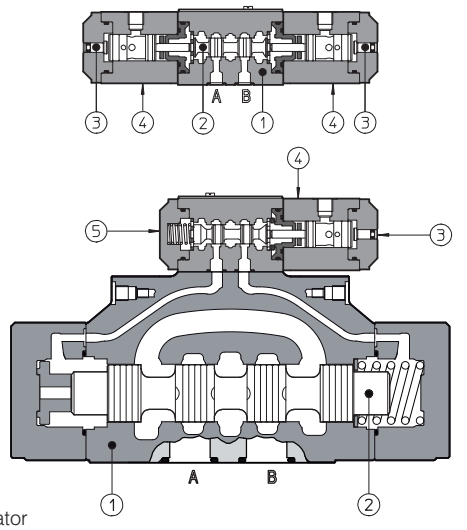
Pneumatic operated directional valves

ISO 4401 sizes 06, 10, 16, 25 and 32



DH-09*

DPH-48*

① Main body
② Spool
③ Manual override
④ Pneumatic actuator
⑤ Pilot valve

Pneumatic operated directional valves are spool type ②, three or four way, two or three position, designed to operate in oil hydraulic systems.
Available with single or double pneumatic actuator ④ with manual override.

Valve sizes and max flow:

DH-0 = size 06, flow up to 50 l/min
DK-1 = size 10, flow up to 160 l/min
DPH-2 = size 16, flow up to 300 l/min
DPH-4 = size 25, flow up to 700 l/min
DPH-6 = size 32, flow up to 1000 l/min

Max pressure:
350 bar for DH-0, DPH-2, DPH-4, DPH-6
315 bar for DK-1

1 MODEL CODE

DH-0	**8**	**1**	**3**	/	**A**	******	/	*****

Directional control valve, size:
DH-0 = 06
DK-1 = 10
DPH-2 = 16
DPH-4 = 25
DPH-6 = 32

Type of actuator:
8 = single actuator
9 = double actuator

Valve configuration, see sections 4 and 5
0 = free, without springs
1 = spring centered, without detent
3 = spring offset external position
5 = 2 external positions, with detent
7 = center and external positions

Spool type, see sections 4 and 5

Options:
only for valve with single actuator:
/A = Actuator device mounted on side of port B (for DH and DK). Actuator device mounted on side of port A of main body (for DPH)
only for DPH:
/D = internal drain
/E = external pressure
/H = adjustable chokes for controlling the main spool shifting time (meter-out to the pilot chambers of the main valve)
/H9= adjustable chokes for controlling the main spool shifting time (meter-in to the pilot chambers of the main valve)
/R = pilot pressure generator on port P at 4 bar
/S = main spool stroke adjustment

