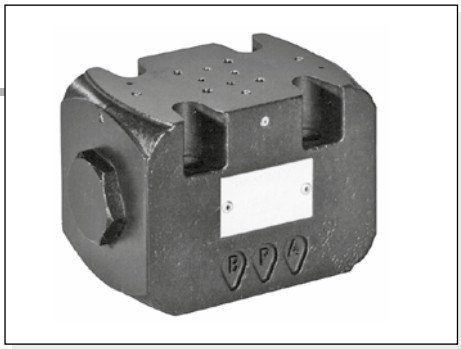
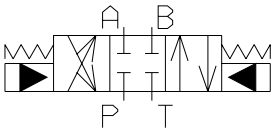


ADPH5... Piloted valves Cetop 5/NG10 with Cetop 2/NG4 Pilot Valve

These ADPH 5 valves are used primarily for controlling the starting, stopping and direction of fluid flow. These kind of distributors are composed by a main stage crossed by the big flow from the pump (ADPH5) and by a cetop 2 pilot directional solenoid valve (AD2E) available with different mounting type .

When a short response time is requested, a special version of solenoids with high dynamics is available with the code AD2E****FF2 (please, contact our technical department).

Hydraulic symbol



Ordering code

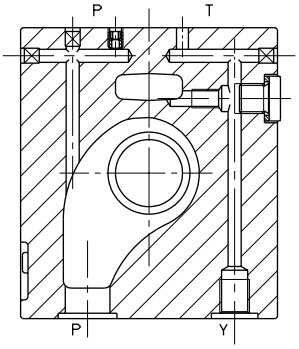
ADPH	Piloted valve **The pilot valves AD2E...** **must be ordered separately**
5	CETOP 5/NG10
**	Spool type (Table next page)
*	Mounting (Table next page) Standard orifice at port P: ∅ 1mm
*	Orifice type on Cetop 2 valves (Table 1) **0** = none **A / B / C / D / E / F / G** = orifice on line A **H / I / L / M / N / P / Q** = orifice on line B
*	Piloting and draining type (Tab.2) **I** = internal piloting internal draining **E** = internal piloting external draining **X** = external piloting internal draining (special body)
00	No variant
1	Serial No.

Tab.1 - Orifice on line A/B

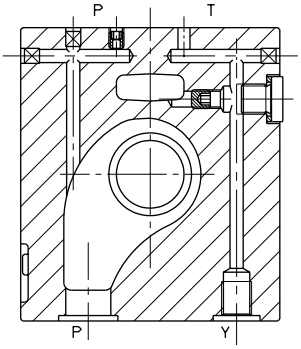
On line A	On line A	Ø (mm)
0	**0**	—
A	**H**	0,5
B	**I**	0,6
C	**L**	0,7
D	**M**	0,8
E	**N**	0,9
F	**P**	1,0
G	**Q**	1,2

Tab.2 - Plugs disposal

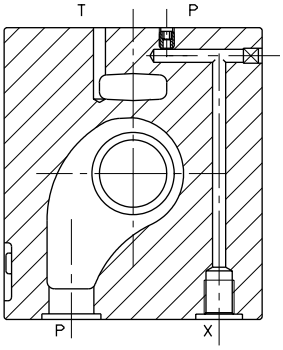
Internal piloting
Internal draining (**I** code)



Internal piloting
External draining (**E** code)

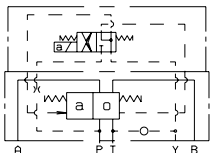


External piloting
Internal draining (**X** code)

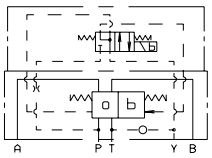


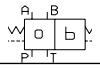
HYDRAULIC SYMBOLS, SPOOLS AND MOUNTING

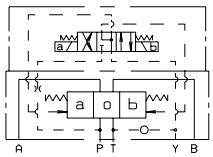
(* Spools with price increasing)

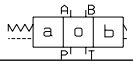
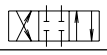
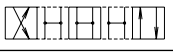
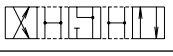
	"A" MOUNTING
Pilot Piloted	AD.2.E.03.E... ADPH.5.**.A...
Scheme	

Spool type		Covering	Transient position
01		+	
02		-	
03		-	
04*		-	
06		+	
15		-	
16		+	

	"B" MOUNTING
Pilot Piloted	AD.2.E.03.F... ADPH.5.**.B...
Scheme	

Spool type		Covering	Transient position
01		+	
02		-	
03		-	
04*		-	
06		+	
15		-	
16		+	

	"C" MOUNTING
Pilot Piloted	AD.2.E.03.C... ADPH.5.**.C...
Scheme	

Spool type		Covering	Transient position
01		+	
02		-	
03		-	
04*		-	
06		+	

PRESSURE DROPS

The diagram at the side shows the pressure drop curves for spools during normal usage. The used fluid is a mineral oil with a viscosity of 46 mm²/s at 40°C; the tests have been carried out at a fluid temperature of 40°C. For flow rates higher than those in the diagram, the losses will be those expressed by the following formula:

$$\Delta p1 = \Delta p \times (Q1/Q)^2$$

where Δp will be the value for the losses for a specific flow rate Q which can be obtained from the diagram, Δp1 will be the value of the losses for the flow rate Q1 that is used.

Spool type	Connections				
	P→A	P→B	A→T	B→T	P→T
01	4	4	7	7	
02	6	6	8	8	7
03	3	3	8	8	
04	4	4	2	2	3
06	4	4	7	8	
15	2	2	5	5	
16	1	1	2	2	
	Curve No.				

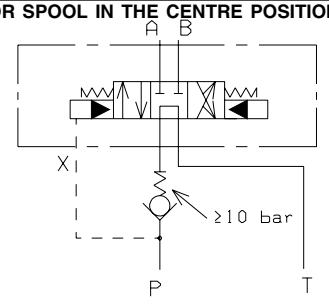
1

PILOT SOLENOID CONTROL VALVE SPECIFICATIONS

Max. operating pressure: ports P/A/B	250 bar
Max. operating pressure: port T (dynamic)	70 bar
Max. piloting pressure	250 bar
Min. piloting pressure	10 bar
Max. flow	120 l/min
Switching times (*see note below)	Energizing: 20 ms De-energizing: 50 ms
Piloting oil volume for engagement	1 cm^3
Hydraulic fluid	mineral oil DIN 51524
Fluid viscosity	10 ÷ 500 mm^2/s
Fluid temperature	-20°C ÷ 75°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} \geq 75$
Mounting	plate
Weight ADPH5 without pilot valve	3,4 Kg
Weight ADPH5 with pilot valve with one solenoid	4,3 Kg
Weight ADPH5 with pilot valve with two solenoids	4,5 Kg

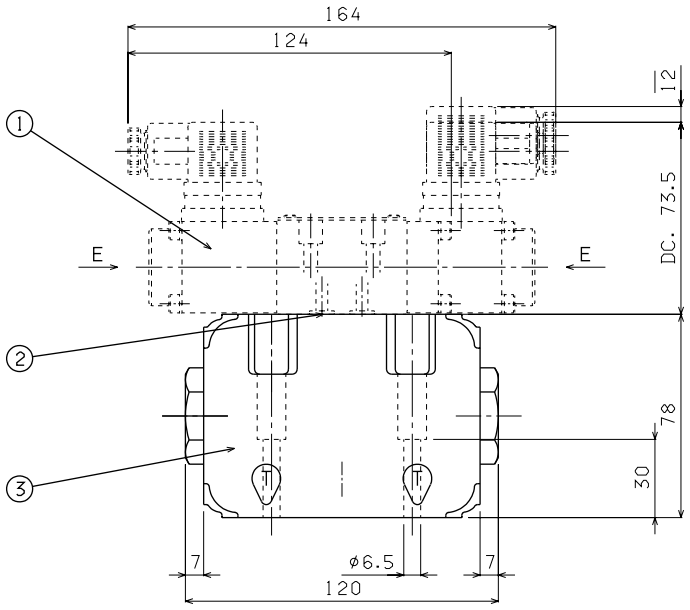
(*) All the tests have been carried out with AD2E pilot valve with variant FF, mounting type C, spool 03, flow 100 l/min,pressure 160 bar, back pressure on the T line of 2 bar and oil temperature 40°C.

