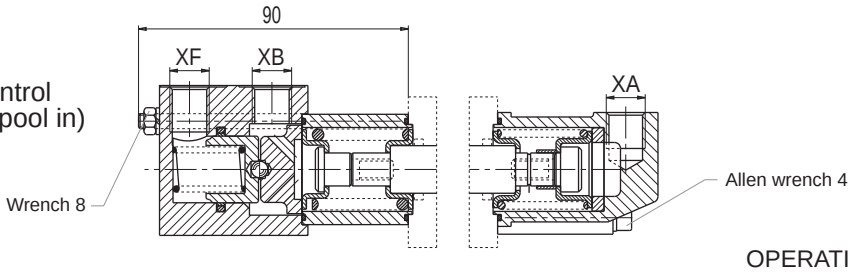


For more information please consult our catalogue
SHRC hydraulic remote controls.

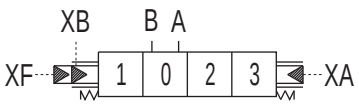
IF

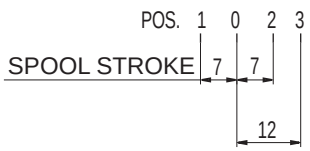
Hydraulic proportional control
with third float position (spool in)

XA, XB, XF PORTS : G 1/4

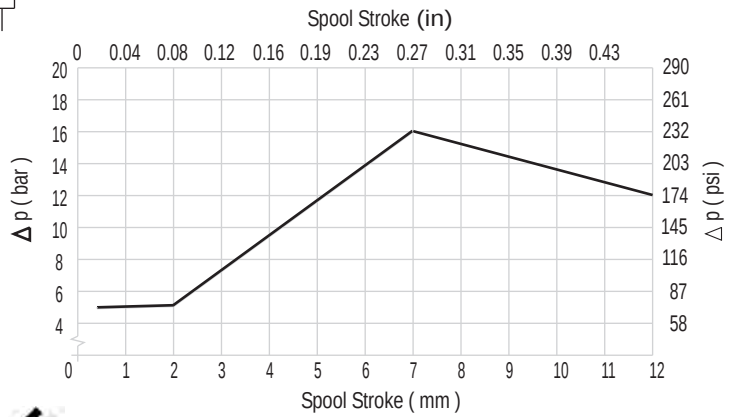


OPERATING SCHEME





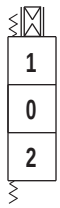
XA,XB,XF → T ⇨ POS. 0
Pressure → XB ⇨ POS. 1
Pressure → XA,XF ⇨ POS. 2
Pressure → XA ⇨ POS. 3

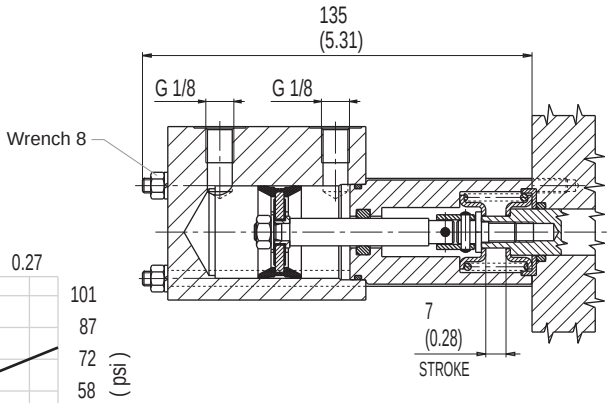


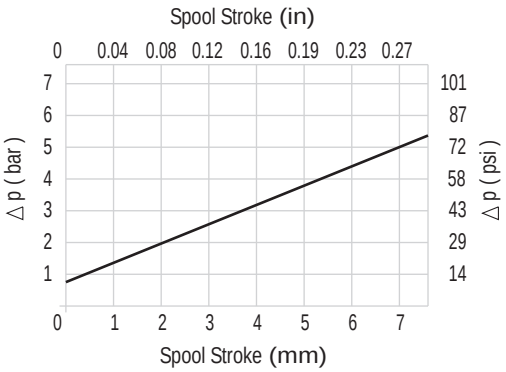
Thought for all truck hydraulic applications

PP/P0

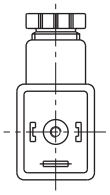
Pneumatic proportional/on-off control







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.