Series number

Seals material, see section 3:
- = NBR
PE = FKM

2 HYDRAULIC CHARACTERISTICS

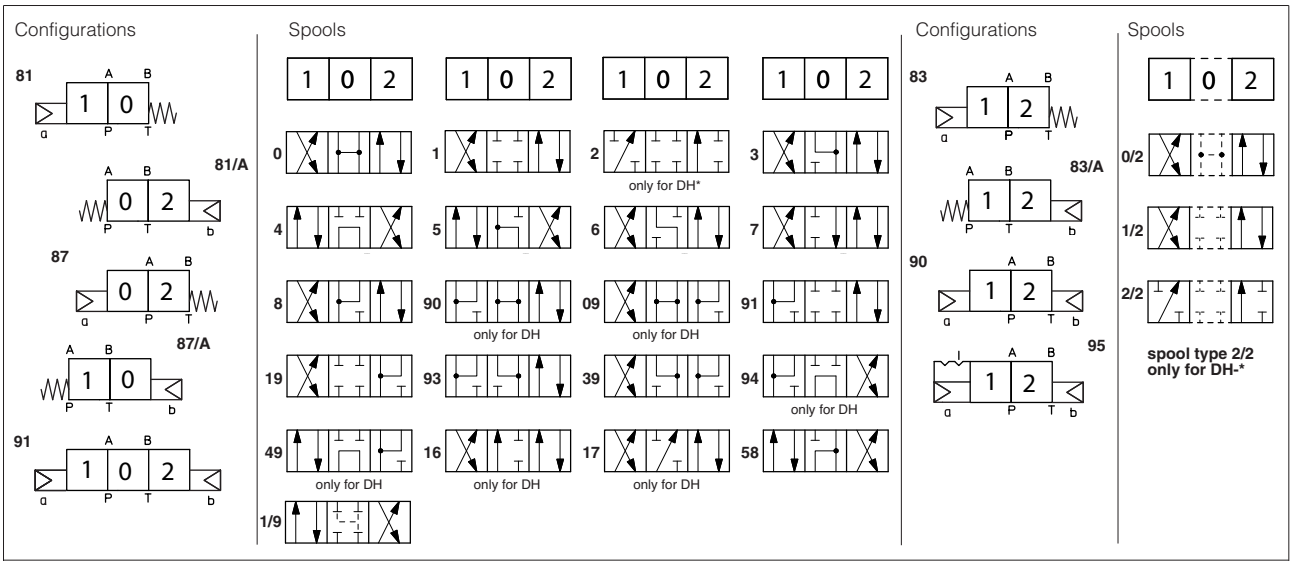
Valve model		DH-0	DK-1	DPH-2	DPH-4	DPH-6
Max recommended flow	[l/min]	50	160	300	700	1000
Max pressure on port P, A, B (also X for DP)	[bar]	350	315	350		
Max pressure on port T	[bar]		210	250		
Max pressure on port L and Y	[bar]	–		null pressure		
Recommended oil pressure on piloting line	[bar]	–		Min = 4 Max = 250 The device **/R** generates an additional pressure drop, in order to ensure the minimum pilot pressure, for correct operation of the valves with internal pilot and fitted with spools type **0, 0/1, 4, 4/8, 5, 58, 09, 90, 94, 49.** The device **/R** has to be fitted when the pressure drop in the valve, verified on flow versus pressure diagrams, is lower than the minimum pilot pressure value.		
Recommended pneumatic pressure **(1)**	[bar]	Min = 2 Max = 12				

(1) filtered and lubricated air

3 MAIN CHARACTERISTICS, SEALS AND FLUIDS - for other fluids not included in below table, consult our technical office

Assembly position / location	Any position for all valves except for type -*90 (without springs) that must be installed with horizontal axis if operated by impulses.		
Subplate surface finishing	Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101)		
Ambient temperature	Standard execution = -30°C ÷ +70°C; /PE option = -20°C ÷ +70°C;		
Seals, recommended fluid temperature	NBR seals (standard) = -20°C ÷ +60°C, with HFC hydraulic fluids = -20°C ÷ +50°C FKM seals (/PE option) = -20°C ÷ +80°C		
Recommended viscosity	15÷100 mm²/s - max allowed range 2.8 ÷ 500 mm²/s		
Fluid contamination class	ISO 4406 class 21/19/16 NAS 1638 class 10, in line filters of 25 μm (β10 ≥75 recommended)		
Hydraulic fluid	**Suitable seals type**	**Classification**	**Ref. Standard**
Mineral oils	NBR, FKM	HL, HLP, HLPD, HVLP, HVLPD	DIN 51524
Flame resistant without water	FKM	HFDU, HFDR	ISO 12922
Flame resistant with water	NBR	HFC	

