

Installation Guide

Unloading, Handling and Transportation

Important Warnings. Safety

Unloading and handling

- General instructions
 - Instructions for use of slings
 - Open skid generator set
 - Soundproofed generator set
 - Generator set in container
 - Instructions for use of forklift trucks
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Transportation

Safety

Unloading, handling and transportation of the generator set must be carried out by suitably qualified personnel using the appropriate lifting machinery and materials for this kind of load.

To avoid the risks involved in these activities, it is important to ensure the correct use of work equipment by trained personnel, checking that the equipment and lifting elements used (safety hooks or clamps, slings, chains, etc.) are in good condition and are adequate for the loads to be moved, as well as monitoring and displaying information so that loads do not pass above other workers or third parties.

Before each operation, it is necessary to check the position and proper grip of the lifting elements and the good condition of the attachment points; always using the lifting points and skids intended for such operations as directed in this manual, previously verifying the proper condition of the points mentioned.



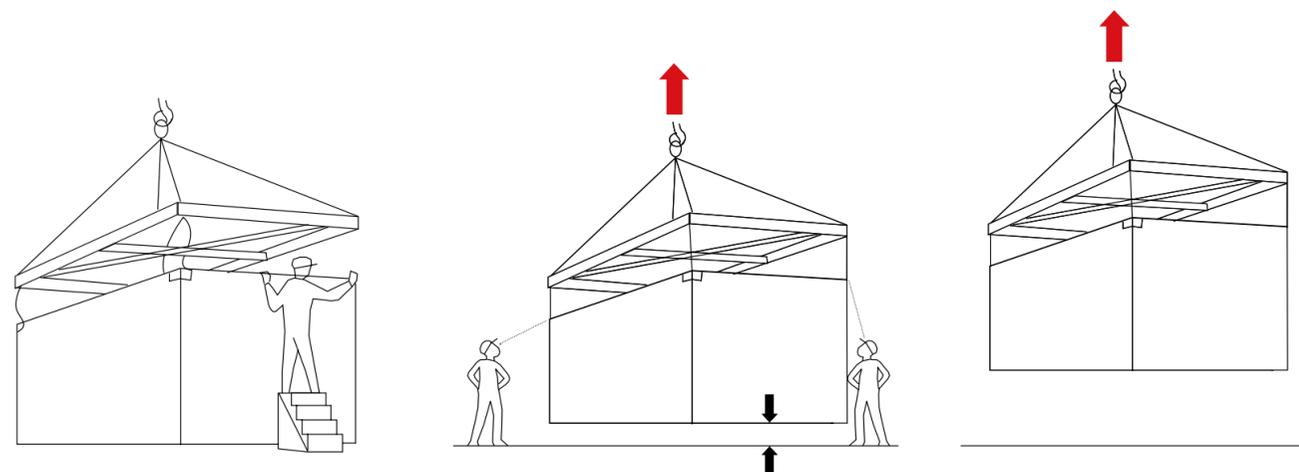
Do not load any other objects in addition to the generator set that could modify its weight and centre of gravity

General Instructions

- 1** Before unloading and handling, it is necessary to check and comply with the safety requirements specified in previous section, **Important Warnings | Safety**.
- 2** According to the weight of the genset, it is necessary to check that the machinery and the lifting elements which are going to be used are able to carry the load in a safe and controlled manner, keeping the genset in a level horizontal position.
- 3** Before unloading, it is important to ensure the floor is able to support the load of the generator set. If in doubt, we recommend laying evenly distributed pieces of wood of sufficient strength.
- 4** We recommend placing the genset in a clear, easily accessible position which is as close as possible to the installation or transportation area. Similarly, prior consideration should be given to the movement of the load and the route taken, so that there are no obstacles or power lines which may be affected by the loads.

