

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.

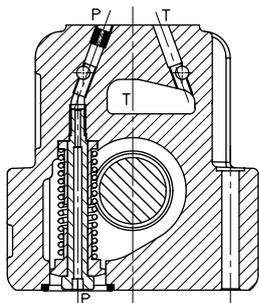
| ADH7... | |
|--------------------------|-------------|
| STANDARD SPOOLS FOR ADH7 | CAP. I • 58 |
| TECH. SPECIFICATIONS | CAP. I • 59 |
| SUBPLATES BSH7... | CAP. I • 60 |
| CETOP 3/NG06 | CAP. I • 8 |
| STANDARD SPOOLS FOR AD3E | CAP. I • 10 |
| AD3E... | CAP. I • 11 |
| ADC3... | CAP. I • 5 |
| "A09" DC COILS | CAP. I • 7 |
| "D15" DC COILS | CAP. I • 19 |
| "B14" AC SOLENOIDS | CAP. I • 19 |
| STANDARD CONNECTORS | CAP. I • 20 |

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

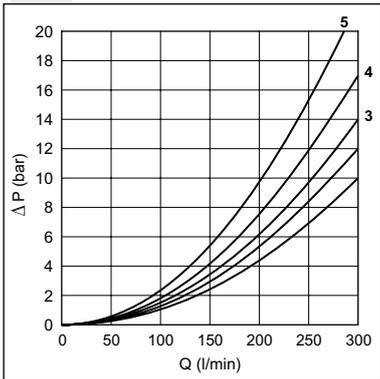
Plugs type used: M5x5 both for pilot and drain.
 Note: standard M6x6 orifice Ø1,5 insert in the P port (Z)

| | |
|--|---|
| | <p>ADH7...I X internal piloting Y internal draining</p> |
| | <p>ADH7...IE X internal piloting Y external draining</p> |
| | <p>ADH7...EI X external piloting Y internal draining</p> |
| | <p>ADH7...E X external piloting Y external draining</p> |

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

1

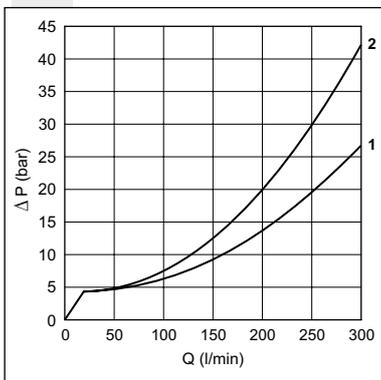
PRESSURE DROPS



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.

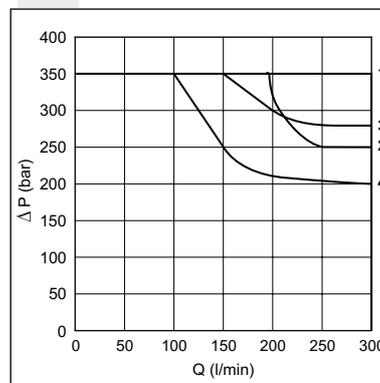
| Spool type | | Connections | | | | |
|------------|---------------------------|-------------|-------|-------|-------|-------|
| | | P → A | P → B | A → T | B → T | P → T |
| 01 | Energized | 2 | 1 | 3 | 3 | |
| 02 | Energized De-Energized | 1 | 1 | 3 | 3 | 2 |
| 03 | Energized De-Energized | 2 | 1 | 3 | 3 | |
| 04 | Energized De-Energized | 2 | 2 | 4 | 4 | 5 |
| 05 | Energized De-Energized | 1 | 1 | 2 | 2 | |
| 66 | Energized De-Energized | 1 | 1 | 2 | 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 | |

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 |

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

SPOOLS AND MOUNTING TYPE

| | 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* | | | | | |

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

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 |

* 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.

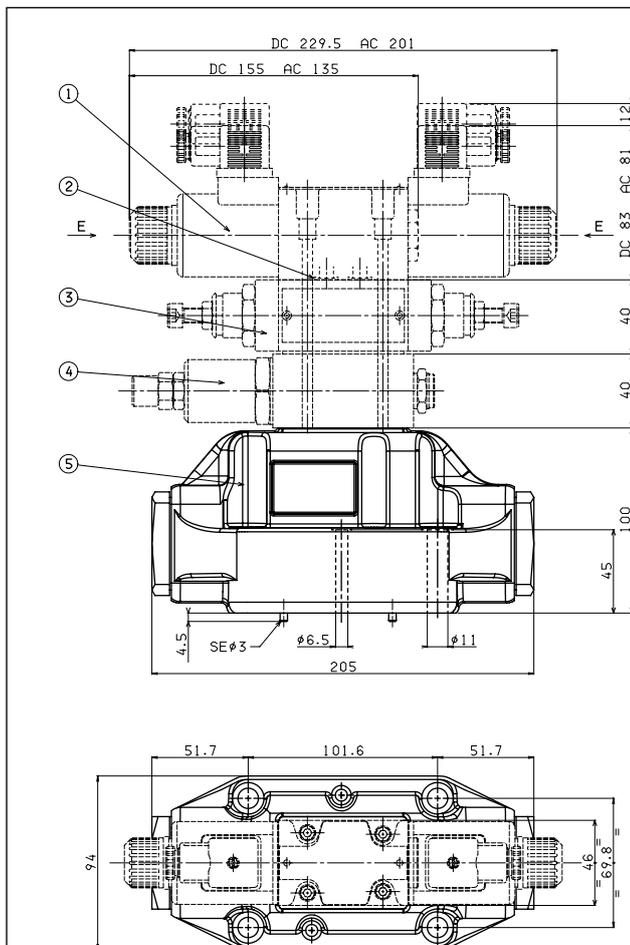
Switching time

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 ϕ 1.5 mm, insert on piloting port, using a mineral oil at 40°C. with 46 mm²/s viscosity.

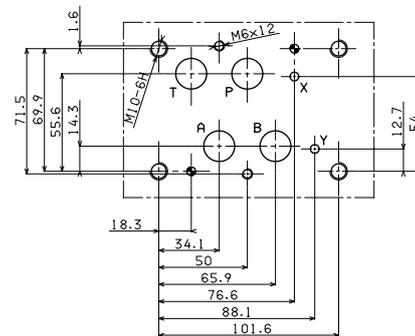
TEMPI DI RISPOSTA VALVOLA PILOTATA

| Solenoids | ENERGIZING $\pm 10\%$ (ms) | | DE-ENERGIZING $\pm 10\%$ (ms) | | |
|-----------|----------------------------|-------------|-------------------------------|----------------|-------------|
| | 01 - 03 | | 01 - 03 | | |
| No. Spool | | | | | |
| 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 |

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.

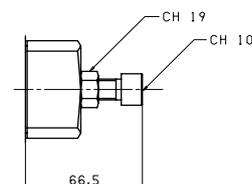


CETOP 7 MOUNTING SURFACE



- 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



- 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**