

DIRECTIONAL CONTROL VALVES SOLENOID OPERATED

HD2-EI-*

25 l/min - 32 MPa (320 bar)

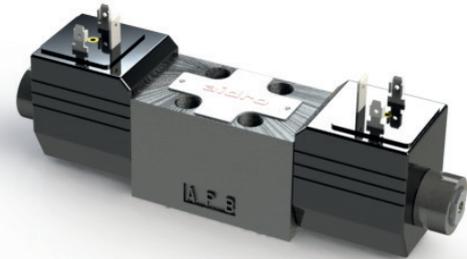
1 DESCRIPTION

Valves HD2-EI are directional control valve with subplate mounting interface acc. to ISO 4401, DIN 24340 (CETOP 02).

The design of the body is a three chamber casting for production cost saving and low pressure drops.

The valve is available with interchangeable plastic DC solenoids, also for AC power supply using connectors with a built-in rectifier bridge.

The valve housing is phosphated for 240 h salt spray protection acc. to ISO 9227. Enhanced surface protection for mobile sector available (ISO 9227, 520 h salt spray).



2 ORDERING CODE

(1)	(2)	(3)	(4)	(5)	(6)
HD2	-	EI	-	-	/ 10

(1) HD2: 4-way directional control valve CETOP 02

(2) EI: electrically controlled

(3) Spool type (see [4])

-number is the main spool type

-letter is solenoid and spring arrangement:

C: 2 solenoids, spool is spring centered (3 position)

LL: 1 solenoid (a), spool is spring offset (2 position, end to end)

ML: 1 solenoid (a), spool is spring offset (2 position, middle to end)

(4) Code reserved for option and variants:

b: only for version LL and ML, solenoid b installed (instead of solenoid a)

ZN: Zinc Nichel surface treatment

(5) Electric voltage and solenoid coils:

0000: no coils

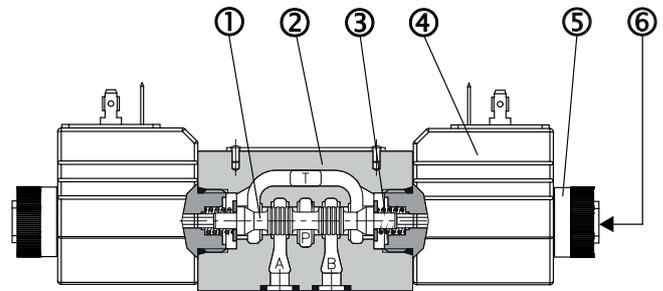
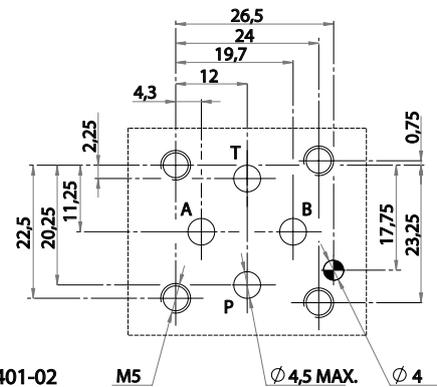
012C: coils for V12DC

024C: coils for V24DC

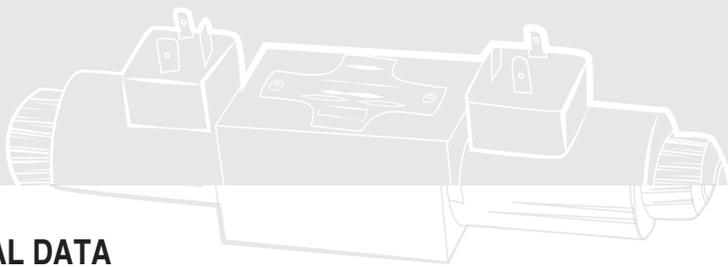
110R: coils for V98DC (V110/50 – V115/60 RAC)

220R: coils for V198DC (V220/50 – V230/60 RAC)

