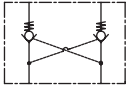


PILOT OPERATED CHECK VALVES



PILOT OPERATED CHECK VALVES

INTRODUCTION



PILOT OPERATED CHECK VALVES

They are non modular valves, arranged for in line or flanged mounting. They allow the feeding and locking of hydraulic cylinders.

As the cartridge valves, they are made of 1 or 2 unidirectional check valves, in which pilot pressure opens the sealing poppet.

This type of valve shows an excellent sealing function, while “free flow” is subject to the closing spring load. Cracking pressure is determined by initial opening pressure.

The opening of the sealing poppet by pilot pressure is on/off (from closed to totally open). So that its use is not advised at all for the applications on which modulation and/or control of gravitational load lowering velocity is required. This type of applications requires load holding valves **LHD** series.

Check valves most important parameter is pilot ratio **rp**.

Generally, given a generic load **P**, pilot pressure required for opening the valve is calculated dividing load by pilot ratio:

$$P_{pil} = P_p / r_p$$

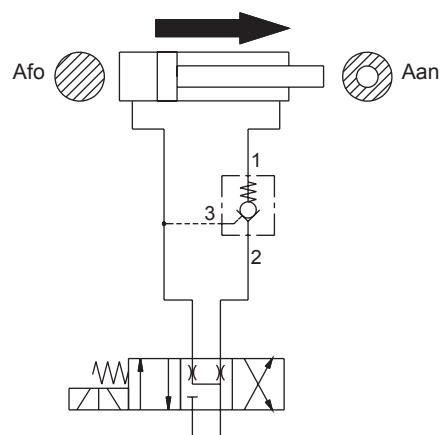
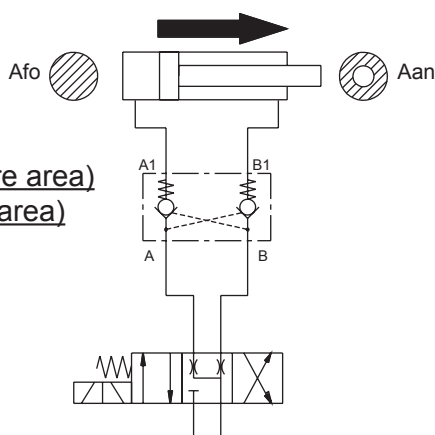
When check valves are used on hydraulic actuators (i.e. cylinders), due to areas ratio (**ra**) of the actuator itself, also the effects of inner pressure must be considered.

$$P_{pil} = P_p / (r_p - r_a)$$

On the hydraulic cylinders, the areas ratio “**ra**” is calculated with reference to the type of movements:

Cylinders Out (Extension)
 $r_a = A_{fo} / A_{an} (>1)$

Cylinders In
 $r_a = A_{an} / A_{fo} (<1)$



- Afo (Full bore area)
- Aan (Anular area)

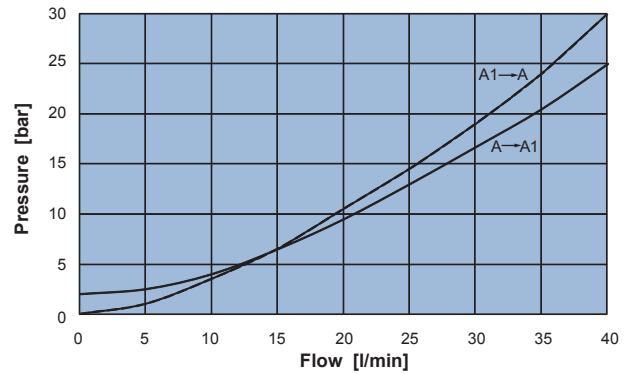
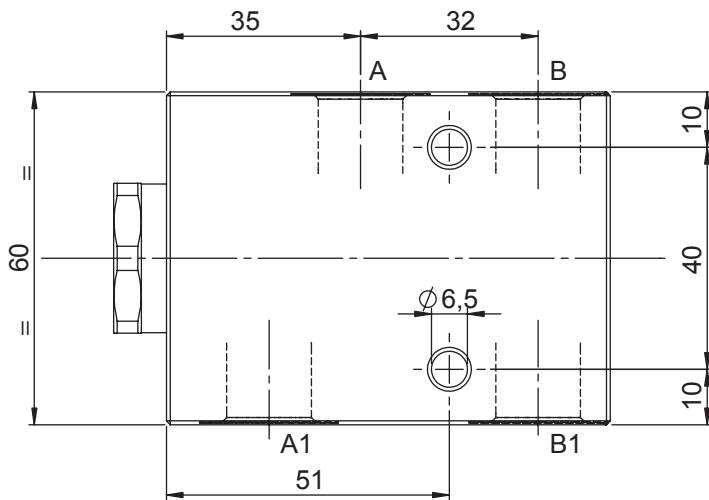
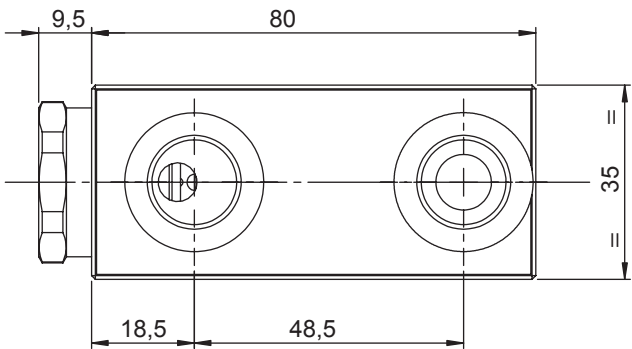
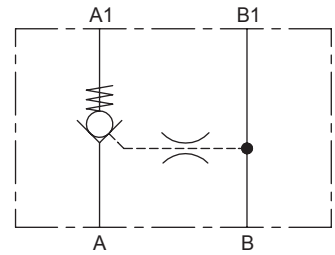
It's very important to remember that, in case of double effect cylinders, pilot ratio must be always higher than areas ratio:

