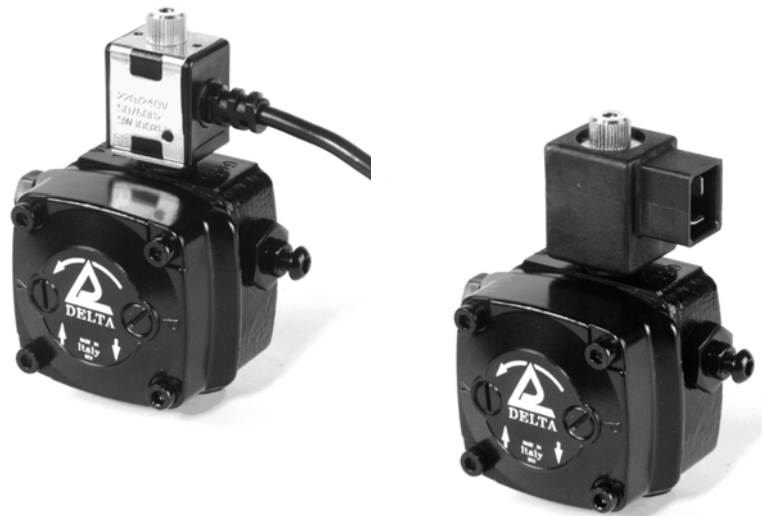


## Oil burners fuel unit with 2 stages operation Type VMK

[www.deltapumps.com](http://www.deltapumps.com)



VMK1-M8 VMK1-F84

# Oil burners fuel unit with 2 stages operation

## Type VMK

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 (EN 225), it can be fitted to every oil burner.

### Features

- High suction power.
- Suitable for a one or two pipe systems.
- Self priming.
- Balanced pressure regulator valve giving constant pressure.
- Special shaft seal.
- Two stages operation.
- Silent operation.
- Low power absorption.
- Easily fitted and adjustment.
- Provided with pressure and vacuum gauge ports.

### Applications

The DELTA fuel unit type VMK is designed for pumping oil in high pressure oil burners with two stages operation.

#### WARNING

**It must not be used to pump water or acid.**

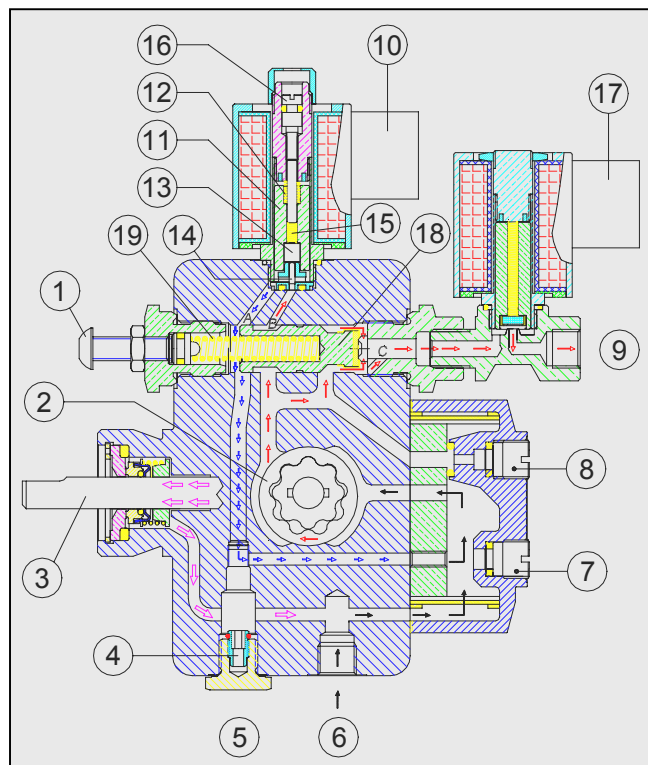
### Operation

The VMK pump type must ensure two stages operation. It is equipped with two independent pressure regulation sets. Low pressure only on burner starting and high pressure for working.

Burners with a VMK pump require the installation of a second solenoid valve on the nozzle line.

#### Starting:

Valve (17) is closed. Valve (10), connected to transformer in paralleling, is energized. The core unit (11) rises moving cylinder (13) and unblocking seal (14). The build up of pressure compresses spring (15) and raising seal (14) puts in line drillings (A) and (B) allowing oil discharge. The starting pressure is adjusted by screw (16) to low pressure. Solenoid valve (17) is energized but the oil, now at the first stage pressure, cannot overcome the resistance of the main piston (18). As this is regulated to a higher pressure, it therefore remains closed. The oil reaches the nozzle by means of the bypass (C) on the delivery line. Excess oil, meanwhile, continues to discharge through duct (B) into the return line.



