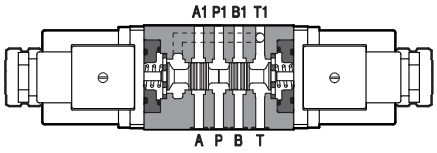
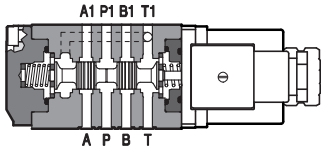
Modular solenoid directional valves type HD-0611*, HD-0711*

direct operated, ISO 4401 size 06, modular assembly



HD-0711/*-I*



HD-0611/A-I*

HD are spool type, direct operated solenoid valves in modular execution.

Technical characteristics
They are derived from standard DHI directional valves (see KT tab. E010), but with special body for modular assembly with all ISO4401 size 06 modular valves.

Applications
In combination with other valves they permit to realize compact hydraulic circuits for directional control, by-pass, different pressures selection, not compensated fast/slow speed controls.

Surface mounting **ISO 4401 size 06**
Max flow **60 l/min**
Max pressure: **350 bar**

1 MODEL CODE

HD-0	61	1	/A	I	X	24DC	**	/*

Modular directional valve size 06

Valve configuration, see section 2
61 = single solenoid, central plus external position, spring centered
63 = single solenoid, 2 external positions, spring offset
71 = double solenoid, 3 positions, spring centered

Spool type, see section 2

Options:
A = solenoid mounted at side of port B
WP = prolonged manual override (see KT, table E010)

I = solenoid OI for AC and DC supply

X = without connector
The connector must be ordered separately (see note)

Voltage code, see section 4
00 = valve without coils

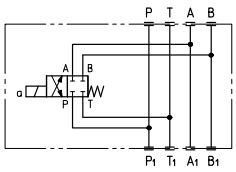
Series number

Seals material
- = NBR
PE = FKM

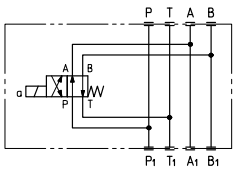
Note:
Type of electric/electronic connector DIN 43650 to be ordered separately (for overral dimensions see table K500):
666 = standard connector IP-65, suitable for direct connection to electric supply source.
667 = as 666, but with built-in signal led.
669 = with built-in rectifier bridge for supplying DC coils by alternate current (AC 110V and 230V - Imax 1A).
E-SD = electronic connector which eliminates electric disturbances when solenoid valves are de-energized.

2 HYDRAULIC SYMBOL and applications examples

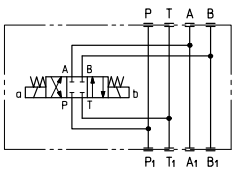
HD-0611/*-*



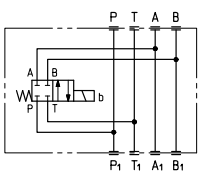
HD-0631/2-*



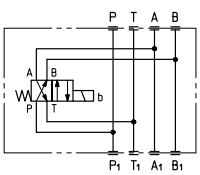
HD-0711/*-*



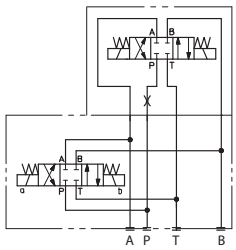
HD-0611/A-*



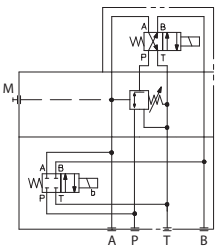
HD-0631/2/A



Fast-slow speed



Pressure selection



3 MAIN CHARACTERISTICS OF HD-* DIRECTIONAL VALVES

Assembly position / location	Any position for all valves
Subplate surface finishing	Roughness index Ra 0,4 - flatness ratio 0,01/100 (ISO 1101)
Ambient temperature	from -20°C to +70°C
Fluid	Hydraulic oil as per DIN 51524 .... 535; for other fluids see section 1
Recommended viscosity	15 ÷ 100 mm²/s at 40°C (ISO VG 15 ÷ 100)
Fluid contamination class	ISO 4401 class 21/19/16 NAS 1638 class 10 (filters at 25 μm value with $\beta_{25} \geq 75$ recommended)
Fluid temperature	-20°C +60°C (standard seals) -20°C +80°C (/PE seals)
Flow direction	As shown in the symbols of section 5
Operating pressure	Ports P,A,B: **350** bar; Port T: **120** bar
Maximum flow	**60 l/min**

