eneren
your future-proof choice

INSTALLATION REQUIREMENTS

NPE - NHE

EN

TRANSLATION OF THE ORIGINAL INSTRUCTIONS

/ 10_25

TABLE OF CONTENTS

1 INSTALLATION REQUIREMENTS

The following is what is described in the documentation accompanying the units and is the result of our risk assessment analysis. **The installer, however, is responsible for the correct installation of the unit according to all aspects of the standard EN378-3**.

1.1 Introduction

Eneren NPE and NHE units are filled with R290 refrigerant and are developed in compliance with the applicable European standards, in particular EN378-3.
This document is intended as a guideline for the designer and installer in the installation and use of equipment containing highly flammable and explosive refrigerant fluids (A3 according to ISO 817:2014).

1.2 ATEX Directive

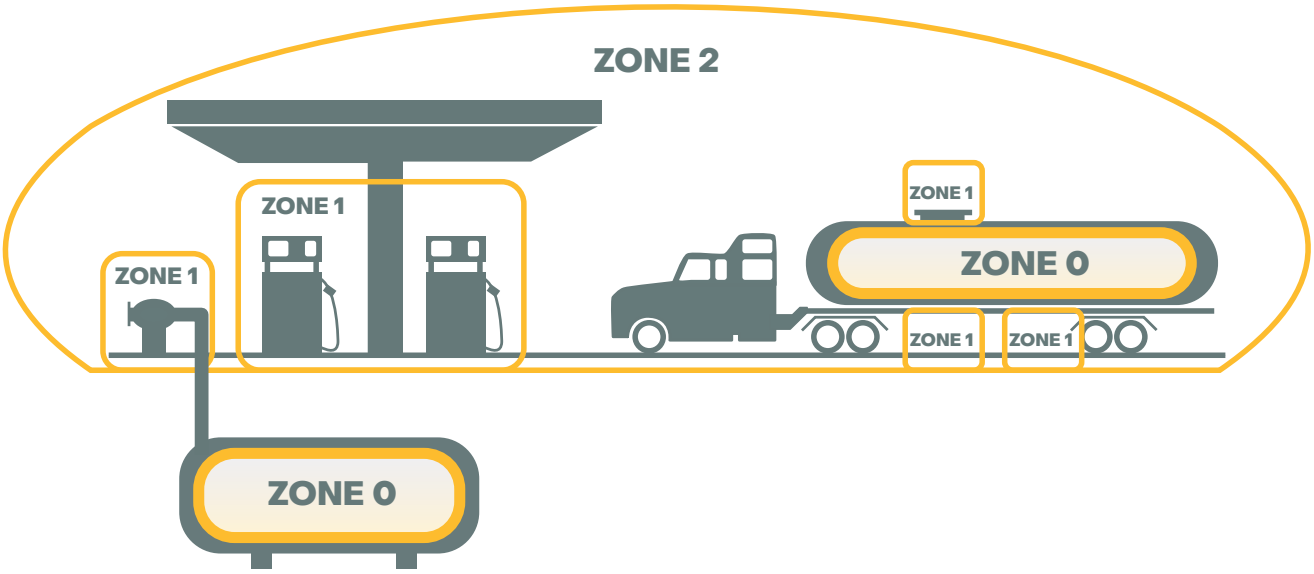
The ATEX Directive 2014/34/EU defines the minimum health and safety requirements for workplaces with the presence of potentially explosive atmospheres; in particular, it divides them into zones, depending on the likelihood of the presence of an explosive atmosphere, and specifies the criteria according to which products are selected within these zones.

