Base Load Power Hub (BLPH)

PACKING, SHIPPING, HANDLING, PRESERVATION AND STORAGE PROCEDURE – E&I SHELTERS

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ROSETTI MARINO	
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1 INTRODUCTION

1.1 PROJECT OVERVIEW

Crosswind, a Shell and Eneco joint venture, was awarded the tender to develop the offshore Hollandse Kust Noord (HKN) wind farm, located 18.5km off the coast of Netherlands near the town of Egmond aan Zee. The consortium plans to have HKN operational in 2023 with an installed capacity of 759MW generating at least 3.3TWh per year. This is sufficient renewable power to supply more than 1 million Dutch households with green electricity.

Offshore wind farms produce intermittent electricity and balancing these dips and peaks and integrating this electricity into the national energy system requires new technologies. For this reason, the offshore wind farm will include several new technologies that could be implemented at full-scale in the future. The new technologies being explored include a floating solar park, a short-duration battery storage as well as long-term storage via green hydrogen produced by water electrolysis and subsequently consumed in a fuel cell. The combination of these individual measures, herein referred to as the Base Load Power Hub (BLPH) will ensure a continuous power supply regardless of the wind situation.

1.1.1 Project Location

The Hollandse Kust Noord (HKN) wind farm is located 18.5km off the coast of the Netherlands near the town of Egmond aan Zee.

