

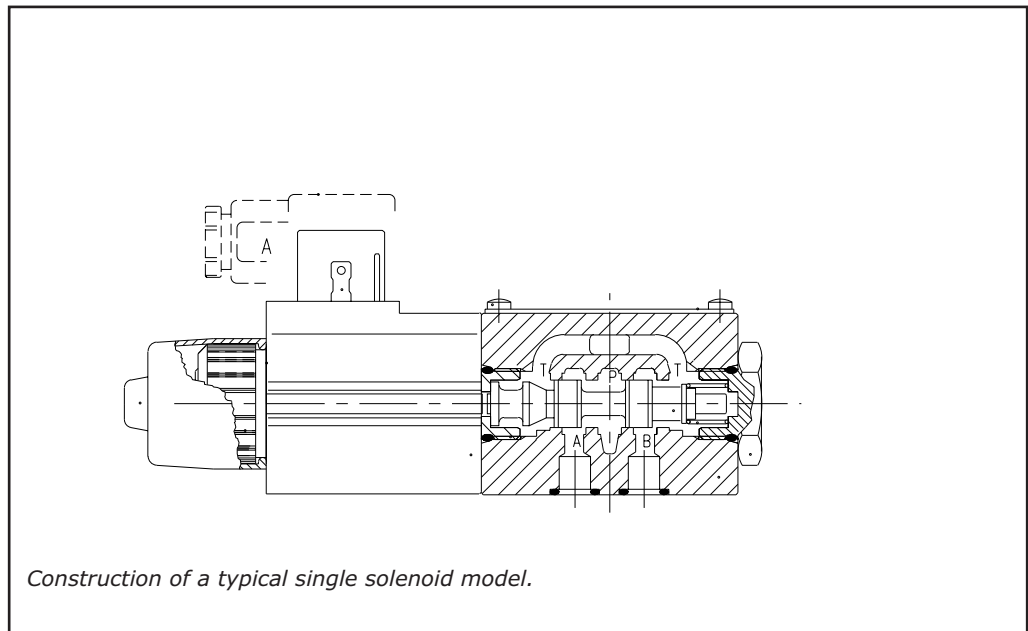


## **Solenoid operated directional control valves**

**General description and application advantages:**

Basically, these solenoid operated directional control valves are for directing and stopping flow at any point in a hydraulic system.

- Efficient control of greater hydraulic powers without increasing solenoid power consumption.
- Installed cost and space savings from higher power/ weight-and-size ratios.
- Reduced internal leakage reduces power losses, increases system efficiency: the result of improved manufacture of spools and bores.
- Installation flexibility resulting from choice of numerous combinations of solenoid connectors and locations.
- Multi-fluid capability without need to change seals.
- Higher sustained machine productivity and higher up-time because of proven fatigue life and endurance, tested over 20 million cycles.


**Versions:**
**Type S9:**

4-way, 3-position directional valve, with two solenoids; positioning of spool at rest is obtained with centring springs.

**Type RK:**

4-way, 2-position directional valve, with two solenoids; with mechanical detent of the extreme spool positions when solenoids are de-energized.

**Type TA/TC:**

4-way, 2-position directional valve, with one solenoid; spool position at rest is obtained with a return spring.

# Data sheet Solenoid operated directional control valves

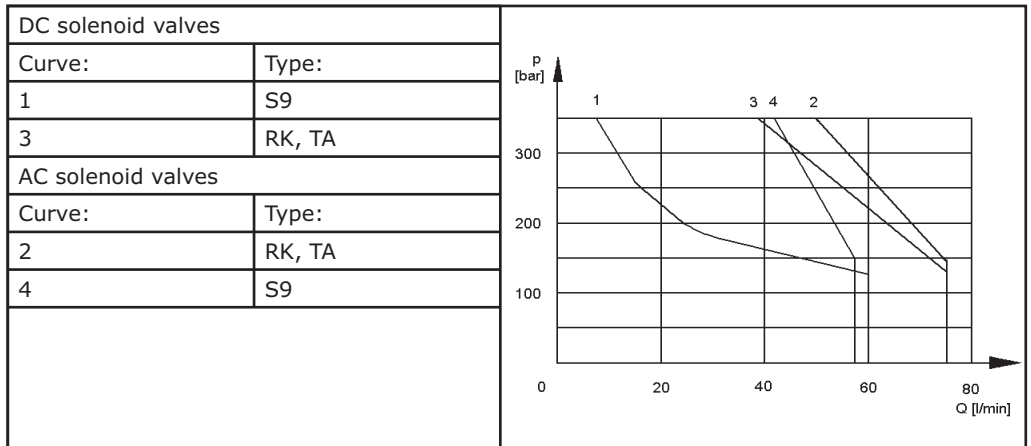
**Performance ratings:** (Working with mineral oil of viscosity of 36 cSt at 50°C)

Max. working pressure:	-ports P A B	350 bar
	-Port T	140 bar
Max. flow rate:	-from port P to A or B	75 l/min.
	- from port A or B to T	85 l/min.
Ambient temperature range:	-20°C to +60°C	
Fluid temperature range:	-20°C to +70°C	
Fluid viscosity range:	2,8 to 380 cSt	
Recommended filtration:	≤ 25 µm absolute	
Burst pressure:	xxx bar	
Mass:	double	2,0 kg
	single	1,5 kg

