

## Type VM

---

**OIL PUMP WITH PRESSURE REGULATING  
AND SOLENOID VALVE INCORPORATED**



## Type VM

**100% TESTED  
TWO YEARS WARRANTY**

The DELTA fuel unit is an efficient modern oil burner pump with compact design and since its mounting flange, hub and shaft sizes are manufactured to international standard (DIN 24220, EN 225), it can be fitted to every oil burner designed to the same standard.

The DELTA VM unit has the following features:

- high suction power
- suitable for a one or two pipe system
- self priming
- balanced pressure regulator valve giving constant pressure
- special shaft seal
- incorporated solenoid valve
- silent operation
- low power absorption
- easily fitted and adjustment
- provided with pressure and vacuum gauge ports

### APPLICATION

The DELTA fuel unit type VM is designed for pumping oil in pressure jet oil burners and transfer pump application. It must not be used to pump water or acid.

### OPERATION

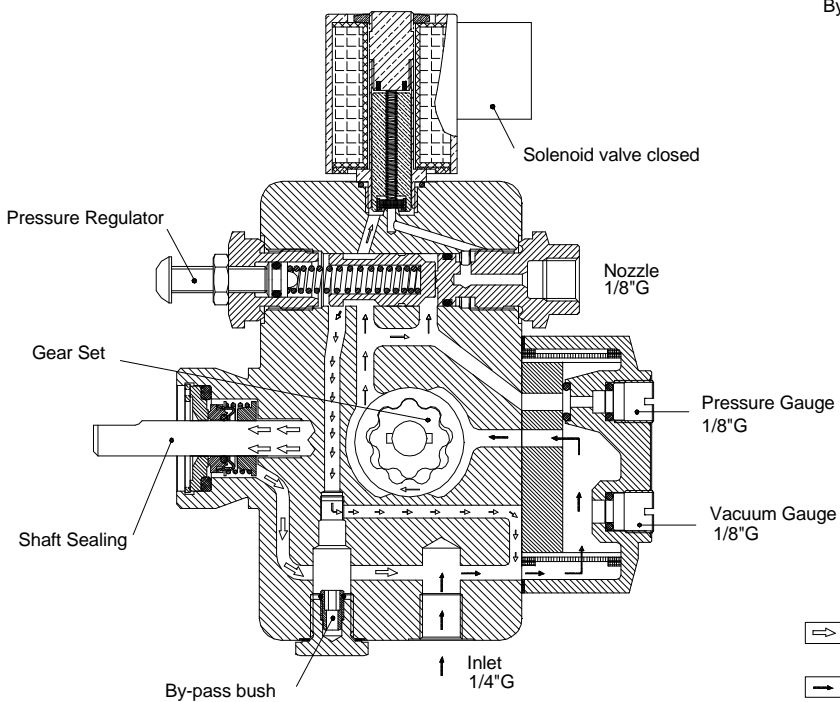
The VM type is a "unit", which consists of a pump, solenoid valve, filter and pressure regulator valve housed within one casting. The pumping action is obtained from two spur gears which are in mesh; one of which is connected to the driving shaft. The central pump casting is drilled to provide the various oil ways, and therefore carries the supply, return and nozzle ports. Pressure and vacuum gauge ports are also provided.

The VM unit is available in two pipe and one pipe version. Both versions are self priming. On starting, the rotating gears expel the air from the suction chamber, through a vent groove in the piston to the return line in two pipe version, and through the nozzle line (after solenoid valve opening) in one pipe version. On initial commissioning, it is possible to bleed the air more quickly, through the pressure gauge. Because a vacuum now exists oil, due to atmospheric pressure, enters the suction chamber through the filter.

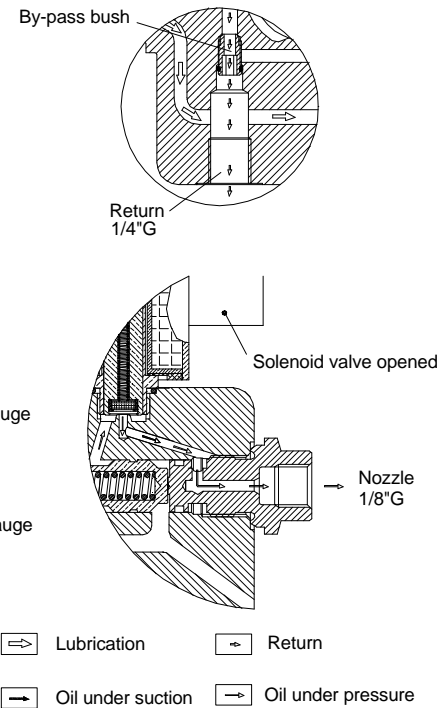
From the suction side the gears pass the oil to the pressure chamber, where it comes up against the head of the piston and due to the build up of pressure, forced the piston back against the pressure regulating spring. The flow of pressurized oil is interrupted by an incorporated solenoid valve, and can, therefore, be opened following the start of the motor (pre-purge), or interrupted before stopping the motor itself (instant shut-off of the flame preventing the nozzle dripping). The excessive oil discharges to the return side (or in by-pass in one pipe version). It will be realized of course that the spring tension, which is varied by the regulator screw, regulates the pressure of oil required.