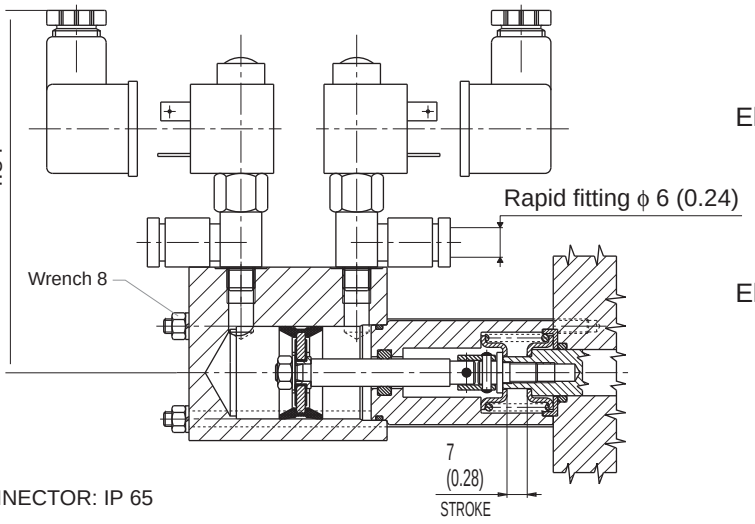
CONNECTOR
DIN 43650 - A/ISO 4400

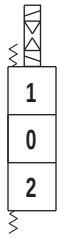
P1

Electro-pneumatic on-off control - 12 Vdc

P2

Electro-pneumatic on-off control - 24 Vdc



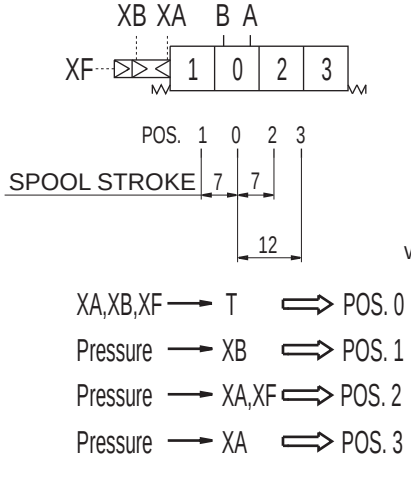


ELECTRICAL DATA

- 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

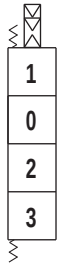
OPERATING SCHEME

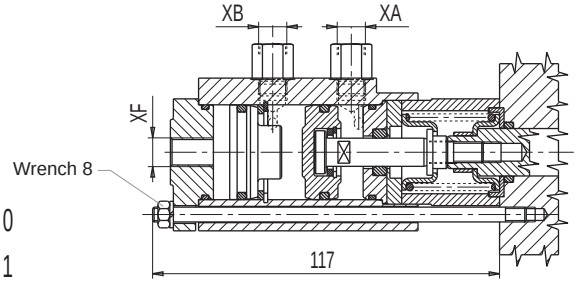


XA, XB, XF PORTS : G 1/4

PQ

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





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

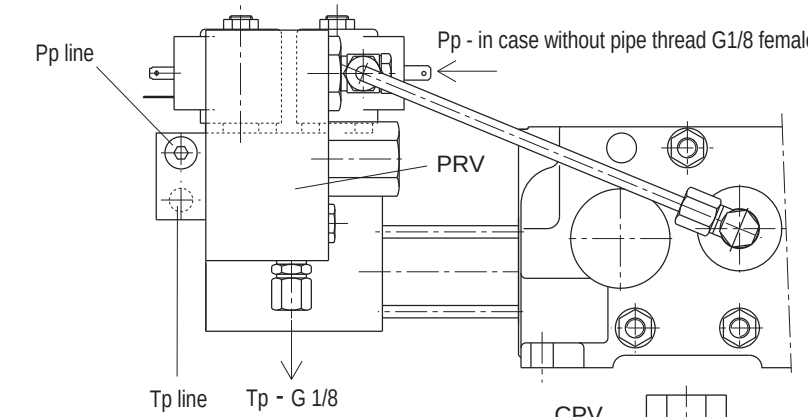
Preliminary specifications about electro-hydraulic controls

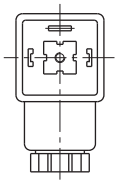
Before to introduce electro-hydraulic single modules it is necessary to specify the adding hydraulic components necessary for the right functioning of it.As you can see in the drawing and hydraulic scheme it needs a pressure reducing valve "PRV" at the inlet of piloting circuit that reduce the pressure of "P" line at the max value of 25 bar (363 psi), a back pressure "CPV" on neutral line that assure a min. pressure of 8 bar (116 psi) and some accessories as fittings, pipe and filter.The pressure reduction at the piloting circuit inlet and the minimum value of neutral line can be obtained also with external standard valves made by valve manufacturers, for this reason Salami electro-hydraulic controls can be supplied without "PRV" and "CPV".

In this case is necessary to specify it in phase of order.