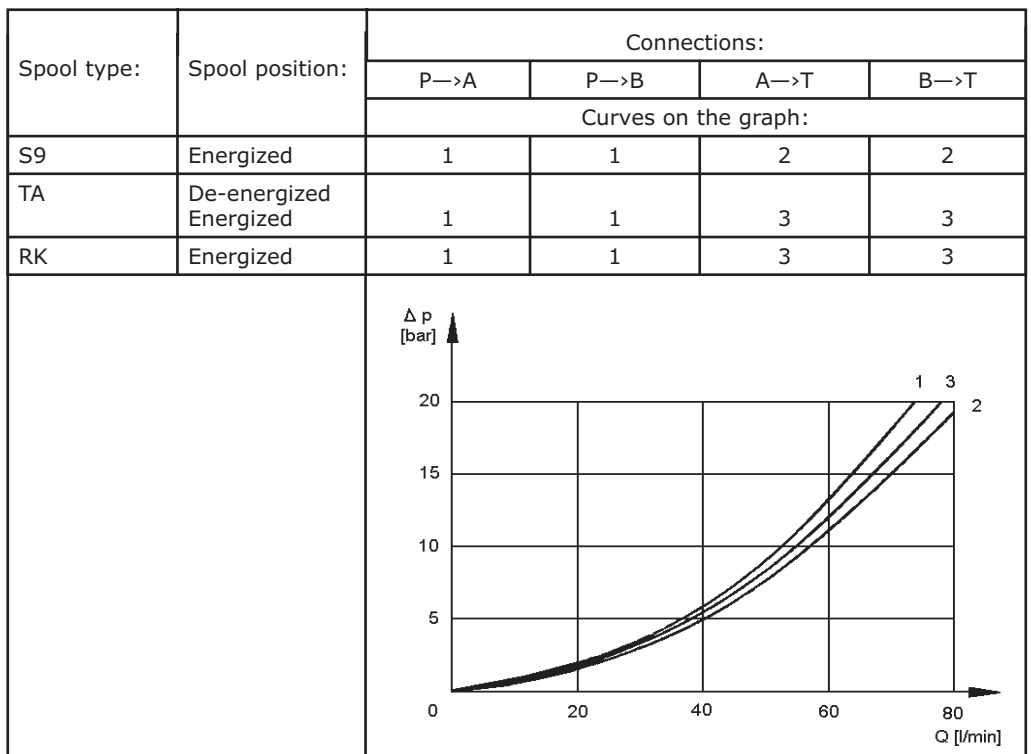
**Operating limits:**

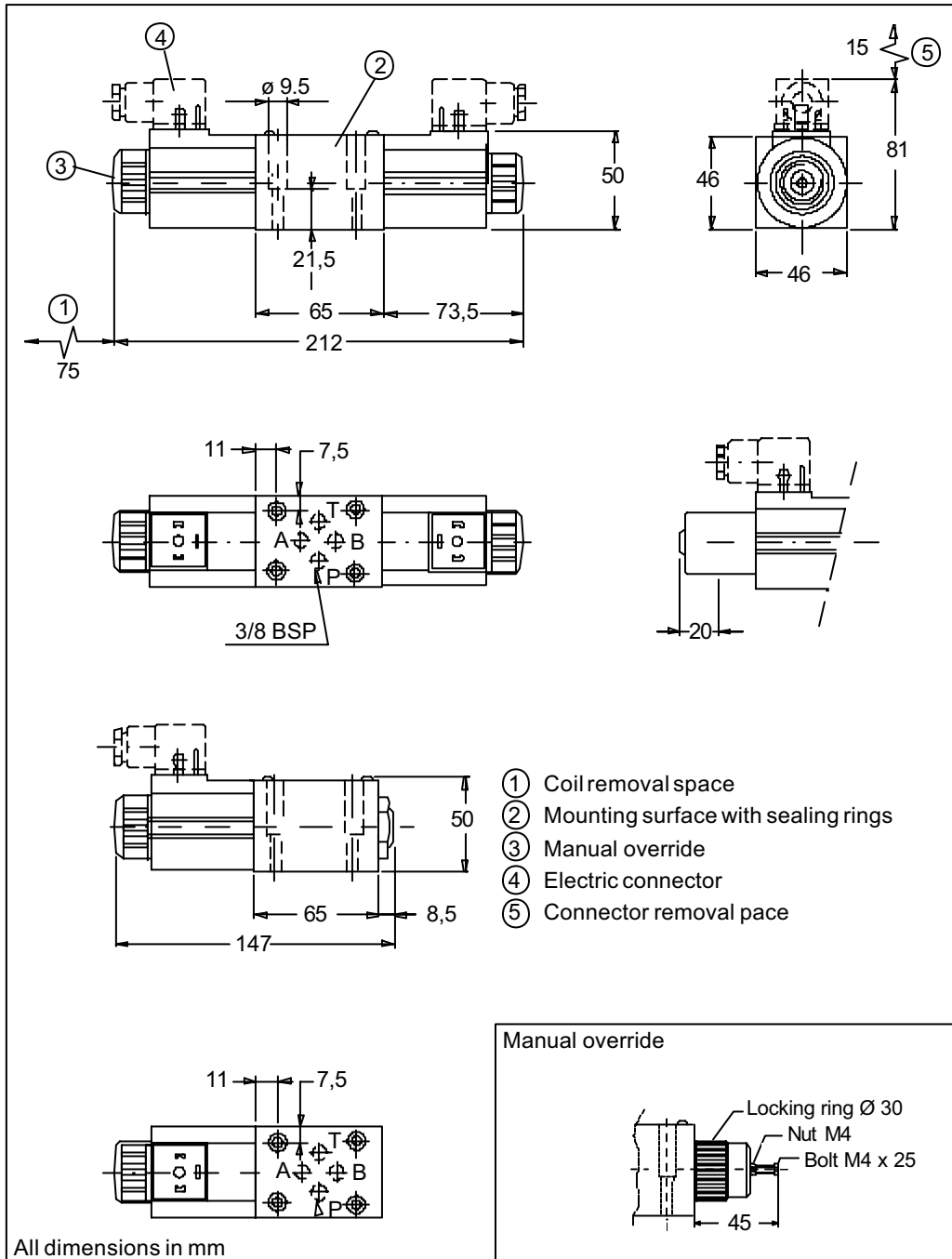
The curves define the flow rate operating fields according to the solenoid valve pressure with DC and AC solenoids. The values have been obtained with 36 cSt, temperature

