N-LNG

EN ISO 12617:2017

LNG NOZZLE

INSTALLATION AND OPERATING MANUAL

english

page 9

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Please read this manual carefully before installation or operation of the nozzle.

Be sure all instructions are understood. Correct installation, use and maintenance are essential. In case of doubt or question, please contact your service contractor or the manufacturer.

DESCRIPTION

The N-LNG is a nozzle designed for the refuelling of heavy vehicles with LNG (Liquefied Natural Gas) and equipped with a refuelling interface to EN ISO 12617:2017. A venting of the truck tank may have to be done with a separate vent coupling.

The nozzle has a 450 psi (31 bar) service pressure rating. It incorporates ease of use, operating safety and low gas release volume upon uncoupling. The nozzle is designed to only allow gas to flow when it is correctly coupled.

APPROVALS / OPERATING CONDITIONS

The N-LNG nozzle is designed and tested to EN ISO 12617:2017. Usable with a low temperature down to -196° C. The flow rate is up to 50 GPM (190 L/min). The maximum working pressure is 3.4 MPa (34 bar).

Each nozzle is factory tested and labelled with the prescribed marking.

Media compatibility	LNG, LN2, Methane
Nominal flow	50 GPM (190 L/min)
Working pressure (max.)	3.4 MPa (34 bar)
Burst pressure	> 2.5 times of working pressure (max.)
Media temperature (min.)	-196° C
Ambient temperature	-40° C up to +85° C
Connection to fill line	1 5/16"-12 SAE J514 37° JIC male
Weight	approx. 3.8 kg
Dimension (max.)	Width: 450 mm
	Length: 408 mm
Gas release volume	< 1 cm^3

GENERAL INFORMATION / WARNINGS

LNG is a cryogenic liquid fuel that is transported and stored under pressure at temperatures down to -164° C. When LNG is exposed to the atmosphere, its aggregate state changes to gaseous natural gas (visible white vapour). When decoupling the nozzle, minor residual quantities of the LNG, so-called gas release volume, are usually released into the atmosphere. It may also be visible as white vapour.

Cryogenic gases or the handling equipment can cause serious harm to both infrastructure and personnel if safety precautions are not followed.

A small gas release upon uncoupling is normal – but uncontrolled gas release to the atmosphere must be avoided. If you suspect a leakage: stop refueling immediately, use the emergency button to shut off the dispenser, immediately evacuate the area and inform station personnel.

- LNG is extremely flammable:

  ➔ **Open fires, smoking, sources of static electricity and the use of mobile phones or other electric devices is prohibited in the area of gas transfer. Turn off vehicle engine before refuelling.**

- Failure or improper use of this product can cause death, personal injury and property damage.

  ➔ LNG is extremely cold, also when released to the atmosphere.

SAFETY

Caution: Please follow the safety instructions. Disregard can lead to serious injuries or death.

Personal protective equipment ('PPE') is required during the refueling process.
The PPE consists of:


Cryogenic Smock


Full Face Shield


Solid Shoes Capable of withstanding Cryogenic Media


Cryogenic Thermal Gloves

- Do not operate nozzle if there is any visible damage
- Stop refuelling process immediately if a permanent, uncontrolled release of LNG occurs (see also chapter 'Troubleshooting')
- Read the manual of the LNG vehicle and follow regulations from local authorities
- Keep area clear to avoid accidents
- Do not point the nozzle directly at yourself or other persons at any time

INSTALLATION

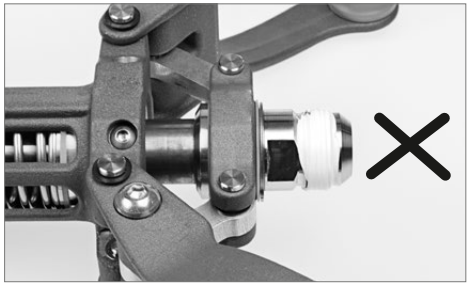
Ensure the system is clean of debris, **vented** and **isolated** before any installation or servicing work is carried out.

