

# DT03

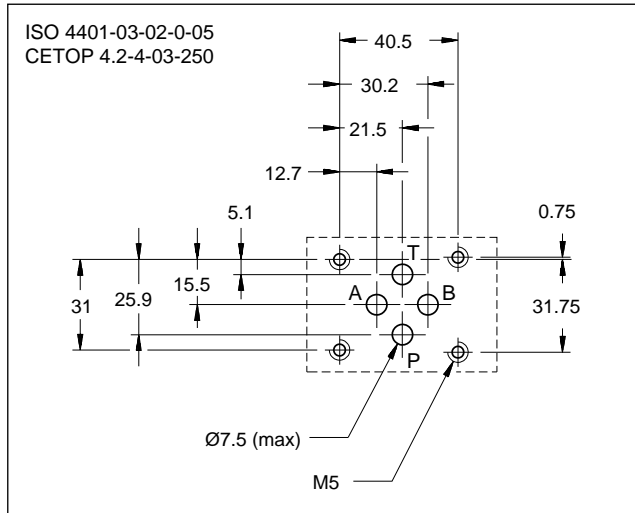
## POPPET TYPE SOLENOID OPERATED DIRECTIONAL CONTROL VALVE

### SERIES 10

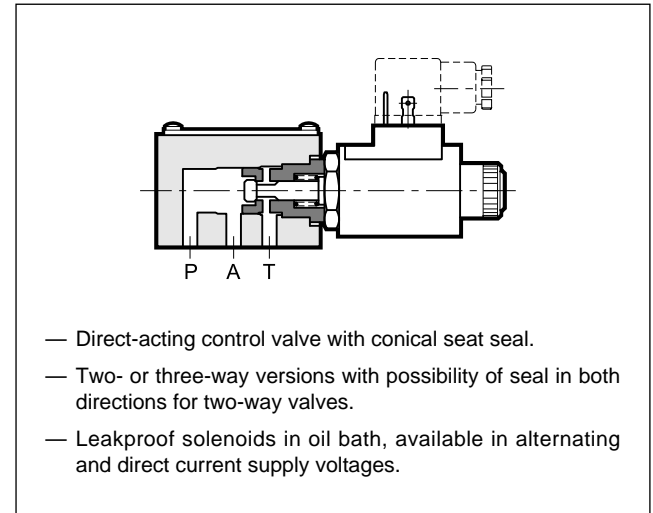
#### SUBPLATE MOUNTING ISO 4401-03

p max **250** bar  
Q max **25** l/min

#### MOUNTING INTERFACE



#### OPERATING PRINCIPLE

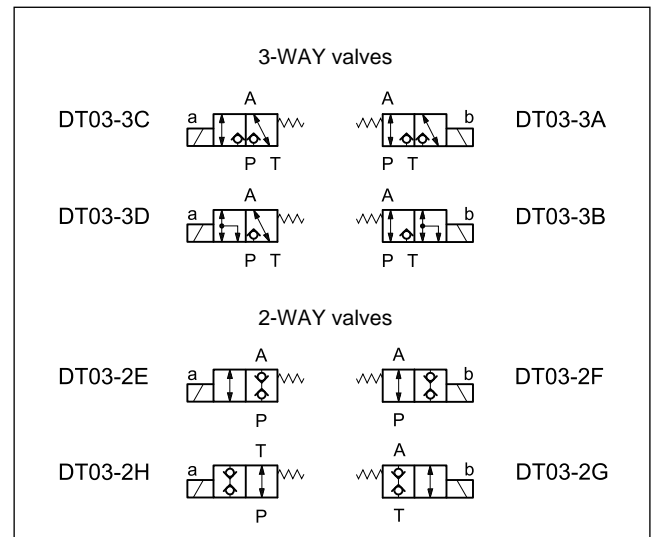


#### PERFORMANCES

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

Maximum operating pressure	bar	250
Maximum flow rate	l/min	25
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	kg	1,3

#### HYDRAULIC SYMBOLS



### 1 - IDENTIFICATION CODE

<b>D</b>	<b>T</b>	<b>03</b>	-	/	/	<b>10</b>	/	/
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Poppet type solenoid operated directional control valve