$$r_p > r_a$$

If this rule is not respected, then it is not possible to pilot the check valve during the cylinder extension.

SINGLE ACTING PILOT OPERATED CHECK VALVE

- Flow **40 l/min**
- Max working pressure **210 bar**
- Weight **0,5 Kg**



Ordering code

6 D 1 0 0 2 **A** **0 0**

PILOT RATIO	
70	7:1 without seal
7A	7:1 with seal

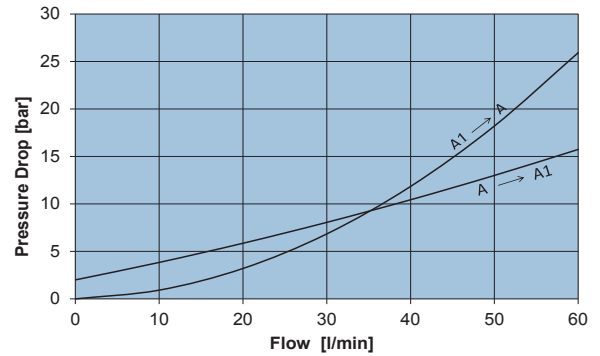
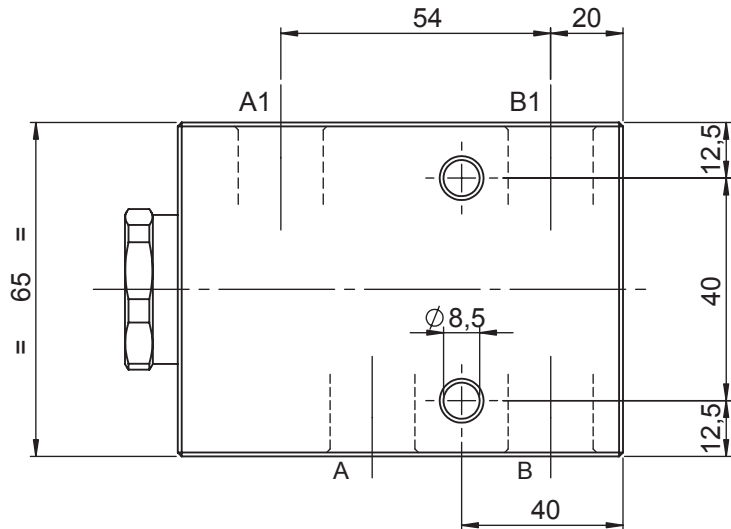
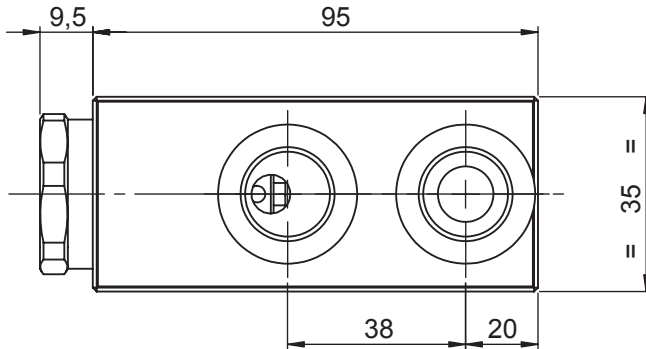
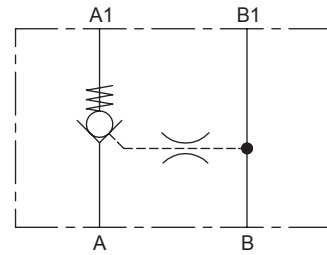
SPRING	1	2
Setting	2,0 bar	5,0 bar