» ATEX Symbol

	**ATEX Zones' symbol** **ATEX Directive 1999/29/EC**

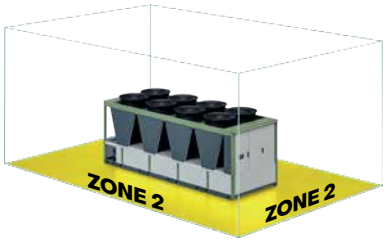
» CLASSIFICATION OF INSTALLATION ZONES

Zone	Description	Presence of gas
Zone 0	Area in which an explosive atmosphere consisting of a mixture of air and flammable substances in the form of gases, vapour or mist is present either permanently or for prolonged periods or frequently.	> 1000 hours/year
Zone 1	Area in which, during normal activities, the formation of an explosive atmosphere, consisting of a mixture of air and flammable substances in the form of gas, vapour or mist is likely to occur.	10 to 1000 hours/ year
Zone 2	Area in which, during normal activities, the formation of an explosive atmosphere, consisting of a mixture of air and flammable substances in the form of gases, vapour or mist is not likely, and may only occur for short periods of time.	< 10 hours/year



In general, HVAC systems are rigid and the joints used between refrigerant containing parts are are usually 'durably technically tight' as defined in EN 1127-1:2019. The ATEX zone that generates after the loss of refrigerant from one of these systems is classifiable as type 2 zone.
The use of gas detectors consolidates the concept of 'durably technically tight' by monitoring the tightness of the joints. If a leak is detected, all components with ignition sources must be shut down according to safety standards.

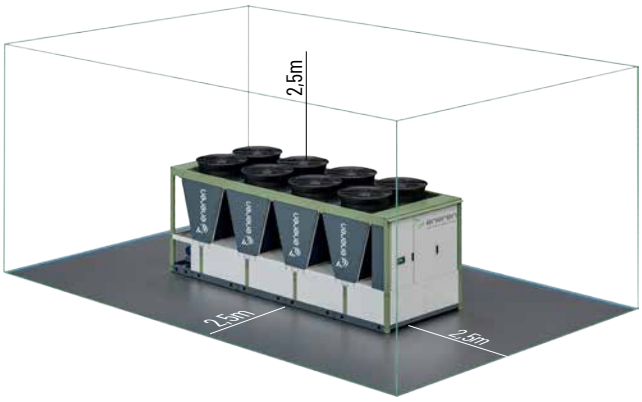
Example of ATEX zone for NHE units



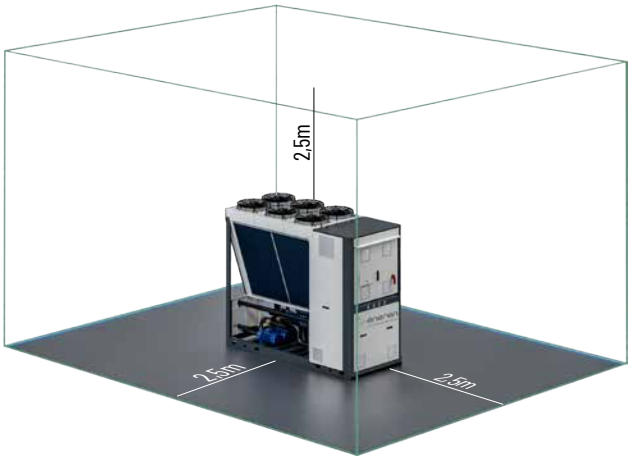
1.3 Unit installation

Units loaded with A3 (highly flammable) gas must be **installed away from drains, manholes, drainage channels and any other element that could act as a potential escape route for any leakage of said gases**, which must always be considered FLAMMABLE and heavier than air.
The minimum distance to be maintained with respect to these requirements is 2.5 metres. Within this safety zone, it is strictly forbidden to smoke, use open flames or carry out any work that may generate flames, arc discharges or sparks.