Size: ISO 4401-03

Number of ways:  
**2** = 2-way  
**3** = 3-way

Type of configuration:  
**A - B - C - D**: 3-way, 2-position solenoid valve  
**E - F - G - H**: 2-way, 2-position solenoid valve

Variant on line P (omit if not required):  
**D08** = orifice Ø0.8  
**D10** = orifice Ø1.0

Seals:  
omit for mineral oils  
**V** = viton for special fluids

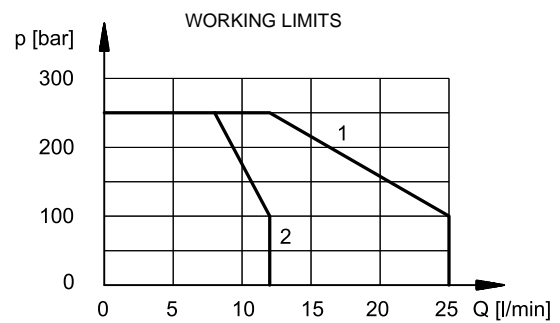
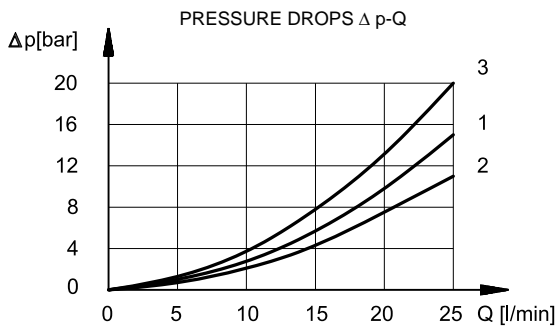
Supply voltage  
**12V-CC** = 12 V  
**24V-CC** = 24 V } direct current

**24RAC** = 24 V  
**110RAC** = 110 V  
**220RAC** = 220 V } alternating current

Series No.  
 (The overall and mounting dimensions remain unchanged from 10 to 19)

### 2 - CHARACTERISTIC CURVES

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



valve	Curve on graph	
	De-energized solenoid	Energized solenoid
<b>DT03-3A</b>	1	3
<b>DT03-3B</b>	2	3
<b>DT03-3C</b>	1	3
<b>DT03-3D</b>	2	3
<b>DT03-2E</b>	-	3
<b>DT03-2F</b>	1	-
<b>DT03-2G</b>	-	3
<b>DT03-2H</b>	1	-

valve	Curve on graph
<b>DT03-3A</b>	2
<b>DT03-3B</b>	1
<b>DT03-3C</b>	1
<b>DT03-3D</b>	1
<b>DT03-2E</b>	1
<b>DT03-2F</b>	2
<b>DT03-2G</b>	1
<b>DT03-2H</b>	1

### 3 - FLOW LIMITATION

When the solenoid valve is fed by an accumulator or by high delivery pumps it is necessary to limit the flow to the working limits by means of orifices. The orifice must be located on the accumulator side always.



**WARNING!** During the transition from one to the other end position all ports are interconnected. This means that during the switching the oil will be flowing from the accumulator to the tank through the valve, until the swithing is completed.

That is why the maximum flow should be limited up to 12 l/min by placing orifices.

### 4 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HM type, according to ISO 6743-4. For these fluids, use NBR seals. For fluids HFDR type (phosphate esters) use FPM seals (code V). For the use of other kinds of fluid 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.

### 5 - ELECTRICAL FEATURES

#### 5.1 - Solenoids

These are essentially made up of two parts: tube and coil.

The tube is threaded onto the valve body and includes the armature that moves immersed in oil, without wear. The inner part, in contact with the oil in the return line, ensures heat dissipation. The coil is fastened to the tube by a threaded nut, and can be turned 360° on its axis, compatible with space available.

The interchangeability of coils of different voltages is allowed within the same type of supply current: alternating or direct (DC / RAC).