PORTS	03
A,A1,B,B1	G 3/8"



SINGLE ACTING PILOT OPERATED CHECK VALVE

- Flow **60 l/min**
- Max working pressure **210 bar**
- Weight **0,5 Kg**



Ordering code

6 D 1 0 0 2 **A** **0 0**

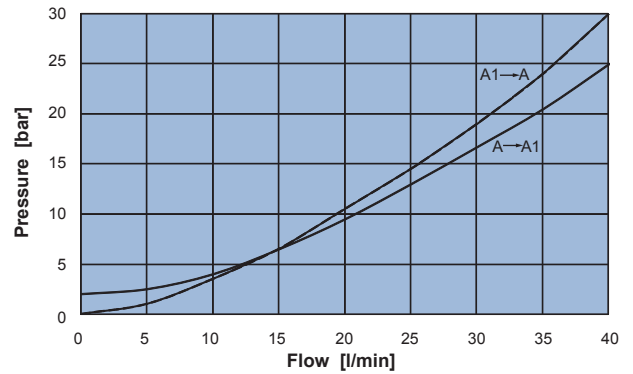
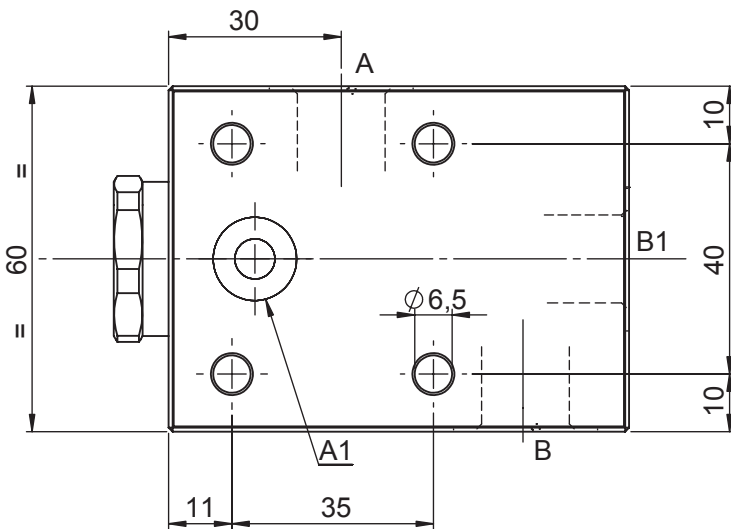
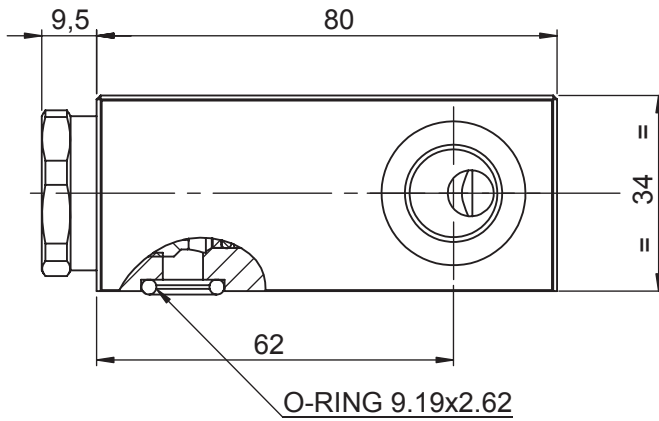
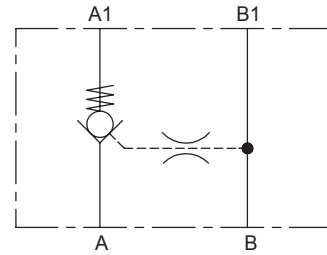
PILOT RATIO	
50	5:1 without seal
5A	5:1 with seal

SPRING	1	2
Setting	1,5 bar	3,5 bar

PORTS	04
A,A1,B,B1	G 1/2"