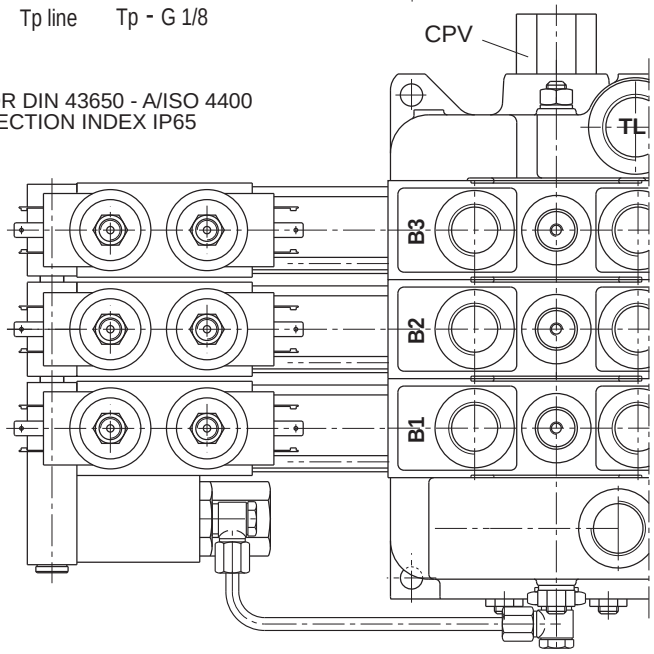
Our standard supply has the "Tp" port opened, we recommend to connect it directly to tank because a counter-pressure could be cause of malfunction.

With reference to page 20, "OUTLET MODULES", the outlet U8 is shown in the hydraulic scheme here below, remember that with a special sleeve instead of "CPV" valve you can change U8 in a power beyond outlet type "U5".





CONNECTOR DIN 43650 - A/ISO 4400
PROTECTION INDEX IP65



INDEX

PRV - pressure reducing valve

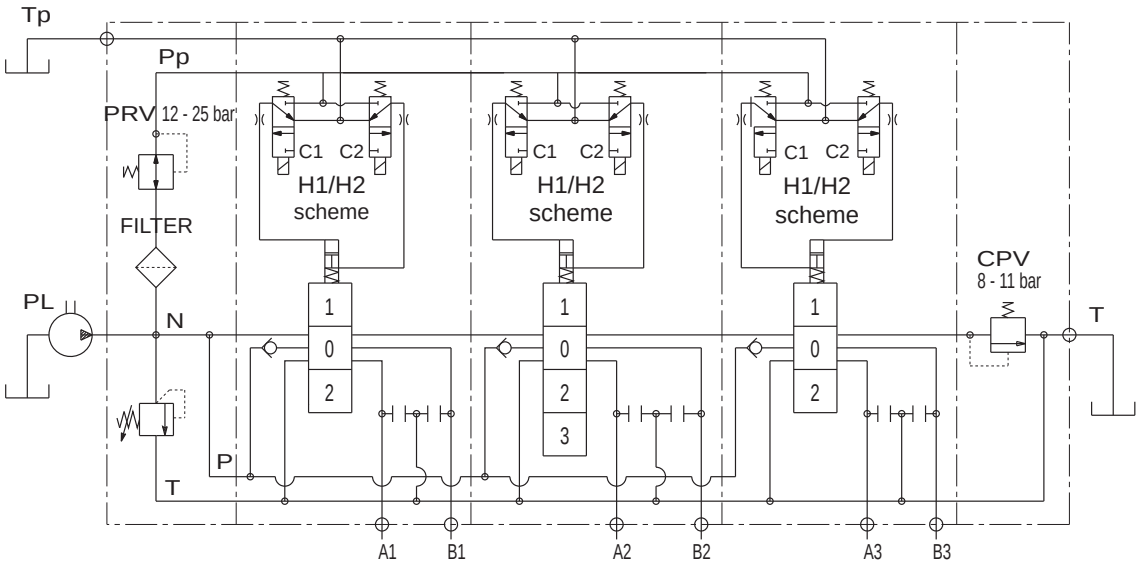
CPV - counter pressure valve

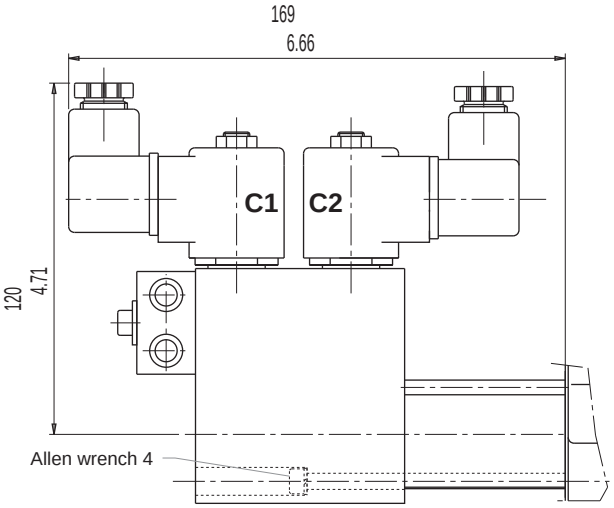
Pp - pressure piloting line

Tp - tank piloting line

PL - P port

TL - T port





OPERATING INSTRUCTIONS
please see the hydraulic circuit
of page before

C1 - C2	coils de-energized	⇨ POS. 0
C1	coil energized	⇨ POS. 1
C2	coil energized	⇨ POS. 2

