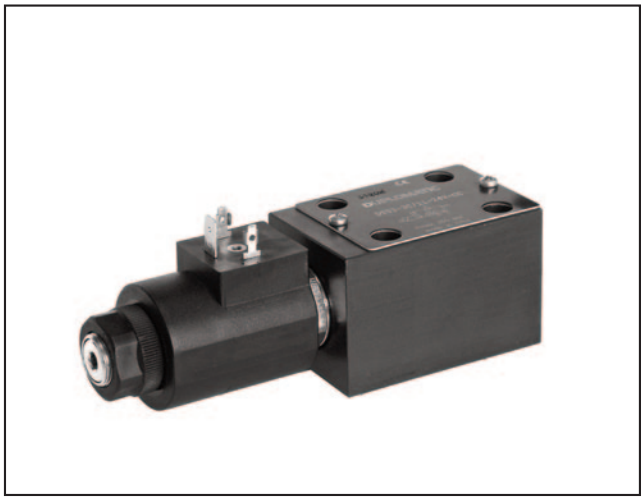


DT03

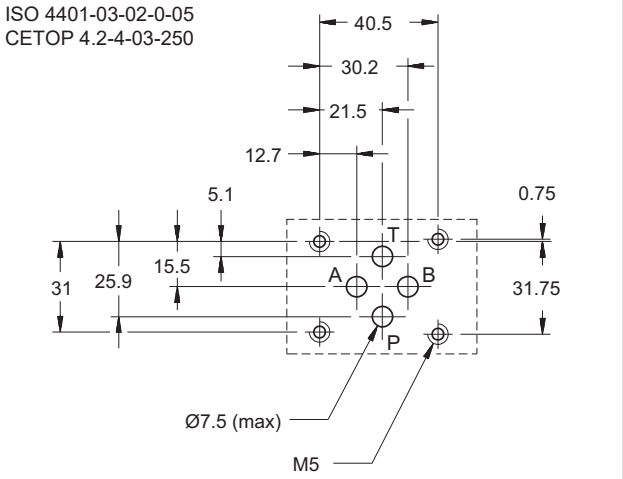
SOLENOID OPERATED DIRECTIONAL CONTROL VALVE, POPPET TYPE

SERIES 11

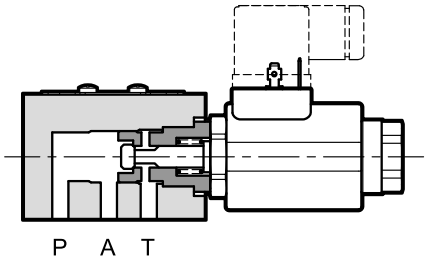
SUBPLATE MOUNTING ISO 4401-03

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

MOUNTING INTERFACE



OPERATING PRINCIPLE



— The DT03 is a direct-operated directional poppet valve, solenoid actuated, with conical seat seal.

— It is available in 2/2 or 3/2 designation. Two-way models provide bidirectional sealing.

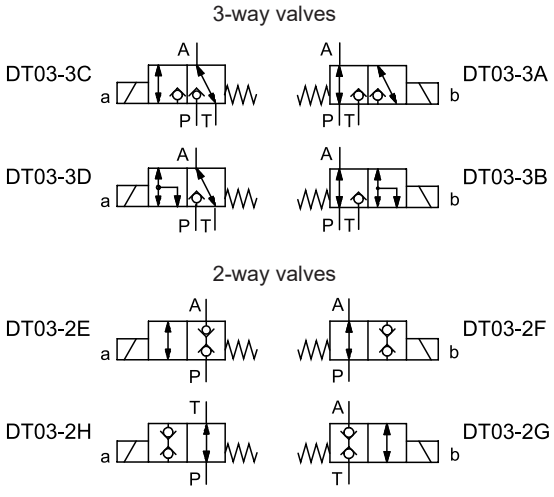
— Solenoids are oil-bath, leakproof. The valve is available for DC or AC power supply.