SINGLE ACTING PILOT OPERATED CHECK VALVE - A1 PORT FLANGED

- Flow **40 l/min**
- Max working pressure **210 bar**
- Weight **0,5 Kg**



Ordering code

6 D 1 1 0 2 **A** **0 0**

PILOT RATIO	
70	7:1 without seal
7A	7:1 with seal

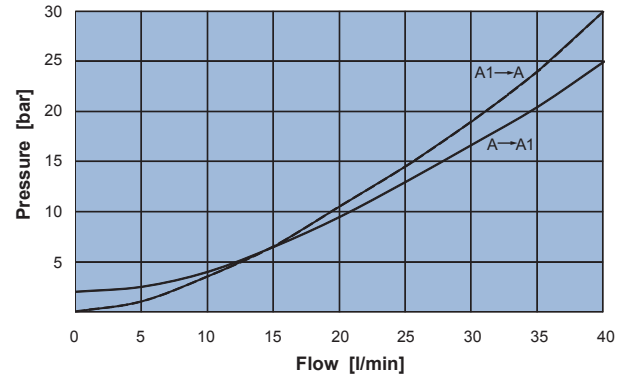
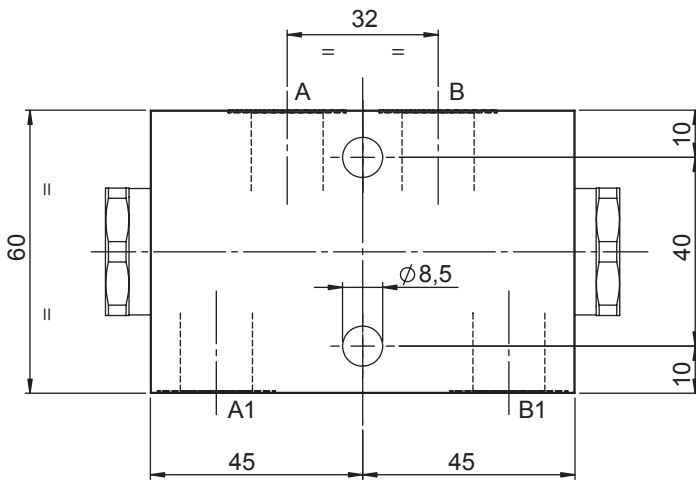
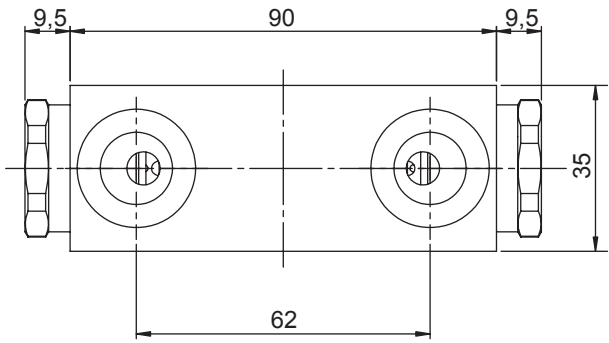
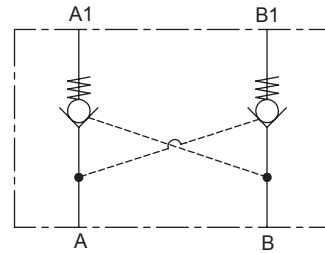
SPRING	1	2
Setting	2,0 bar	5,0 bar

PORTS	03
A,B,B1	G 3/8"
A1	Ø 7



DOUBLE ACTING PILOT OPERATED CHECK VALVE

- Flow **40 l/min**
- Max working pressure **210 bar (Aluminium Body)**
- Max working pressure **350 bar (Steel Body)**
- Weight in steel **1,35 Kg**
- Weight in aluminium **0,64 Kg**



Ordering code

6 D 2 0 0 2 **0 0**

PILOT RATIO		
70	7:1	without seal
7A	7:1	with seal

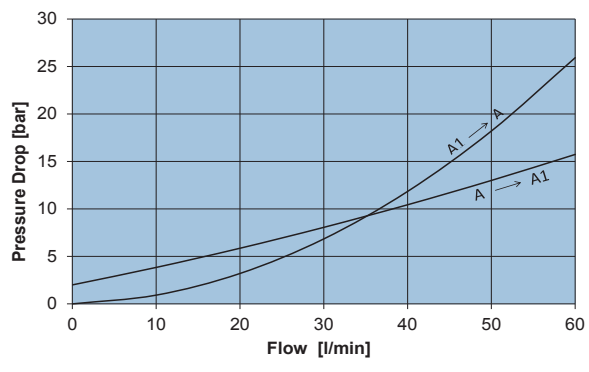
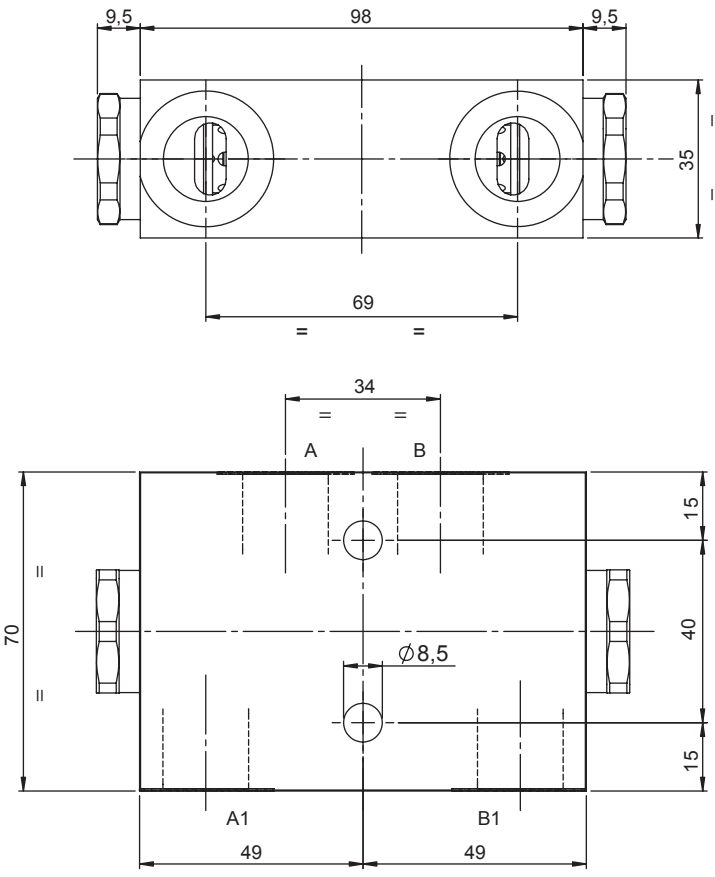
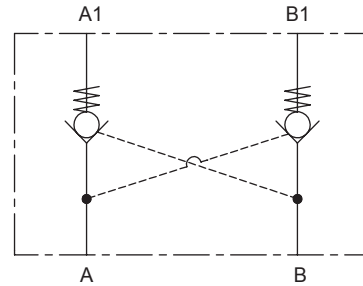
SPRING	1	2
Setting	2,0 bar	5,0 bar

