



# M MOTORS



## GENERAL INFORMATION.

### INDEX

000	2	<i>Product description</i>
05		<i>Technical data</i>
4		<i>Installation</i>
5		<i>Hydraulic Fluid</i>
6		<i>Filtration</i>
7		<i>“M0” motors</i>
8		<i>How to order</i>
40		<i>Shafts, connections, dimensions</i>
42		<i>Motor performance curves</i>
44		<i>Calculation formula</i>
45		<i>“M1” motors</i>
47		<i>How to order</i>
48		<i>Shafts, connections, dimensions</i>
50		<i>Motor performance curves</i>
52		<i>Calculation formula</i>
53		<i>“M2” motors</i>
55		<i>How to order</i>
56		<i>Shafts, connections, dimensions</i>
58		<i>SAE flange connections, Options</i>
59		<i>Motor performance curves</i>
62		<i>Calculation formula</i>
63		<i>“M3” motors</i>
65		<i>How to order</i>
66		<i>Shafts, connections, dimensions</i>
68		<i>SAE flange connections, Options</i>
69		<i>Motor performance curves</i>
72		<i>Calculation formula</i>
73		<i>Warning</i>



# “M”



**Fixed displacement “M” axial piston motors**

## Product Description

•The “M” series includes fixed displacement axial pistons motors, of swashplate design, suitable in open and closed circuits.

Of very simple construction, they join reliability and safety, in a wide range of working conditions: they can withstand both low number of revolutions and the most elevated ones with constant torque moments.

Thanks to very small dimensions, the motor can be fitted in restricted room or positions which are difficult to reach with traditional mechanical transmissions.

They are available with side or rear connections and options such as: anticavitation valve, purge valve, relief valve. The rotation speed is proportional to the flow rate of the input fluid. The output torque is proportional to difference between high and low pressure sides of the fluid circuit. The rotation direction of the motor shaft (output) depends upon through which port the fluid enters the motor.

## Technical data

### 1) DISPLACEMENT

Series M0	7-9-11-13-14-17-18 cm <sup>3</sup> /rev
Series M1	15-17-20-21 cm <sup>3</sup> /rev
Series M2	24-28-34-40-50 cm <sup>3</sup> /rev
Series M3	40-45-50-55-60-65 cm <sup>3</sup> /rev

### 2) RANGE OF WORKING PRESSURES

#### max. continuous pressures

Series M0	210 bar
Series M1	210 bar
Series M2	210 bar
Series M3	250 bar

#### Intermittent max. pressures

Series M0	270 bar
Series M1	280 bar
Series M2	250 bar
Series M3	315 bar

#### Peak max. pressures

Series M0	300 bar
Series M1	320 bar
Series M2	315 bar
Series M3	350 bar

Note: max. counterpressure on the drain = 1,5 bar

### 3) SPEED

#### Maximum rotation speed

Series M0 - M1 - M2 - M3	3600 rpm
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#### Minimum rotation speed

Series M0 - M1 - M2 - M3	500 rpm
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### 4) TEMPERATURE

Max. temperature measured on the circuit with standard seals 90° C

Min. temperature measured on the circuit with standard seals - 25° C

### 5) EFFICIENCY

See the diagram

### 6) OUTPUT TORQUE

See the diagram

### 7) FILTRATION

See "Filtration" page

### 8) WEIGHT

Series M0	3,5 Kg
Series M1	7 Kg
Series M2	12 Kg
Series M3	15 Kg

## **Installation rules, plant start up and maintenance**

### **Technical data**

- During assembly check that the motor is in line and concentric with the driveshaft sleeve to prevent overloading of the bearings.
- The motor's assembly must be made in a clean environment, without dust. It is also recommended to pre clean the pipings.
- The motor can be assembled in any position, without compromising the good working of the component. However, it would be better to keep the position with drainage pipings and body full of oil, even when the machine is stopped, in order to lubricate the internal parts.

#### **First Starting**

- Before starting, fill the motor's body with oil and keep it full during the working.
- Check that the pressure on the drainage pipe does not exceed 1,5 bar.

#### **Maintenance**

- To guarantee long life, motors series "M" must work with oil filtered at 10  $\mu$  absolute.  
First oil change to be made approximately after 500 hours of operation, and cartridge to be checked periodically. Subsequently change oil every 2000 hours.

## Hydraulic fluid

### Viscosity range.

For both max. efficiency and life of the unit, the operative viscosity should be chosen within the optimum range of:  
 $\nu_{opt}$  = optimum operating viscosity 16÷36 cSt (mm<sup>2</sup>/s) referred to the closed loop temperature.

### Working conditions:

The following limits of viscosity apply:

$\nu_{min}$  = 10 cSt short-duration at a max. permissible leakage oil temperature of 90° C

$\nu_{max}$  = 1000 cSt short-duration, on cold start.

