

### 6.1.1 Pump

The pump is designed to allow working with one pipe.

In order to obtain two pipes working it is necessary to unscrew the return plug 2)(Fig. 13), screw the by-pass screw 3),supplied as burner equipment and then screw the return hose.

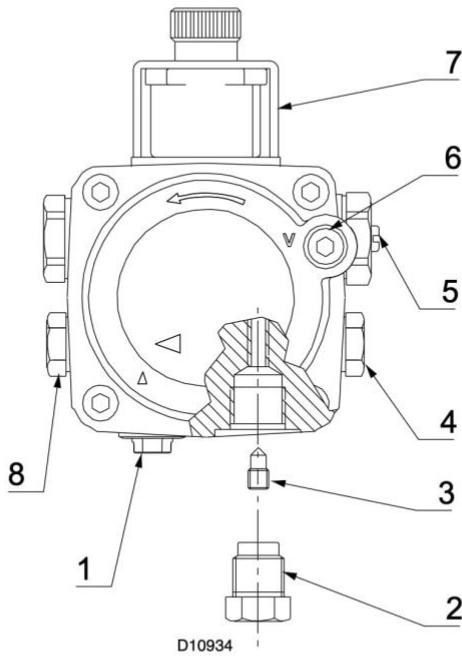


Fig. 13

#### Key (Fig. 13)

1	Suction line	5	Pressure adjuster
2	Return line	6	Vacuum gauge connection
3	By-pass screw	7	Valve
4	Gauge connection	8	Auxiliary pressure test point



WARNING

Where gas oil containing bio diesel is in use, it is recommended to avoid over oxygenation of the blended fuels.

Where at all possible avoid the use of two pipe systems where the circulated fuel is returned to the tank.

If this cannot be avoided make sure that the return pipe is normally below the surface of the fuel level within the storage tank. See Fig. 16.



WARNING

The suction plug 1) is made of plastic. Once removed, it must not be used again.

In single pipe installations, the plug in the return line 2) must be totally in steel.



WARNING

In case of use with gas oil containing up to 30% Bio blend, it will be essential to use flexible oil lines suitable for bio fuel use.

Please contact Riello for further information.

## 6.2 One pipe system

Pressurised one pipe systems (Fig. 14) have a positive fuel pressure on intake to the burner.

Usually the tank is higher than the burner, or the fuel pumping systems are on the outside of the boiler.

Vacuum one pipe systems (Fig. 15) have a negative fuel pressure (depression) on intake to the burner.

Usually the tank is lower than the burner.



You are advised to use additional filters on the fuel supply line.

Riello recommends a good quality fuel filter at the tank (Fig. 14 - Fig. 15) and a secondary filter (60  $\mu$  for gas oil and 15  $\mu$  for kerosene) are used to protect the burner pump and nozzle from contamination.

In case of Biodiesel use, pay attention to install Biocompatible filters.

### 6.2.1 Priming pump

On the system in Fig. 14 it is sufficient to loosen the plug of the vacuum gauge 6)(Fig. 13) and wait until the fuel flows out.

On the system in Fig. 15 start the burner and wait for the priming. Should lock-out occur prior to the arrival of the fuel, await at least 20 seconds before repeating the operation.



The installer must ensure that the supply pressure is not above 0.5 bar.

Above that level, the pump seal is subject to too much stress.

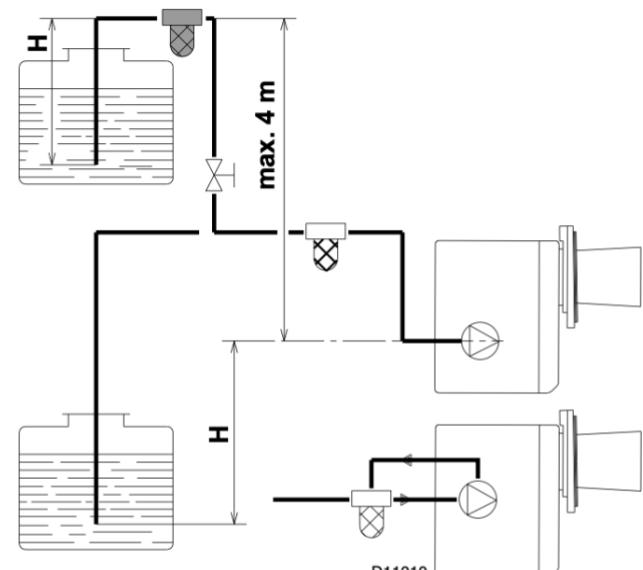


Fig. 15

H metres	L metres	
	I.D. (8 mm)	I.D. (10 mm)
0	35	100
0.5	30	100
1	25	100
1.5	20	90
2	15	70
3	8	30
3.5	6	20

Tab. C

H difference of level

L max. length of the suction line

I.D. intertinal diameter of the oil pipes

#### NOTE:

The Tab. B and Tab. C show the maximum approximate lengths for the supply line, depending on the difference in level, length, and the diameter of the fuel conduit.