MANIFOLD	
A	Alluminium
S	Steel

PORTS	03
A,B,A1,B1	G 3/8"

DOUBLE ACTING PILOT OPERATED CHECK VALVE

- Flow **60 l/min**
- Max working pressure **210 bar (Aluminium Body)**
- Max working pressure **350 bar (Steel Body)**
- Weight in steel. **1,66 Kg**
- Weight in aluminium **0,75 Kg**



Ordering code

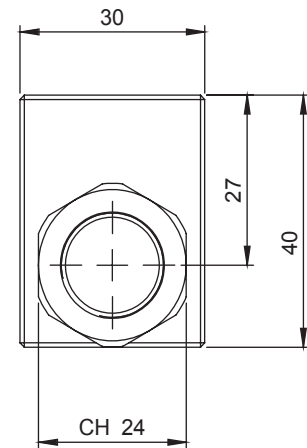
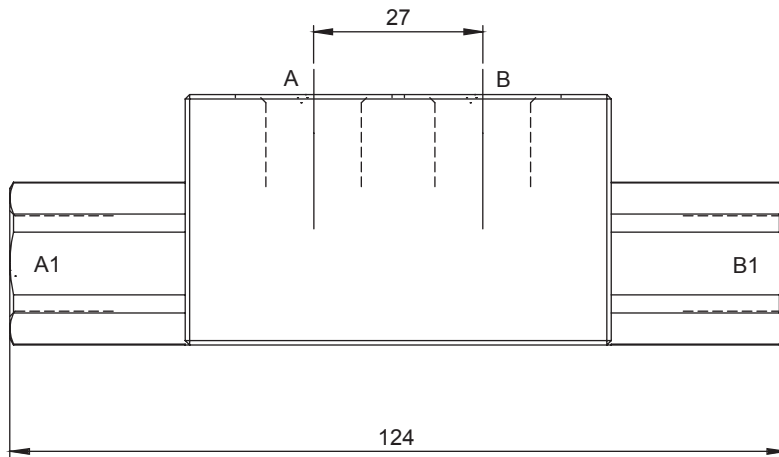
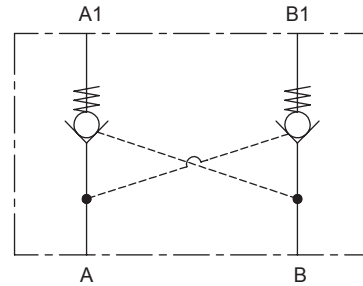
6 D 2 0 0 2 **0 0**

PILOT RATIO		SPRING		MANIFOLD		PORTS	
50	5:1 without seal	1	2	A	Alluminium	04	A,B,B1 G 1/2"
5A	5:1 with seal	Setting	1,5 bar 3,5 bar	S	Steel		



