DUPLOMATIC
HYDRAULICS

MDF3

SHUT-OFF SOLENOID VALVE

SERIES 10

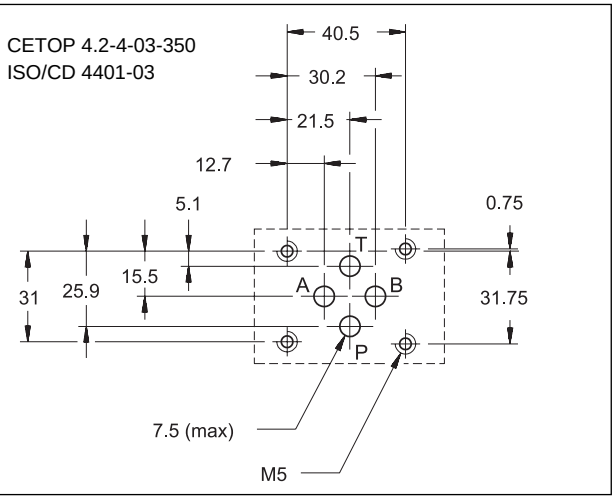
MODULAR VERSION

CETOP 03

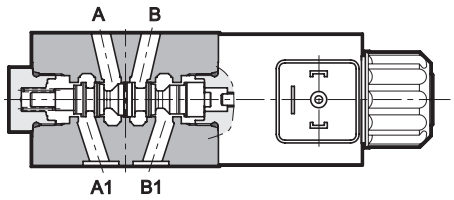
p max **350** bar

Q max **50** l/min

MOUNTING INTERFACE



MODULAR VERSION



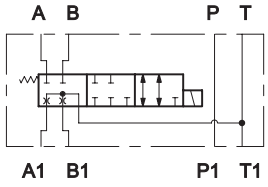
- Shut-off solenoid valve, direct-acting, available in 2 versions at rest: with lines blocked and with unloading lines.
- It is normally used with directional control servovalves to guarantee the circuit's safety if there is a power failure.
- Wet armature solenoids with interchangeable coils are used (for further information see par. 6).

SPOOL TYPE (see hydraulic symbols table)

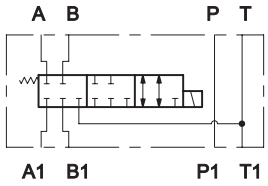
Type "A": it is used to unload the lines, with the valve at rest.
Type "C": it is used to block the lines, with the valve at rest.

HYDRAULIC SYMBOLS

MDF3-A



MDF3-C



PERFORMANCE RATINGS (working with mineral oil of viscosity of 36 cSt at 50°C)

Maximum operating pressure	bar	350
Maximum flow rate	l/min	50
Ambient temperature range	°C	–20 ÷ +50
Fluid temperature range	°C	–20 ÷ +80
Fluid viscosity range	cSt	10 ÷ 400
Recommended viscosity	cSt	25
Fluid contamination degree	according to NAS 1638 class 10	
Mass	kg	1,5

1 - IDENTIFICATION CODE

M	D	F	3	-		/	10		-		K1

Modular solenoid valve

FAIL SAFE feature

CETOP 03 size

Spool type:
A = open (with lines A1 and B1 in T at rest)
C = closed (with lines A1 and B1 closed, at rest)

Series: (the overall and mounting dimensions remain unchanged from 10 to 19)

Power supply:
D12 = 12 V
D24 = 24 V
D110 = 110 V
D220 = 220 V
D00 = valve without coils (see note)