The N-LNG is delivered ready for use. This installation must only be done by an authorised service engineer who is trained to ensure compliance with all relevant national regulatory conditions.

The nozzle is designed for the connection 1 5/16"-12 SAE J514 37° JIC male and must not be used with any NPT or other thread sealing adapters. The designated connections do not require thread sealants.

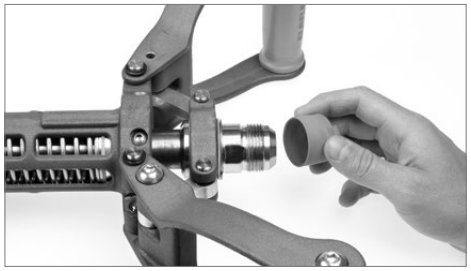
Therefore, **do not use PTFE** sealing tape or liquid seal for any sealing as electrical conductivity may be insufficient and particles of the tape commonly become loose and could clog the nozzle valve or damage vehicle motor parts.

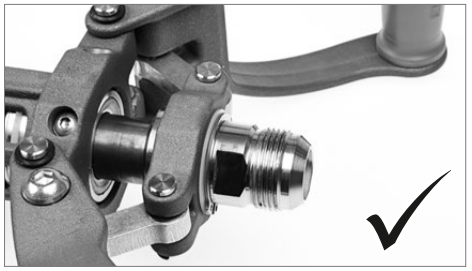
N-LNG complies with DIN EN ISO 12617:2017 and must meet its installation requirements.

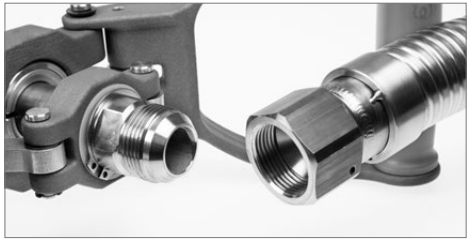


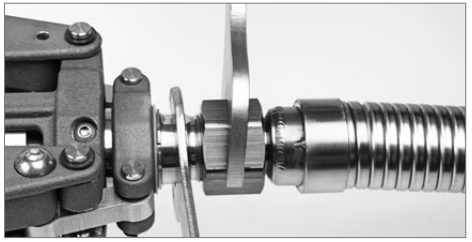
Needed Tools:

1 x Wrench EW M 30 (for Elaflex nozzle)
1 x Wrench EW M 36/41 (for Elaflex LNG hose assembly)
1 x Foaming agents or spray bottle with snoop or soapy water


Remove caps from nozzle.


Check sealing surfaces of connections at the nozzle as well as the hose assemblies.


Check if connections correspond in type an size: 1 5/16"-12 SAE J514 37° JIC male / female

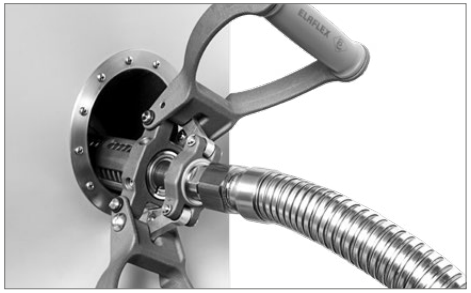

Connect the hose to the nozzle. Torque to the hose fitting suppliers recommended tightening torque of 150 Nm. **Do not use pliers.**

After connecting to the hose assembly, an operational test shall be performed. It is essential to examine that the nozzle and hose connector are tight under pressure and do not leak – e. g. by external application of foaming agents.

➔ **NOTE : Pressurise system gradually while checking for leaks.**
Do not use pressurised water.

Always put back the nozzle into the nozzle holder.

➔ **ATTENTION: Do not drop.**
Do not leave on the floor.



OPERATING INSTRUCTIONS

The fuelling operator must be fully trained in the safe operation of this nozzle in accordance with local regulation of the local jurisdiction.

Please follow any additional or deviating operating instructions displayed at the dispenser.

Turn off vehicle engine.