3.1 Coils characteristics

Insulation class	H (180°C) Due to the occuring surface temperatures of the solenoid coils, the European standards EN563 and EN982 must be taken into account
Connector protection degree DIN 43650	IP 65
Relative duty factor	100%
Supply voltage tolerance	± 10%
Certification	**C UR US**

4 ELECTRIC FEATURES

Valve	External supply nominal voltage ± 10%	**Voltage code**	Type of connector	Power consumption (2)	Code of spare coil HD-*-I	Colour of coil label
HD	6 DC	**6 DC**	666 or 667	33 W	COU-6DC/ 80	brown
	9 DC	**9 DC**			COU-9DC /80	light blue
	12 DC	**12 DC**			COU-12DC /80	green
	14 DC	**14 DC**			COU-14DC /80	brown
	18 DC	**18 DC**			COU-18DC /80	blue
	24 DC	**24 DC**			COU-24DC /80	red
	28 DC	**28 DC**			COU-28DC /80	silver
	48 DC	**48 DC**			COU-48DC /80	silver
	110 DC	**110 DC**			COU-110DC /80	black
	125 DC	**125 DC**			COU-125DC /80	silver
	220 DC	**220 DC**			COU-220DC /80	black
	24/50 AC 24/60 AC	**24/50/60 AC**		60 VA (4)	COI-24/50/60AC /80 (1)	pink
	48/50 AC 48/60 AC	**48/50/60 AC**			COI-48/50/60AC /80 (1)	white
	110/50 AC 120/60 AC	**110/50/60 AC** **120/60 AC**			COI-110/50/60AC /80 (1) COI-120/60AC /80	yellow white
	230/50 AC 230/60 AC	**230/50/60 AC** **230/60 AC**			COI-230/50/60AC /80 (1) COI-230/60AC /80	light blue silver
	110/50 AC 120/60 AC	**110RC**	669	40 VA 35 VA	COU-110RC /80	gold
	230/50 AC 230/60 AC	**230RC**		40 VA 35 VA	COU-230RC /80	blue

(1) Coil can be supplied also with 60 Hz of voltage frequency: in this case the performances are reduced by 10 ÷15% and the power consumption is 55 VA.

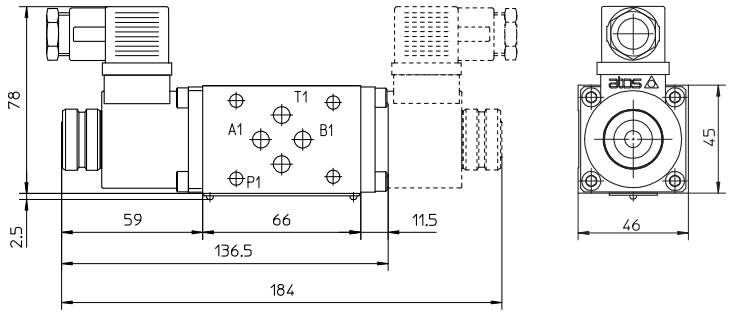
(2) Average values based on tests preformed at nominal hydraulic condition and ambient/coil temperature of 20°C.

(3) In a cycle, where solenoid is energized/deenergized in 1 second (1 Hz), the average power consumption is 7 W; for longer cycles, the power consumption is lower.
When solenoid is energized the inrush current is 6 A at 12 VDC and 3 A at 24 VDC corresponding to power consumption peak of 72 W.
These current peaks persist for a period shorter than 100 msec and they must be considered when electric circuit is designed.

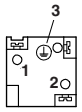
(4) When solenoid is energized, the inrush current is approx 3 times the holding current. Inrush current values correspond to a power consumption of about 150 VA.

5 DIMENSIONS [mm]

HD-06**
Dotted line for version **HD-07****

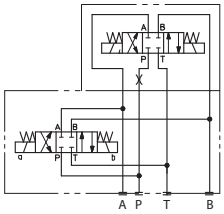


Connector wiring
(666)

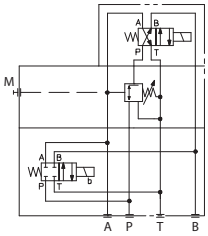


1–2 = Supply
3 = Coil ground

Fast-slow flow



Pressure selection



ISO 4401: 2005
Mounting surface: 4401-03-02-0-05
Seals: 4 OR 108
Ports P,A,B,T: Ø = 7.5 mm (max).