50° C, filtration 25µm and with solenoids at rated temperature and supplied with voltage equal to 90% of the nominal voltage.



**Pressure drops Δp-Q:**



**Dimensions:**

**Optional:**

- Manual override. It is used when mechanical blocking is required in case of service or electrical failure.

**Mounting interface:**

ISO 4401 size 03  
 ANSI/B93.7M size D03  
 CETOP RP65H size 3  
 DIN 24340 NG6  
 IEC 144 - IP65

## Data sheet

## Solenoid operated directional control valves

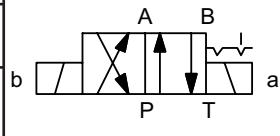
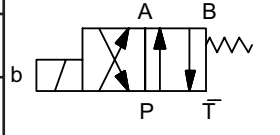
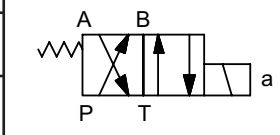
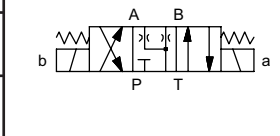
### Electrical specifications:

Supply voltage fluctuation: +5% - 10% Vnom  
 Max. switch on frequency: 10.000 ins/hr  
 Duty cycle: 100%  
 Electromagnetic compatibility (EMC):  
 - Emissions: EN 50081-1  
 - Immunities: EN 50082-2

Low voltage (in compliance with): 73/23/CEE  
 96/68/CEE  
 Class of protection acc. to IEC 144:  
 - Atmospheric agents: IP 65  
 - Coil insulation: Class H  
 - Impregnation: Class F

Nominal voltage and frequency		Power consumption at inrush	Power consumption at holding	Consumed current	Power
V	HZ	VA (± 5%)		A (± 5%)	W (± 5%)
110	50	176	49.5	-	-
220	50	176	50.6	-	-
110	60	198	61.6	-	-
220	60	198	61.6	-	-
24	DC	-	-	1.3	31.2

### Ordering:

Coil rating:	DMS order no.:	Type:	Symbol:
24 V DC	160L8000	MD1D-RK/59N-D/DMS	
110 V 50 Hz - 120 V 60 Hz	160L8001	MD1D-RK/59N-A/DMS	
220 V 50 Hz - 230 V 50 Hz - 240 V 60 Hz	160L8002	MD1D-RK/59N-A/DMS	
24 V DC	160L8004	MD1D-TA/59N-D/DMS	
110V 50 Hz - 120 V 60 Hz	160L8005	MD1D-TA/59N-A/DMS	
220 V 50 Hz - 230 V 50 Hz - 240 V 60 Hz	160L8006	MD1D-TA/59N-A/DMS	
24 V DC	160L8008	MD1D-TC/59N-D/DMS	
110 V 50 Hz - 120 V 60 Hz	160L8009	MD1D-TC/59N-A-DMS	
220 V 50 Hz - 230 V 50 Hz - 240 V 60 Hz	160L8010	MD1D-TC/59N-A/DMS	
24 V DC	160L8012	MD1D-S9/59N-D/DMS	
110 V 50 Hz - 120 V 60 Hz	160L8013	MD1D-S9/59N-A/DMS	
220 V 50 Hz - 230 V 50 Hz - 240 V 60 Hz	160L8014	MD1D-S9/59N-A/DMS	

### Accessories:

DMS order no.:	Type:	Description:
160L8020	C/EM47-50/R/10	Manual override

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