Please ensure that the vehicle filling point and nozzle are compatible according to the fuel grade identification 'LNG'.

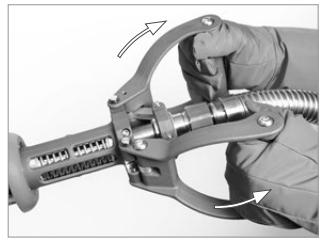
Always wear your personal protective equipment (see under 'Safety').

Connect the grounding cable from the station to the LNG tank or vehicle.

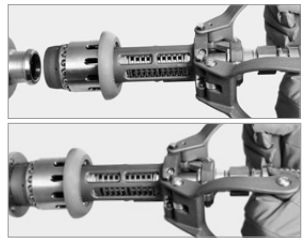
Remove caps from vehicle filling point. Clean it with compressed air. Moisture, ice and dirt must be completely removed.

Now clean the nozzle with compressed air. Completely remove moisture, ice and dirt before coupling the nozzle to the vehicle filling point. Check for visual damage, excessive wear and leakage.

Do not operate when nozzle or vehicle filling point is damaged.

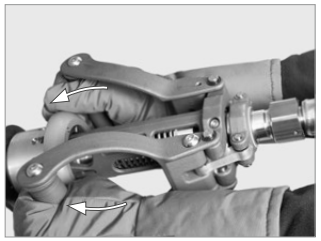


Take nozzle in both hands and pull back the handles completely to fully open locking mechanism before coupling.



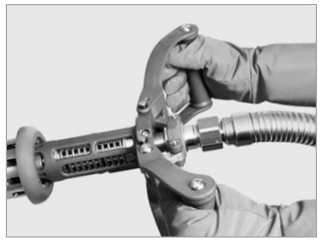
Align nozzle with vehicle filling point to couple it correctly.

Do not tilt the nozzle and never use force to push nozzle onto the vehicle filling point.



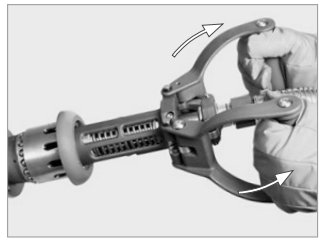
Push handles towards the vehicle to couple it. Then press the botton on the dispenser to start refuelling process.

Do not lean on or tilt the nozzle.



After finishing of the refuelling process, carefully move the handles half way back and stop at the soft-stop-position.

The captured LNG volume must release slowly and completely (it requires a few seconds).



Then pull back the handles completely to uncouple the nozzle from the vehicle filling point and remove it.

Use compressed air to clean all coupling parts carefully.

Put nozzle back into dispenser nozzle holder.

Attach caps to the vehicle filling point.

Remove grounding cable from the tank or vehicle.

FILL POINT ADAPTERS

The use of fill point adapters is strictly prohibited.

TROUBLESHOOTING

- **Impurities**

  ➔ Ice or other contaminants from the LNG system may accumulate in the nozzle. Condensed water around the valve seat can freeze during the refueling process and cause malfunctions. It is therefore essential to thoroughly clean the nozzle and vehicle filling point with compressed air before and after refuelling.

- **If the handles cannot be pushed forward or the nozzle cannot be connected**

  ➔ Check that there are no foreign objects between the nozzle and the vehicle filling point. **Ensure correct positioning of the nozzle on the vehicle filling point**. Do not tilt the nozzle when coupling. A safety feature prevents operation of the nozzle if the connection is misaligned. If you have any doubts or questions, please contact the station personnel.

  ➔ Ensure that the nozzle is not damaged. Nozzles in unsuitable condition must not be used. Notify the station personnel or the service contractor.

  ➔ **Never force operation of the nozzle**. If the coupling process does not work smoothly, disconnect and then re-connect the nozzle as indicated under 'Operating instructions'. If the problem persists notify the station personnel.

- **Leakage**

  ➔ **If uncontrolled and / or permanent gas release to the atmosphere occurs, immediately stop fuelling.** Push emergency button of dispenser immediately, leave area and inform station personnel. If area is safe, check tight connection between vehicle filling point and coupling parts as well as seals. If the problem persists notify the station personnel.