TECHNICAL DATA

- MAX PRESSURE IN "P"	30 bar
- MAX FLOW	2 l/min
- AVAILABLE VOLTAGE	12 - 24 Vcc
- COIL RESISTANCE	12Vdc:7.2Ω - 24Vdc:41.5Ω
- POWER	14 W (20°C)

H1

ON-OFF
electro-hydraulic control
12 Vdc

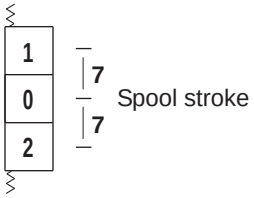
H2

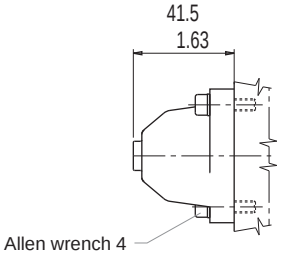
ON-OFF
electro-hydraulic control
24 Vdc

SPOOL POSITIONINGS

C2

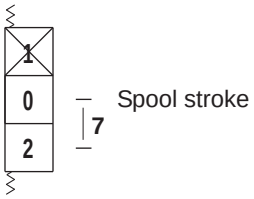
Spring centered to neutral position





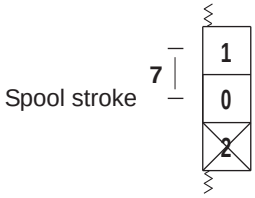
C5

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



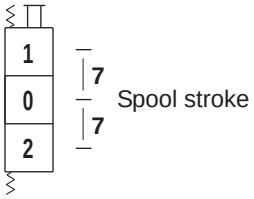
C6

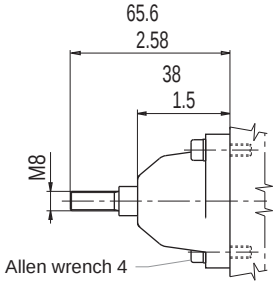
Two positions (neutral/pos. 1)
with spring return in neutral

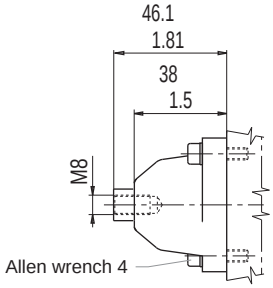


C3

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

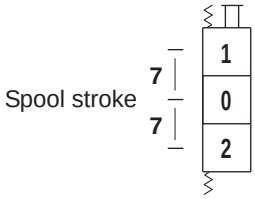






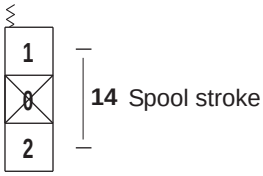
C4

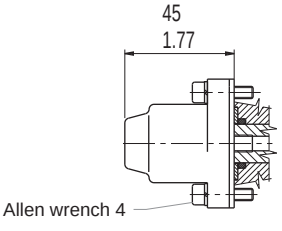
Spring centered to neutral
(pivot threaded female
for remote control)



C7

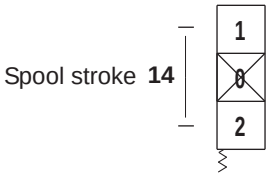
Two positions (pos. 1/pos. 2)
with spring return in pos. 1





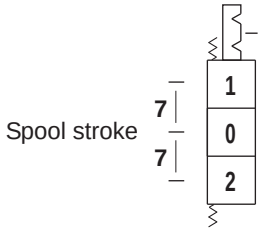
C8

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



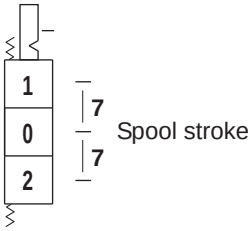
R2

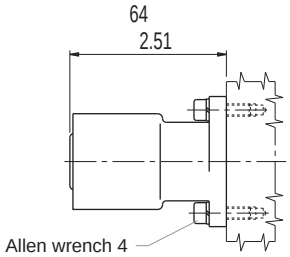
Detent on pos. 1/pos. 2
with spring return in neutral



R5

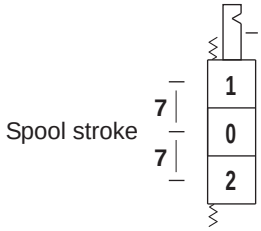
Detent on pos. 2
with spring return in neutral





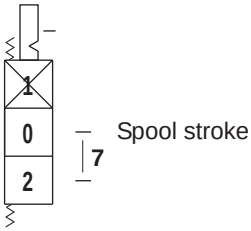
R4

Detent on pos. 1
with spring return in neutral



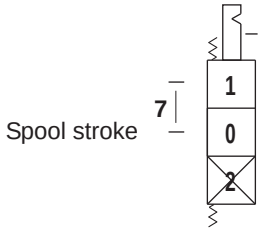
R6

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



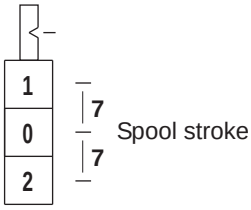
R7

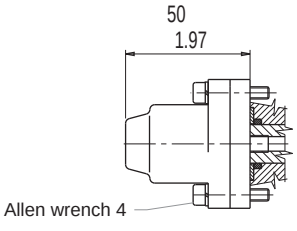
Two positions with detent on pos. 1
with spring return in neutral