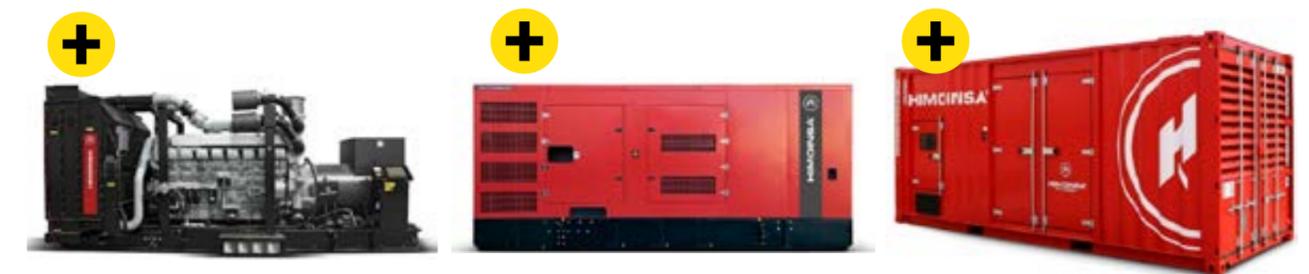
Instructions for use of slings

We recommend checking the correct attachment of the lifting apparatus to the marked lifting points, tighten slightly while checking the stability and safety of the operation and make sure the container is properly secured after being raised off the ground.



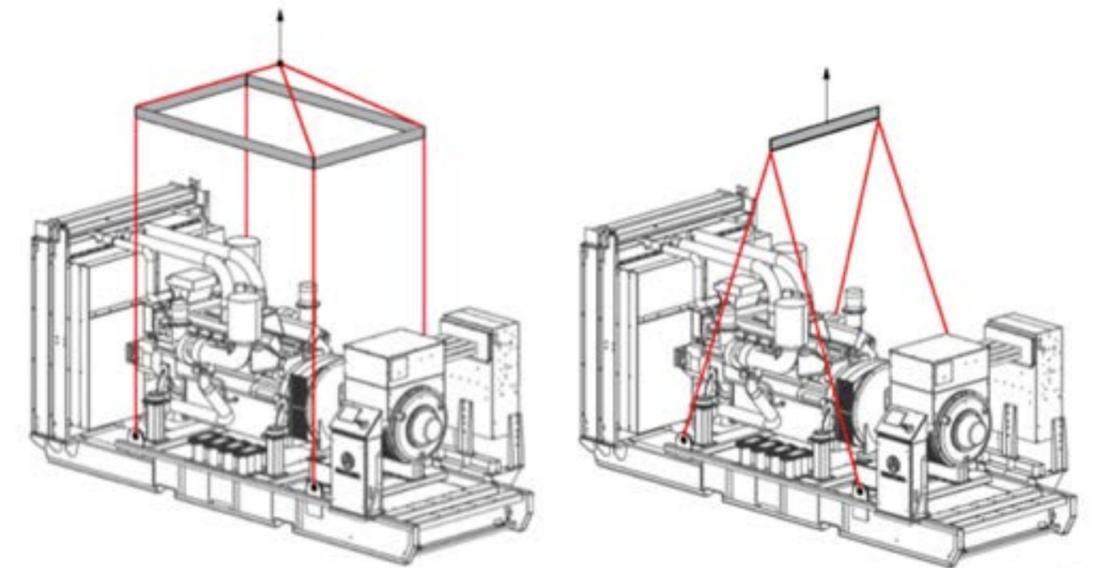
Having performed these checks, proceed with the lifting and handling of the container, with smooth controlled movements, avoiding tilting. Choose a location in accordance with Section [Unloading and handling. General instructions](#). Once it is placed on the ground, after checking the correct stability of the container, the slings may be loosened and removed.

These instructions are generic, and are valid for all generator sets which are to be subjected to lifting, unloading or handling using slings as lifting elements, taking into account the particularities of each version as shown below:



Use of slings in open skid static generator set

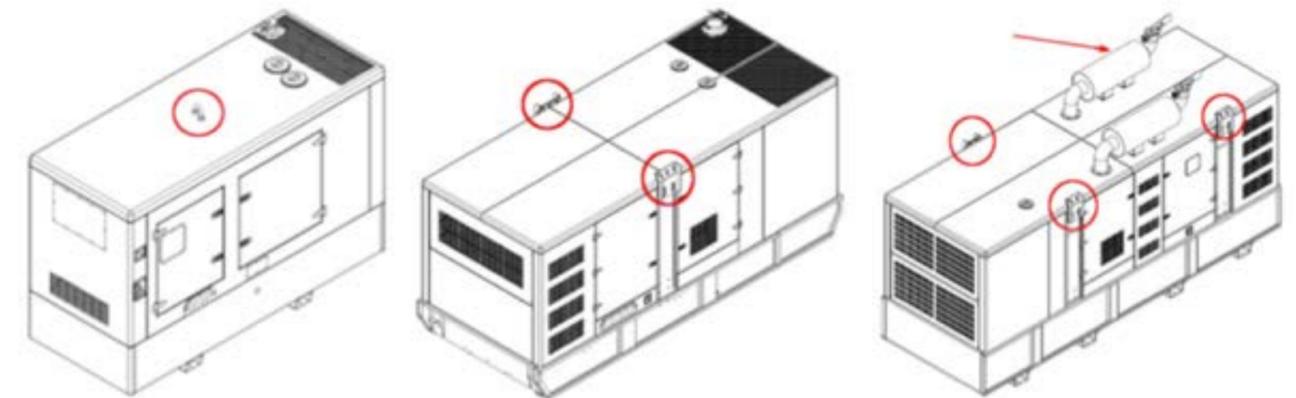
Lifting devices (slings) may only support the lifting points designed for such use, avoiding contact with any of the components forming the generator set. In the case of using slings to lift the generator set, we recommend using one of two lifting methods:

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Use of slings in soundproofed static generator set

The attachment points of the lifting elements may vary depending on the type of generator set canopy.

In the same way as standard static gensets, slings may only come into contact with the genset via the fastening elements on the marked lifting points, hence avoiding possible damage during handling of the genset. In the case of using slings to lift the genset, we recommend employing the same lifting methods used for open skid generator sets.



Check for apparent signs of deformation or corrosion on the attachment points of the lifting elements and the structure itself (nuts, bolts, brackets, etc...) before lifting the genset.

The lifting points or attachment points of the lifting elements have a limited useful life and therefore must be replaced every 10 years

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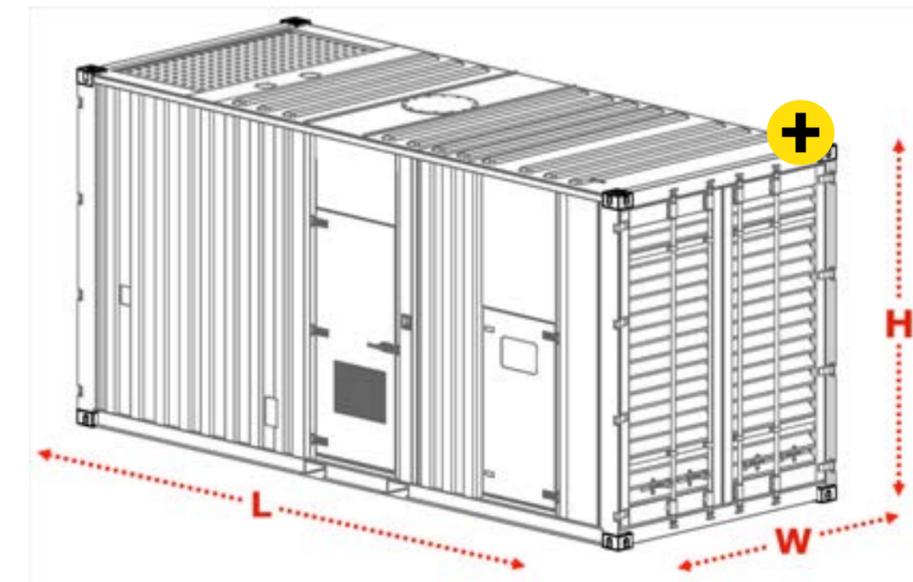
Instructions for use of slings

Use of slings in soundproofed static generator set in container

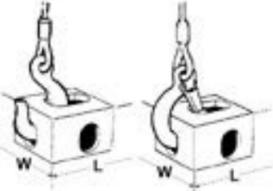
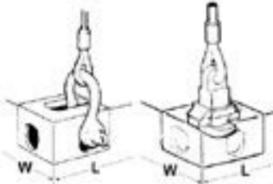
The standard containers used are of the type ISO Series 1, complying with the specifications set out in ISO 668 and have lifting points or corner pieces according to ISO 1161.

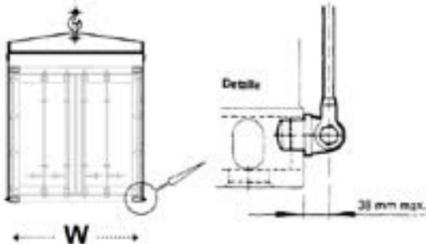
Upon request from the customer, it is possible to use containers with special dimensions.

