DELTA
PUMPS

Oil burners fuel unit with 2 stages operation

Type VMK

www.deltapumps.com

VMK1-M8 VMK1-F84

ISO 9001 SINCERT REGISTERED BY GASTEC
Certified Quality System

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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.

1- Features

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

2- 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.

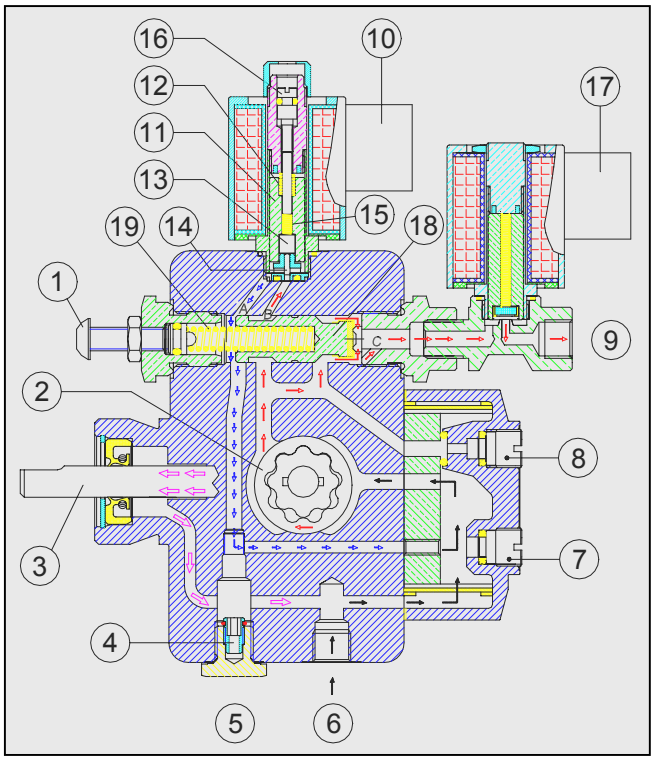
3- Operation

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.

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4- Pump identification

VMK	1	R	L	2		5	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 pipes

1st stage pressure range (P1)	**Factory setting**
4 ÷ 11 bar	(P2 - 4) ±0,3 bar

2nd stage pressure ranges (P2)	**Factory setting**
4 = 4 ÷ 15 bar (Standard)	12 ±0,3 bar
5 = 8 ÷ 20 bar	15 ±0,3 bar

Special versions
U = cover type U with 65 cm² stainless steel filter, mesh 110µ without pressure and vacuum gauge
P = auxiliary pressure port

Coil type
F = F84 coil with connector plug
M = M8 coil with flexible metal conduit

5- Technical specifications

Oil viscosity	2 ÷ 50 cSt
Oil temperature	60°C max
Power consumption	See graphs
Nozzle capacity	See graphs
Suction line vacuum	0,5 bar max
Suction line pressure	2 bar max
Return line pressure	2 bar max
Rotation speed	3500 RPM max
Standard strainer	Nylon mesh 150µ, 20cm² (VMK1 9cm²)
Dimensions (EN 225)	Hub Ø32, shaft Ø8 Optional : flanged hub Ø54, shaft 7/16”
Connections (ISO 228/1)	Inlet – return : G1/4” Nozzle port : G1/8” Pressure –vacuum gauge : G1/8”
Weight	gr. 1100
Coil specifications	**F84** 380V 50-60Hz 230V 50-60Hz 110V 50-60Hz 24V 50-60Hz 24V 95Hz 24V DC 12V DC L=300mm L=400mm L=500mm L=700mm L=1000mm L=1600mm **M8** 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