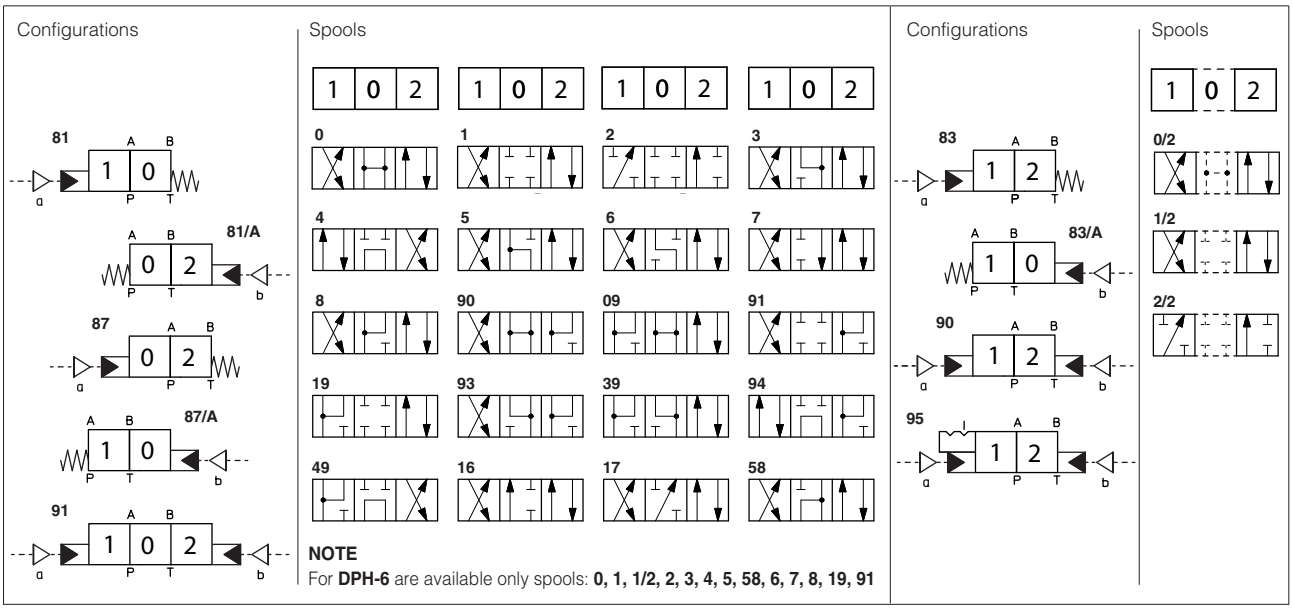
4 CONFIGURATIONS and SPOOLS of valves type DH-*, DK-*



NOTES

- spools type **0** and **3** are also available as **0/1** and **3/1** with restricted oil passages in central position, from user ports to tank.
- spools type **1, 4**, **5** and **58** are also available as **1/1, 4/8, 5/1** and **58/1.** They are properly shaped to reduce water-hammer shocks during the swiching.
- spools type **1, 1/2, 3, 8** are available as **1P, 1/2P, 3P, 8P** (only for DH-0) to limit valve internal leakages.

5 CONFIGURATIONS and SPOOLS of valves type DPH-*



NOTE

For **DPH-6** are available only spools: **0, 1, 1/2, 2, 3, 4, 5, 58, 6, 7, 8, 19, 91**

Special shaped spools

- spools type **0** and **3** are also available as **0/1** and **3/1** with restricted oil passages in central position, from user ports to tank.
- spools type **1, 4, 5, 58, 6** and **7** are also available as **1/1, 4/8, 5/1, 58/1, 6/1** and **7/1** are properly shaped to reduce water-hammer shocks during the switching.

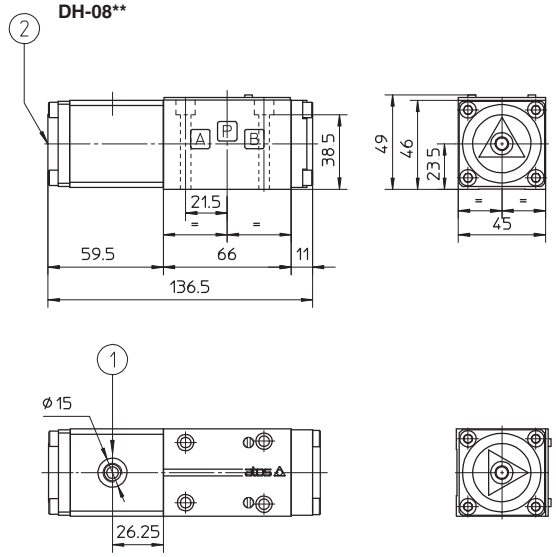
6 Q/Δp DIAGRAMS

DH-0	See note and diagrams on table E010 relating the DH* valve from which DH-0* are derivated
DK-1	See note and diagrams on table E025 relating the DKE valve from which DK-1* are derivated
DPH-2	See note and diagrams on table E085 relating the DPH*-2 valve from which DP-2* are derivated
DPH-4	See note and diagrams on table E085 relating the DPH*-4 valve from which DP-4* are derivated
DPH-6	See note and diagrams on table E085 relating the DPH*-6 valve from which DP-6* are derivated