  ➔ A small gas release upon uncoupling is normal. **If there is an uncontrolled or permanent gas release from vehicle filling point then reconnect the nozzle immediately to prevent the leakage. Do not disconnect the nozzle.** Leave the area and be sure to notify the station personnel.

- **If the nozzle cannot be disconnected after refuelling**

  ➔ Connect nozzle once again as indicated under chapter 'Operation Instructions'. Then try to disconnect and take off the N-LNG.

  ➔ Check if ice has accumulated around the nozzle, remove it with compressed air. Then try to disconnect and take off the nozzle after refuelling.

  ➔ Never force operation of the nozzle. If the uncoupling process does not work smoothly, notify the station personnel.

If self-service is not possible, please contact a service company specialised and certified in LNG Service Station installations.

MAINTENANCE

The N-LNG is a mechanical device that may become inoperative due to wear, corrosion and ageing of components. Regular inspections and maintenance are essential for a safe operation.

Daily visual inspections of the nozzle by trained personnel should be carried out to ensure proper function. Before and after each refuelling the nozzle and vehicle filling point must be cleaned thoroughly with compressed air in order to remove any debris or contamination.

The nozzle coupling shall be clean and not show any signs of damage (e. g. dents, sharp edges, blocked levers).

The nozzle condition shall be thoroughly checked during the annual pump maintenance by competent personnel. Applicable laws, regulations and Codes of Practice have to be followed.

Nozzles in unfit condition for use must be immediately replaced.

CONDITIONS OF USE

Failure to comply with any warnings, instructions, procedures or any other common sense procedures may result in injury, equipment damage, property damage or poor performance of the equipment.

Elaflex Hiby accepts no liability for direct, indirect, incidental, special, or consequential damages resulting from failure to follow any warnings, instructions and procedures in this manual, or any other common sense procedures generally applicable to equipment of this type. The foregoing limitation extends to damages to person or property caused by the unit or damages resulting from the inability to use the unit including loss of profits, loss of products, loss of power supply, the cost of arranging an alternative power supply, and loss of time, whether incurred by the user or their employees, the installer, the commissioner, a service technician, or any third party.

The manufacturer reserves the right to change the specifications of its products or the information in this manual without necessarily notifying its users.

Variations in installation and operating conditions may affect the unit‘s performance. Elaflex Hiby has no control over each installation‘s unique operating environment. Hence, no representations or warranties concerning the performance of the unit under the actual operating conditions prevailing at the installation are made. A technical expert of your choosing should validate all operating parameters for each application.

Elaflex Hiby has made every effort to explain all servicing procedures, warnings, and safety precautions as clearly and completely as possible. However, due to the range of operating environments, it is not possible to anticipate every issue that may arise. This manual is intended to provide general guidance. For specific guidance and technical support, contact your authorized supplier or specialist service contractor.

Only approved original parts shall be used and no unauthorized modifications to the hardware shall be made. The use of non-approved parts or modifications will void all warranties and approvals. The use of non-approved parts or modifications may also constitute a safety hazard.

Information in this manual shall not be deemed a warranty, representation, or guarantee. For warranty provisions applicable to this unit, please refer to the warranty provided by the supplier.

Every effort has been made to ensure the accuracy of this document. However, it may contain technical inaccuracies or typographical errors. Elaflex Hiby assumes no responsibility for and disclaims all liability of such inaccuracies, errors or emissions in this.

WARRANTY

Elaflex Hiby guarantees against defective materials and manufacturing for 18 months from date of supply. If the delivery date cannot be established, the production date applies. The production date is marked on the nozzle body.

Excluded are nozzles and parts subjected to wear and tear and damages caused by improper use, for example the use with unsuitable media. Furthermore excluded are indirect damages and costs, such as travelling related to exchange and repair work. We refuse any liability for consequential loss or damage resulting from the use of our nozzle.