CO

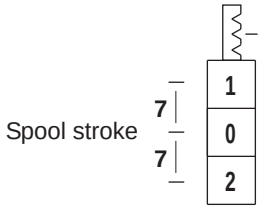
Detent on each intermediate positions





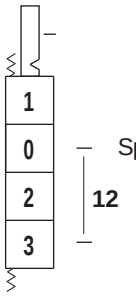
R9

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



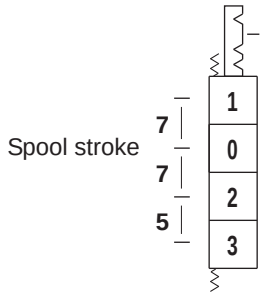
F1

Detent on pos. 3
with spring return in neutral



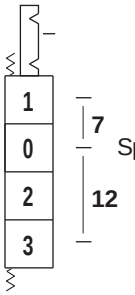
F2

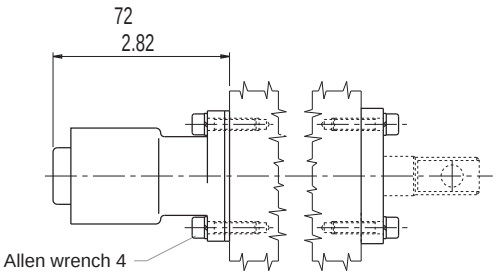
Detent on pos. 1/pos. 2/pos. 3
with spring return in neutral



F3

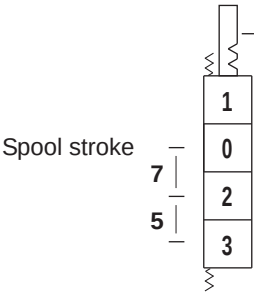
Detent on pos. 1/pos. 3
with spring return in neutral





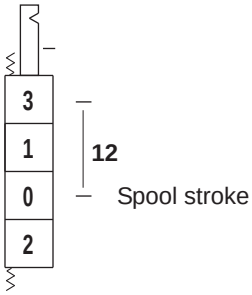
F4

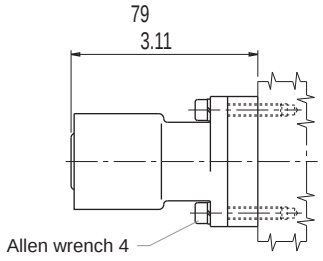
Detent on pos. 2/pos. 3
with spring return in neutral



F5

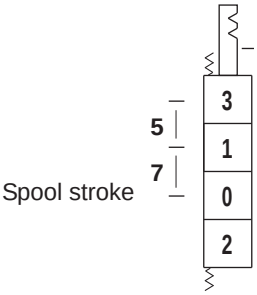
Detent on pos. 3
with spring return in neutral





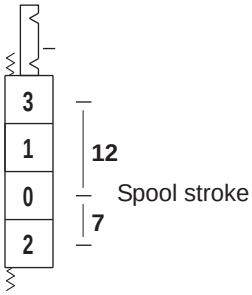
F6

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



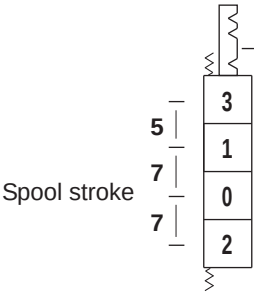
F7

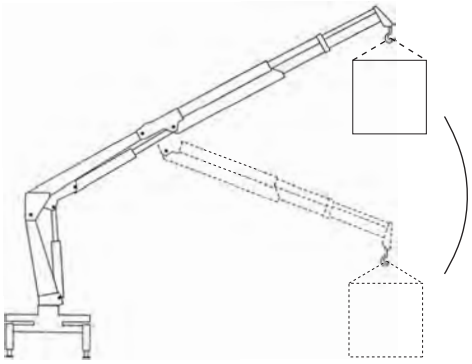
Detent on pos. 2/pos. 3
with spring return in neutral



F8

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

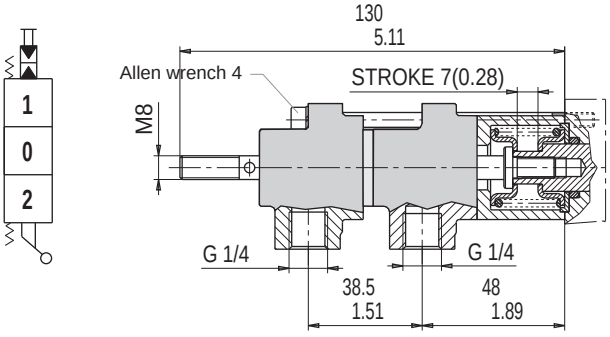




For manifacturers using load and overturning torque limiting device for hydraulically operated cranes, Salami VDM8 valve is available with some devices that allow the manifacturer to supply a pressure signal inside itself.This pressure signal, acting on the area of a piston of 18 mm(0.71 inc.) diameter, 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.