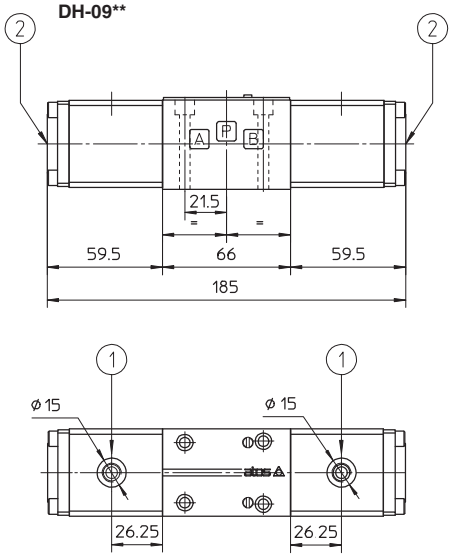
7 INSTALLATION DIMENSIONS of VALVES type DH and DK [mm]

ISO 4401: 2005
Mounting surface: 4401-03-02-0-05
Fastening bolts: 4 socket head screws M5x50 class 12.9
Tightening torque = 8 Nm
Diameter of ports A, B, P, T: Ø = 7,5 mm (max)
Seals: 4 OR 108

DH-08**



DH-09**



Mass: 1,2 Kg

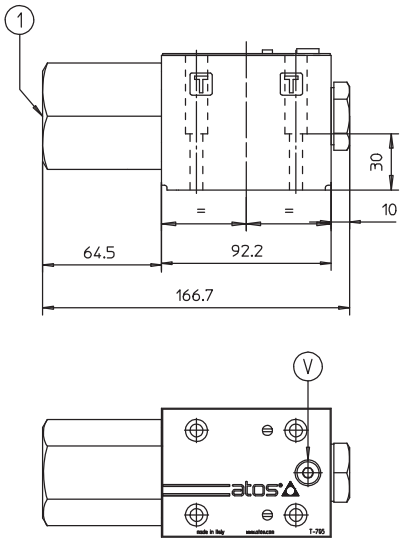
Mass: 1,6 Kg

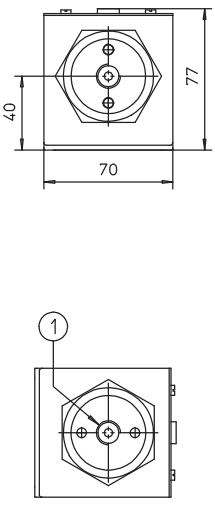
① Pilot pressure port G1/8"
② Manual override

Mounting subplates: see tab. E010

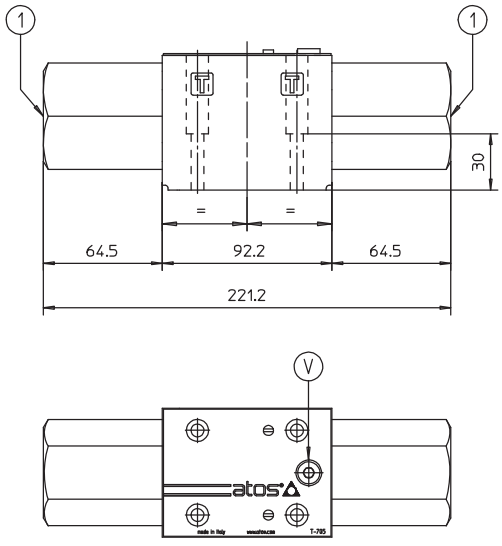
ISO 4401: 2005
Mounting surface: 4401-05-04-0-05
Fastening bolts: 4 socket head screws M6x40 class 12.9
Tightening torque = 15 Nm
Diameter of ports A, B, P, T: Ø = 11,2 mm (max)
Seals: 5 OR 2050

DK-18**





DK-19**



Mass: 3,4 Kg

Mass: 4,2 Kg

① Pilot pressure port G1/4"
Ⓥ Air bleed

Mounting subplates: see tab. E025

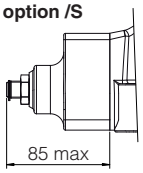
8 INSTALLATION DIMENSIONS of VALVES type DP [mm]