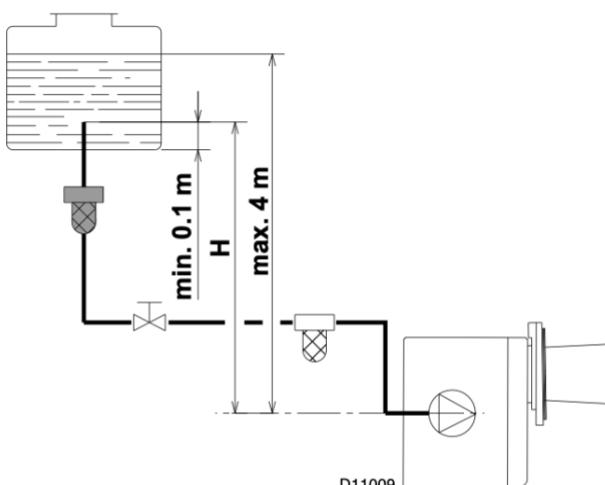


Fig. 14

H metres	L metres	
	I.D. (8 mm)	I.D. (10 mm)
0.5	10	20
1	20	40
1.5	40	80
2	60	100

Tab. B

## 6.3 Two pipe system

Vacuum two pipe systems (Fig. 16) have a negative fuel pressure (depression) on intake to the burner.

Usually the tank is lower than the burner.

The return line should terminate in the oil tank at the same level as the suction line; in this case a non-return valve is not required.

Should however the return line arrives over the fuel level, the non-return valve is indispensable. This solution however is less safe than previous one, due to the possibility of leakage of the valve.



You are advised to use additional filters on the fuel supply line.

Riello recommends a good quality fuel filter at the tank (Fig. 16) and a secondary filter (60  $\mu$  for gas oil and 15  $\mu$  for kerosene) are used to protect the burner pump and nozzle from contamination.

In case of Biodiesel use, pay attention to install Biocompatible filters.

### 6.3.1 Priming pump



Before starting the burner make sure that the return pipe-line is not clogged: any obstruction would cause the pump seals to break.

On the system in Fig. 16 start the burner and wait for the priming. Should lock-out occur prior to the arrival of the fuel, await at least 20 seconds before repeating the operation.



The pump vacuum should not exceed a maximum of 0.4 bar (30 cm Hg).

Beyond this limit gas is released from the oil.

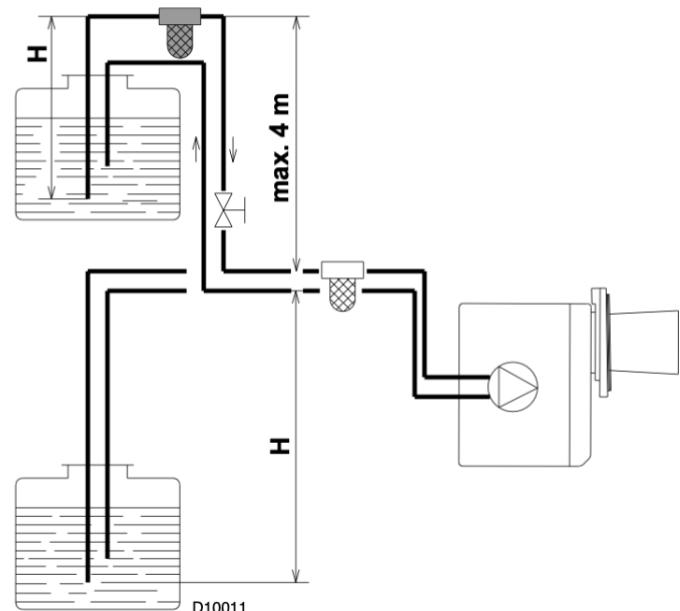


Fig. 16

H metres	L metres	
	I.D. (8 mm)	I.D. (10 mm)
0	35	100
0.5	30	100
1	25	100
1.5	20	90
2	15	70
3	8	30
3.5	6	20

Tab. D

H difference of level

L max. lenght of the suction line

I.D. interterminal diameter of the oil pipes

#### NOTE:

The Tab. D shows the maximum approximate lengths for the supply line, depending on the difference in level, length, and the diameter of the fuel conduit.