

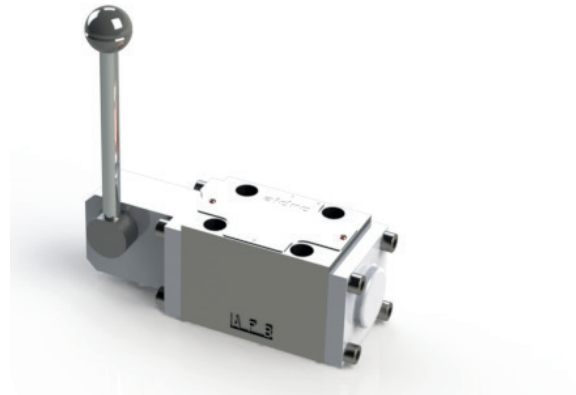
## DIRECTIONAL CONTROL VALVES LEVER OPERATED

### HD3-LO-\*

60 l/min - 32 MPa (320 bar)

#### 1 DESCRIPTION

The hand operated directional control valves are used mainly to control start, stop and direction of fluid. Manual lever and actuating section can be rotated in 90° increments for flexible installation. The directional control valves are being manufactured as two-position and three-position valves (see table with functional symbols). In the standard version, the valve housing is phosphated and steel parts zinc-coated 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)
HD3	-	LO	-	b	/ 10

(1) HD3: 4-way directional control valve CETOP 03 - Pressure 32 MPa (320bar)

(2) Standard, level operated

(3) Spool type (see 4):

-number is the main spool type

-letter is the spring arrangement:

C : spool is spring centered (3 position)

D : spool is detented (3 position)

N : spool is detented (2 position, end to end)

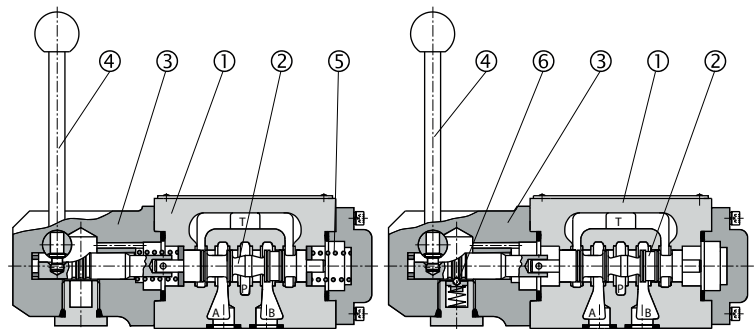
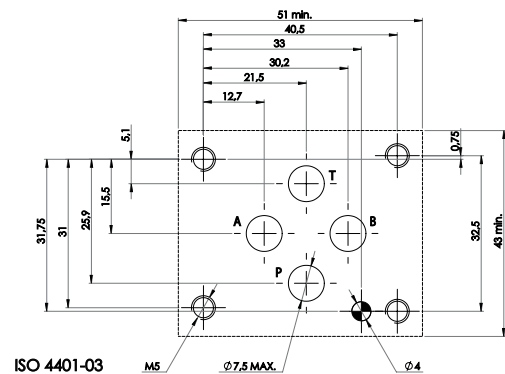
LL : spool is spring offset (2 position, end to end)

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

(4) b: lever mechanism on B port side

(5) Code reserved for option and variants

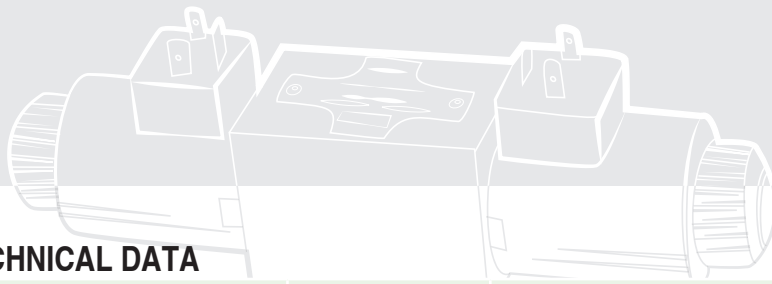
(6) Design number (progressive) of the valves



Type with return springs

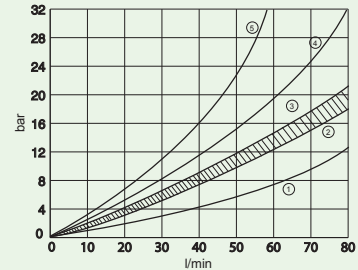
Type with detent assembly

The hand operated directional valves are used mainly to control start, stop and direction of fluid. they consist of housing 1 with control spool 2 and the actuating section 3. the actuating section consists either of the hard lever 4 and of one or two return springs 5, or of the hand lever 4 and the detent assembly 6. The detent assembly holds the spool in its last shifted position.



### 3 TECHNICAL DATA

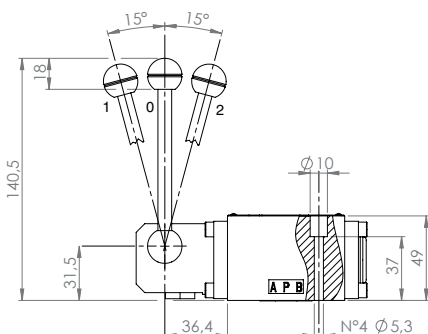
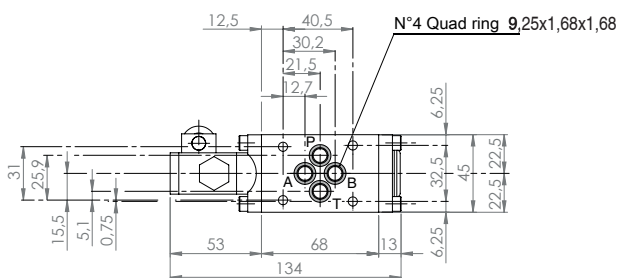
Maximum nominal flow	60 l/min	Pressure drops: $\Delta p$ -Q characteristics  ① P -> A, P-> B spool 0,8 ②->③ spool 0,1,2,3,4,7 ④ A ->T, B->T spool 4 ⑤ P ->T spool 4
Maximum rec. flow rate	80 l/min	
Maximum nominal pressure (P, A, B)	32 MPa (320 bar)	
Maximum pressure at T port	10 MPa (100 bar)	
Installation and dimensions	see 5	
Mass	approx 1,6 kg	



### 4 SPOOL IDENTIFICATION AND INTERMEDIATE POSITION TRANSITORIES

1C			1D		
4C			4D		
0C			0D		
8C			8D		
3C			3D		
7C			7D		
1LL			1N		
2LL			2N		
0LL			0N		

### 5 INSTALLATION DIMENSIONS (mm)



### 6 HYDRAULIC LIMITS OF USE

Valves HD3-LO-1C, 1LL and all detent type valve can operate at 320 bar and 80 l/min. Other spring centered and spring offset valves have limits reduced to max 60l/min