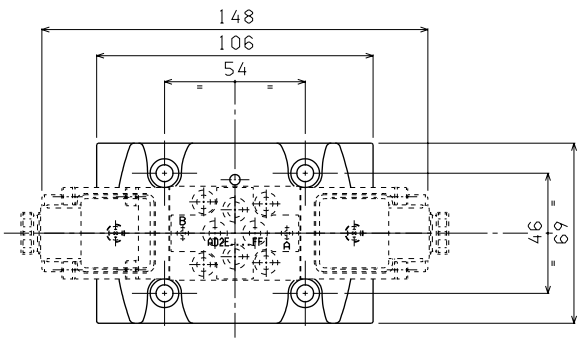
EXTERNAL BACK PRESSURE ON LINE P (FOR SPOOL IN THE CENTRE POSITION)



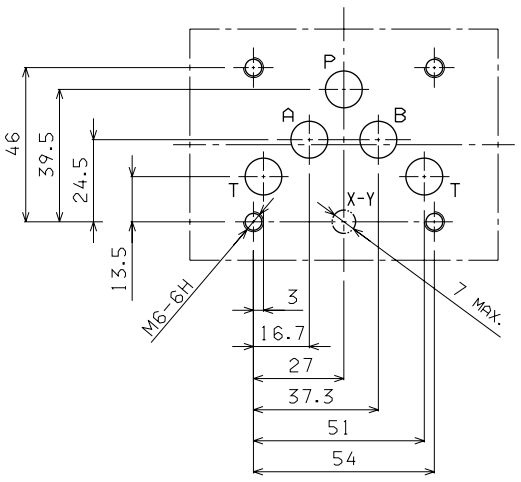
When the main spool connect P to T in the centre position, the minimum pressure of 10 bar is needed to move the main spool (see the “Specifications”); for this reason a check valve on the P line (see the drawing above) is necessary.

OVERALL DIMENSIONS AND MOUNTING SURFACE





Mounting surface



1 Pilot solenoid valve **Cetop 2/NG4** type **AD2E...FF variant**

2 Calibrated springs

3 Piloted valve **ADPH5**

Fixing screws UNI 5931 M6x40
with material specifications 12.9
Tightening torque 8 ÷ 10 N / 0,8 ÷ 1 Kgm

ADH5... 4/3 AND 4/2
PILOTED VALVES CETOP 5/NG10

Type ADH.5 distributors are intended for interrupting, inserting and diverting a hydraulic system flow. Normally these distributors are composed of a main stage, crossed by circuit main flow, and of a pilot stage available in several versions.
Various types of controls are available, used either individually or in combination for, among other functions, stroke limitation and main spool movement speed control, in order to optimize the hydraulic system operation where this type of valve is employed.

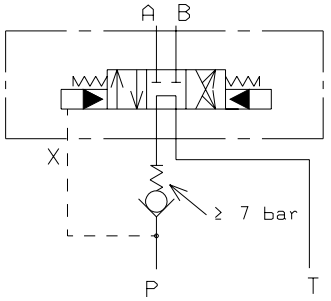
In those case where normally to drain spools are used, it is necessary to remember that the minimum changeover pressure due to the opposing springs is equal to approximately 7 bar (see the operating features table on page I•46) and consequently necessary to insert a check valve in the P way (as shown above).

- Mounting surface in accordance with UNI ISO 4401 - 05 - 05 - 0 - 94 standard (ex CETOP R 35 H 4.2-4-05).
- Pilot operated spool, solenoid controller.
- Stroke control of main spool.
- Presetting for pressure reducing valve mounting.
- Presetting for single-acting throttle valve mounting.

ORDERING CODE

ADH	Piloted valve (Pilot valve and any mounting valves should be ordered separately)
5	CETOP 5/NG10
*	Mounting type (Table next page)
**	Spool type (Table next page)
*	Piloting and draining **I** = X internal / Y internal **IE** = X internal / Y external **EI** = X external / Y internal **E** = X external / Y external (see diagram at side)
**	**00** = No variant **LC** = Main spool stroke limiter
1	Serial No.

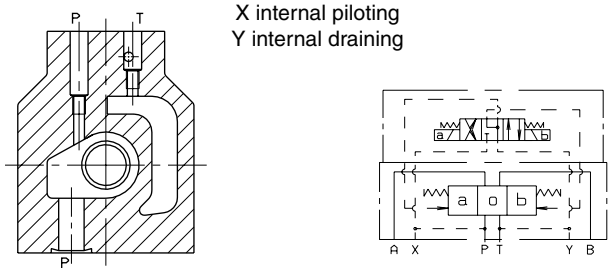
EXTERNAL CHECK ON P



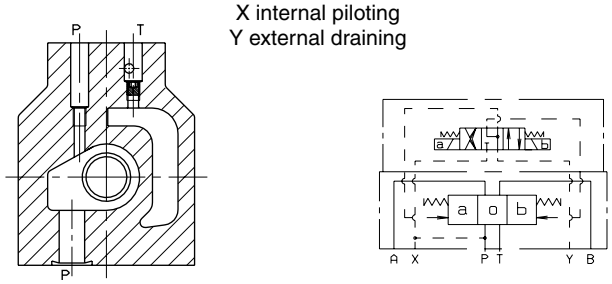
PLUGS ARRANGEMENT FOR THE PILOT AND DRAIN LINES

Plugs type used: M5x6 both for pilot and drain

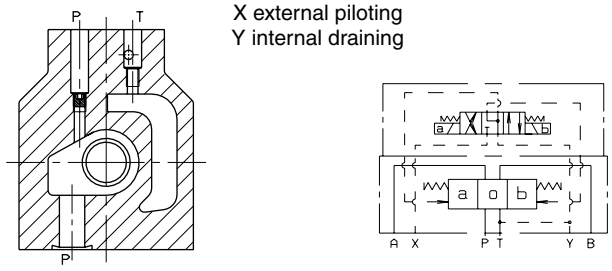
ADH5...I
X internal piloting
Y internal draining



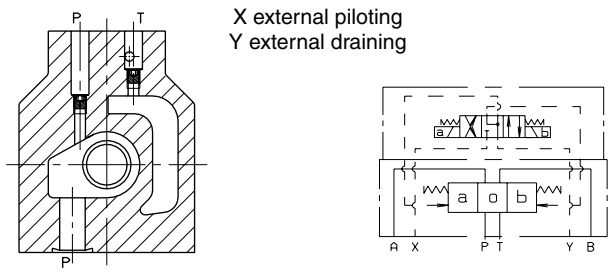
ADH5...IE
X internal piloting
Y external draining



ADH5...EI
X external piloting
Y internal draining

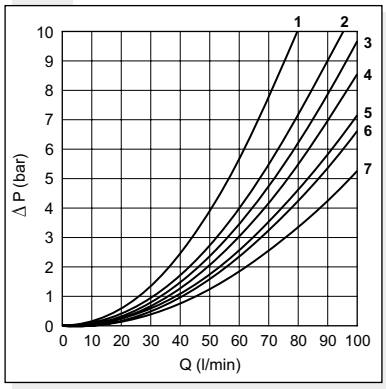


ADH5...E
X external piloting
Y external draining



1

PRESSURE DROPS



The diagram an the side shows the pressure drops in relation to spools adopted for normal usage (see table).

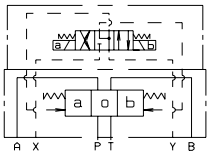
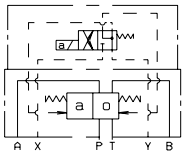
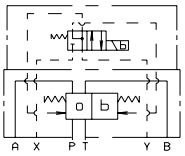
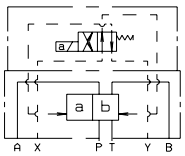
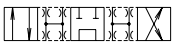
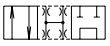
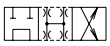
Tests carried out at a constant temperature of 40°C.

The fluid used was a mineral based oil with a viscosity of 46 mm²/s at 40°C.

Spool type	Connections				
	P→A	P→B	A→T	B→T	P→T
01	3	3	5	5	
02	3	3	6	6	3
03	3	3	6	6	
04	2	2	5	5	1
05	3	3	5	5	
06-66	3	3	6	6	
07		1	6		
10	3	3	5	5	
11	4		5		
22		4	5		
14-28	3	3	7	7	2
15	3	3	4	5	
16	3	3	4	5	
17	3	3			
	Curve No.				