DOUBLE ACTING PILOT OPERATED CHECK VALVE

- Flow **30 l/min**
- Max working pressure **310 bar**
- Weight **0,65 Kg**



Ordering code

6 D 4 2 0 C **S** **0 0**

PILOT RATIO		
50	5:1	without seal

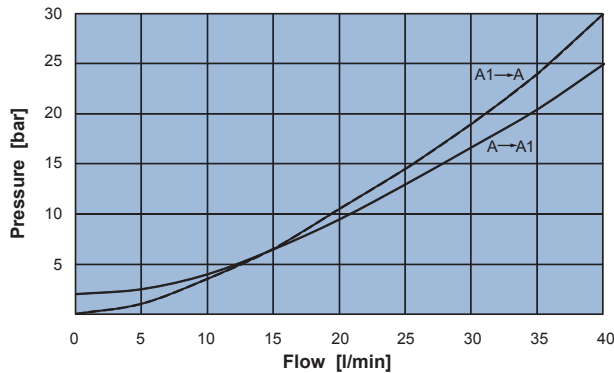
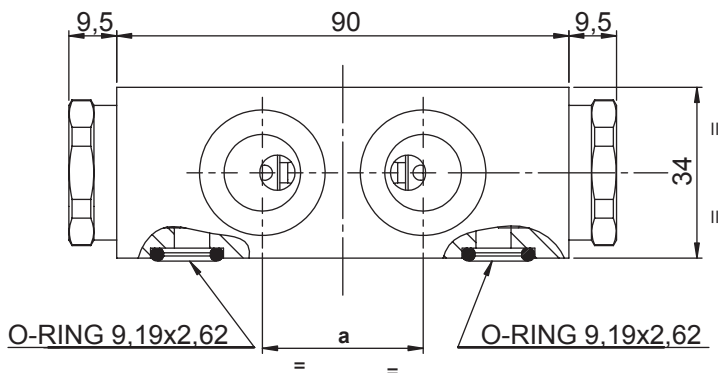
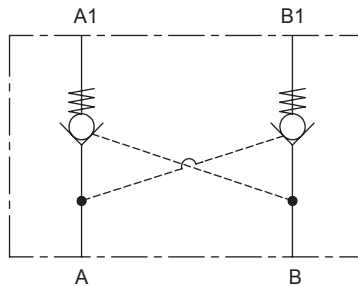
SPRING	
	1
Setting	0,5 bar

PORTS	
	03
A,A1,B,B1	G 3/8"

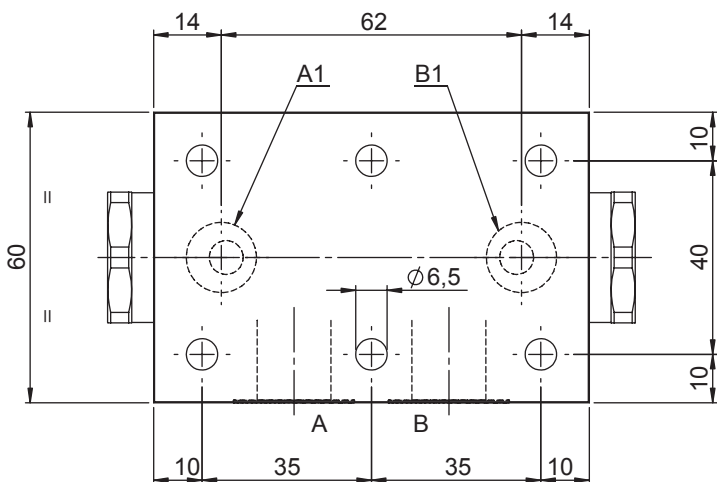
N.B.
Available also G 1/4" and G 1/2" ports.
Please, contact the Nem customer care for more details.

DOUBLE ACTING PILOT OPERATED CHECK VALVE - A1/B1 FLANGED PORT

- Flow **40 l/min**
- Max working pressure **210 bar (Aluminium Body)**
- Working pressure **350 bar (Steel Body)**
- Weight in steel **1,35 Kg**
- Weight in aluminium **0,64 Kg**



Note
Hardened seat available under request.
Contact NEM customer care for more details.