#### Working:

When the lighting stage is finished, both the transformer and (10) solenoid valve are de-energized. Spring (12) pushes unit (11) and closes seal (14). This cuts out discharge duct (A) and (B) and the oil pressure is increased until it overcomes the resistance of the second stage regulator spring (19). The main piston (18) opens and normal operating conditions are reached. The working pressure is adjusted by (1) screw (high pressure).

In VMK unit both two pipe and one pipe models are self-priming. On initial commissioning it is possible to bleed the air more quickly through the pressure gauge port.

#### CAUTION

**Fitted solenoid valve (10) does not perform the cut-off. An external solenoid valve (17) must be installed on nozzle line.**

<b>Pump identification</b>	<b>VMK</b>	<b>1</b>	<b>R</b>	<b>L</b>	<b>2</b>	<b>5</b>	<b>P</b>	<b>F</b>
<b>Pump type</b>								
<b>Nozzle capacity</b> (see graphs)								
<b>Rotation (seen from shaft end)</b> R = clockwise L = counter clockwise								
<b>Nozzle line (seen from cover)</b> R = right L = left								
<b>Pipes system</b> 1 = one pipe 2 = two pipes								
<b>1<sup>st</sup> stage pressure range (P1)</b> 4 ÷ 11 bar	<b>Factory setting</b> (P2 - 4) ±0,3 bar							
<b>2<sup>nd</sup> stage pressure ranges (P2)</b> 4 = 4 ÷ 15 bar (Standard) 5 = 8 ÷ 20 bar	<b>Factory setting</b> 12 ±0,3 bar 15 ±0,3 bar							
<b>Special versions</b> U = cover type U with 65 cm <sup>2</sup> stainless steel filter, mesh 110µ without pressure and vacuum gauge L = cover type L with 9 cm <sup>2</sup> nylon filter, mesh 150µ (only VMK1) P = auxiliary pressure port K = nozzle port type K (4mm shorter)								
<b>Coil type</b> F = F84 coil with connector plug M = M8 coil with flexible metal conduit								

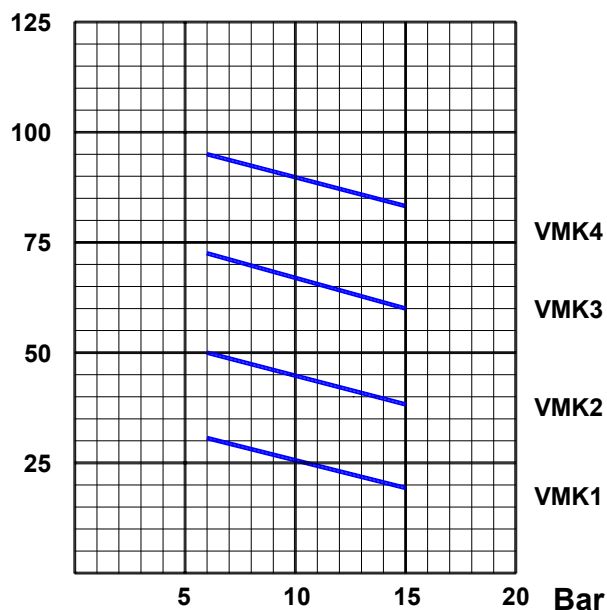
## Technical specifications

<b>Oil viscosity</b> .....	2 ÷ 50 cSt			
<b>Oil temperature</b> .....	60°C max			
<b>Power consumption</b> .....	See graphs			
<b>Nozzle capacity</b> .....	See graphs			
<b>Suction line vacuum</b> .....	0,5 bar max			
<b>Suction line pressure</b> .....	0,7 bar max			
<b>Return line pressure</b> .....	1,5 bar max			
<b>Rotation speed</b> .....	3500 RPM max			
<b>Standard strainer</b> .....	Nylon mesh 150µ, 20cm <sup>2</sup>			
<b>Dimensions (EN 225)</b> .....	Hub Ø32, shaft Ø8 Optional : flanged hub Ø54, shaft 7/16"			
<b>Connections (ISO 228/1)</b> .....	Inlet – return : G1/4" Nozzle port : G1/8" Pressure –vacuum gauge : G1/8"			
<b>Weight</b> .....	gr. 1100			
<b>Coil specifications</b> .....	<b>F84</b>	380V 50-60Hz 110V 50-60Hz 24V 95Hz 12V DC L=300mm L=500mm L=1000mm	230V 50-60Hz 24V 50-60Hz 24V DC L=400mm L=700mm L=1600mm	<b>M8</b> 230V 50-60Hz L=700mm 230V 50-60Hz L=260mm 110V 60Hz L=700mm 24V 50Hz L=300mm 24V 50Hz L=700mm 24V 50Hz L=700mm 24V DC L=700mm

