



# MDS5

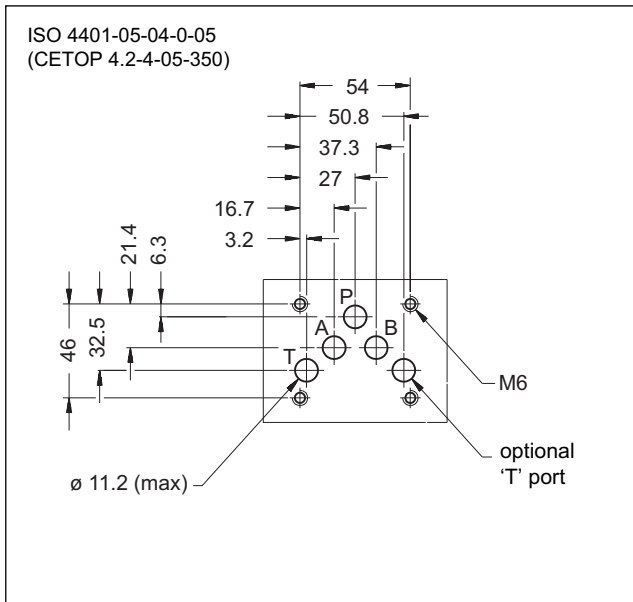
## SOLENOID OPERATED SWITCHING VALVE

### SERIES 10

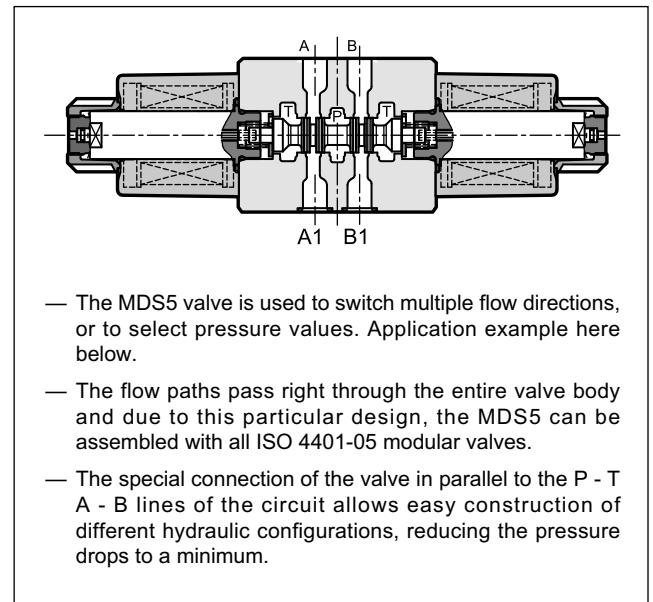
#### MODULAR VERSION ISO 4401-05

**p** max 350 bar  
**Q** max 100 l/min

#### MOUNTING INTERFACE



#### OPERATING PRINCIPLE

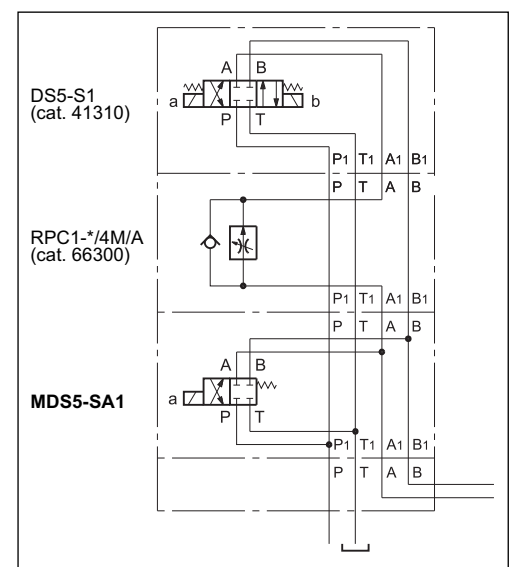


#### PERFORMANCES

(obtained with mineral oil with viscosity of 36 cSt at 50°C )