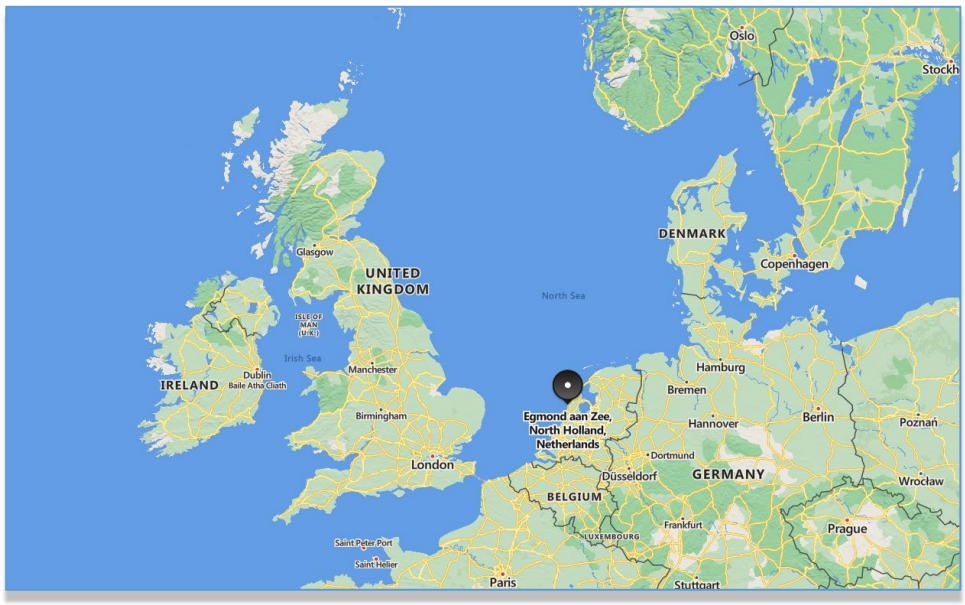


Figure 1 HOLLANDSE KUST NOORD WIND PARK Location Map

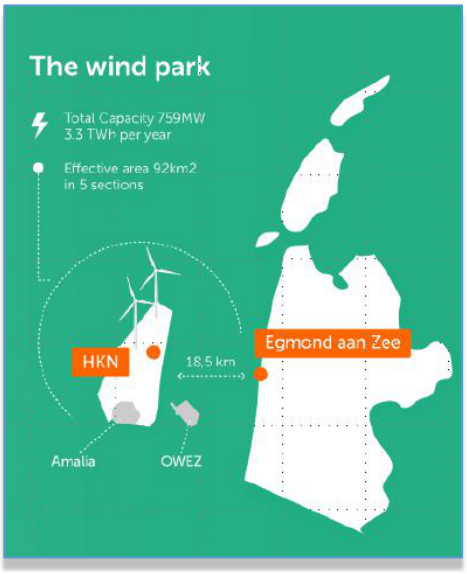


Figure 2 - Wind Park Details

The wind farm will consist of No. 69 x 11.5MW wind turbine generators each to be installed on a dedicated monopile structure. A 70th monopile located on coordinates E 590719.1, N 5841602.3 is reserved for installing the platform accommodating the BLPH. The monopile structure was designed and installed by Van Oord Offshore Wind (VooW) and therefore not part of the BLPH scope.

1.1.2 Project Concept

All components included in the BLPH will be integrated onshore on a topsides and installed in an offshore location within the boundaries of the HKN wind farm. At its simplest, the BLPH will store energy during periods of high electricity generation from renewable sources (a wind turbine generator and the floating solar PV farm) and release it during periods of low generation. In practice. It is expected that the energy stored will supplement generation from renewable sources to ensure that at least 1.0MW of power is exported to the electrical grid regardless of wind/solar availability.

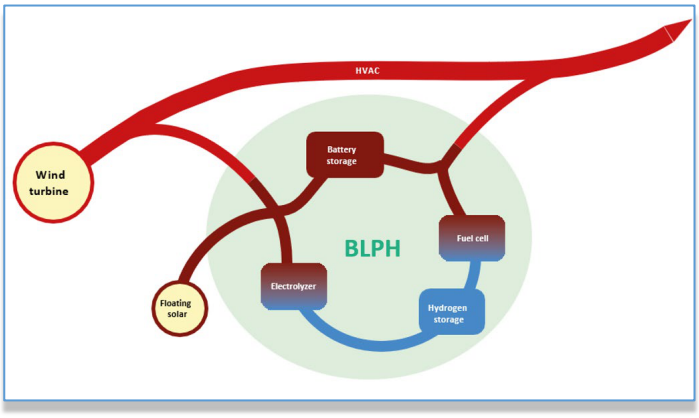


Figure 3 – BLPH Concept

Electricity in the BLPH will be stored in the form of electrons in a battery energy storage system (BESS) as well as converted into green hydrogen via water electrolysis. When the power output from the connecting wind turbine drops to below 1 MWe, the BLPH will return its stored energy to supplement the remaining power output. This will be by discharging the BESS, while stored hydrogen will be converted back into electricity using a fuel cell to extend the discharge duration.

The purpose of the BLPH s to function as a testbed for the integration of energy storage technologies with renewable generation. It is expected that equipment installed on the BLPH will operate as Normally Unmanned Installation for at least two (2) years with no or minimal maintenance and it will have its own independent control room with the ability to communicate with Crosswind's control room.

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2 DOCUMENT SCOPE

This document provides the general Alex-Sistemi general requirements on the external protection, packaging and marking of boxes containing machines and plant materials during the period of storage subsequent shipping to the site.

The requirements of this document are to be considered as guidelines for final packaging completed by the supplier of the material.

2.1 REFERENCES

Doc. No.	Description
ISO668	Classification, dimensions and ratings Standard specifications.
ISO780	Graphic symbols specifications used for marking packaging
MIL PRF131-K / MIL-PRF-131-J	Performance material specific. (barrier bag, water-proof, flexible, etc.)
MIL-D-3464-D / DIN55473	Desiccant dehydrating agent that prevents corrosion specifications
UNI9151	Wooden packaging construction specifications
IMDG-ADR-IATA-RID-IMO	Transport of dangerous goods specifications
IPPC FAO ISPM-15	International Standards for Phytosanitary packaging measures
UNI EN 1263-1	Temporary nets system protection specifications
MIL-PRF-131-J, MIL-PRF-131-K	Type of moisture barrier bag
MIL-D-3464-D and DIN 55473	Dehydrating salts specifications