## OPERATION

### ONE PIPE SYSTEM



### TWO PIPE SYSTEM



#### ONE PIPE - TWO PIPE CONVERSION

1. Remove 1/4" G plug from return port.
2. Unscrew by-pass bush into the plug.
3. Insert and screw by-pass bush in return port.

#### TWO PIPE - ONE PIPE CONVERSION

1. Unscrew by-pass bush from return port
2. Insert and screw 1/4" G plug in return port.

**PUMP IDENTIFICATION**
**VM 1 R L 2 4 P F**
**Pump type**
**Nozzle capacity**  
(see graphs)

**Rotation (seen from shaft end)**

R = clockwise  
L = counter clockwise

**Nozzle line (seen from cover)**

R = right  
L = left

**Pipes system**

1 = one pipe  
2 = two pipe

**Pressure ranges**

3 = 2 ÷ 10 bar ( 30 ÷ 145 psi)  
4 = 4 ÷ 15 bar ( 58 ÷ 215 psi)  
5 = 8 ÷ 20 bar (115 ÷ 285 psi)  
6 = 10 ÷ 25 bar (142 ÷ 355 psi)

**Special versions**

U = cover type U with filter inox 65 cm<sup>2</sup>  
(10 Sq.In.) cloth 110μ  
without pressure and vacuum gauge  
L = cover type L with filter nylon 9 cm<sup>2</sup>  
(1,4 Sq.In.) cloth 150μ (only VM1)  
P = auxiliary pressure port  
K = nozzle port type K (4mm shorter)

