

**Product Data Sheet**

SD 4500-2E06

June 2010

# Damcos® Solenoid operated directional control valves



**Damcos®**

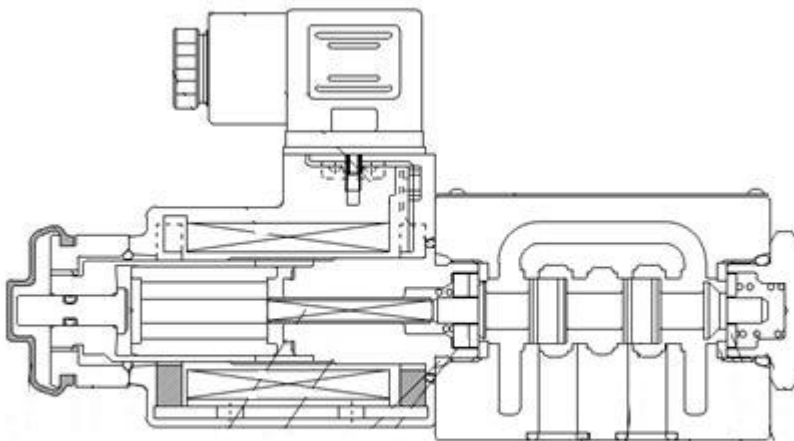
  
**EMERSON™**  
Process Management

# Damcos® Solenoid valve

## 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.



*Construction of a typical single solenoid model.*

All valves are delivered with manual push-button for local override

## Versions

### **Type C6S:**

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

### **Type A3X/H3X**

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

### **Type E3X:**

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

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## 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	80 l/min.
From port A or B to T	80 l/min.
Ambient temperature range:	-20°C to +60°C
Fluid temperature range:	-20°C to +70°C
Fluid viscosity range:	15-300 cSt
Recommended filtration:	≤ 25 µm absolute
Burst pressure:	680 bar
Mass	
Double	2.0 kg 1,8 (AC) 2,0 (DC)
Single	1.5 kg 1,4 (AC) 1,5 (DC)
Mounting Bolt	
Size x Length	M5 x 45 (Four)
Tightening Torque	5 to 7N. (51 to 71kgf.cm)

## 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.

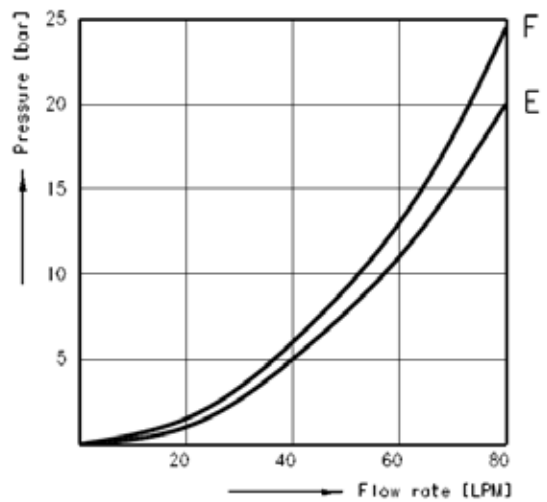
# Damcos® Solenoid valve

## Performance Curve

### Pressure Loss Characteristics

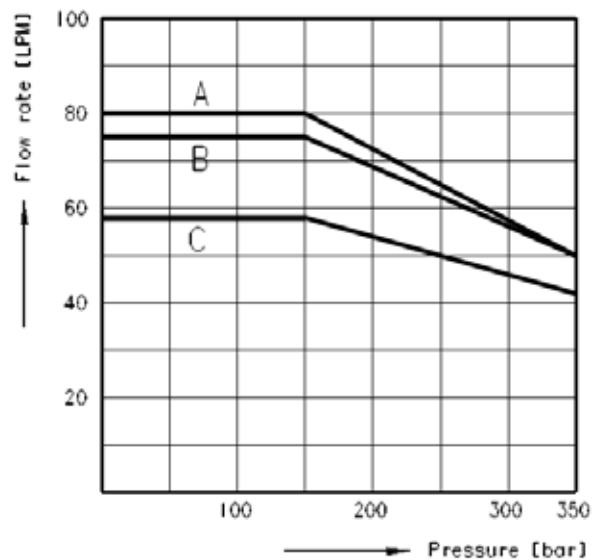
Type	Spool type	Connections:			
		P→A	P→B	A→T	B→T
SA-G01	A3X, H3X	E	E	E	E
	E3X	F	F	F	F
	C6S	F	F	F	F