Max operating pressure: P - A - B ports T port (DC version) T port (AC version)	bar	350 210 160
Maximum flow on P - A - B ports	l/min	100
Ambient temperature range	°C	-20 / +50
Fluid temperature range	°C	-20 / +80
Fluid viscosity range	cSt	10 ÷ 400
Fluid contamination degree	According to ISO 4406:1999 class 20/18/15	
Recommended viscosity	cSt	25
Mass: double solenoid single solenoid	kg	4,6 3,7

#### APPLICATION EXAMPLE



## 1 - IDENTIFICATION CODE

MDS	5	-	/ 10	-	K1	/	
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Modular switching valve

Size: ISO 4401-05

Spools (see paragraph 2):

<b>S1</b>	<b>SA1</b>	<b>SB1</b>
	<b>TA</b>	<b>TB</b>

Series no.: (the overall and mounting dimensions remain unchanged from 10 to 19)

Seals:

**N** = NBR seals for mineral oils (**standard**)

**V** = FPM seals for special fluids

Option : manual override  
Omit for override integrated in the tube (**standard**)  
For DC version only:  
**CM** = boot protected.  
**CK** = knob  
**Details in catalogue 41 330.**

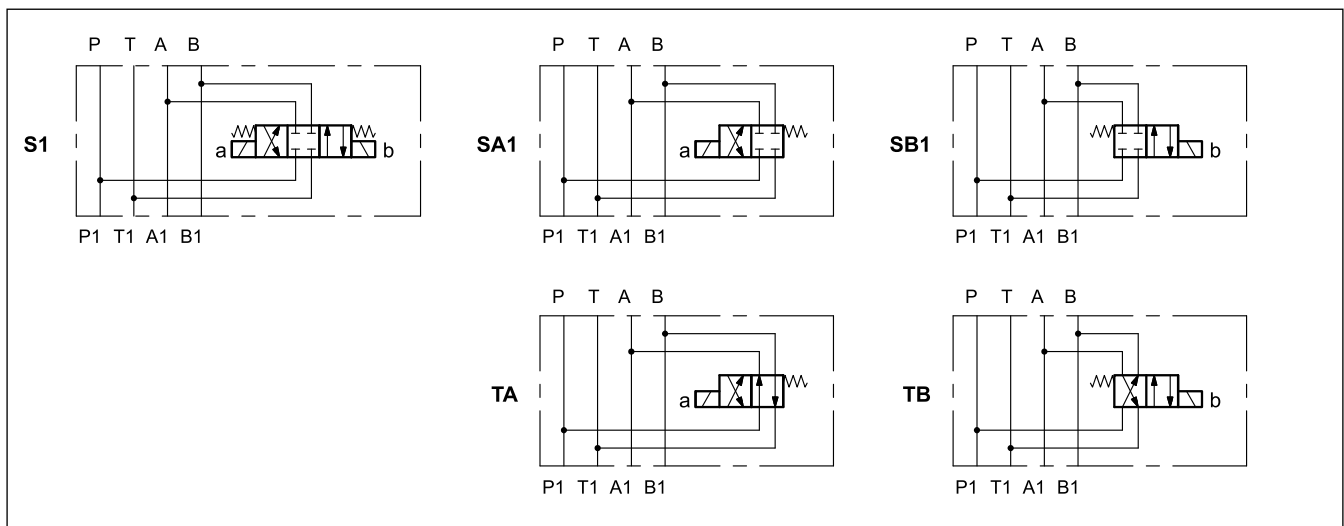
Coil electrical connection  
plug for connector type DIN 43650

Power supply:  
**Details of electrical features are in catalogue 41 330.**

DC power supply  
**D12** = 12 V  
**D24** = 24 V

AC power supply  
**A24** = 24 V - 50 Hz  
**A48** = 48 V - 50 Hz  
**A110** = 110 V - 50 Hz / 120V - 60 Hz  
**A230** = 230 V - 50 Hz / 240 V - 60 Hz