SPOOLS AND MOUNTING TYPE

(* Spools with price increasing)

	C mounting	A mounting	B mounting	P mounting
Pilot Piloted	**AD.3.E.03.C... ADH.5.C.**..**	**AD.3.E.03.E... ADH.5.A.**..**	**AD.3.E.03.F... ADH.5.B.**..**	**AD3E16E/AD3E16F ADH.5.P.**..**
Scheme				
Spool type				
01				
02				
03				
04*				
05				
66				
06				
07*				
10*				
11*				
22*				
14*				
28*				
15				
16				
17				

PILOT SOLENOID CONTROL VALVE SPECIFICATIONS

FOR DIFFERENT CONTROLS, PLEASE CONTACT OUR TECHNICAL DEPARTMENT

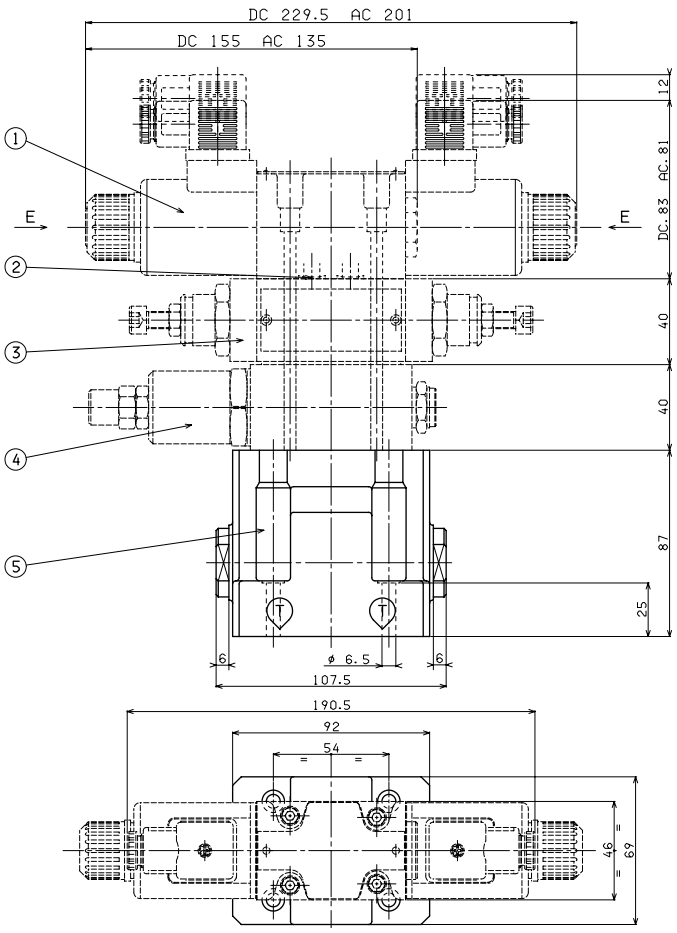
Max. operating pressure ports P/A/B	320 bar
Max. operating pressure port T (int. drainage)	160 bar
Max. pressure on T (ext. drainage)	250 bar
Max. piloting pressure	250 bar
Min. piloting pressure	7 bar
Max. flow	100 l/min
Piloting oil volume engagement 3 position valves	0,8 cm^3
Piloting oil volume engagement 2 position valves	1,6 cm^3
Hydraulic fluid	mineral oil DIN 51524
Fluid viscosity	10 ÷ 500 mm^2/s
Fluid temperature	-20°C ÷ 75°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $ß_{25} \geq 75$
Weight ADH5 without pilot valve	2,7 Kg
Weight ADH5 with pilot valve with 1 AC solenoid	4 Kg
Weight ADH5 with pilot valve with 1 DC solenoid	4,2 Kg
Weight ADH5 with pilot valve with 2 AC solenoids	4,3 Kg
Weight ADH5 with pilot valve with 2 DC solenoids	4,7 Kg

SWITCHING TIMES PILOTED VALVE

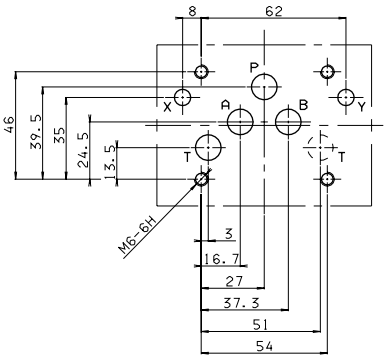
OPERATING PRESSURE (bar)	CURRENT	ENERGIZING centre-extern (ms)	DE-ENERGIZING extern-centre (ms)
50 100 200	ALTERNATING	30 25 20	50
50 100 200	DIRECT	40 35 30	60

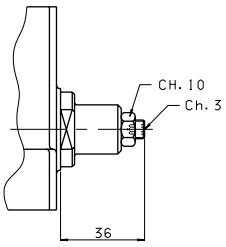
3 position valve. The values are indicative and depend on the hydraulic circuit, the fluid used and the variations in pressure, flow rate and temperature.

OVERALL DIMENSIONS



CETOP 5 MOUNTING SURFACE





SPOOL STROKE ADJUSTMENT

1 Piloted solenoid valve type **AD3E... CETOP 3/NG6**
2 Calibrated diaphragms for **AD3E...**
3 Flow regulation valve type **AM3QF..C**
4 Pressure reduction valve type **AM3RD..C**
5 Main valve type **ADH5..E**

Fixing screws UNI 5931 M6x35
with material specifications 12.9
Tightening torque 8 N / 0,8 Kgm

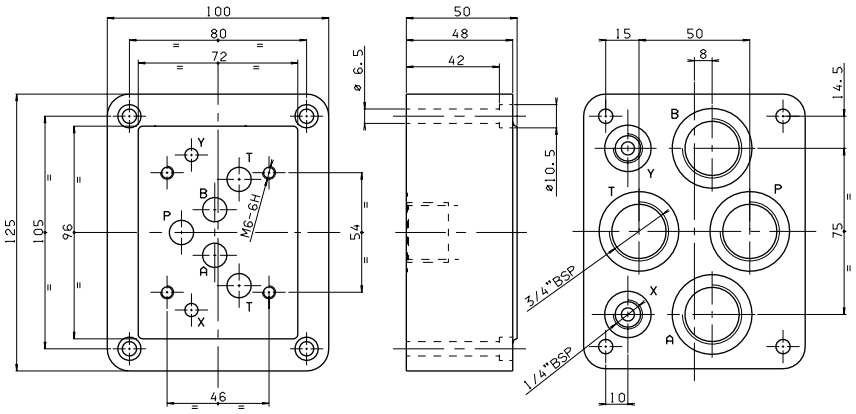
1

BSH513 WITH P, T AND A, B REAR 3/4" BSP, X AND Y CLEARANCE HOLES

BSH	Single plate for piloted valve
5	CETOP 5/NG10
13	3/4" BSP rear connectors
00	No variant
1	Serial No.

Weight: 3,8 Kg

Fixing screws M6x50 UNI 5931

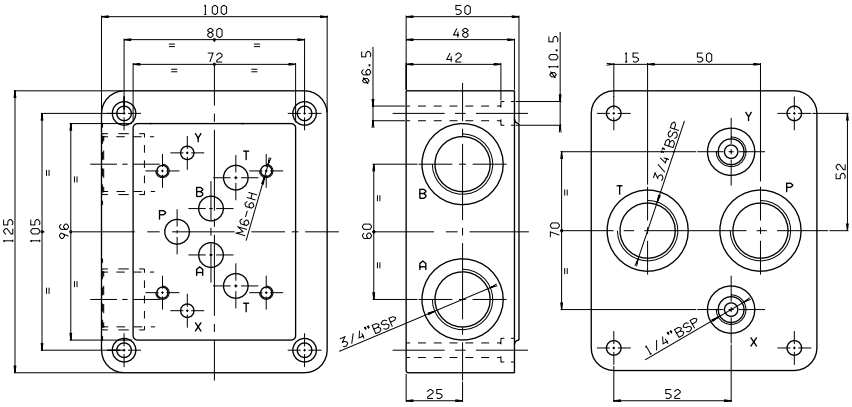


BSH517 WITH P AND T REAR AND A, B SIDE 3/4" BSP, X AND Y CLEARANCE HOLES

BSH	Single plate for piloted valve
5	CETOP 5/NG10
17	3/4" BSP rear and side connectors
00	No variant
1	Serial No.