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

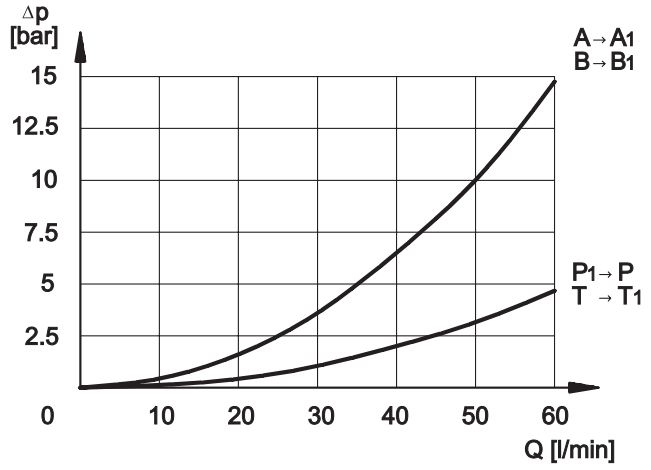
Coil electrical connection:
plug for connector type DIN 43650 **(standard)**

NOTA: the locking ring of the coil and the relevant O-Rings are supplied together with valves.

2 - HYDRAULIC FLUIDS

Use mineral oil-based hydraulic fluids HL or HPL type, according to ISO 6743/3.
For fluids HFD-R 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 70 °C causes a faster degradation of the fluid and of the seals characteristics.
The fluid must be preserved in its physical and chemical characteristics.

3 - PRESSURE DROPS Δp-Q (obtained with viscosity 36 cSt at 50 °C)



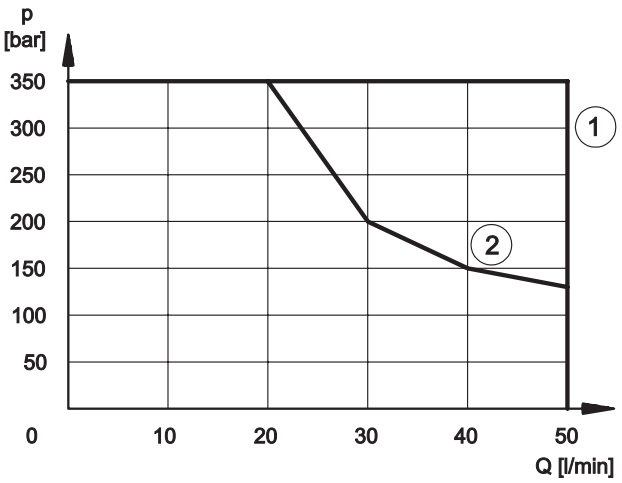
4 - SWITCHING TIMES

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

TIMES	
ENERGIZING	**DE-ENERGIZING**
60 ÷ 90 ms	20 ÷ 50 ms

5 - OPERATING LIMITS

The curves define the flow rate operating fields according to the valve pressure of the different versions.
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 values have been obtained with mineral oil, viscosity 36 cSt, temperature 50 °C and filtration according to NAS 1638 class 7.



① - Curve related to the de-energizing of the solenoid valve
- Curve related to the energizing of the solenoid valve, without any flow in A and B lines

② Curve related to the energizing of the solenoid valve, with flow in A and B lines

6 - ELECTRICAL FEATURES

6.1 Solenoids

These are essentially made up of two parts: tube and 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.
Note 1: In order to further reduce the emissions, use of type H connectors is recommended. These prevent voltage peaks on opening of the coil supply electrical circuit (see cat. 49 000).

SUPPLY VOLTAGE FLUCTUATION	± 10% Vnom
MAX SWITCH ON FREQUENCY	18.000 ins/hr
DUTY CYCLE	100%
ELECTROMAGNETIC COMPATIBILITY (EMC) **EMISSIONS (see note 1)** EN 50081-1 **IMMUNITY** EN 50082-2	in compliance with 89/336 CEE
LOW VOLTAGE	in compliance with 73/23/CEE 96/68/CEE
Class of protection: Atmospheric agents (CEI EN 60529) Coil insulation (VDE 0580) Impregnation: CC valve CA valve	IP 65 **(see note 2)** class H class F class H

Note 2: The IP65 protection degree is guaranteed only with the connector correctly connected and installed.