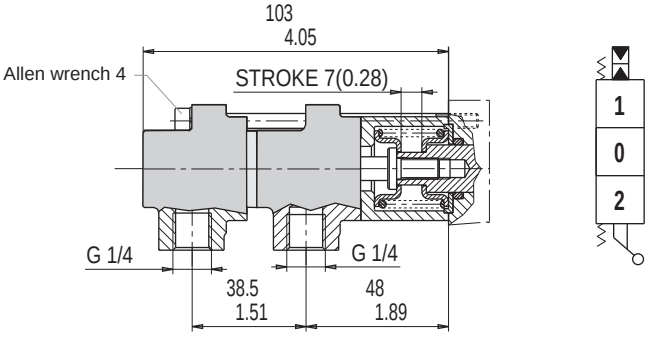
D9

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



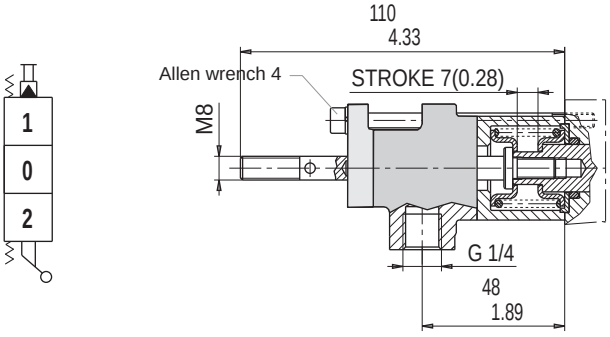
M3

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



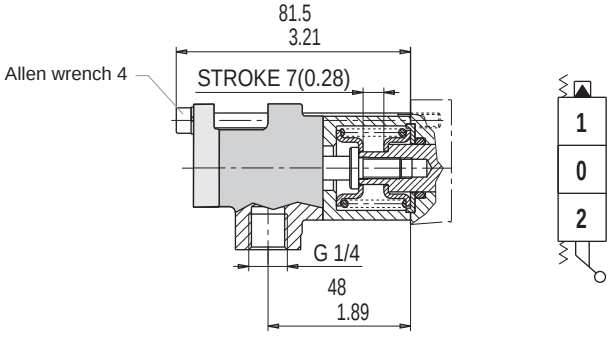
D8

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



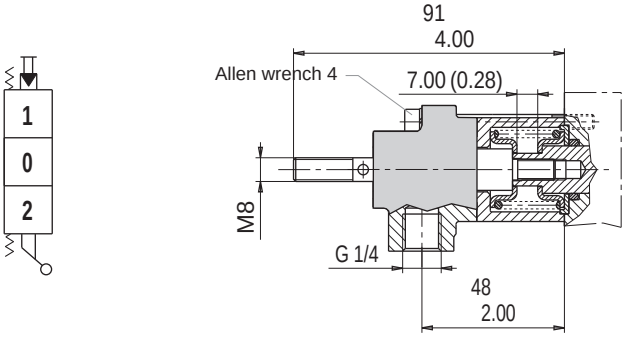
M1

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



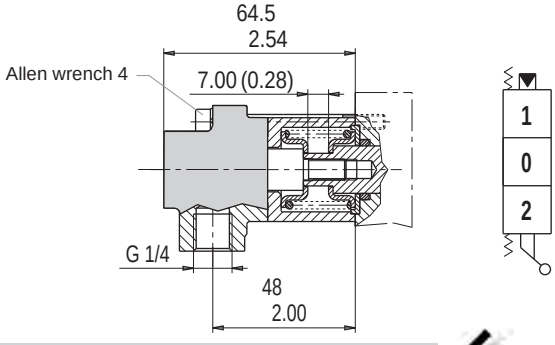
D7

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



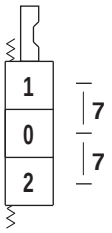
M2

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

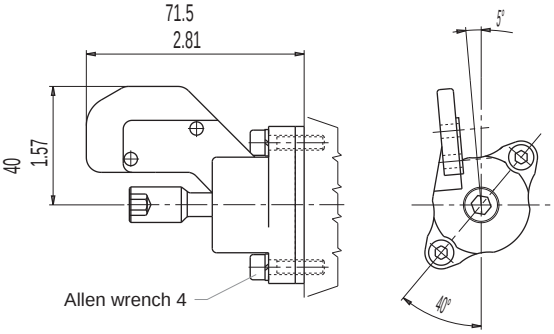


CE

Pre-arrangement for electrical device



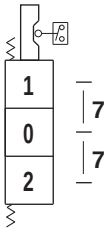
Spool stroke



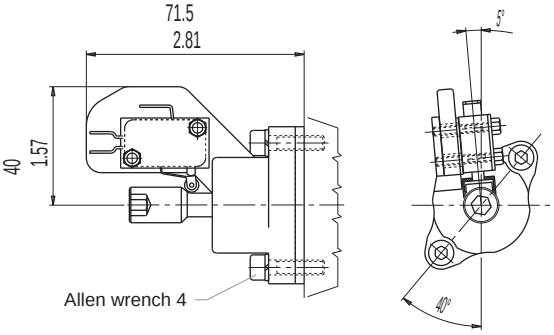
MICROSWITCH TYPE: SAIA - BURGESS XGK - 88
For more information please get in touch with our sales dept.