Weight: 3,9 Kg

Fixing screws M6x50 UNI 5931

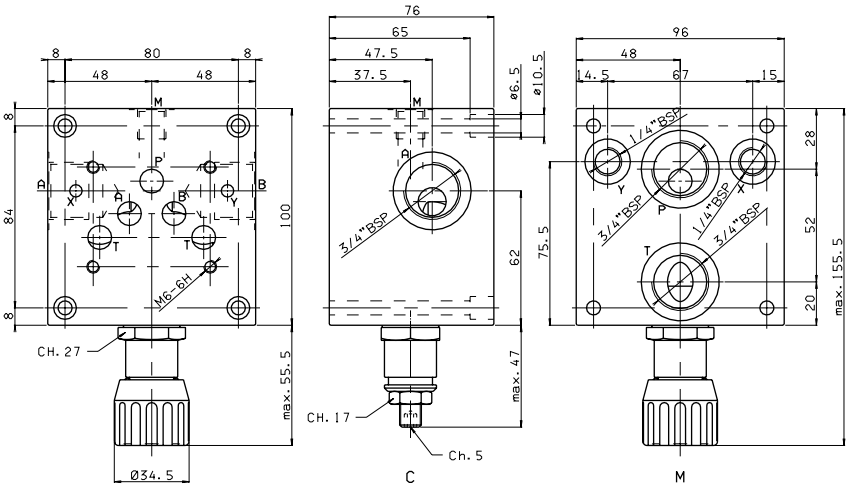


BSH531 WITH P AND T REAR, A AND B SIDE 3/4" BSP, X AND Y CLEARANCE HOLES WITH MAXIMUM PRESSURE VALVE

BSH	Single plate for piloted valve
5	CETOP 5/NG10
31	3/4" BSP rear and side connectors
*	**M** = Plastic knob **C** = Grub screw
*	Setting ranges **1** = Max 50 bar **2** = Max 140 bar **3** = Max 320 bar
* *	**00** = No variant **V1** = Viton
2	Serial No.

Weight: 5,5 Kg

Fixing screws M6x75 UNI 5931



• For the minimum permissible setting pressure depending on the spring, see minimum setting curve pressure CMP30

ADH7... 4/3 AND 4/2
PILOTED VALVES CETOP 7/NG16

Type ADH.7 distributors are intended for interrupting, inserting and diverting a hydraulic system flow. Normally these distributors are composed of a main stage, crossed by the circuit main flow, and of a pilot stage available in several versions.

Various types of controls are available, used either individually or in combination for, among other functions, stroke limitation and main spool movement speed control, in order to optimize the hydraulic system operation where this type of valve is employed.

In those cases where normally to drain spools are used, it is necessary to remember that the minimum changeover pressure due to the opposing springs is equal to approximately 5 bar (see the operating features table next pages) and it is consequently necessary to specify when ordering the check valve incorporated in the P line, if required (as shown below).

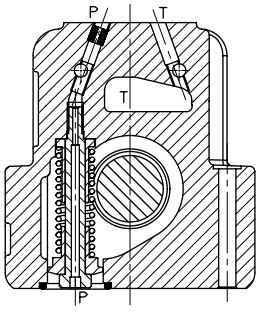
- Mounting surface in accordance with UNI ISO 4401 - 07 - 06 - 0 - 94 standard (ex CETOP R 35 H 4.2-4-07).
- Pilot operated spool, solenoid controller.
- Stroke control of main spool.
- Presetting for pressure reducing valve mounting.
- Presetting for single-acting throttle valve mounting.

ORDERING CODE

ADH	Piloted valve - **Pilot valves and any modulating valves should be ordered separately**
7	CETOP 7/NG16
*	Mounting type (see next page)
**	Spool type (see next page)
*	Piloting and draining **I** = X internal / Y internal **IE** = X internal / Y external **EI** = X external / Y internal **E** = X external / Y external (see Tab.1 at side)
R	Check valve incorporated at port P (Tab. 2) Only for **I** and **IE** versions (omit if not required)
**	**00** = No variant **LC** = Main spool stroke limiter
2	Serial No.

TAB. 2 - INTERNAL CHECK ON P

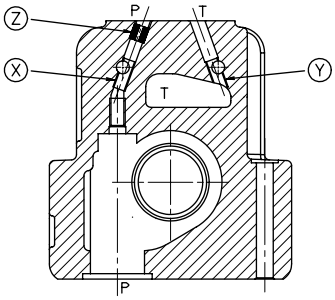
ADH7**R**2 VERSION**



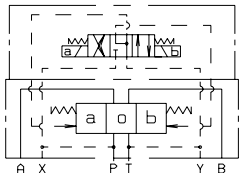
• For the spools 02-04-14-28 the piloting is normally external; the internal piloting is possible only with the internal check valve (R).

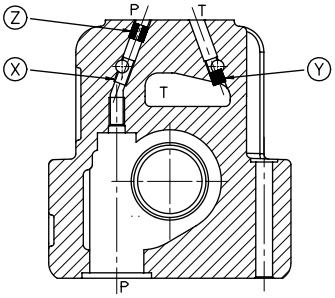
TAB.1 - PLUGS ARRANGEMENT FOR THE PILOT AND DRAIN LINES

Plugs type used: M5x5 both for pilot and drain.
Note: standard M6x6 orifice Ø1,5 insert in the P port (Z)

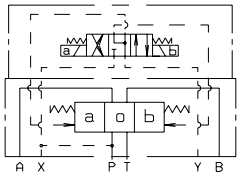


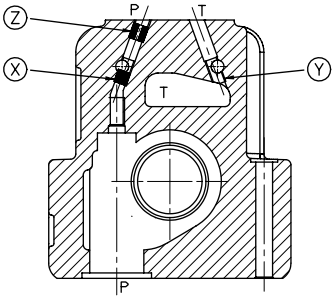
ADH7...I
X internal piloting
Y internal draining



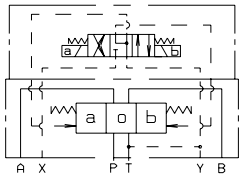


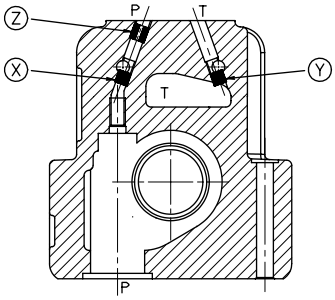
ADH7...IE
X internal piloting
Y external draining



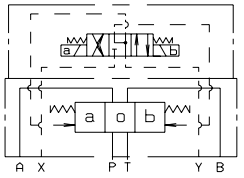


ADH.7...EI
X external piloting
Y internal draining



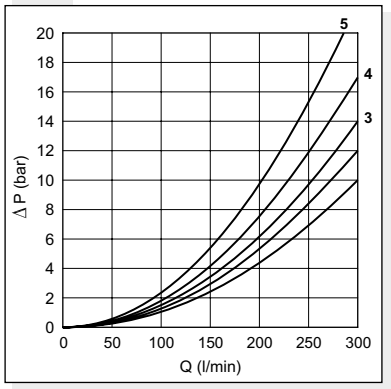


ADH.7...E
X external piloting
Y external draining



1

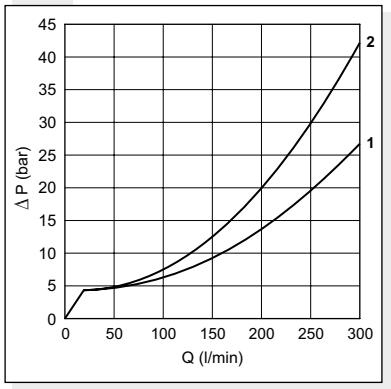
PRESSURE DROPS



The two diagrams show the "Pressure drops" in relation to spools adopted for normal usage (see table).
The fluid used was a mineral based oil with a viscosity of 46 mm²/s at 40° C.

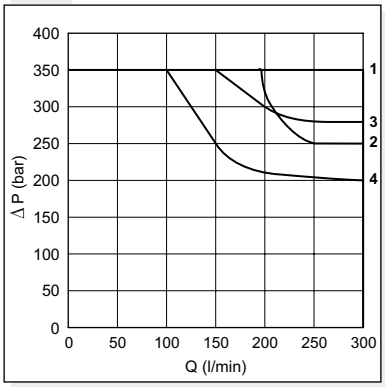
Spool type	Connections					
		P → A	P → B	A → T	B → T	P → T
01	Energized	2	1	3	3	
02	Energized De-Energized	1	1	3	3	2
03	Energized De-Energized	2	1	3	3	
04	Energized De-Energized	2	2	4	4	5
05	Energized De-Energized	1 2	1 2	2	2	
66	Energized De-Energized	1	1	2	3 4	
10	Energized	2	1	3	3	
14	Energized De-Energized	1	1	3	3	4
28	Energized De-Energized	1	1	3	3	4
23	Energized	2	1	3	3	
	Curve No.					

