vetus®

Uitlaatgas / koelwaterscheider

Exhaust gas / cooling water separator

Abgas / Kühlwassertrennung

Séparateur de gaz d'échappement / de liquide de refroidissement

Separador de gases de escape / agua de refrigeración

Separatore gas di scarico / acqua di raffreddamento

LGS

Introduction

The Vetus exhaust system components are only suitable for use in water-injected exhaust systems. The maximal continuous operating temperature of the exhaust gas / cooling water separator type LGS is 70° C.

- Install a temperature alarm to signal the fact that the temperature of the exhaust system is too high.
- If the quantity of water injected is reduced with a view to reducing the back pressure in the exhaust system, check to ensure that sufficient water is also injected while the motor is running at a standstill. This will prevent the exhaust system from overheating.
- If the mixing of the cooling water with the exhaust gasses is not optimal, this may result in the overheating of the exhaust system.
  This will occur if the motor is running at a idle speed, particularly in those cases in which the cooling water injection bend mounted on the motor is virtually horizontal.
  If necessary, take the necessary measures to improve the mixing of the cooling water with the exhaust gasses.

Ensure that hose of a suitable quality is used as an outlet pipe for water-injected exhaust systems.
The hose must be reinforced and able to withstand exhaust gasses, high temperatures (100° C, 212°F) and oil residue. The hose must be suitably flexible for processing yet it must not collapse when heated.
Vetus exhaust hose meets all of the necessary requirements.
The hose connection parts of the exhaust gas / cooling water separator LGS may be 40, 45, 50, 60 or 75 mm in diameter.
Different diameters can be used on the inlet and outlet side without any problem.
However, the following guidelines should be respected :

Engine power to:	Hose dia.:
18 kW (25 hp)	40 mm
23 kW (32 hp)	45 mm
29 kW (40 hp)	50 mm
40 kW (55 hp)	60 mm
65 kW (90 hp)	75 mm

WARNING

The valve in the cooling water **drainage pipe** must be closed while the motor is at a standstill. When sailing with the motor at a standstill (when using only the sails), water from outside can be forced into the exhaust gas / cooling water separator if the valve in the cooling water drainage pipe is left open.
If water from the exhaust gas / cooling water separator enters the exhaust system of the motor via the outlet damper (for example if the ship rolls or pitches wildly while sailing) this will inevitably result in damage being caused to the motor.

Installation

Installing the exhaust gas / cooling water separator

As far as possible the exhaust gas / cooling water separator should be installed **vertically and above the water line**.
When correctly installed the exhaust gas / cooling water separator replaces the goose-neck. The highest point of the exhaust gas / cooling water separator must be at least 45 cm (16") above the water line.
In the case of a sailing boat, the exhaust gas / cooling water separator also needs to be installed as close to midship as possible. This ensures that if the boat is sailing at an angle, the highest point of the exhaust gas / cooling water separator is not dramatically less than the required 45 cm (16") above the water line.
The exhaust gas / cooling water separator contains water while in operation. this means that the weight of the exhaust gas / cooling water separator increases, thus the exhaust gas / cooling water separator should be installed against a level and sufficiently solid partition using the assembly belt (➡ LGS 40, 45, 50) / ty-raps® (➡ LGS 60, 75) provided (drawing 1).

Exhaust tubing

In order to assure that the remaining cooling water in the exhaust tubing drains out properly, the exhaust tubing should be installed from the exhaust to the transom exhaust connection along the full length of the fall.
The exhaust hose also contains water while in operation. This causes the weight of the exhaust hose to increase considerably. Thus take care to ensure that the exhaust hose is well supported.

Connections to the exhaust hose

In order to assure that the exhaust hoses can be optimally connected to the exhaust gas / cooling water separator, **both** hose connections can be rotated through 360°. Both hose connections can function as 'IN' or 'OUT'!
Unscrew the hose clamps before turning the hose connections (drawing 2)!
Re-tighten the hose connections with a tightening torque of **5 - 6 Nm** (➡ LGS 40, 45, 50) / **0,4 Nm** (➡ LGS 60, 75).
Only use water and/or soap to make it easier to attach the hose to the hose connections. Do not use any products containing grease or oil.
Assemble each of the hose connections with 2 stainless steel 12-mm hose clamps.

Water drainage pipe

A skin fitting (G 1 $^1/_2$ ➡ LGS 40, 45, 50 / G 2 ➡ LGS 60, 75) with a valve and a hose pillar must be installed to drain off the cooling water. When choosing the point for the skin fitting, the following should be taken into account :
- The outflow of the cooling water must not be obstructed
- No thrust pressure must be allowed to accumulate. If it does, water will flow into the exhaust gas / cooling water separator from the outside!
- The skin fitting may be installed **above** or **a maximum of 7.5 cm (3") below the water line**.