To ensure the safety of the materials and persons, the following lifting operations are recommended for unloading and handling the container, as envisaged by ISO 3874 according to the type of container, in a controlled, level manner and avoiding any possible tilting of the genset. Where the dimensions of the containers are characterised in the following way:

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Instructions for use of slings

| Elevation using the upper lifting point | | |
|--|---------------------------|---|
|  | Acceptable containers | Types of couplings |
| | 40' 30' 20' 10' | <p>Regular hook: Introduced from the inside out. Safety hook: Introduced from the inside out.</p>  |
|  | Contenedores admisibles | Types of couplings |
| | 10' ($\alpha=60^\circ$) | <p>Shackle. Manual coupling bolt: They cannot be rotated while the container is suspended by them.</p>  |

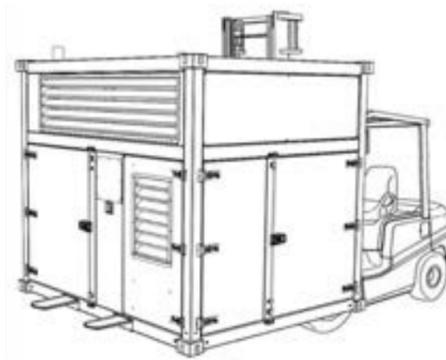
| Elevation using the lower lifting points | | |
|---|--|---|
|  | Acceptable containers | Types of couplings |
| | 40' ($\alpha=45^\circ$) 30' ($\alpha=45^\circ$) 20' ($\alpha=45^\circ$) 10' ($\alpha=60^\circ$) | <ul style="list-style-type: none"> The lifting device may only support four corner pieces, without coming into contact with any other part of the container. The maximum distance between the sling or chain and the container shall be 38 mm.  |

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Instructions for use of forklift trucks

The generator incorporates skids for coupling the lifting machinery, where the arms of the forklift truck must be inserted, ensuring that they do not exit the guide that is incorporated in the container for this purpose.

If possible, it is recommended that the arms be longer than the width of the container, and in any case no longer than 1825 mm.



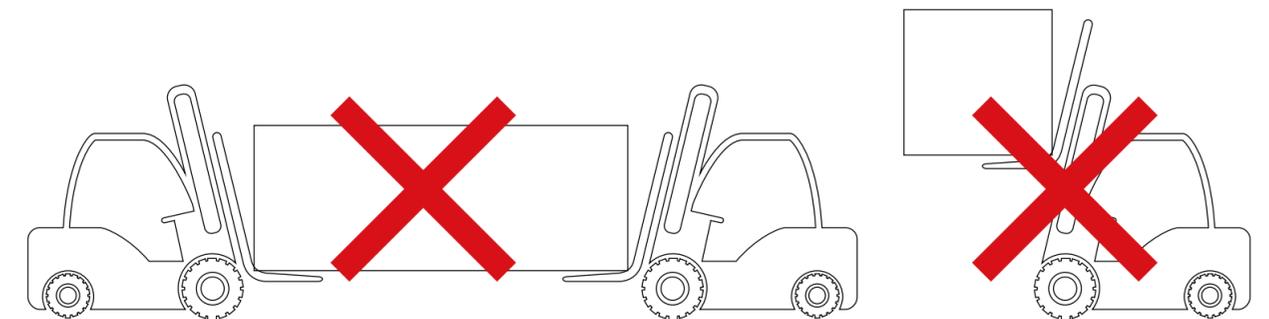
According to the weight of the genset, the machinery used must be checked to ensure it is able to carry the load in a safe and controlled manner.

We recommend using this method of raising generator sets for the standard static version, soundproofed static version and 10 and 20 feet containers, using in all cases the skids for coupling the lifting arms.



This method is not recommended for lifting 30 to 40 feet containers.

A forklift may only be used to transport the generator set, if excessive heights are avoided during transport and if it is possible to carry out the appropriate operations in a controlled and safe manner. Under no circumstances may lifting be carried out by placing the forks under the base of the genset, outside the coupling skids.



Transportation of generator set

Transportation of generator sets, regardless of the model, should be conducted according to safety standards in force in the country where this operation is carried out, whether for land, sea or air transport.

Before performing genset transportation, disconnect the batteries and ensure the valves and caps included (oil, coolant, etc.) are kept tightly closed, thus avoiding spills.

For road transportation, it is recommended that the means of transport are of sufficient quality as not to damage the generator set, keeping the genset in a horizontal position.