



## Waterlock NLPG

### 1 Introduction

The Vetus exhaust system components are especially suitable for use in **water-injected** exhaust systems.

The maximum continuous operating temperature of the plastic components of the exhaust systems is 70 degrees C (158 degrees F).

- Fit a temperature alarm to warn of excessively hot exhaust system temperature.
- If the quantity of injected coolant water is reduced in order to lower back-pressure in the exhaust system, check that there is still sufficient water injected when the engine is ticking-over. This will prevent excess temperatures in the exhaust system.
- Excess temperature can also be the consequence of insufficient mixing of coolant water with the exhaust gases. In general, good mixing is obtained by a virtually vertically installed exhaust injection bend.

Poor mixing can also occur with an engine on tick-over; especially when the coolant water injection bend is installed virtually horizontally.

If necessary, take action. For example; by fitting a water vortex or a water splitter in the exhaust pipe, to improve the mixing of coolant water with the exhaust gases.

With water-injected exhaust systems, fit a hose of suitable quality.

This hose must be reinforced, resistant to exhaust gasses, high temperatures (100 degrees C, 212 degrees F) and oil. Easy flexibility is essential for installation, while the hose must not collapse when heated.

Vetus exhaust hose fulfills all the above requirements.

	Hose dia.:	Engine power to:
NLPG40	ø 40 mm (1 9/16")	18 kW (24,5 hp)
NLPG45	ø 45 mm (1 3/4")	22 kW (30 hp)
NLPG50	ø 50 mm (2")	28 kW (38 hp)
NLPG60	ø 60 mm (2 3/8")	39 kW (53 hp)
NLPG75	ø 75 mm (3")	63 kW (86 hp)
NLPG90	ø 90 mm (3 1/2")	89 kW (121 hp)

#### WARNING

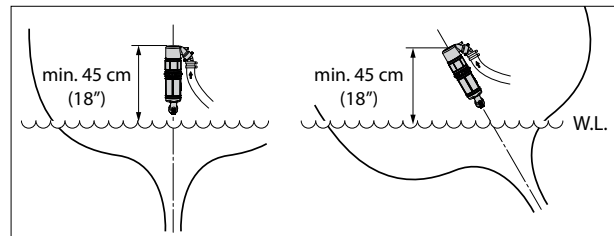
If water enters the engine from the waterlock into the exhaust system (for example: under sail when the ship rolls or pitches heavily) this will lead to irreparable damage to the engine.

Too much water in the waterlock can effect engine starting; drain off this water first. Too much water in the waterlock can be also caused by repeated starting attempts while the engine refuses to start.

### 2 Installation

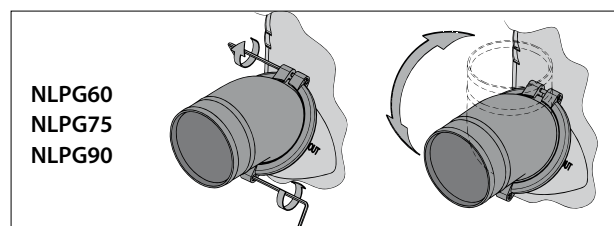
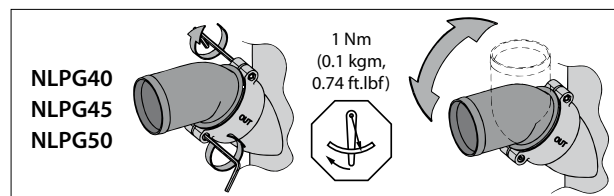
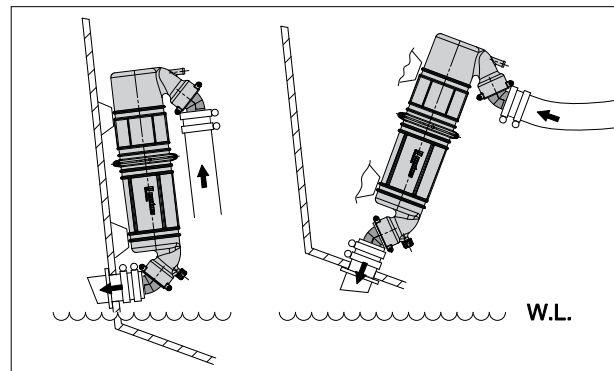
#### 2.1 Installing goose neck NLPG

Fit the goose neck in such a way that its top is at least 45 cm (18") above the waterline, see drawing. In a sailing ship, the goose neck should be installed as close to midships as possible.



#### 2.2 Hose connections

In order to achieve the ideal connection between the hoses and the goose neck, **both** hose connections turn through 360 degrees.