Hydraulic Operating Fluid Viscosity 32cSt



### Pressure-Flow Volume Allowable value

Type	Spool type	Curve
SA-G01	A3X, H3X	A
	E3X	B
	C6S	C



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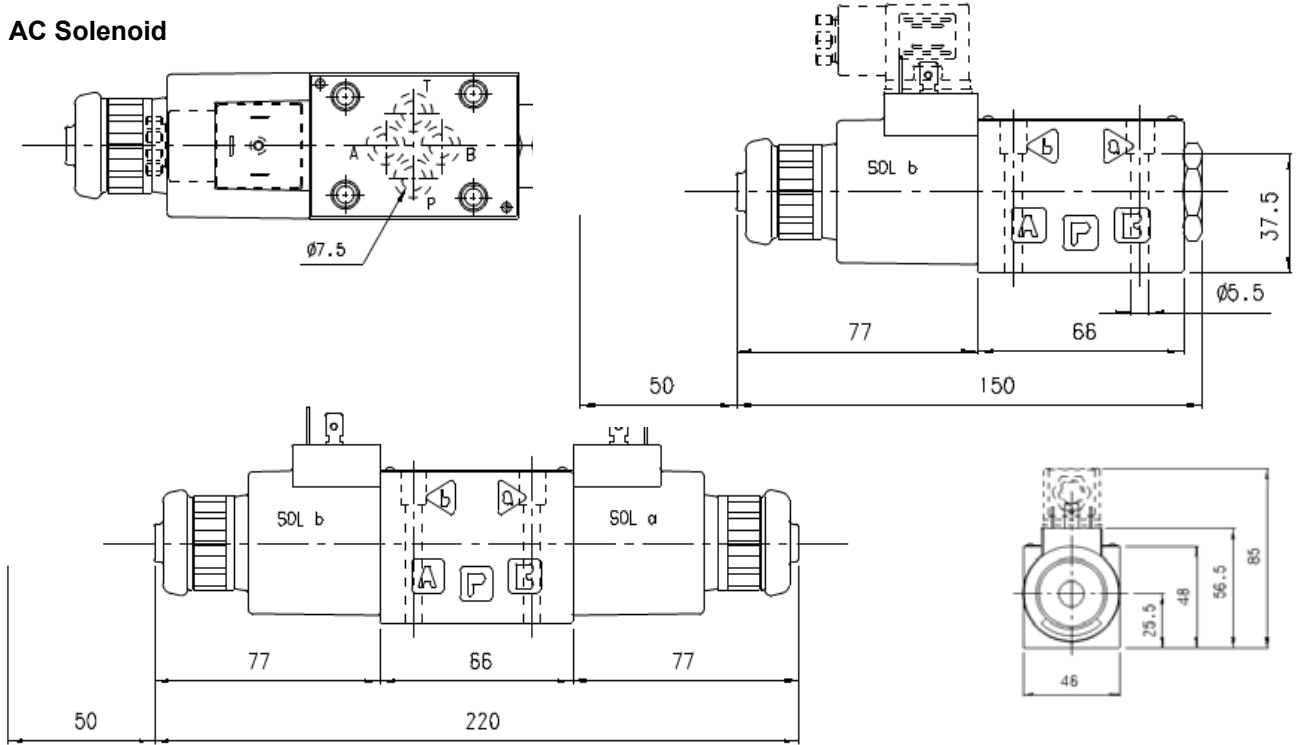
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# Damcos® Solenoid valve

