### DT03

**POPPE Type SOLENOID OPERATED DIRECTIONAL CONTROL VALVE**

**SERIES 10**

#### SUBPLATE MOUNTING

**ISO 4401-03**

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

#### MOUNTING INTERFACE

ISO 4401-03-02-0-05

CETOP 4.2-4-03-250

#### OPERATING PRINCIPLE

- Direct-acting control valve with conical seat seal.
- Two- or three-way versions with possibility of seal in both directions for two-way valves.
- Leakproof solenoids in oil bath, available in alternating and direct current supply voltages.

#### PERFORMANCES

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

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Maximum operating pressure</strong></td>
<td><strong>bar</strong></td>
<td>250</td>
</tr>
<tr>
<td><strong>Maximum flow rate</strong></td>
<td><strong>l/min</strong></td>
<td>25</td>
</tr>
<tr>
<td><strong>Ambient temperature range</strong></td>
<td><strong>°C</strong></td>
<td>-20 / +50</td>
</tr>
<tr>
<td><strong>Fluid temperature range</strong></td>
<td><strong>°C</strong></td>
<td>-20 / +80</td>
</tr>
<tr>
<td><strong>Fluid viscosity range</strong></td>
<td><strong>cSt</strong></td>
<td>10 ÷ 400</td>
</tr>
<tr>
<td><strong>Fluid contamination degree</strong></td>
<td></td>
<td>According to ISO 4406:1999 class 20/18/15</td>
</tr>
<tr>
<td><strong>Recommended viscosity</strong></td>
<td><strong>cSt</strong></td>
<td>25</td>
</tr>
<tr>
<td><strong>Mass</strong></td>
<td><strong>kg</strong></td>
<td>1.3</td>
</tr>
</tbody>
</table>

#### HYDRAULIC SYMBOLS

**3-WAY valves**

- **DT03-3C**
- **DT03-3A**
- **DT03-3B**

**2-WAY valves**

- **DT03-2E**
- **DT03-2F**
- **DT03-2G**
1 - IDENTIFICATION CODE

Supply voltage:
- 12V-CC = 12 V
- 24V-CC = 24 V
- 24RAC = 24 V
- 110RAC = 110 V
- 220RAC = 220 V

2 - CHARACTERISTIC CURVES
(values obtained with viscosity 36 cSt at 50 °C)

**PRESSURE DROPS \( \Delta p-Q \)**

**WORKING LIMITS**

<table>
<thead>
<tr>
<th>valve</th>
<th>Curve on graph</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>De-energized solenoid</td>
</tr>
<tr>
<td>DT03-3A</td>
<td>1</td>
</tr>
<tr>
<td>DT03-3B</td>
<td>2</td>
</tr>
<tr>
<td>DT03-3C</td>
<td>1</td>
</tr>
<tr>
<td>DT03-3D</td>
<td>2</td>
</tr>
<tr>
<td>DT03-2E</td>
<td>-</td>
</tr>
<tr>
<td>DT03-2F</td>
<td>1</td>
</tr>
<tr>
<td>DT03-2G</td>
<td>-</td>
</tr>
<tr>
<td>DT03-2H</td>
<td>1</td>
</tr>
</tbody>
</table>

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 switching is completed.

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

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.

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.

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

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

7 - APPLICATION EXAMPLES

- **DT03-3A/10**
- **DT03-3A/10**
- **DT03-3A/10**
- **DT03-3C/10**
- **DT03-3C/10**
- **DT03-2E/10**