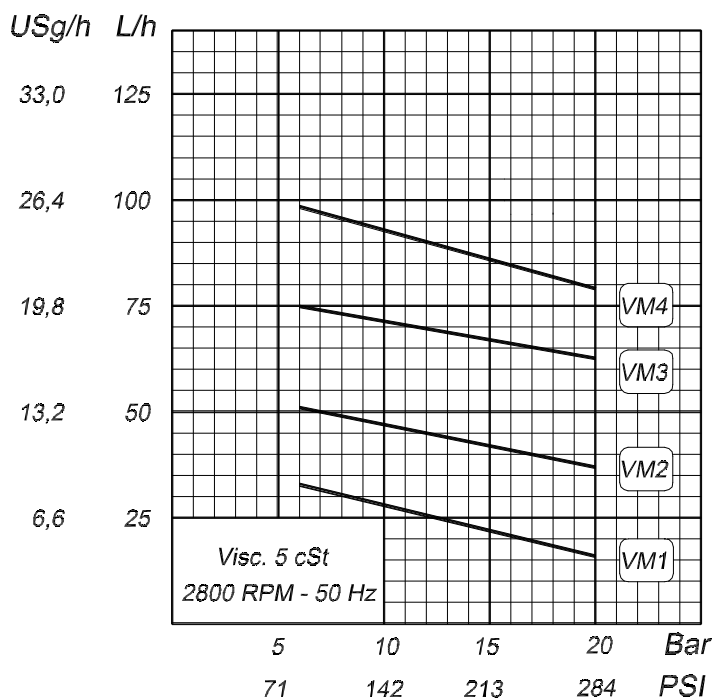
**Coil type**

F = F84 coil with connector  
M = M8 coil with incorporated cable

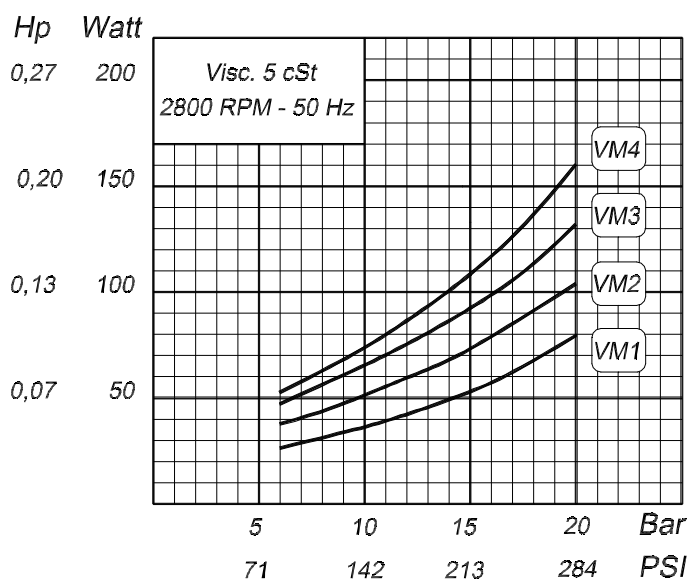
**TECHNICAL CHARACTERISTICS**

<b>Oil viscosity</b>	2 ÷ 50 cSt (1,1 ÷ 6,5°E)			
<b>Oil temperature</b>	60°C (140°F) max			
<b>Power absorption</b>	See graphs			
<b>Nozzle capacity</b>	See graphs			
<b>Suction line vacuum</b>	0,5 bar (14,8 in Hg) max			
<b>Suction line pressure</b>	0,7 bar (10 psi) max			
<b>Return line pressure</b>	1,5 bar (21 psi) max			
<b>Rotation speed</b>	3500 rpm max			
<b>Standard filter</b>	Nylon cloth 150μ, 20 cm <sup>2</sup> (3,1 Sq.In.)			
<b>Dimensions</b>	Hub dia. 32, shaft dia. 8 (DIN 24220) Optional: flange hub dia. 54, 7/16" shaft			
<b>Connections</b>	Inlet - return port: G 1/4" Nozzle port: G 1/8" Pressure - vacuum gauge: G 1/8"			
<b>Weight</b>	gr. 1100			
<b>Coil specifications</b>	<b>F84</b>	380V 50-60Hz 110V 50-60Hz 24V 95Hz 12V dc L=300 mm L=500 mm L=1000 mm	230V 50-60Hz 24V 50Hz 24V dc L=400 mm L=700 mm L=1600 mm	<b>M8</b> 230V 50-60Hz L=700 mm 230V 50-60Hz L=260 mm 110V 60Hz L=700 mm 24V 50Hz L=300 mm 24V 50Hz L=700 mm 24V 50Hz L=1000 mm 24V dc L=700

**NOZZLE CAPACITY**

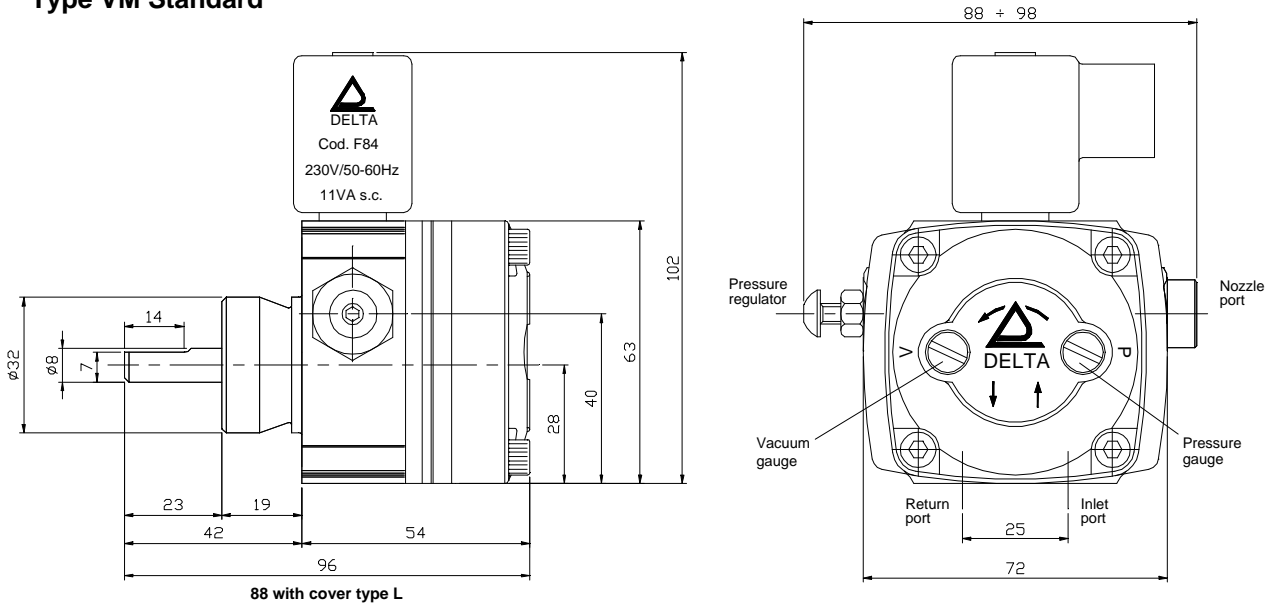


**POWER ABSORPTION**



## OVERALL DIMENSIONS

### Type VM Standard



### Type VM4 with cover U Auxiliary pressure gauge and flange