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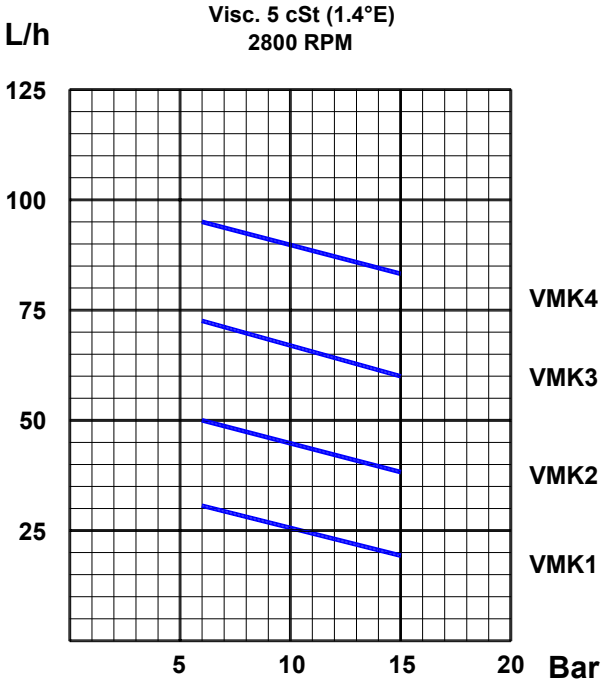
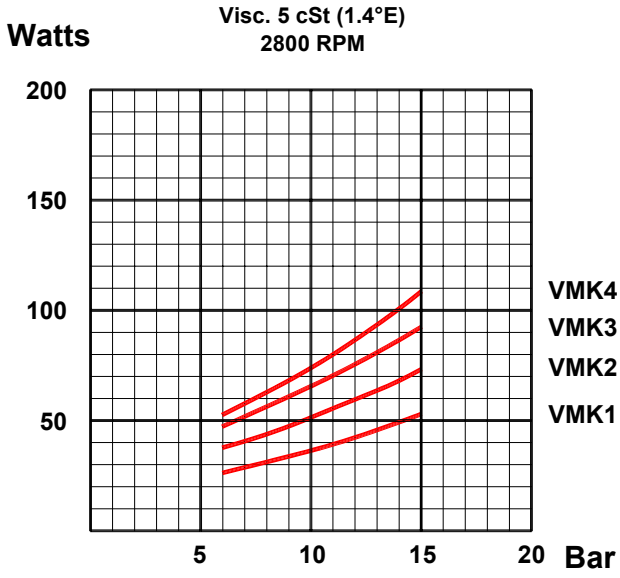
6- Diagrams