PRESSURE DROPS FOR INTERNAL CHECK ON P VERSION



The limit of use test has been carried out with external draining and orifice Ø1,5 insert in the P port (Z). The fluid used was a mineral based oil with a viscosity of 46 mm²/s at 40° C.

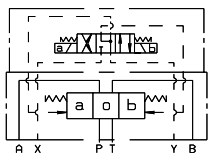
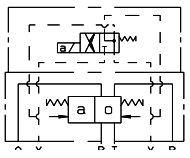
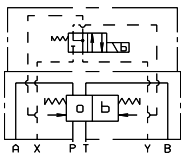
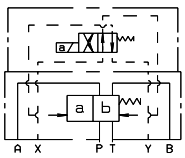
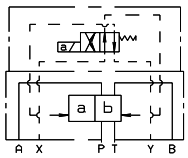
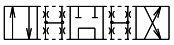
LIMIT OF USE



Spool type	
01	1
02	2
03	1
04	3
05	1
66	1
10	1
14	4
28	4
23	1

SPOOLS AND MOUNTING TYPE

(•) For the "E mounting" the locating spring works only with the steady system (* Spools with price increasing)

	C mounting	A mounting	B mounting	E mounting (•)	P mounting
Pilot Piloted	AD3E03C... ADH7C...	AD3E03E... ADH7A...	AD3E03F... ADH7B...	AD3E16E... ADH7E...	AD3E16E/AD3E16F ADH7P...
Scheme / Spool type					
01					
02					
03					
04*					
05					
66					
10*					
14*					
28*					
23*					

PILOT SOLENOID CONTROL VALVE SPECIFICATIONS

FOR DIFFERENT CONTROLS, PLEASE CONTACT OUR TECHNICAL DEPARTMENT

Max. operating pressure ports P/A/B	350 bar
Max. operating pressure port T (int. drainage)	160 bar
Max. operating pressure port T (ext. drainage)	250 bar
Max. piloting pressure	210 bar
Min. piloting pressure*	12 bar
Max flow	300 l/min.
Piloting oil volume for engagement 3 position valves	4 cm^3
Piloting oil volume for engagement 2 position valves	8 cm^3
Hydraulic fluid	mineral oil DIN 51524
Fluid viscosity	2.8 ÷ 380 mm^2/s
Fluid temperature	-20°C ÷ 70°C
Ambient temperature	-20°C ÷ 50°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $\beta_{25} \geq 75$
Weight ADH7 without pilot valve	7 Kg
Weight ADH7 with pilot valve with 1 AC solenoid	8,2 Kg
Weight ADH7 with pilot valve with 1 DC solenoid	8,4 Kg
Weight ADH7 with pilot valve with 2 AC solenoids	8,5 Kg
Weight ADH7 with pilot valve with 2 DC solenoids	9 Kg

Note: the solenoid valve type **ADC3E...** (with A09 coil) and **AD3E...** (with D15 or B14 coils) could be used both as pilote valve, without any changement of technical features.

* For valves with internal drain (Y), tank pressure on T must be added to min. piloting pressure.

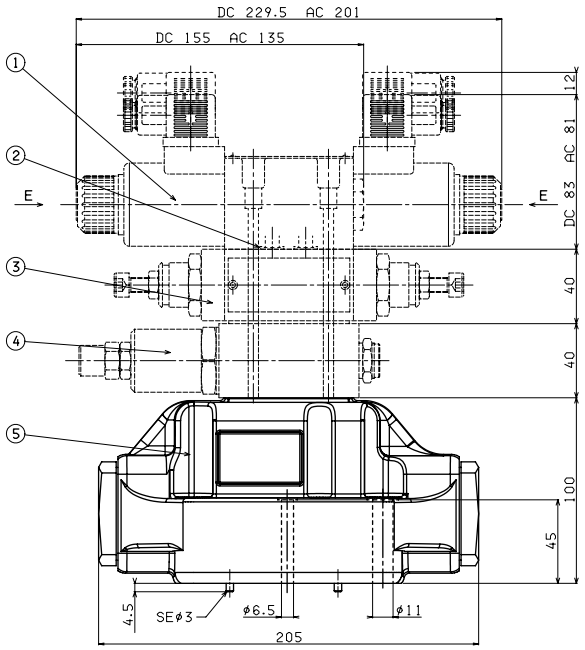
For version "R" with check valve on P, the cracking pressure of 5 bar is obtained with flow rate > 25 l/min.

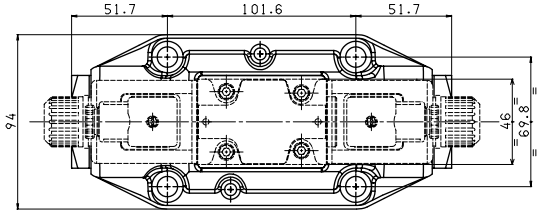
Switching time

Such values refer to a tests carried out with solenoid valve type AD3E03 with P = 100 bar pressure and Q = 100 l/min flow. Orifice ø1.5 mm, insert on piloting port, using a mineral oil at 40°C. with 46 mm^2/s viscosity.

TEMPI DI RISPOSTA VALVOLA PILOTATA

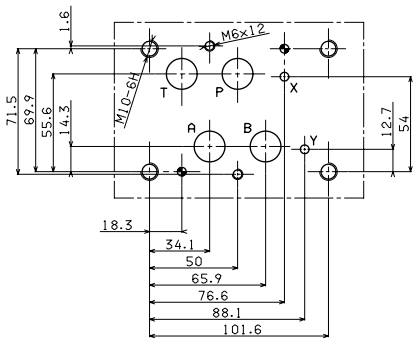
Solenoids	ENERGIZING ±10% (ms)			DE-ENERGIZING ±10%(ms)	
No. Spool	01 - 03			01 - 03	
Scheme	2 positions	3 positions		2 positions	3 positions
AC	50	20		25	30
DC	70	35		40	50
No. Spool	02	04	02 - 04	02 - 04	
Scheme	2 posit.	2 posit.	3 posit.	2 positions	3 positions
AC	35	60	30	25	25
DC	55	80	40	40	50





1 Piloted solenoid valve type **AD3E...** or **ADC3E... CETOP 3/NG6**
2 Calibrated diaphragms **AD3E...**
3 Flow regulation valve type **AM3QF..C**
4 Pressure reduction valve type **AM3RD..C**
5 Main valve type **ADH7..E**

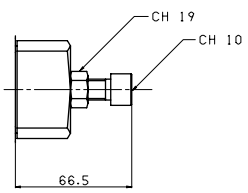
CETOP 7 MOUNTING SURFACE



• Piloted valve fixing:
n° 4 screws T.C.E.I. M10x60 - Tightening torque 40 Nm
n° 2 screws T.C.E.I. M6x55 - Tightening torque 8 Nm

• Seals:
n° 4 OR 2-118 PARKER (type 130)
n° 2 OR 2-013 PARKER (type 2043)

SPOOL STROKE ADJUSTMENT

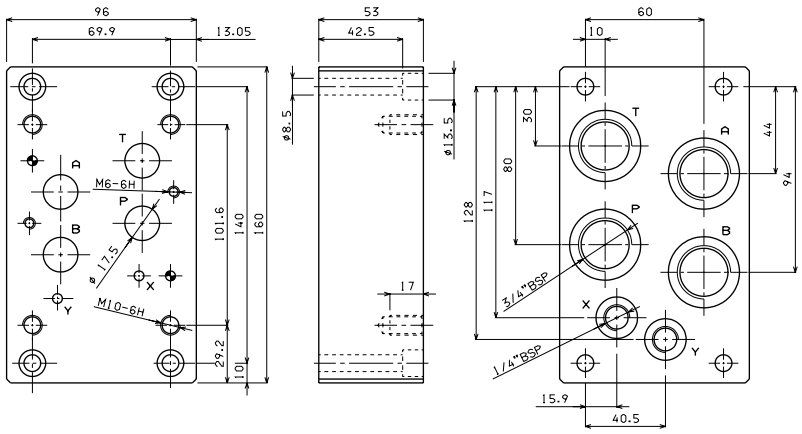


BSH712 WITH P, T, AND A, B REAR 3/4" BSP

BSH	Single plate for piloted valve
7	CETOP 7/NG16
12	3/4" BSP rear connectors
00	No variant
1	Serial No.