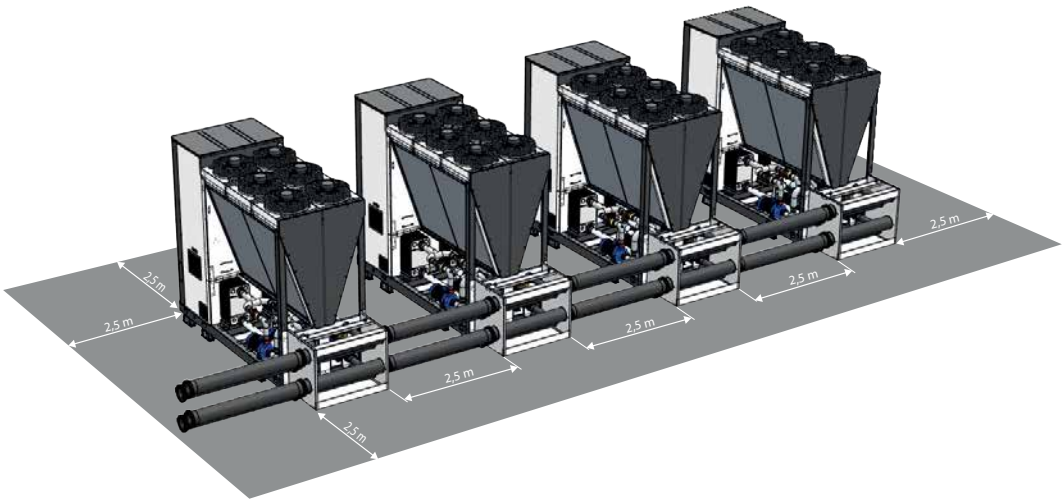
NHE unit safety zone



NPE unit safety zone



Safety zone for multiple NPE units



⚠ ATTENTION

In case of installation of multiple units in close proximity, the minimum distance between the units must be 2.5 meters. This distance may be reduced to 1.5 meters provided that, in the event of a refrigerant leakage alarm on any of the units, all machines are powered off. To enable this function, an electrical interconnection between the units of the group is required, which must be carried out EXCLUSIVELY by Eneren personnel and authorized service centers (after specific training on the subject).

1.4 Internal safety features

1.4.1 Conveyance of safety valves

The unit's refrigeration circuit is equipped with **safety valves** for both the high-pressure and low-pressure sides. The connection point of the valves and their respective dimensions are indicated in the detailed drawings attached to these instructions.
The installer/end user must implement a discharge pipe of equal or greater size to the outlet of the safety valves, so as to **lead the discharge point away from the unit and other potentially triggering elements (4 metres minimum distance in all directions from the point of emission)**.
The emission point must be oriented upwards (and therefore protected with a removable cap or other equivalent element that, while allowing any expelled gases to escape, prevents rain, insects or contaminants from entering the pipe).
It is preferable to position the vent point above the roof, at a height of at least 5m above ground level.
If the length of the pipeline is particularly long (>10m in total), it is advisable to allow for a slight inclination (1%) in the horizontal sections.
Avoid the formation of possible condensation, for example by using a vent or a hole at the base of the bend near the discharge point, as shown in the following image.

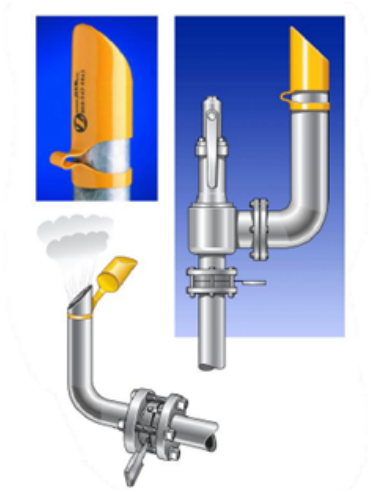


Image for illustrative purposes only.

1.4.2 Unit power supply

Units filled with an A3-rated refrigerant (typically R290, a highly flammable fluid) are equipped with a dual power supply line: a MAIN line to operate the units, and an AUXILIARY line to power the safety devices (described below):
— compressor compartment ventilation system;
— internal LEL (Lower Explosive Limit) detection sensor.

1.4.3 Hydraulic accessories

A degassing device or vent shall be installed to prevent the risk that, in the event of a heat exchanger failure, the refrigerant may contaminate the hydraulic circuit

It is recommended to install the device outside the building; if this is not possible, ensure that the discharge is directed towards the outside of the building.

Viale Spagna, 31/33 - 35020 Tribano (Padova) - Italy
Ph. +39 049 9588511 - Fax: +39 049 9588522 - info@eneren.it
www.eneren.it

Manufactured by HiRef S.p.A.
Viale Spagna, 31/33 - 35020 Tribano (PD) - Italy
Tel. +39 049 9588511 - Fax +39 049 9588522 - info@hiref.it
www.hiref.it