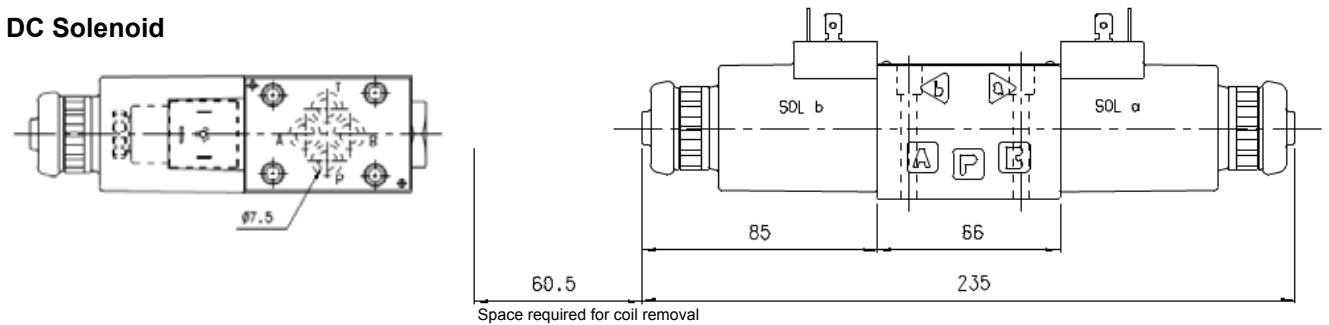
## Dimensions

### AC Solenoid



Space required for coil removal

### DC Solenoid

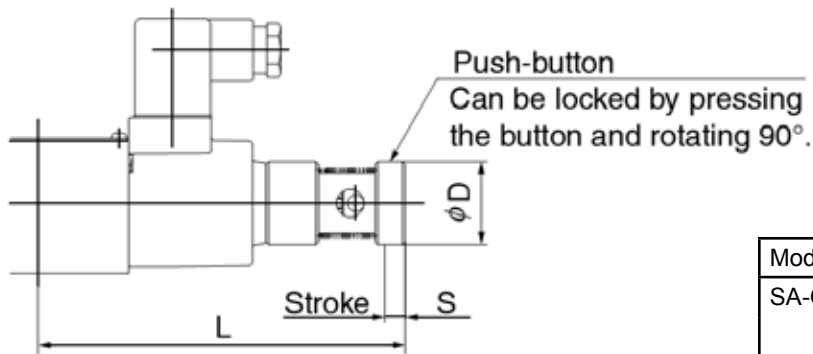


Space required for coil removal

# Damcos® Solenoid valve

## Optional

Lock for manual override. It is used when mechanical blocking is required in case of service or electrical failure.



Model no.		L	S	D
SA-G01	AC solenoid	133,5	7,5	30
	DC solenoid	140,5	9,5	35

## Mounting interface

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

## 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	220	63	-	-
220	50	220	63	-	-
110	60	200	-	-	-
220	60	200	-	-	-
24	DC	-	-	1.1	26

## Damcos® Solenoid valve

## Ordering

Coil rating:	ID-No	Type:	Symbol:
24 V DC	160L8050	MD1D-RK/59N-D/DMS	
110 V 50 Hz - 120 V 60 Hz	160L8051	MD1D-RK/59N-A/DMS	
220 V 50 Hz - 230 V 50 Hz - 240 V 60 Hz	160L8052	MD1D-RK/59N-A/DMS	
24 V DC	160L8054	MD1D-TA/59N-D/DMS	
110V 50 Hz - 120 V 60 Hz	160L8055	MD1D-TA/59N-A/DMS	
220 V 50 Hz - 230 V 50 Hz - 240 V 60 Hz	160L8056	MD1D-TA/59N-A/DMS	
24 V DC	160L8058	MD1D-TC/59N-D/DMS	
110 V 50 Hz - 120 V 60 Hz	160L8059	MD1D-TC/59N-A-DMS	
220 V 50 Hz - 230 V 50 Hz - 240 V 60 Hz	160L8060	MD1D-TC/59N-A/DMS	
24 V DC	160L8062	MD1D-S9/59N-D/DMS	
110 V 50 Hz - 120 V 60 Hz	160L8063	MD1D-S9/59N-A/DMS	
220 V 50 Hz - 230 V 50 Hz - 240 V 60 Hz	160L8064	MD1D-S9/59N-A/DMS	

## Accessories

ID-No:	Type:	Description:
160L8070	EDB14-A (for AC solenoid)	Lock for manual override
160L8071	EDB14-D (for AC solenoid)	Lock for manual override

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