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

D	T	03	-			/		/	11		-		K1

Solenoid actuated directional control valve, poppet type

Size: ISO 4401-03

Number of ways:
2 = two-way configuration
3 = three-way configuration

Valve port / position designation:
A - B - C - D: 3-way, 2-position
E - F - G - H: 2-way, 2-position

Variant in port P (omit if not required):
D08 = orifice Ø0.8
D10 = orifice Ø1.0

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

Seals:
N = NBR seals for mineral oil (**standard**)
V = FPM seals for special fluids

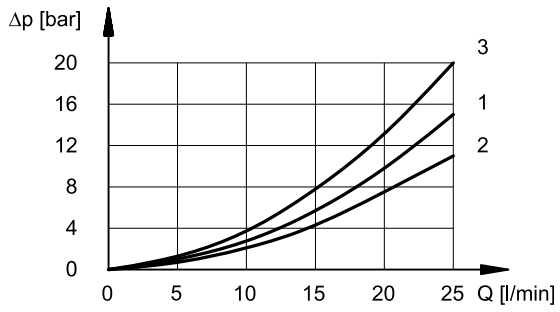
DC power supply:
D24 = 24 V
AC power supply to be rectified
R110 = 110 V
R220 = 220 V

Coil electrical connection:
plug for connector type
EN 175301-803 (ex DIN 43650)

2 - CHARACTERISTIC CURVES

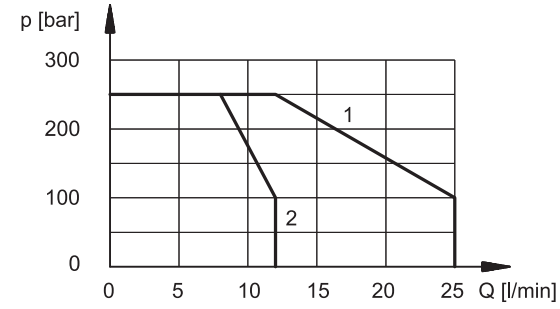
(values obtained with viscosity 36 cSt at 50 °C)

2.1 - Pressure drops Δp-Q



VALVE TYPE	CURVES	
	NORMAL POSITION	ACTUATED POSITION
DT03-3A	1	3
DT03-3B	2	3
DT03-3C	1	3
DT03-3D	2	3
DT03-2E	-	3
DT03-2F	1	-
DT03-2G	-	3
DT03-2H	1	-

2.2 - Operating limits



VALVE TYPE	CURVE
DT03-3A	2
DT03-3B	1
DT03-3C	1
DT03-3D	1
DT03-2E	1
DT03-2F	2
DT03-2G	1
DT03-2H	1

3 - FLOW LIMITATION

When the solenoid valve is supplied 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 always be located on the accumulator side.

WARNING! During the transition from one end-position to the other, all the valve flow paths are interconnected. This means that during switching, the oil will flow from the accumulator to the tank through the valve, until the swithing process is completed.

For this reason, the flow rate shall be limited to 12 l/min by means of appropriate 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 fluids such as HFA, HFB or HFC, please consult our technical department. Using fluids at temperatures higher than 80 °C causes faster degradation of the fluid and of the seals' characteristics.

The fluid must be preserved in its physical and chemical properties.

5 - ELECTRICAL FEATURES

5.1 - Solenoids

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

The tube is threaded into 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 ring, and can be rotated 360°, to suit the available space.

The interchangeability of coils of different voltages is permitted within the same type of supply current (DC / AC)

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

VOLTAGE SUPPLY FLUCTUATION	± 10% Vnom
DUTY CYCLE	100%
ELECTROMAGNETIC COMPATIBILITY (EMC)	In compliance with 2014/30/EU
LOW VOLTAGE	In compliance with 2014/35/EU
CLASS OF PROTECTION Atmospheric agents (EN 60529) Coil insulation (VDE 0580) Impregnation	 IP65 (**NOTE**) class H class F

5.2 - Current and power consumption

The table shows the power consumption values for the different coil types.

It is essential to use D-type connectors (with an integrated rectifier - see catalogue 49 000) together with R* coils when operating from an alternating-current supply.

Rectification is performed by a bridge rectifier, either integrated in the D-type connector or provided externally, between the AC power source (110 V or 220 V, 50/60 Hz) and the coil.