### Nozzle capacity

Visc. 5 cSt (1.4°E)  
2800 RPM

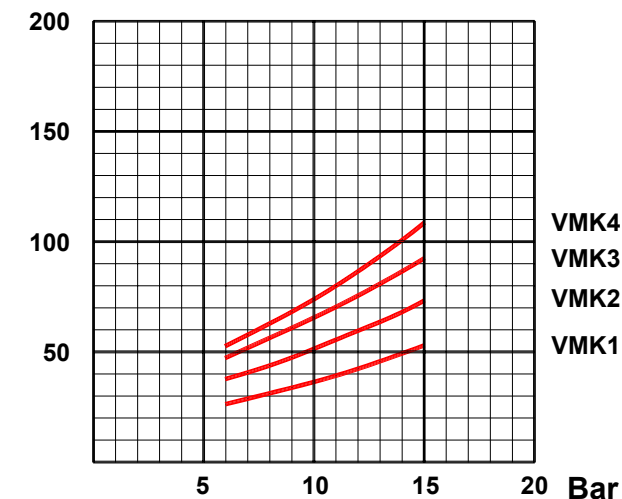
L/h



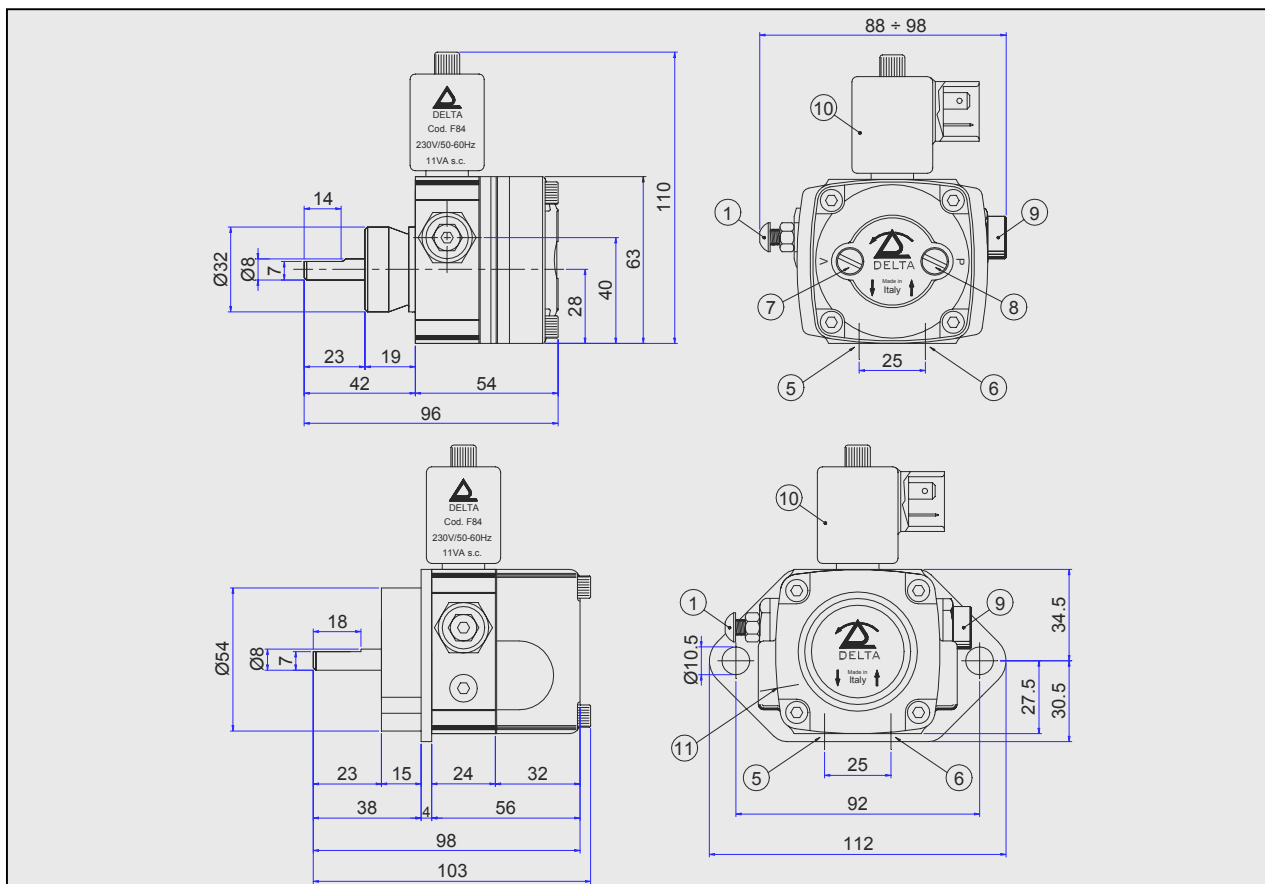
### Power consumption

Visc. 5 cSt (1.4°E)  
2800 RPM

Watts



### Overall dimensions



- |                            |                            |
|----------------------------|----------------------------|
| 1 High pressure regulation | 8 Pressure gauge           |
| 5 Return                   | 9 Nozzle port              |
| 6 Suction                  | 10 Solenoid valve          |
| 7 Vacuum gauge             | 11 Auxiliary pressure port |

## By-pass installation

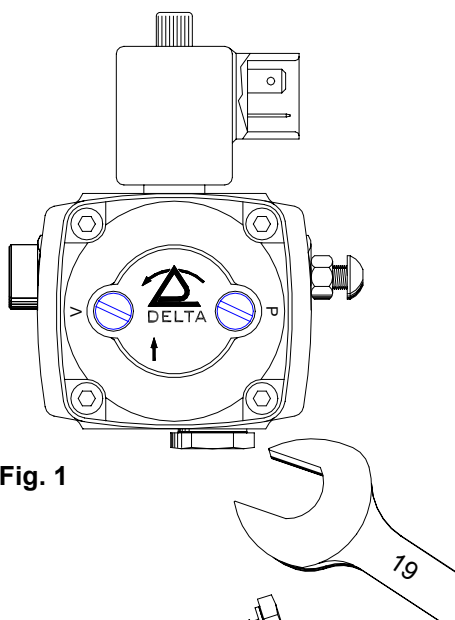


Fig. 1

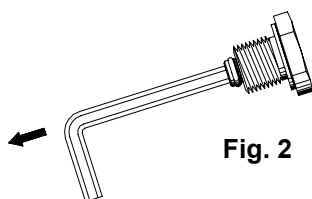


Fig. 2

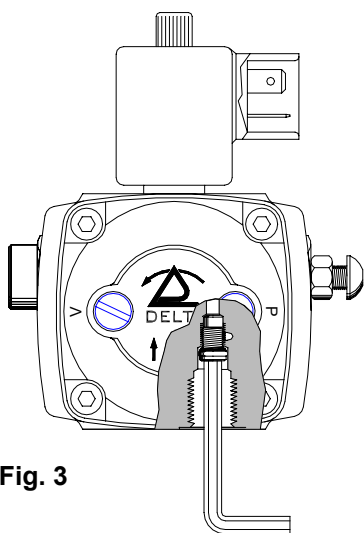


Fig. 3

### To convert the DELTA fuel unit from the single pipe version to the two pipe version, do the following:

- a) Using a 19 mm wrench, remove the 1/4" plug from return port (Fig. 1).
- b) Located inside the return plug is the by-pass plug. Remove it with a 4 mm Allen wrench (Fig.2).
- c) Insert and screw the by-pass plug in the return port (Fig. 3).

### To convert the DELTA fuel unit from the two pipe version to the single pipe version, do the following:

- d) Using a 4 mm Allen wrench, unscrew the by-pass plug from the return port (Fig. 3).
- e) Insert and screw a 1/4" plug into the return port (Fig. 1).

### **WARNING**

- In the single pipe version, the air is bled through the nozzle line, after the solenoid valve opening.
- In the two pipe version the air is bled through the return port. After conversion, the air must be bled manually, through the pressure gauge.
- Make sure that the by-pass plug is not used in a single pipe installation, because the fuel unit will not function properly and damage to the pump and burner motor could result.