CM

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



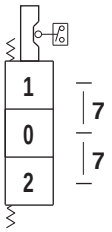
Spool stroke



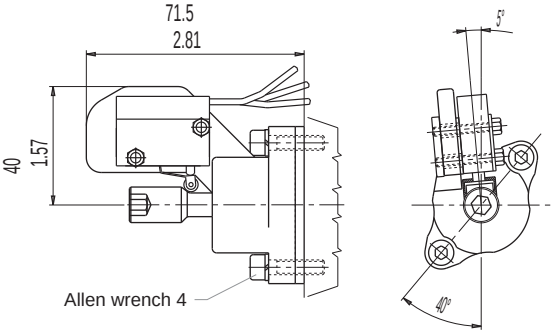
PROTECTION INDEX
IP65

CW

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



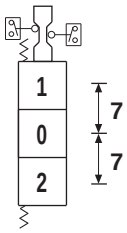
Spool stroke



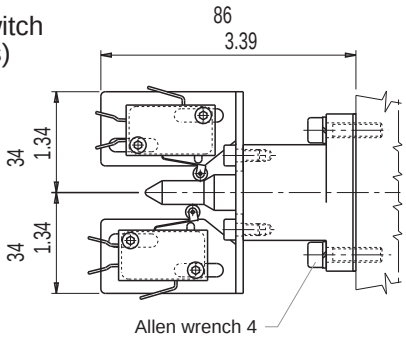
PROTECTION INDEX
IP67

CD

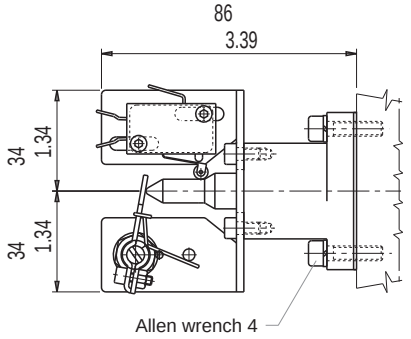
Spool positioning with double microswitch (available also for single acting spools)

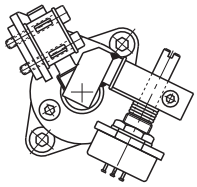


Spool stroke



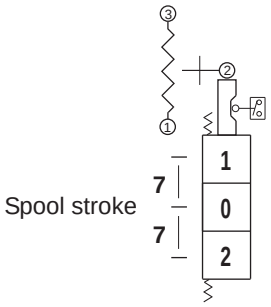
PROTECTION INDEX
IP65

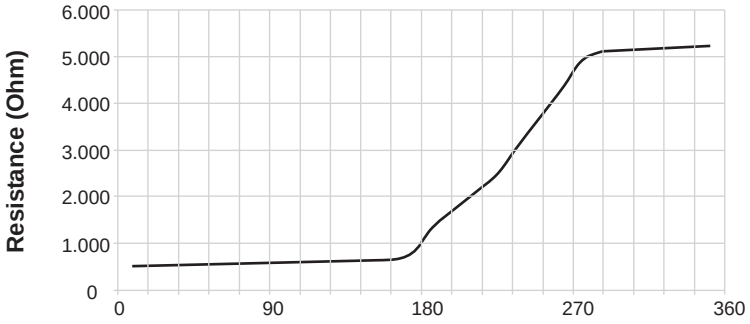




PM

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

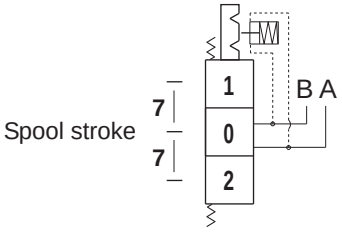


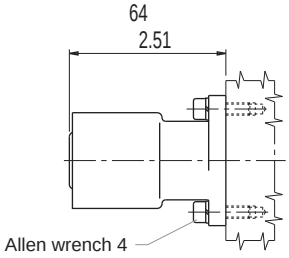


IMPORTANT:
When you order, please specify the setting pressure of the device.
With this type of spool positiong a special machining of the body is required.