Weight: 5,5 Kg

Fixing screws M8x55 UNI 5931

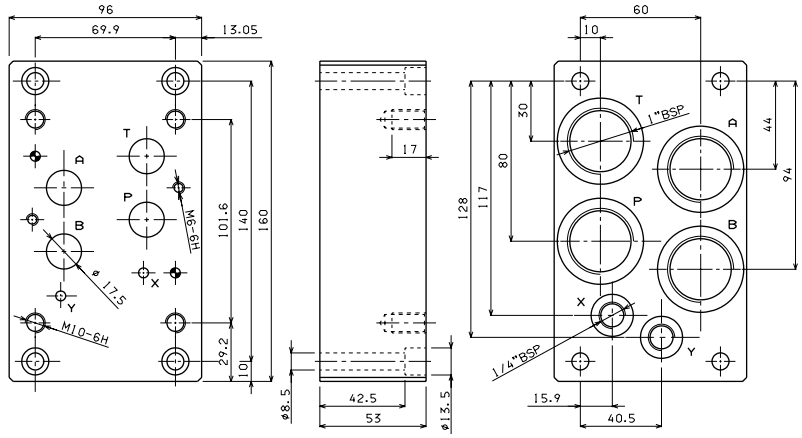


BSH713 WITH P, T AND A,B REAR 1" BSP

BSH	Single plate for piloted valve
7	CETOP 7/NG16
13	1" BSP rear connectors
00	No variant
1	Serial No.

Weight: 4,7 Kg

Fixing screws M8x55 UNI 5931

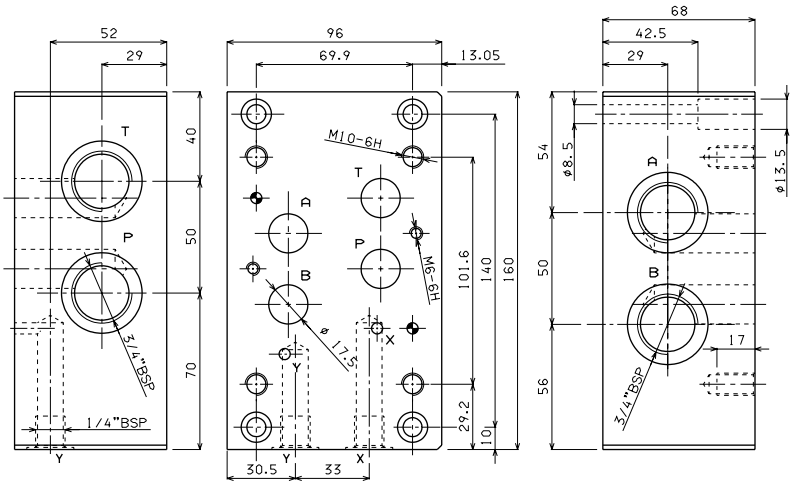


BSH714 WITH P, T AND A, B SIDE 3/4" BSP

BSH	Single plate for piloted valve
7	CETOP 7/NG16
14	3/4" BSP side connectors
00	No variant
1	Serial No.

Weight: 6,3 Kg

Fixing screws M8x55 UNI 5931

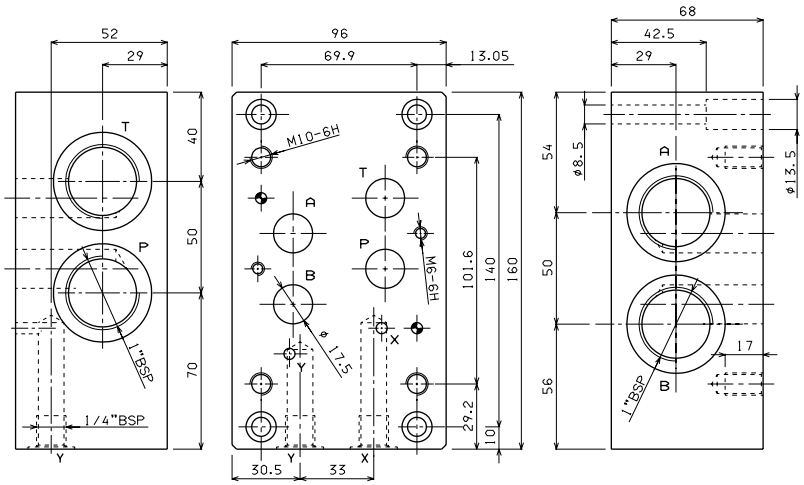


BSH715 WITH P, T AND A, B SIDE 1" BSP

BSH	Single plate for piloted valve
7	CETOP 7/NG16
15	1" BSP side connectors
00	No variant
1	Serial No.

Weight: 6,3 Kg

Fixing screws M8x55 UNI 5931

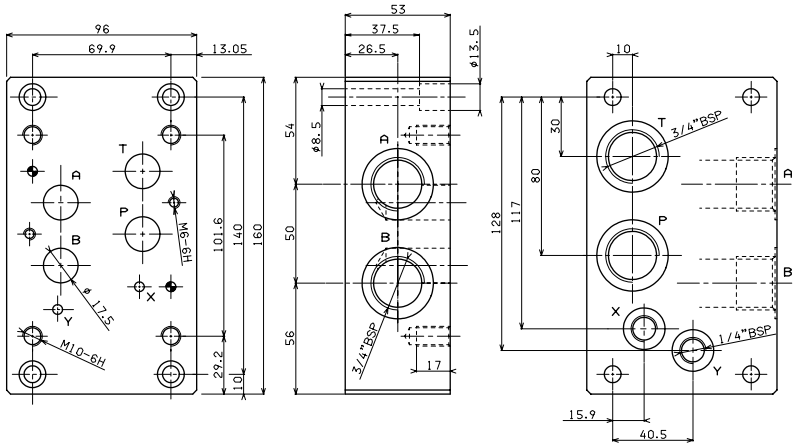


BSH716 WITH P AND T REAR, A AND B SIDE 3/4" BSP, X AND Y REAR

BSH	Single plate for piloted valve
7	CETOP 7/NG16
16	3/4" BSP rear and side connectors
00	No variant
1	Serial No.

Weight: 5,1 Kg

Fixing screws M8x50 UNI 5931

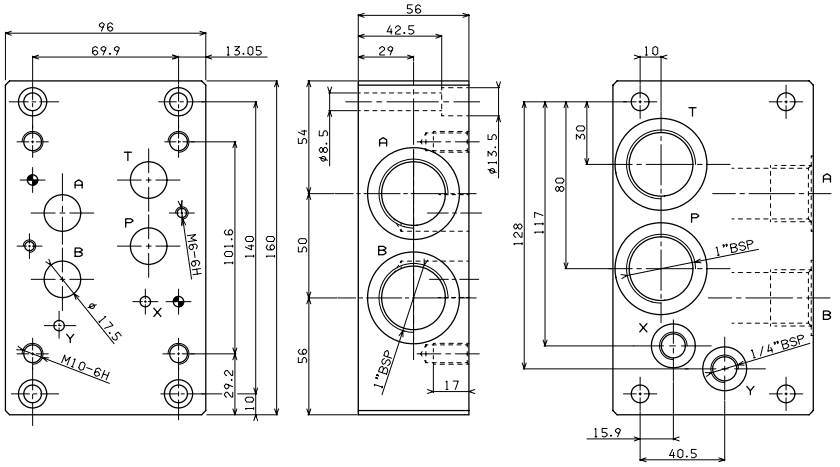


BSH717 WITH P AND T REAR, A AND B SIDE 1" BSP, X AND Y REAR

BSH	Single plate for piloted valve
7	CETOP 7/NG16
17	1" BSP rear and side connectors
00	No variant
1	Serial No.