## 2 - SPOOLS



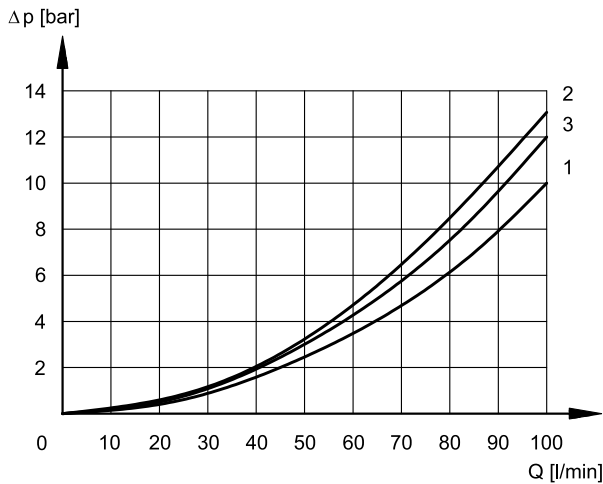
## 3 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals (code N). For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other fluid types such as HFA, HFB, HFC, please consult our technical department.

Using fluids at temperatures higher than 80 °C causes a faster degradation of the fluid and of the seals characteristics. The fluid must be preserved in its physical and chemical characteristics.

#### 4 - PRESSURE DROPS $\Delta P-Q$

(obtained with viscosity of 36 cSt at 50 °C)



#### ENERGIZED VALVE

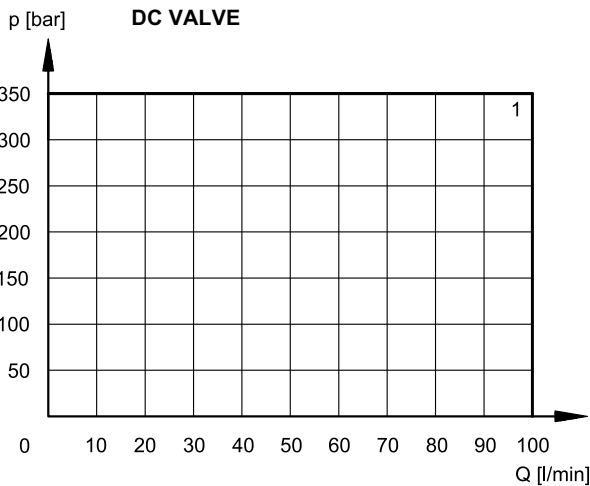
SPOOL	FLOW DIRECTIONS			
	P→A	P→B	A→T	B→T
CURVES ON GRAPHS				
S1	3	2	1	1

#### 5 - OPERATING LIMITS

The curves define the flow rate operating fields according to the valve pressure of the different versions. The values indicated in the graphs are relevant to the standard solenoid valve.

**The operating limits can be considerably reduced if a 4-way valve is used as 3-way valve with port A or B plugged or without flow.**

The values have been obtained according to ISO 6403 norm with solenoids at rated temperature and supplied with voltage equal to 90% of the nominal voltage. The value have been obtained with mineral oil, viscosity 36 cSt, temperature 50 °C and filtration according to ISO 4406:1999 class 18/16/13.



SPOOL	CURVE
S1, TA	1

#### 6 - SWITCHING TIMES

The values indicated are obtained with spool S1, according to ISO 6403 standard, with mineral oil viscosity 36 cSt at 50°C.

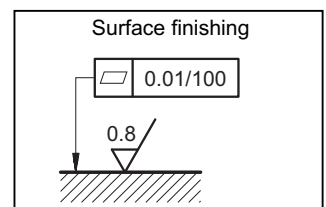
SUPPLY	TIMES ( $\pm 10\%$ ) [ms]	
	ENERGIZING	DE-ENERGIZING
DC	40 ÷ 90	20 ÷ 50
AC	15 ÷ 30	20 ÷ 50

#### 7 - INSTALLATION

The valve can be mounted in any position.

Valve fixing takes place by means of screws or tie rods, with the valve mounted on a lapped surface, with values of planarity and smoothness that are equal to or better than those indicated in the drawing.

If the minimum values of planarity and/or smoothness are not met, fluid leakages between valve and mounting surface can easily occur.



## 8 - OVERALL AND MOUNTING DIMENSIONS