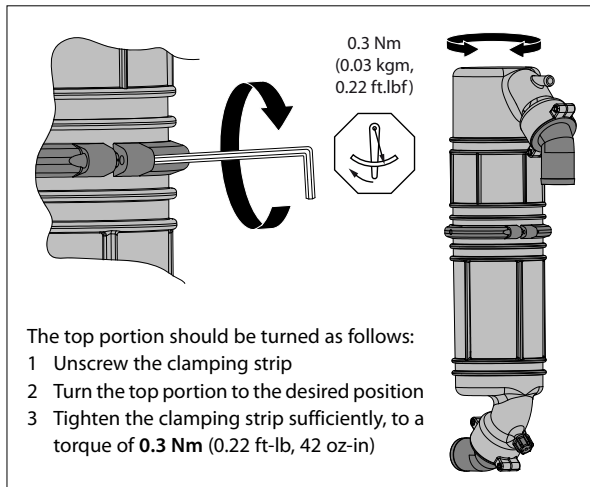


**Loosen the bolts before turning the hose connections!**  
Tighten the hose connections to a torque of 1 Nm (0.74 ft-lb, 142 oz-in).





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The top portion should be turned as follows:

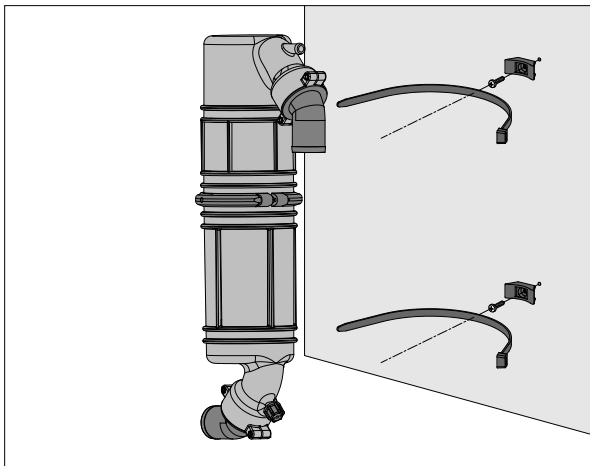
- 1 Unscrew the clamping strip
- 2 Turn the top portion to the desired position
- 3 Tighten the clamping strip sufficiently, to a torque of 0.3 Nm (0.22 ft-lb, 42 oz-in)

The top portion of the goose neck can be turned in a 360° radius.

If possible, the goose neck should be fitted immediately above the exhaust silencer, see drawings 1 and 3. This will reduce the amount of water running back between the highest point and the silencer.

When the goose neck is fitted directly on the transom connection, then the exhaust pipe maximum length between the silencer and the highest point must be taken into account, see drawings 2 and 4.

Fit the goose neck with the ty-raps® supplied. The goose neck has slots in which the ty-raps® should be fitted.



### 2.3 Exhaust Pipe

In order to ensure the proper drainage of the coolant water injected into the exhaust pipe, the pipe must be installed with a slope downward over its whole length from the water injection point to the exhaust silencer.

During operation, the exhaust pipe will contain water. This will increase its weight considerably, so support the exhaust pipe properly.

The exhaust pipe from silencer to transom connection must be installed in such a way that:

- The highest point in the exhaust pipe should not be more than 150 cm (5 ft) above the underside of the exhaust silencer.
- The length of the section between the exhaust silencer and the highest point, should not exceed 300 cm (10 ft).

### 2.4 Fitting the hose

To ease the fitting of the hose to the hose connector, use only water and/or soap, NOT grease or products containing oil.

Fit each hose connection with 2 stainless steel 12 mm (1/2") wide hose clamps.

## 3 Installation Examples

Exhaust systems with an exhaust silencer type NLPH, goose neck type NLPG and a transom connection are shown in section 6.

Entry of water from the aft is almost completely prevented by the extra height difference in the goose neck.

When the engine is stopped, any water which is still in the exhaust pipe (between the highest point in the exhaust system and the exhaust silencer) will run back to the exhaust silencer.

### 3.1 Prevention of syphoning (drawings 3 & 4)

If the water injection point 'C' is below, or less than 15 cm (0.6") above the waterline (also when the ship heels under sail), there is a risk that when the engine is stopped, the coolant water will enter the engine due to syphoning. This syphoning can be prevented in two ways:

- ① By creating an air vent system in the coolant water hose between engine block and water injection point 'C', by fitting an air vent with air vent pipe, for example.

The air vent pipe can be connected to its own hull outlet (H) or to the connection on the gooseneck intended for this (G).

**Note: when delivered, the connection (G) on the gooseneck is not open!**

If the air vent pipe is to be connected to (G) this must first be drilled through. Use a drill with diameter 4mm.