Ordering code

6 D 2 1 0 2 **0 0**

SPRING	1	2
Setting	2,0 bar	5,0 bar

MANIFOLD	
A	Aluminium
S	Steel

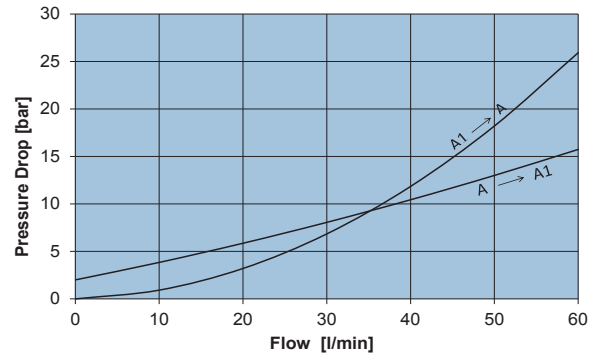
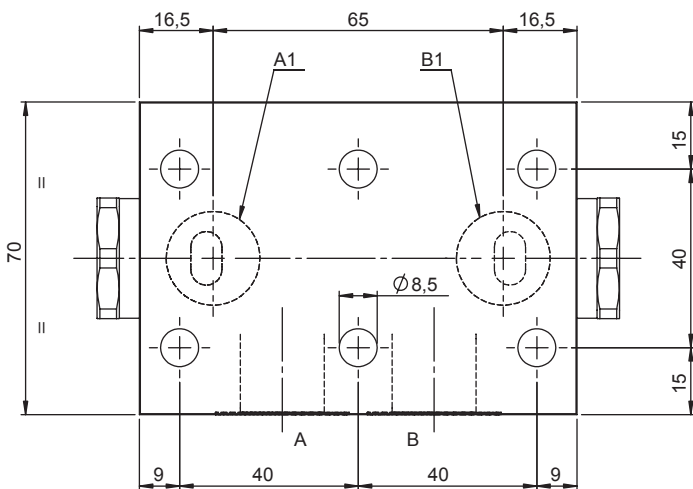
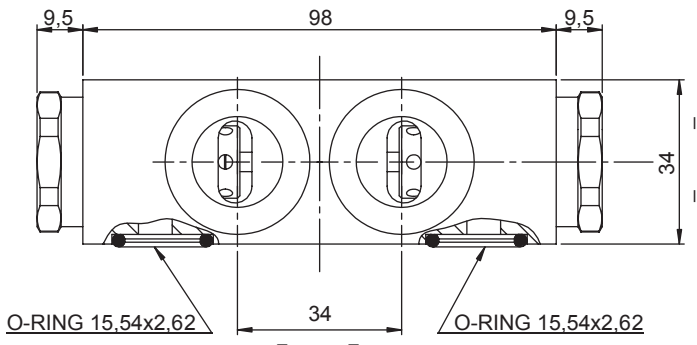
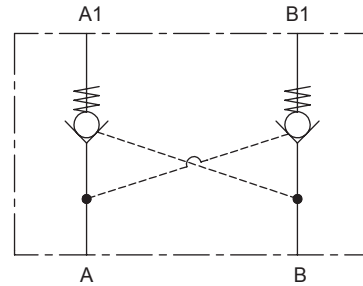
PILOT RATIO		
70	7:1	without seal
7A	7:1	with seal

PORTS	02	03
A,B	G 1/4"	G 3/8"
A1,B1	Ø 7	Ø 7
a	32	32



DOUBLE ACTING PILOT OPERATED CHECK VALVE - A1/B1 FLANGED PORT

- Flow **60 l/min**
- Max working pressure **210 bar (Aluminium Body)**
- Working pressure **350 bar (Steel Body)**
- Weight in steel **1,63 Kg**
- Weight in aluminium **0,64 Kg**



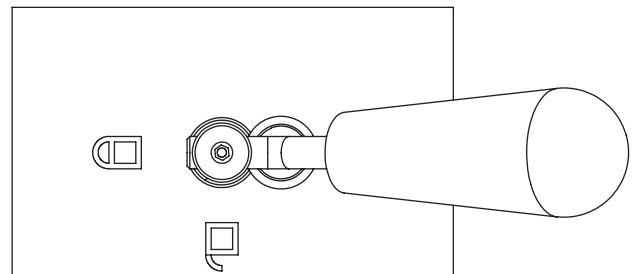
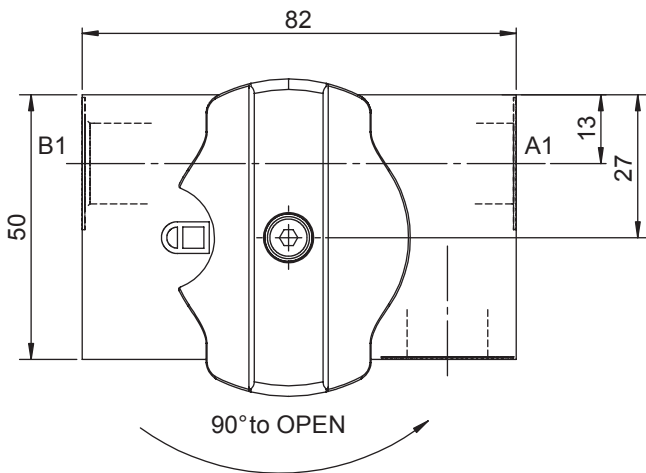
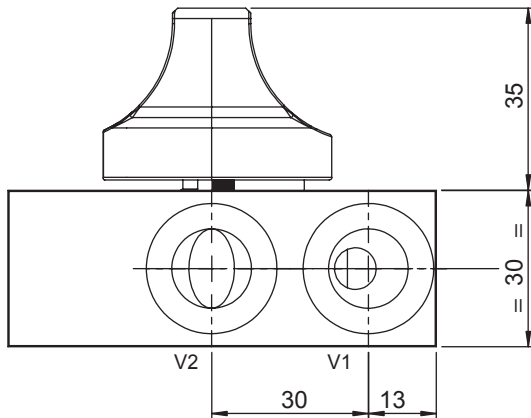
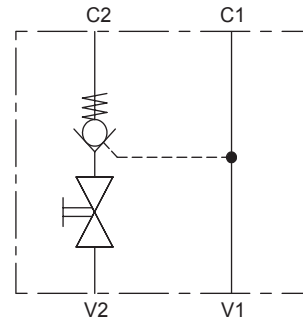
Ordering code