**NOTE:** The protection degree is guaranteed only with connector correctly mated and installed.

<b>VOLTAGE SUPPLY FLUCTUATION</b>	± 10% Vnom
<b>DUTY CYCLE</b>	100%
<b>ELECTROMAGNETIC COMPATIBILITY (EMC)</b>	In compliance with 2014/30/EU
<b>LOW VOLTAGE</b>	In compliance with 2014/35/EU
<b>CLASS OF PROTECTION:</b> Atmospheric agents (EN 60529) Coil insulation (VDE 0580) Impregnation	IP 65 ( <b>NOTE</b> ) class H class F

#### 5.2 - Current and power consumption

The table shows the consumption values for the different coil type.

It is necessary to always use "D" type connectors (with rectifier incorporated) and RAC coils for alternating current supply.

Rectified current supply takes place by using a bridge rectifier bridge, externally or fitted within the "D" type connectors, between the alternating current source (24V or 110V, /50 or /60 Hz) and the coil.

Coil	Voltage [V]	Resistance at 20°C [Ω]	Current consumpt. [A]	Power consumpt. [W]	Coil code
<b>12V-CC</b>	12	5,6	2,14	25,7	1902050
<b>24V-CC</b>	24	21,8	1,10	26,4	1902051
<b>24RAC</b>	24	17	1,23	26	1902052
<b>110RAC</b>	110	420	0,23	22	1902053
<b>220RAC</b>	220	1750	0,11	22	1902054

#### 5.3 - Switching times

The values indicated refer to a flow rate of Q = 10 l/min, p = 210 bar working with mineral oil at a temperature of 50°C, a viscosity of 36 cSt and supply voltage equal to 90% of the nominal voltage.

TIMES (±10%)	ENERGIZING	DE-ENERGIZING
	30 ms	50 ms

#### 5.4 - Electric connectors

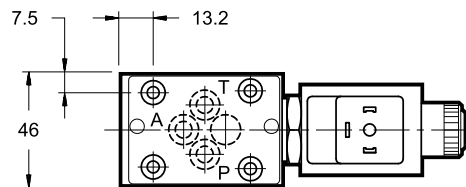
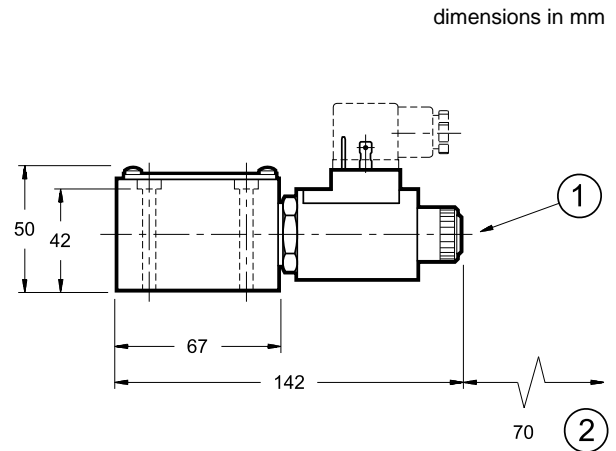
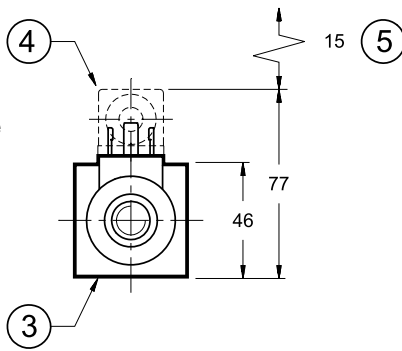
The solenoid valves are never supplied with connector.

Connectors must be ordered separately. See catalogue 49 000.

### 6 - OVERALL AND MOUNTING DIMENSIONS

**NOTE:** The solenoid position here shown is for A-B-F-G versions.  
For the other versions the solenoid is on the opposite side.

Fastening bolts:  
4 bolts M5 x 50  
Torque: 5 Nm



1	Manual override
2	Coil removal space
3	Mounting surface with sealing rings: 4 OR type 2037 (9.25X1.78) - 90 Shore
4	Electric connector to be ordered separately (see cat. 49 000)
5	Connector removal space

### 7 - APPLICATION EXAMPLES