- ② By fitting an air vent (with valve) in the coolant water hose between the engine block and water injection point 'C'.

## 4 Maintenance

- Check all hose connections for gas and water leaks regularly.
- Before the winter lay-up, drain the exhaust silencer. The exhaust silencer has a drain plug for this purpose.

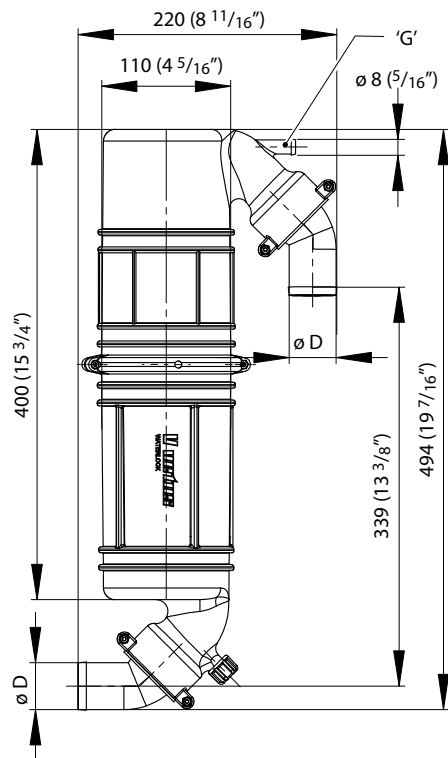




## Waterlock NLPG

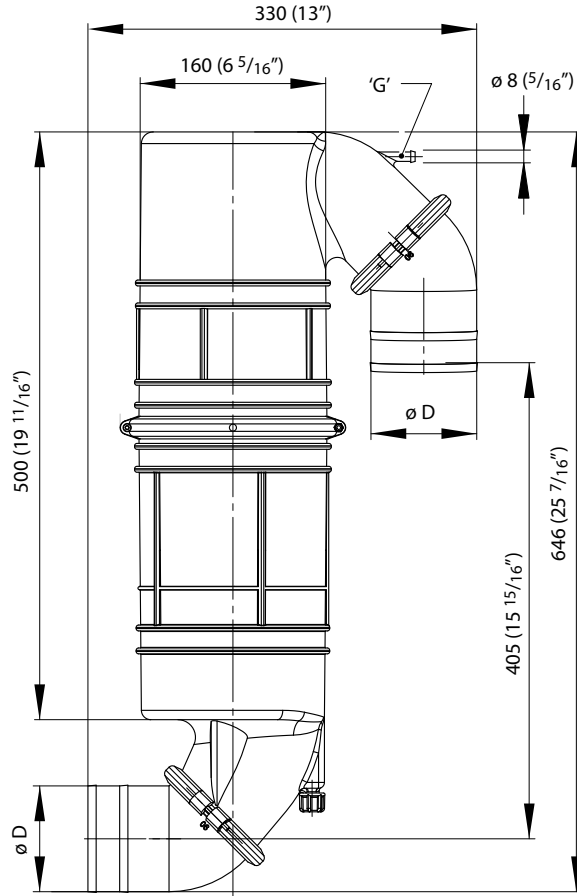
### 5 Principal dimensions

#### NLPG40 / NLPG45 / NLPG50



D	
ø 40 mm	(1 9/16")
ø 45 mm	(1 3/4")
ø 50 mm	(2")

#### NLPG60 / NLPG75 / NLPG90



D	
ø 60 mm	(2 3/8")
ø 75 mm	(2 15/16")
ø 90 mm	(3 9/16")

Rubber uitlaatslang

Gummi Auspuffschlauch

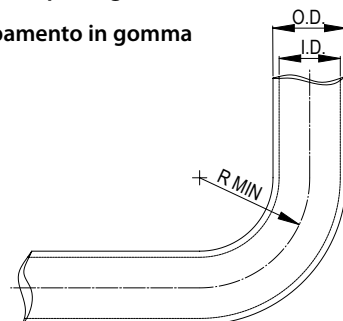
Manguera de escape de goma

Rubber exhaust hose

Tuyau d'échappement neoprène

Tube di scappamento in gomma

I.D.	O.D.	R min.
ø 40 mm (1 9/16")	ø 48 mm (1 7/8")	60 mm (2 3/8")
ø 45 mm (1 3/4")	ø 53 mm (2 3/32")	68 mm (2 11/16")
ø 51 mm (2")	ø 59 mm (2 5/16")	77 mm (3 1/32")
ø 60 mm (2 3/8")	ø 68 mm (2 11/16")	90 mm (3 9/16")
ø 76 mm (3")	ø 84 mm (3 5/16")	114 mm (4 1/2")
ø 90 mm (3 1/2")	ø 98 mm (3 7/8")	135 mm (5 5/16")