6.2 Current and absorbed power

The table shows current and power consumption values relevant to the different coil types for DC. The rectified current supply takes place by fitting the valve with an alternating current source (50 or 60 Hz), rectified by means of a bridge built-in to the “D” type connectors (see cat. 49 000).

Coils for direct current (values ± 5%)

Suffix	Nominal voltage [V]	Resistance at 20°C [ohm]	Current consumpt. [A]	Power consumpt. [W]	Coil code
D12	12	4,4	2,72	32,6	1901671
D24	24	18,6	1,29	31	1901672
D110	110	339	0,32	35,2	1901674
D220	220	1692	0,13	28,6	1901675

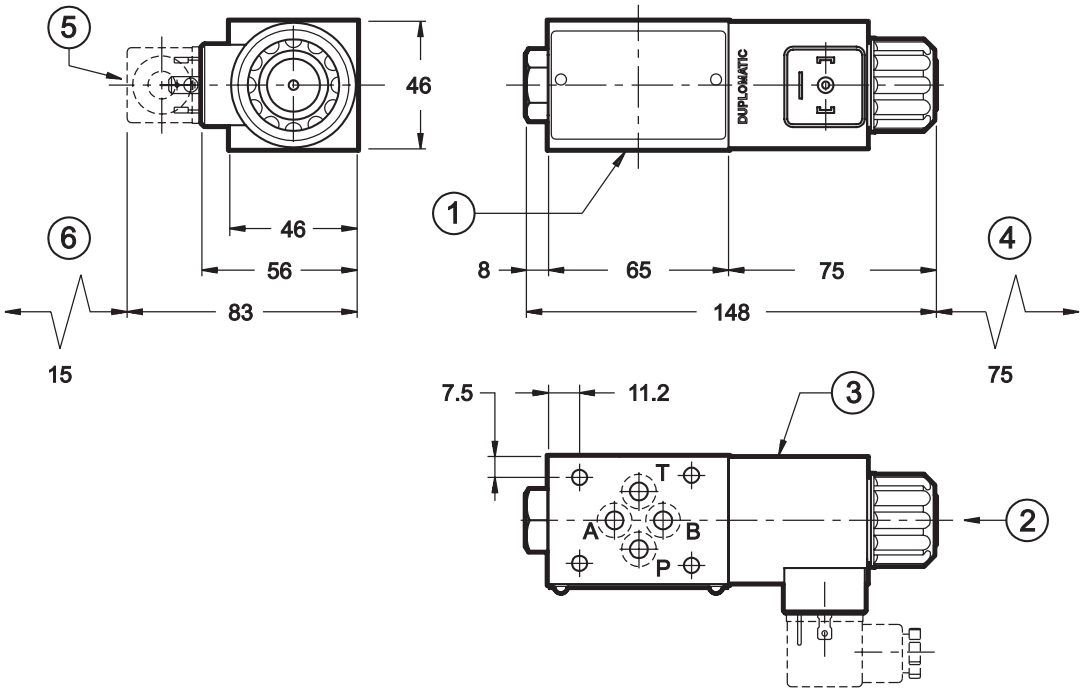
Note: It is necessary to allow, when supplying the valve with rectified current, a reduction of the operating limits by 5-10% approx.

7 - ELECTRIC CONNECTORS

The solenoid operated valves are delivered without the connectors. They must be ordered separately.
For the identification of the connector type to be ordered, please see catalogue 49 000.

8 - OVERALL AND MOUNTING DIMENSIONS

dimensions in mm



1	Mounting surface with sealing rings: 4 OR type 2037 - 90 shore
2	Standard manual override included in the solenoid tube
3	Coil (180° revolving)
4	Coil removal space
5	DIN 43650 electrical connector to be ordered separately (see cat. 49 000)
6	Connector removal space

DUPLOMATIC HYDRAULICS

DUPLOMATIC OLEODINAMICA SpA
20025 LEGNANO (MI) - P.le Bozzi, 1 / Via Edison
Tel. 0331/472111 - Fax 0331/548328