Weight: 5,3 Kg

Fixing screws M8x55 UNI 5931



ADH8...4/3 AND 4/2
PILOTED VALVES CETOP 8/NG25

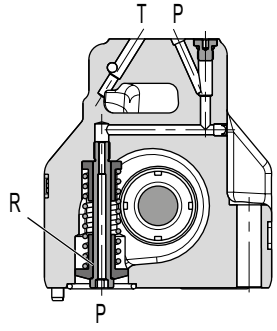
Type ADH.8 distributors are intended for interrupting, inserting and diverting a hydraulics system flow.
Normally these distributors are composed of a main stage, crossed by circuit main flow, and of a pilot stage available in several versions.
Various types of controls are available, used either individually or in combination for, among other functions, stroke limitation and main spool movement speed control, in order to optimize the hydraulic system operation where this type of valve is employed.
In those cases where normally to drain spools are used, it is necessary to remember that the minimum changeover pressure due to the opposing springs is equal to approximately 5 bar (see the operating features table next pages) and it is consequently necessary to specify when ordering the check valve incorporated in the P line, if required (as shown below).

- Mounting surface in accordance with UNI ISO 4401 - 08 - 07 - 0 - 94 standard (ex CETOP R 35 H 4.2-4-08).
- Pilot operated spool, solenoid controller.
- Stroke control of main spool.
- Presetting for pressure reducing valve mounting.
- Presetting for single-acting throttle valve mounting.

ORDERING CODE

ADH	Piloted valve **(Pilot valves and any modulating valves should be ordered separately)**
8	CETOP 8/NG25
*	Mounting type (see next page)
**	Spool type (see next page)
*	Piloting and draining **I** = X internal / Y internal **IE** = X internal / Y external **EI** = X external / Y internal **E** = X external / Y external (see Tab.1 at side)
R	Check valve incorporated at port P - setting 5 bar (Tab. 2 below) Only for **I, IE** versions (Omit if not required)
**	**00** = No variant **LC** = Main spool stroke limiter
2	Serial No.

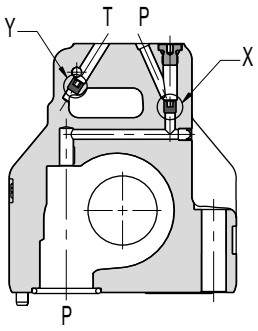
TAB. 2 - INTERNAL CHECK ON P



• For the spools 02-04-14-28 the piloting is normally external; the internal piloting is possible with the internal check valve (R).

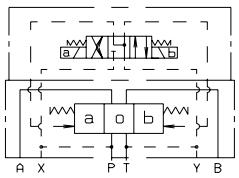
TAB.1 - PLUGS ARRANGEMENT FOR THE PILOT AND DRAIN LINES

Plugs type used: M6x6 both for pilot X and drain Y

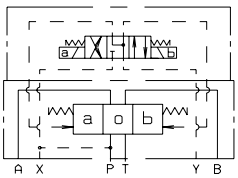


TIPO DI VALVOLA		Montaggio tappi	
		X	Y
ADH8---I	X internal piloting Y internal draining	NO	NO
ADH8---IE	X internal piloting Y external draining	NO	YES
ADH8---EI	X external piloting Y internal draining	YES	NO
ADH8---E	X external piloting Y external draining	YES	YES

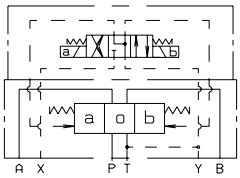
ADH8...I



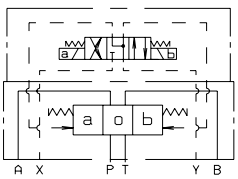
ADH8...IE



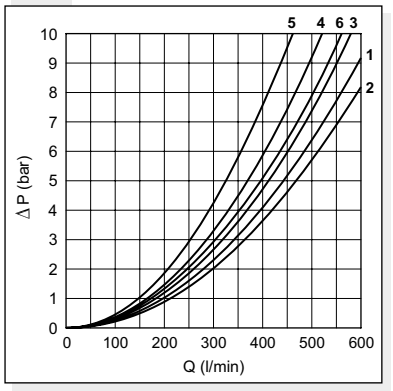
ADH8...EI



ADH8...E



PRESSURE DROPS



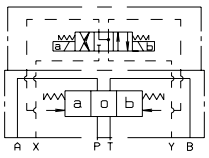
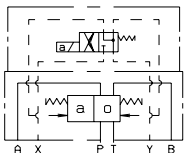
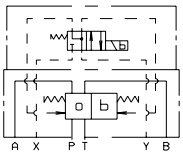
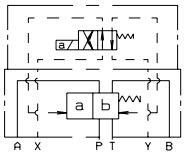
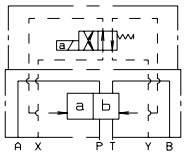
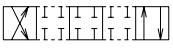
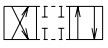
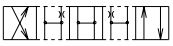
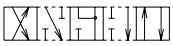
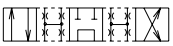
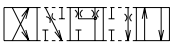
The diagram shows the pressure drops in relation to spools adopted for normal usage (see table).
The fluid used was a mineral based oil with a viscosity of 35 mm²/s at 50° C.

Spool type		Connections				
		P → A	P → B	A → T	B → T	P → T
01	Energized	1	1	2	3	
02	Energized De-Energized	2	2	1	2	6 (1)
03	Energized De-Energized	1	1	1 4 (2)	2 4 (3)	
04	Energized De-Energized	6	6	3	4	5
05	Energized De-Energized	2 4 (2)	2 4 (3)	2	3	
66	Energized De-Energized	1	1	2	2 4	
10	Energized	1	1	2	3	
14	Energized De-Energized	6	6	3	4	5 (3)
28	Energized De-Energized	6	6	4	3	5 (2)
23	Energized De-Energized	1	2 4	2	3	
		Curve No.				

Notes: (¹) A/B stopped - (²) B stopped - (³) A stopped

SPOOLS AND MOUNTING TYPE

(•) For the E mounting the locating spring works only with the steady system

	C mounting	A mounting	B mounting	E mounting	P mounting
Pilot Piloted	AD3E03C... ADH8C...	AD3E03E... ADH8A...	AD3E03F... ADH8B...	AD3E16E... ADH8E...	AD3E16E/AD3E16F ADH8P...
Scheme					
Spool type					
01					
02					
03					
04(*) (**)					
05					
66					
10*					
14*					
28*					
23*					

(* SPOOLS WITH PRICE INCREASING)

(** THE SPOOL 04 IS AVAILABLE FOR OPERATING PRESSURES IN THE P/A/B LINES, MAX. 320 BAR)

1

PILOT SOLENOID CONTROL VALVE SPECIFICATIONS

FOR DIFFERENT CONTROLS, PLEASE CONTACT OUR TECHNICAL DEPARTMENT

Max. operating pressure ports P/A/B	420 bar
The spool 04 is available for operating pressures in the P/A/B lines	max. 320 bar
Max. operating pressure port T (int. drainage)	160 bar
Max. operating pressure port T (ext. drainage)	250 bar
Max. piloting pressure	350 bar
Max. piloting pressure with main spool stroke limiter (LC variant)	250 bar
Min. piloting pressure*	5 bar
Max. flow with 04-14-28 spools	500 l/min a 210 bar 450 l/min a 320 bar
Max. flow with all other spools	600 l/min a 210 bar 500 l/min a 320 bar
Piloting oil volume for engagement 3 position valves	11.1 cm^3
Piloting oil volume for engagement 2 position valves	22.12 cm^3
Hydraulic fluid	mineral oil DIN 51524
Fluid viscosity	2.8 ÷ 380 mm^2/s
Fluid temperature	-20°C ÷ 70°C
Ambient temperature	-20°C ÷ 50°C
Max. contamination level	class 10 in accordance with NAS 1638 with filter $ß_{25}≥75$
Weight ADH8 without pilot valve	13,1 Kg
Weight ADH8 with pilot valve with 1 AC solenoid	14,3 Kg
Weight ADH8 with pilot valve with 1 DC solenoid	14,5 Kg
Weight ADH8 with pilot valve with 2 AC solenoids	14,6 Kg
Weight ADH8 with pilot valve with 2 DC solenoids	15,1 Kg

* For valves with internal drain (Y), tank pressure on T must be added to min. piloting pressure.
Min. piloting pressure is 5 bar with low flow rate, but it is up to 12 bar with higher flow rate.

For version "R" with check valve on P, the cracking pressure of 5 bar is obtained with flow rate > 25 l/min.

