



DIPLOMATIC
HYDRAULICS

41 270/104 ED



MDF3

SHUT-OFF SOLENOID VALVE

SERIES 10

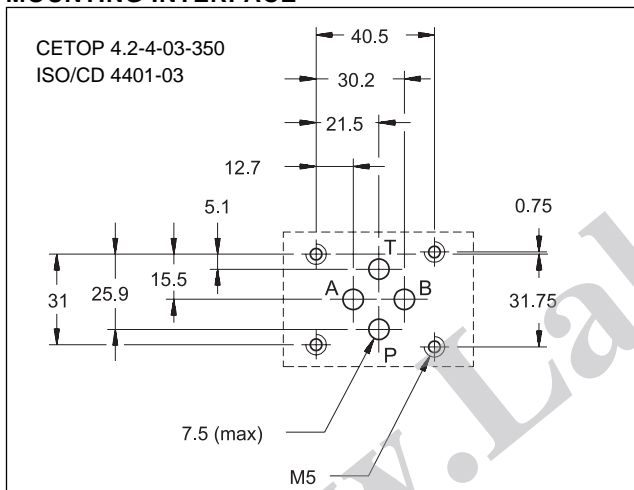
MODULAR VERSION

CETOP 03

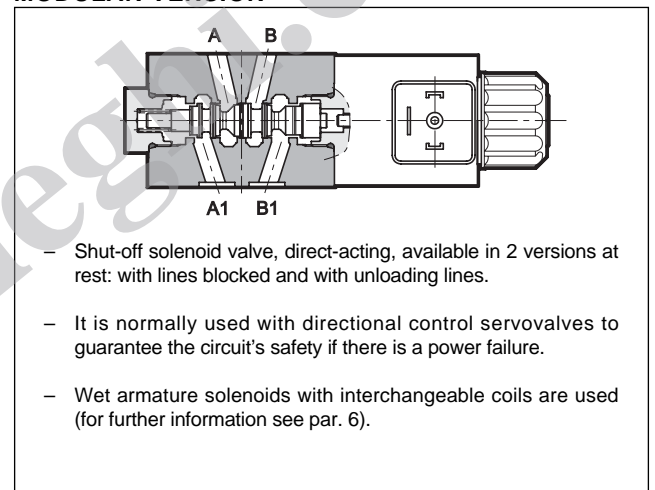
p max **350** bar

Q max **50** l/min

MOUNTING INTERFACE



MODULAR VERSION



SPOOL TYPE (see hydraulic symbols table)

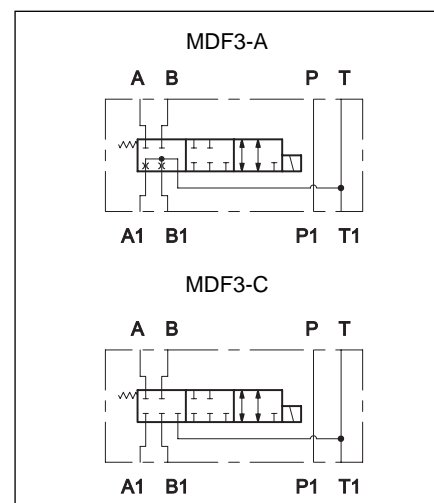
Type "A": it is used to unload the lines, with the valve at rest.

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

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 |

HYDRAULIC SYMBOLS





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)

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

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

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

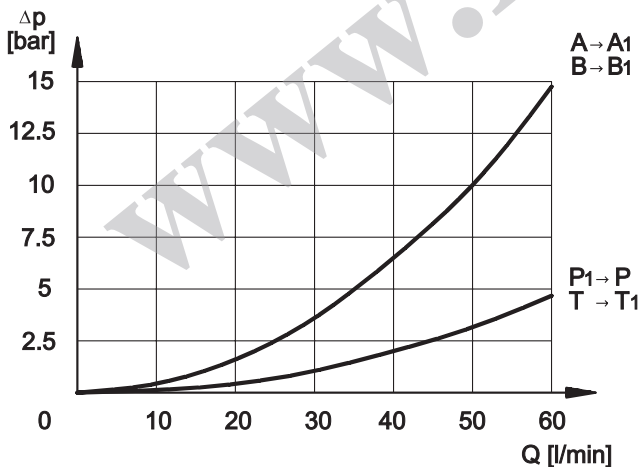
Series: (the overall and mounting dimensions remain unchanged from 10 to 19)

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 |

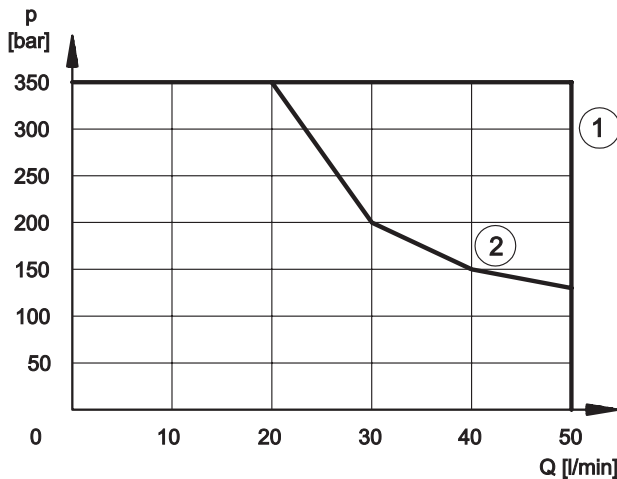


5 - OPERATING LIMITS

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 |
| 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