	Nominal voltage [V]	Resistance at 20°C [Ohm]	Current consumpt. [A]	Power consumpt. [W]	Coil code
D24	24	21,8	1,10	26,4	1904211
R110	110	420	0,23	22	1904213
R220	220	1750	0,11	22	1904214

6 - SWITCHING TIMES

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

TIMES [ms]	
ENERGIZING	DE-ENERGIZING
30	50

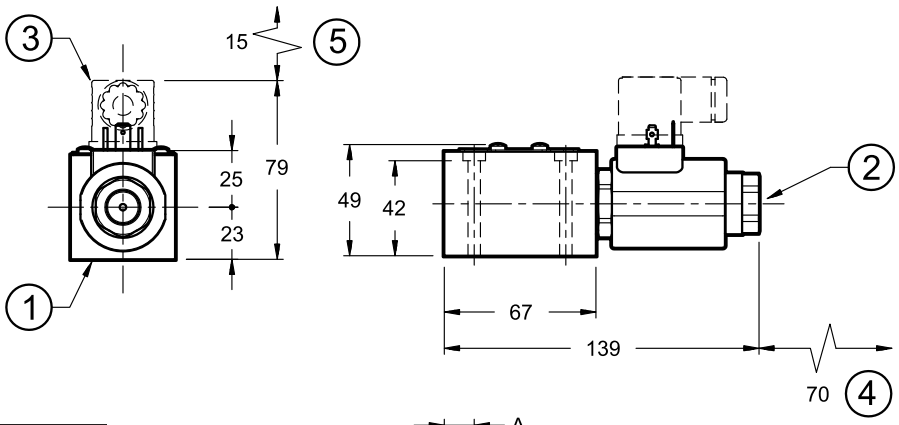
7 - ELECTRIC CONNECTORS

Solenoid operated valves are delivered without connectors. Connectors type EN 175301-803 (ex DIN 43650) for K1 connections can be ordered separately. See catalogue 49 000.

8 - OVERALL AND MOUNTING DIMENSIONS

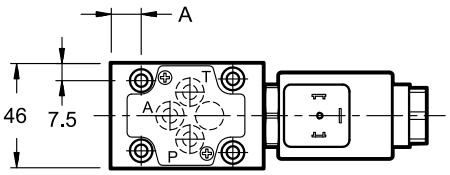
NOTE: The solenoid position shown applies to the A-B-F-G versions. Other versions have the solenoid on the opposite side.

dimensions in mm



Fastening bolts:
4 bolts M5x50 - torque: 5 Nm

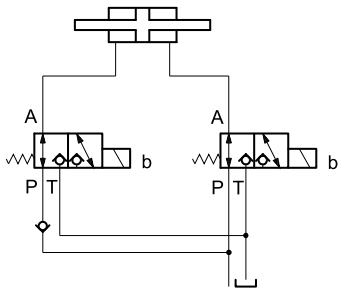
1	Mounting surface with sealing rings: 4 OR type 2037 (9.25x1.78) - 90 Shore
2	Manual override
3	Electric connector to be ordered separately (see cat. 49 000)
4	Coil removal space
5	Connector removal space



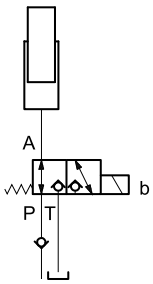
versions	C-D-E-H	A-B-F-G
A [mm]	19.2	13.2

9 - APPLICATION EXAMPLES

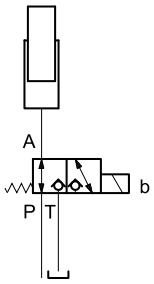
DT03-3A



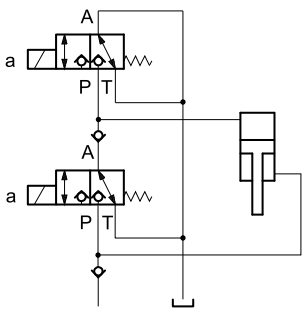
DT03-3A



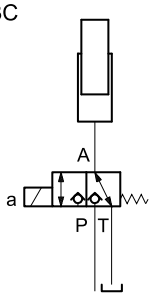
DT03-3A



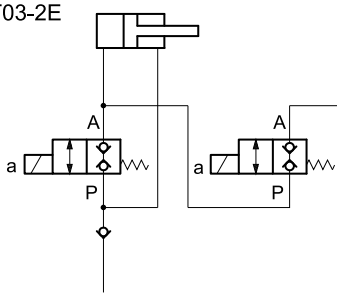
DT03-3C



DT03-3C



DT03-2E



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