6 D 2 1 0 2 **0 0**

PILOT RATIO		SPRING		MANIFOLD		PORTS	
50	5:1 without seal	1	1,5 bar	A	Aluminium	04	G 1/2"
5A	5:1 with seal	2	3,5 bar	S	Steel		Ø 8

SINGLE ACTING PILOT OPERATED CHECK VALVE WITH 2 POSITIONS MANUAL SHUT OFF - LEFT

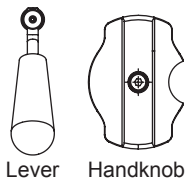
- Flow **30 l/min**
- Max working pressure **210 bar (Aluminium Body)**
- Weight **0,5 Kg**
- Lever **Lever/Handknob**



Ordering code

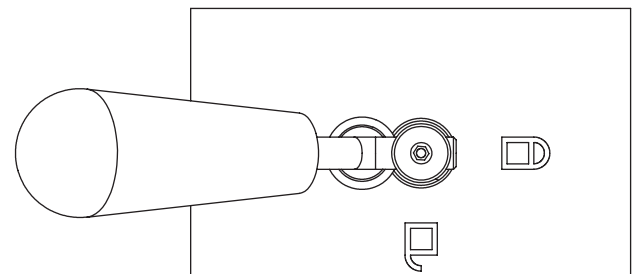
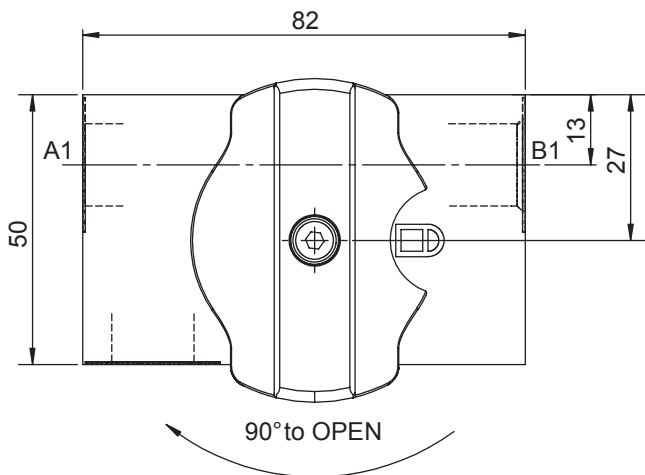
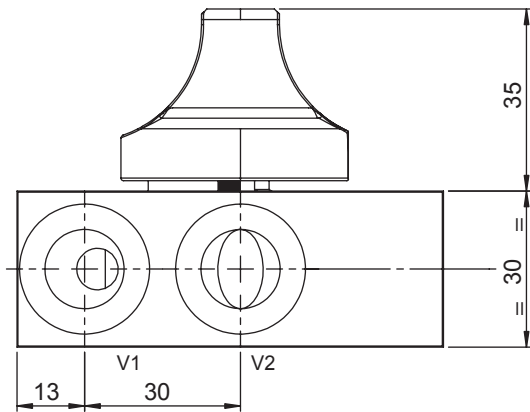
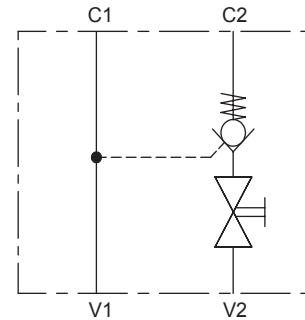
6 D [] 0 0 B [] [] A [] 0 0

LEVER		PILOT RATIO		SPRING		PORTS	
3	5	5A	4,7:1 with seal	Setting	1	A,A1,B,B1	03
				2,7 bar		G 3/8"	



SINGLE ACTING PILOT OPERATED CHECK VALVE WITH 2 POSITIONS MANUAL SHUT OFF - RIGHT

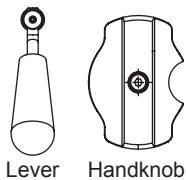
- Flow **30 l/min**
- Max working pressure **210 bar (Aluminium Body)**
- Weight **0,5 Kg**
- Lever **Lever/Handknob**



Ordering code

6 D [] 1 0 B [] [] A [] 0 0

LEVER	
3	5



Lever Handknob

PILOT RATIO	
5A	4,7:1 with seal

SPRING	1
Setting	2,7 bar

PORTS	03
A,A1,B,B1	G 3/8"