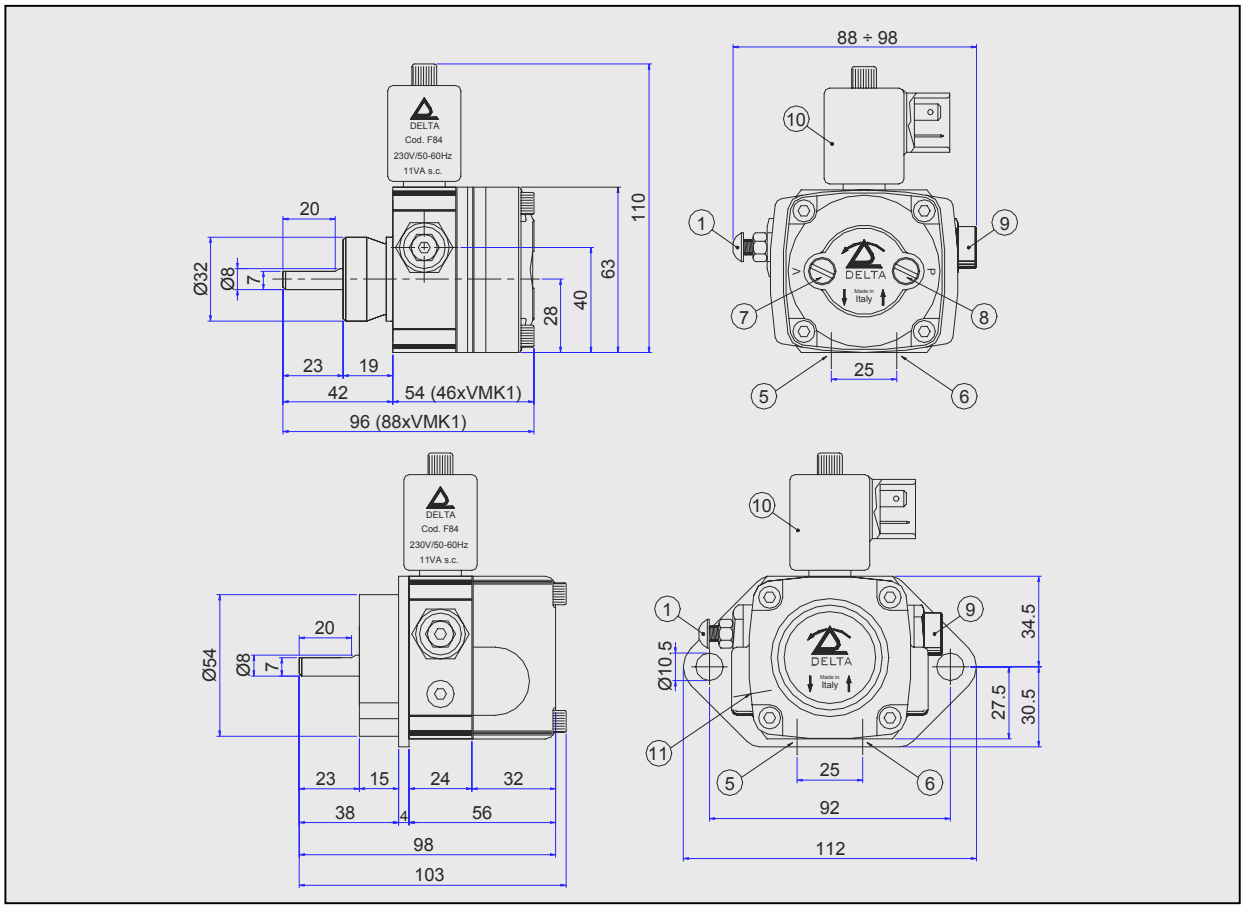
Nozzle capacity



Power consumption



7- Overall dimensions



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

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8- By-pass installation

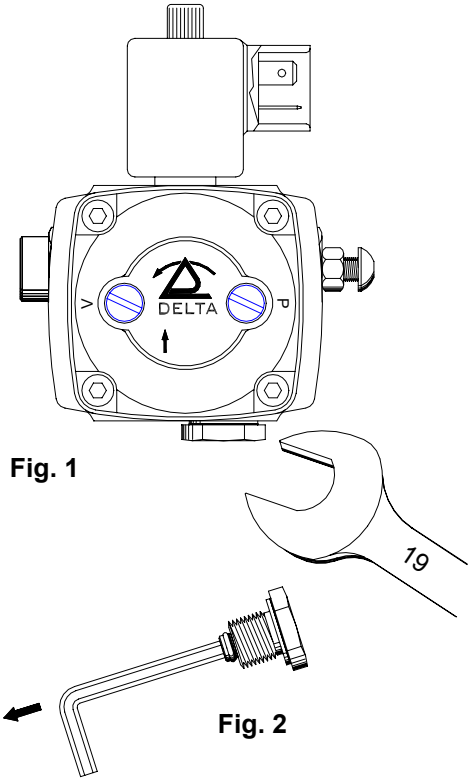

Fig. 1

Fig. 2

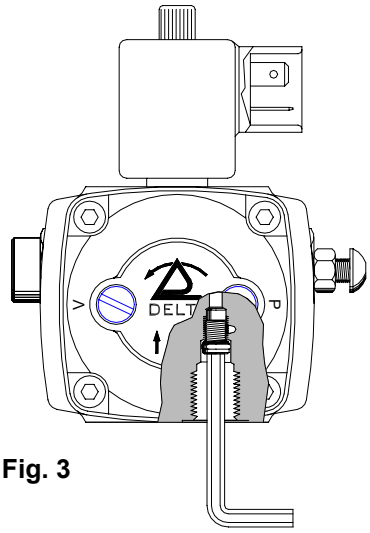

Fig. 3

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.**

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