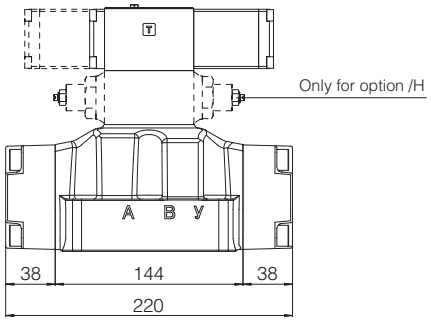
DPH-2

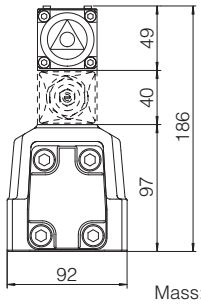
ISO 4401: 2005
Mounting surface: 4401-07-07-0-05

Fastening bolts:
4 socket head screws M10x50 class 12.9
Tightening torque = 70 Nm
2 socket head screws M6x45 class 12.9
Tightening torque = 15 Nm
Diameter of ports A, B, P, T : Ø = 20
Diameter of ports X,Y: Ø = 7 mm
Seals: 4 OR 130, 2 OR 2043

Stroke adjustment device for option /S







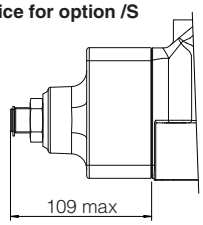
Mass: 11,5 Kg

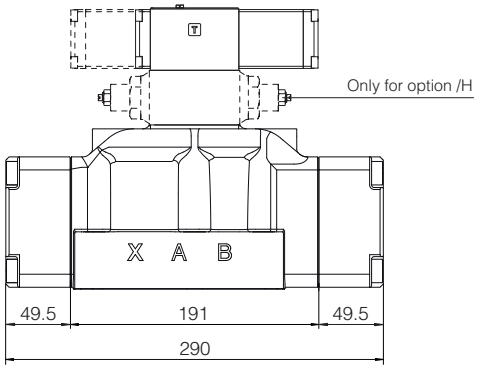
DPH-4

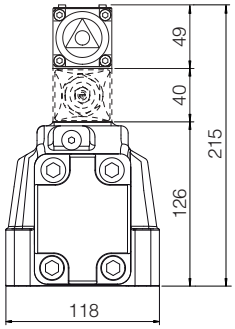
ISO 4401: 2005
Mounting surface: 4401-08-08-0-05

Fastening bolts:
6 socket head screws M12x60 class 12.9
Tightening torque = 125 Nm
Diameter of ports A, B, P, T : Ø = 24
Diameter of ports X,Y: Ø = 7 mm
Seals: 4 OR 4112, 2 OR 3056

Stroke adjustment device for option /S







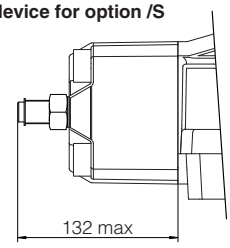
Mass: 18 Kg

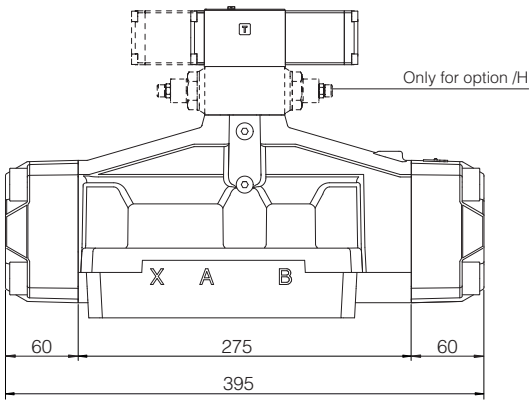
DPH-6

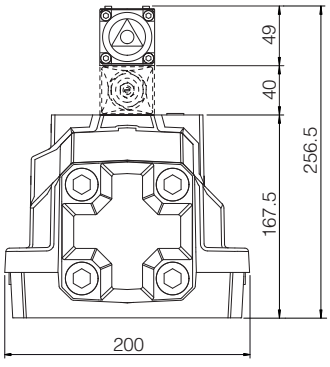
ISO 4401: 2005
Mounting surface: 4401-10-09-0-05

Fastening bolts:
6 socket head screws M20x80 class 12.9
Tightening torque = 600 Nm
Diameter of ports A, B, P, T : Ø = 34 mm
Diameter of ports X,Y: Ø = 7 mm
Seals: 4 OR 144, 2 OR 3056

Stroke adjustment device for option /S







Mass: 39,5 Kg