Use a reinforced water hose or exhaust hose with a diameter of 38 mm (1$^1/_2$") (➡ LGS 40, 45, 50) / 50 mm (2") (➡ LGS 60, 75) to connect the exhaust gas / cooling water separator to the skin fitting.

Sending unit for the temperature alarm
A sending unit for the temperature alarm can be installed in the exhaust hose of the motor.

Maintenance

All hose connections should be inspected on a regular basis to ensure that they are both gastight and watertight.
Before the boat is put into storage for the winter the exhaust gas / cooling water separator should be drained by opening the outboard valve in the drainage pipe.

Installation example

The illustration shows an exhaust system with an exhaust muffler (type LP) the exhaust gas / cooling water separator (type LGS) an transom exhaust connection and a cooling water drainage pipe.
The entry of water running up from behind is almost totally prevented by the additional height difference between the water line and the exhaust gas / cooling water separator.
After the motor is shut down, the water still in the exhaust hose (between the highest point of the exhaust system and the exhaust muffler) will run back down to the exhaust muffler.
To limit the quantity of water which runs back down to the exhaust muffler as much as possible, the exhaust gas / cooling water separator should be installed as close to the exhaust muffler as possible.
The water in the exhaust gas / cooling water separator will drain away via the skin fitting until it reaches the same level as the waterline.

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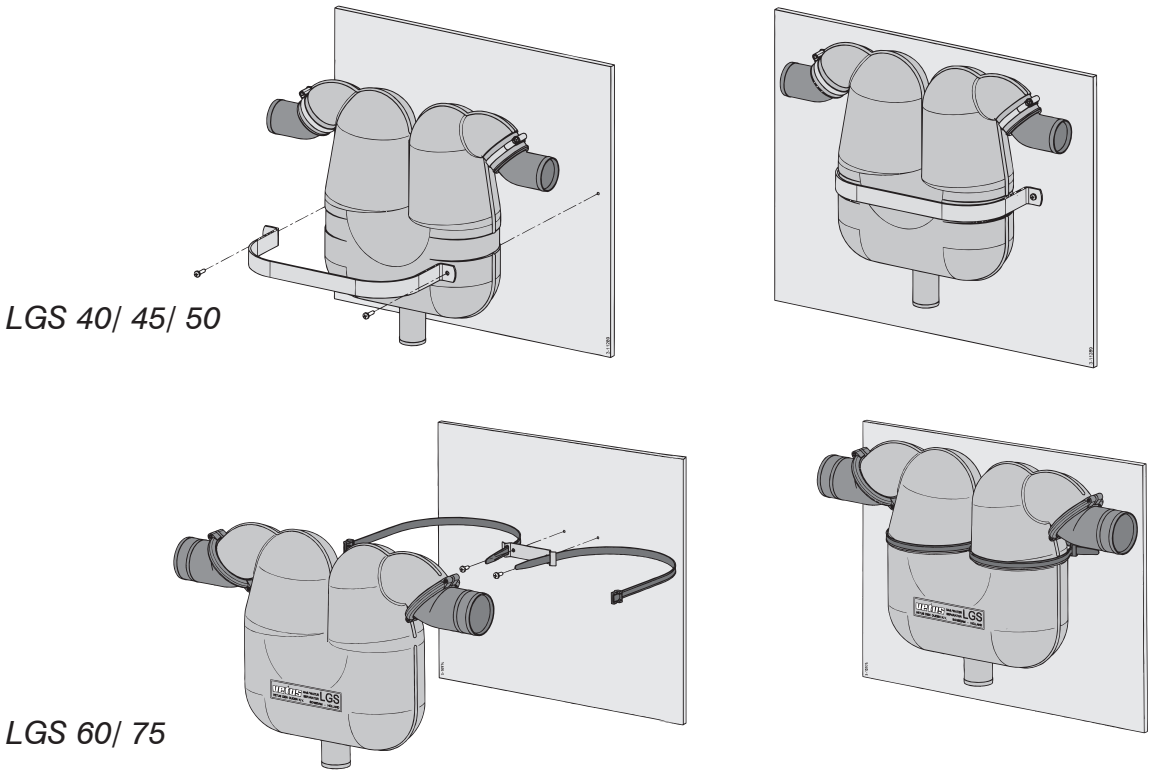

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