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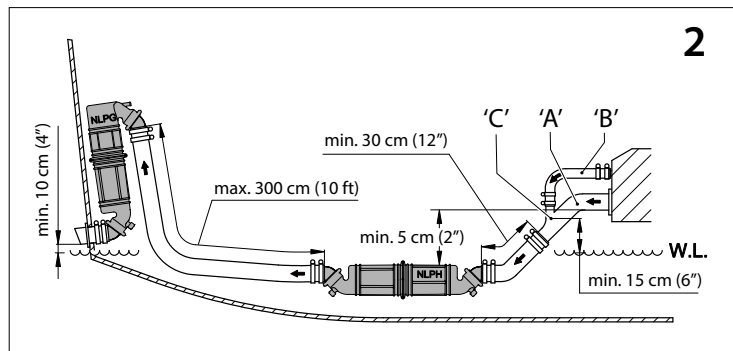
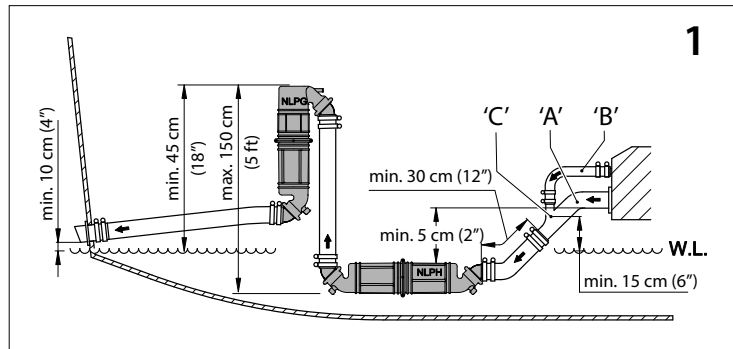
## Waterlock NLPG

### 6 Installation example

- A Exhaust manifold
- B Cooling water
- C Water-injection point

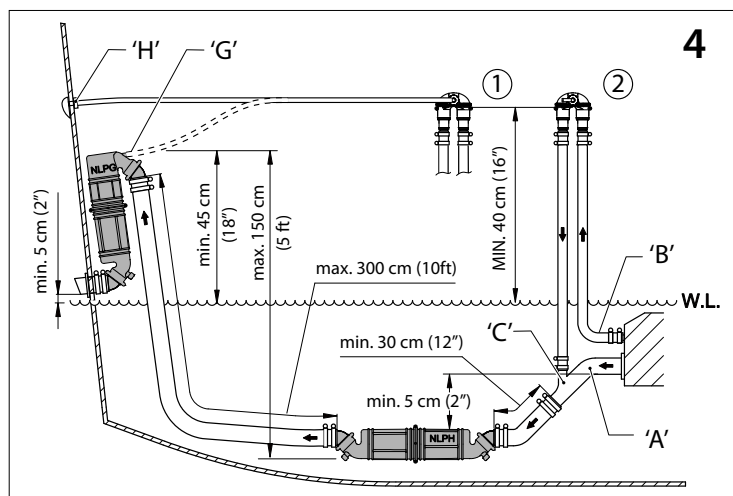
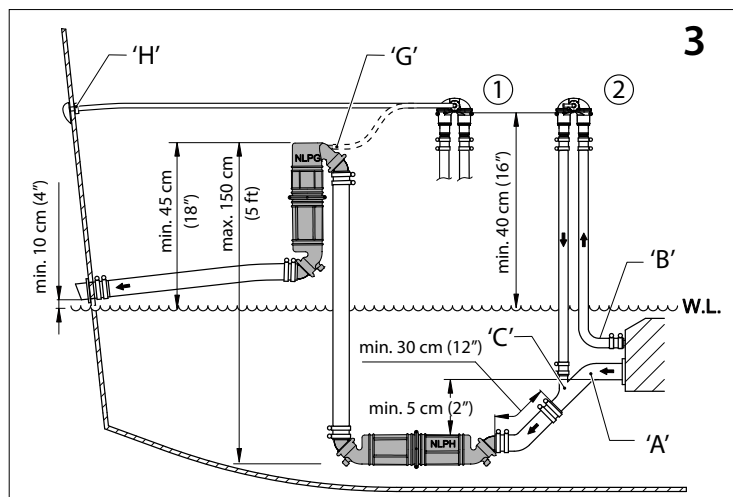
#### 1 & 2:

Exhaust systems with water-injection point 'C'  
15 cm or more above the waterline



#### 3 & 4:

Exhaust systems with water-injection point 'C'  
below or less than 15 cm above the waterline





## Waterlock NLPG

### Warning