(6) Design number (progressive) of the valves



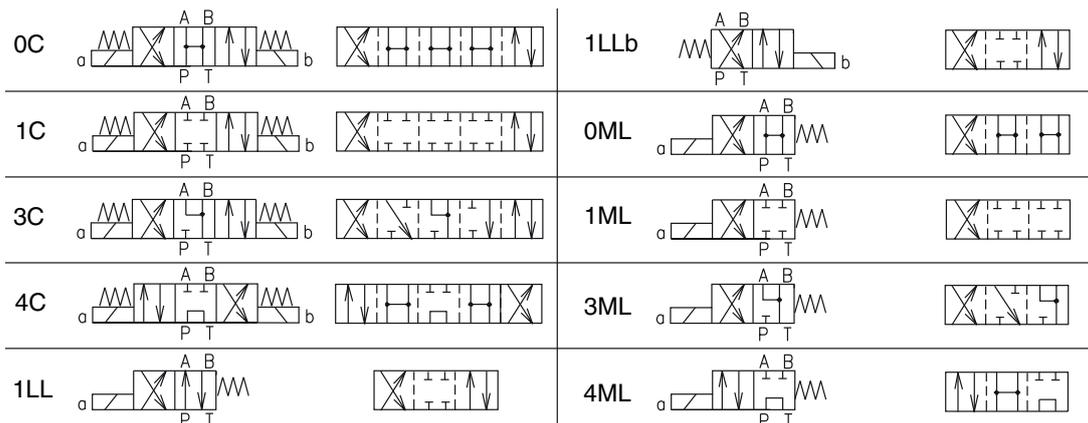
Spools, springs and solenoids combination permit to obtain almost every type of ports (P, A, B, T) connection and sequence. For almost all types of solenoids/springs combination and for all type of spools (with the exception of spool 4), when solenoid "a" is energized, hydraulic connections are P-->B and A-->T; to obtain P-->A and B-->T solenoid "b" must be energized. The hydraulic connections that are obtained in the "central" (neutral) position when solenoids are not energized is the characteristic mark of the spool shape and from it derives its identification number: 0 = P, A, B, T connected 1 = P, A, B, T closed 3 = P closed, A, B, T, connected for other types see [4]



3 TECHNICAL DATA

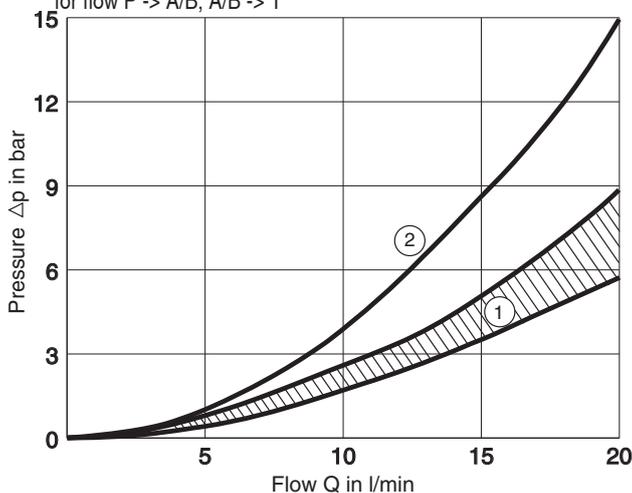
Maximum nominal flow	20 l/min	Electric characteristic: Valves HD2-EI-* are operated by solenoid that are energized: - directly from a D.C. voltage supply: V 12 DC (012C) V 24 DC (024C) - by the use of connectors that incorporate a full wave bridge rectifier, from A.C. voltage supply: V 110/50, V 115/60 or V115/50 (110R) V 220/50, V 230/60 or V 230/50 (220R) All connectors must conform to ISO 4400 (DIN 43650) and electric circuitry must be able to carry the following rated current values: V 12 DC= 2,4 A V 24 DC= 1,2 A V 110 R= 0,30 A V 220 R= 0,15 A Permissible supply voltage variation: +5% -10%
Maximum rec. flow rate	25 l/min	
Maximum nominal pressure (P, A, B)	25 MPa (250 bar)	
Maximum pressure	32 MPa (320 bar)	
Maximum pressure at T port	16 MPa (160 bar)	
Pressure drops	see [5]	
Protection to DIN 40050	IP 65	
Duty cycle	100%	
Service life	≥ 10 ⁷ cycles	
Installation and dimensions	see [7]	
Mass	approx 0,8/1,1kg	

4 SPOOL IDENTIFICATION AND INTERMEDIATE POSITION TRANSITORIES



5 TYPICAL DIAGRAMS

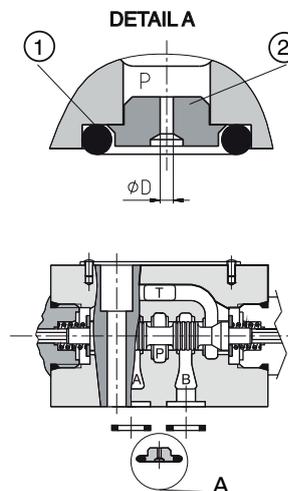
Typical Δp -Q curves for valves HD2 -EI-* in standard configuration, with mineral oil at 36 cSt and at 50°C for flow P -> A/B, A/B -> T



- ①= all spool: P -> A/B and A/B -> T
- ②= spool 4: P -> A/B and P->T

6 OPTIONS

OPTION S CALIBRATED ORIFICE ON P PORT



Option "S" is represented by elements ②, suitably shaped to be inserted on P port of the solenoid valve, having a calibrated orifice (of various sizes) able to restrict, at the requested Δp value, the flow rate entering the solenoid valve.

Those elements have the following orifice diameter:

- 2S - 08 -> D=0,8 mm
- 2S - 10 -> D=1 mm
- 2S - 12 -> D=1,2 mm
- 2S - 15 -> D=1.5 mm

and are kept sealed on the P port of the valve by an OR ① of 7,65x1,78 mm sizes (example OR 107-2031).