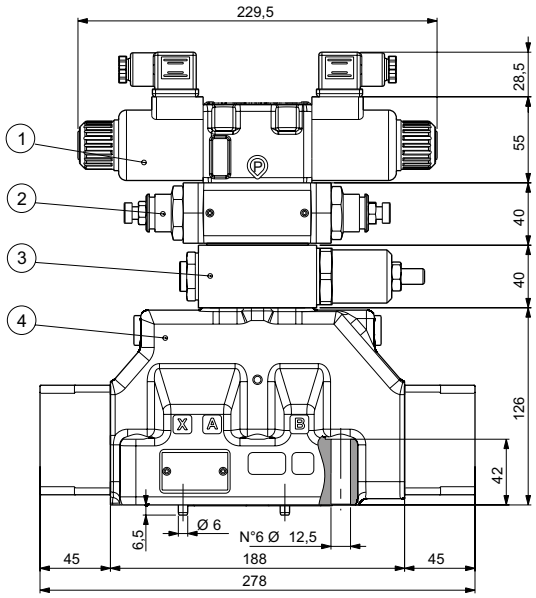
Switching time

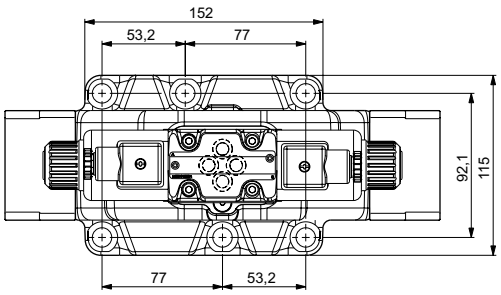
Such values refer to a solenoid valve with P = 100 bar pressure using a mineral oil at 50°C with 36 mm^2/sec viscosity PA and BT connections.

SWITCHING TIMES PILOTED VALVE

Solenoids	ENERGIZING ±10% (ms) 2 posit.	ENERGIZING ±10% (ms) 3 posit.	DE-ENERGIZING ±10% (ms) 2 posit.	DE-ENERGIZING ±10% (ms) 3 posit.
AC	60	45	90	60
DC	75	55	90	60

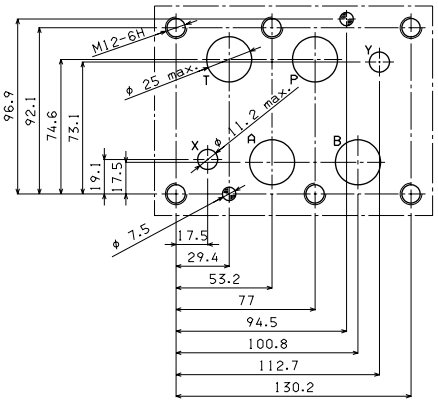
OVERALL DIMENSIONS





1 Piloted solenoid valve type **AD3E (CETOP3 NG6)**
2 Flow regulation valve type **AM3QF..C**
3 Pressure reduction valve type **AM3RD..C**
4 Main valve type **ADH8***
* The piloted valve is provided with a calibrated screw M6 with hole ø1.5, already mounted on the port "P".

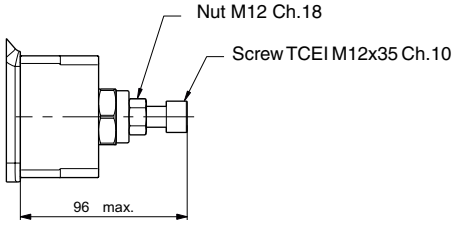
CETOP 8 MOUNTING SURFACE



- Piloted valve fixing: n° 6 screws T.C.E.I. M12x60
- Tightening torque: 115 Nm with screw Cl. 12.9**
  69 Nm with screw Cl. 8.8

** Recommended for applications over 350 bar

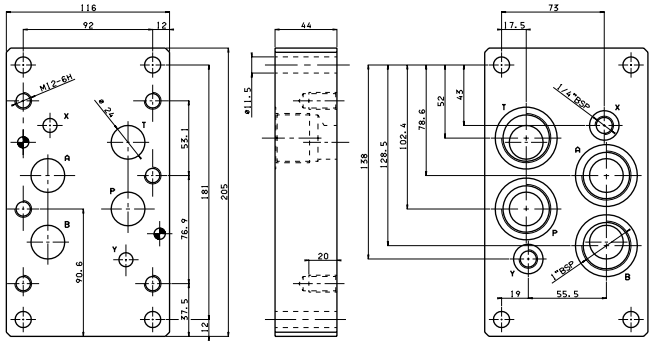
- Seals: n°4 OR 2-123/3118 type (29.82x2.62) - 90 Shore
  n°2 OR 2-117/3081 type (20.24x2.62) - 90 Shore



SPOOL STROKE ADJUSTMENT
(LC variant)

BSH813 WITH P, T AND A, B REAR 1" BSP

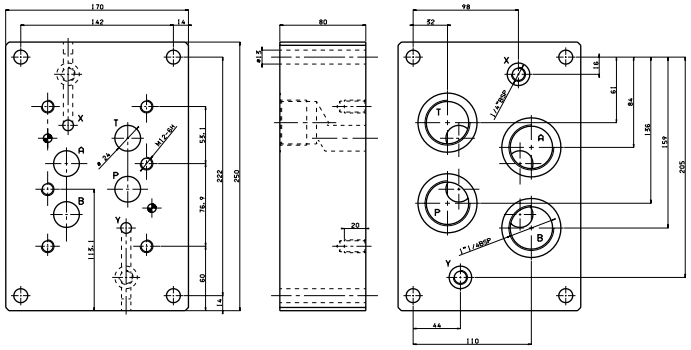
BSH	Single plate for piloted valve
8	CETOP 8/NG25
13	1" BSP rear connectors
00	No variant
1	Serial No.



Weight: 6,3 Kg - Fixing screws M10x60 UNI 5931

BSH813* WITH P, T AND A, B REAR 1"1/4 BSP OR 1" 1/2 BSP

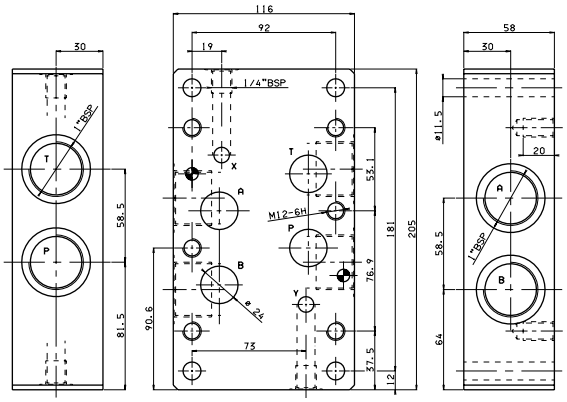
BSH	Single plate for piloted valve
8	CETOP 8/NG25
13*	**A** = 1"1/4 BSP rear connectors **B** = 1"1/2 BSP rear connectors
00	No variant
1	Serial No.



Weight: 21,7 Kg (BSH.8.13A) - Weight: 21,2 Kg (BSH.8.13B)
Fixing screws M12x100 UNI 5931

BSH815 WITH T, P AND A, B SIDE 1" BSP

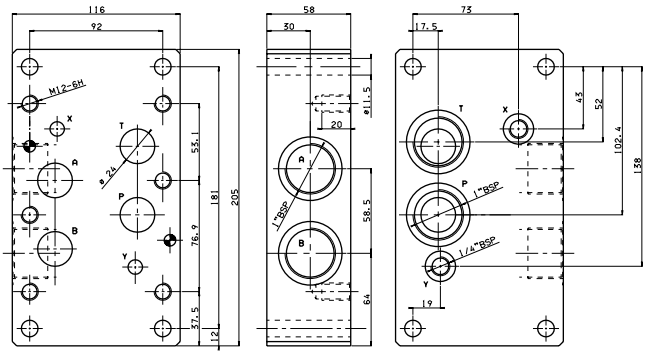
BSH	Single plate for piloted valve
8	CETOP 8/NG25
15	1" BSP side connectors
00	No variant
1	Serial No.



Weight: 8,2 Kg
Fixing screws M10x75 UNI 5931

BSH817 WITH P AND T REAR, A AND B SIDE 1" BSP, X AND Y REAR

BSH	Single plate for piloted valve
8	CETOP 8/NG25
17	1" BSP rear and side connectors
00	No variant
1	Serial No.



Weight: 8,3 Kg - Fixing screws M10x75 UNI 5931