G2

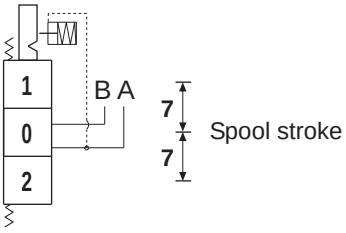
Detent on pos. 1/pos. 2 with hydraulic kick-out





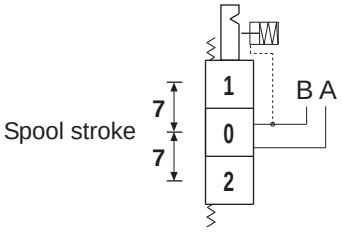
G5

Detent on pos. 2 with hydraulic kick-out



G4

Detent on pos. 1 with hydraulic kick-out



DIRECTIONAL CONTROL VALVE SECTIONAL TYPE

DIRECTIONAL CONTROL VALVE SECTIONAL TYPE

VD8A | 01 | D | 180 | – | EV2 | / | 2 | X | P | 01 | A | – | VA | 165 | A | . | AR | 140 | B | – | NL | A | – | C2 | /

/

P | 01 | A | – | PR | 000 | A | . | PR | 000 | B | – | NL | A | – | C2 | / | U1 | G

/ | I2 | G

INLET CONFIGURATION
See from page 10 to 14

MAIN RELIEF VALVE (PAG. 24)

D	Direct main relief valve
P	Piloted main relief valve
W	Without main relief valve

MAIN RELIEF VALVE SETTING (bar)
See page 24

VENTING VALVE
See page 25

NUMBER OF IDENTICAL CONSECUTIVE SECTIONS

WORKING MODULES - CIRCUIT TYPE (PAG. 15 - 19)

P	Parallel circuit - single or double module (page 15)
R	Working module with adjustable or fixed priority flow valve (page 16)
S	Series circuit - single or double module (page 17)
T	Tandem circuit (page 18)

SPOOL TYPES (PAG. 22 - 23)

01	Double acting spool
02	Double acting motor spool
03	Double acting motor spool ("B" port blocked)
04	Double acting motor spool ("A" port blocked)
05	Single acting spool "A" working port
06	Single acting spool "B" working port
11	Double acting spool with float function in 3rd pos. (spool in)
12	Double acting spool with float function in 3rd pos. (spool out)
13	Double acting spool with regenerative function in position 3 (spool in)
17	Double acting spool with regenerative function in position 2 (spool in)
18	Double acting spool with regenerative function in position 1 (spool out)
52	Over center double acting spool "A" working port
53	Over center double acting spool "B" working port
54	Over center double acting spool "A" and "B" working ports

SPOOL CHOICE ACCORDING TO THE INLET FLOW (PAG. 22)

A	Nominal flow
C	2/3 of the nominal flow

AUXILIARY VALVES (PAG. 26 - 28)

VA	Adjustable overload valve (available settings at page 26)
AR	Adjustable overload and anti-cavitation valve (available settings at page 26)
VR	Anti-cavitation valve (page 26)
CV	Conversion valve (page 27)
PR	Pre-arrangement for auxiliary valve (page 27)
ST	Flow restrictor P • A/B (page 28)
SP	Flow restrictor A/B • T (page 28)
EV..	Electric venting valve (page 25)
EHV	External piloted venting valve (page 25)

PORTS (PAG. 9)

G	GAS threaded
S	SAE threaded
M*	METRIC threaded
G*	JIS B 2351 threaded

MID INLET CONFIGURATION
See hydraulic scheme and commercial codes of page19

OUTLET CONFIGURATION
See hydraulic scheme and commercial codes of page 20

SPOOL POSITIONINGS

Page 38 C2 - C3 - C4 - C5 - C6 - C7 - C8
Page 39 R2- R4 - R5 - R6 - R7 - R9 - C0
Page 40 F1 - F2 - F3 - F4 - F5 - F6 - F7 - F8
Page 41 D7 - D8 - D9 - M1 - M2 - M3
Page 42 - 43 CE - CM - CW - CD - PM - G2 - G4 - G5

CONTROL SIDE (PAGE 29)

SPOOL CONTROLS

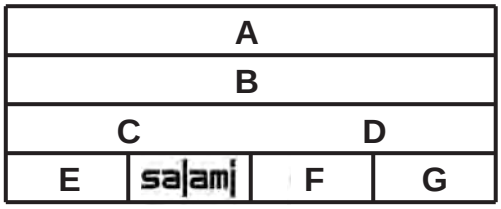
Without lever box page 30 - SL
Handle controls from page 30 to 32 NL - NP - MP - SS - FL - L1/L2
Devices for cable remote control page 33 D1 - TC
Direct electric control and emergency devices page 33 E1 - E2 - SL - ES
Hydraulic controls page 34 IP - IF
Pneumatic and electro-pneumatic controls page 35 PP/P0 - P1/P2 - PQ
Electro-hydraulic controls pages 36 - 37 H1/H2

PORT ON WHICH THE VALVE IS MOUNTED

*Available for quantity, please contact our sales dept.

DESCRIPTION OF THE NEW PRODUCT IDENTIFICATION LABEL

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



A = Product short descritpion (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:

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

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, averloading, 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) mounths 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 directs, indirects 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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