Table 1 - Reference Documents

2.2 DEFINITIONS AND ABBREVIATIONS

COMPANY or Client (CPY):	Crosswind
CONTRACTOR (CTR):	ROSETTI MARINO S.p.A.
PROJECT:	HOLLANDSE KUST NOORD WIND PARK Project
VpCI	Vapour phase Corrosion Inhibitors
Propack Stirofilm	Multi-layer plastic film co-extruded

Table 2 - Definitions and Abbreviations

3 BASIC WARNING TO READ BEFORE USE

3.1 WARNING NOTICES HAVE TO BE READ BEFORE USE



HIGH VOLTAGE

In presence of this signal be sure to not come in contact with electrical components as you may be affected by an electrical shock.



FLAMMABLE MATERIAL

In presence of this signal be sure to not use anything that could inflame the components.



DANGER OF DEATH

In presence of this signal be absolutely sure to don't do anything if you are not a certificate operator. These component are the most dangerous as they may cause the death.



IRRITATION HARMFUL SUBSTANCES

In presence of this signal be sure to not come in contact with the substances reported, as they could damage irreversibly your skin.



GENERAL BAN

In presence of this signal not exceed the stopping point. This because there is one or more dangers after that and isn't a safe area.



GEARS BAN

In presence of this signal not put your hands in the gears of the machine or in it working areas.



GENERAL DANGERS

In presence of this signal pay attention at all the component in this area. This signal has two reason for be used:

1) There are many signs to be reported and not enough space for them;
2) There isn't an exact signal for the danger in this area

3.1.1 General notices

a) The practice of the component equipped inside cabin must be execute by expert personal and technically prepared.

b) Use the component equipped inside cabin only after reading attentively this instruction manual and under the respect of the indications.

c) Do not stop closeness the cabin during charge / discharge phases.

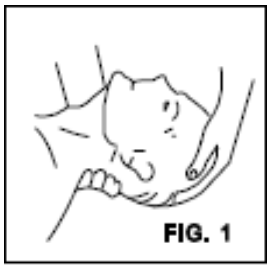
4 FIRST AID

IN CASE OF ELECTRIC SHOCK

DO NOT TOUCH THE PATIENT WITH BARE HANDS until the circuit has been interrupted Interrupt the circuit by opening the mains circuit breakers; if this is not possible PROTECT YOURSELF WITH DRY MATERIAL and then free the patient from the conductor.

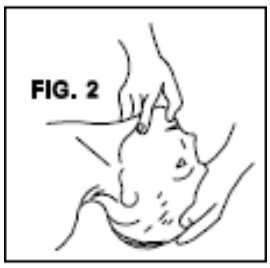
ARTIFICIAL RESPIRATION - Mouth-to-mouth Method

It is essential to start respiration at once and immediately ask for a doctor's intervention


FIG. 1

1. Place the patient with face upwards and arms parallel to the body; if the patient is lying on an inclined plane, make sure that the stomach is slightly lower than the chest. Open the patient's mouth and check that there are no foreign bodies (denture - chewing-gum– etc).

2. Kneel near the patient at the same height of his head, place one hand under his head and one under his neck (Fig. 1). LIFT THE PATIENT'S NECK AND TILT HIS HEAD BACK AS FAR AS POSSIBLE.


FIG. 2

3. Move your hand from the patient's neck to his chin: place your thumb between chin and mouth, your forefinger along the maxillary bone, keep the other fingers closed (Fig. 2). During these operations, start self-ventilation by breathing in deeply with open mouth.

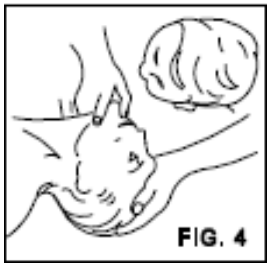
4. With your thumb between the patient's chin and mouth, keep his lips closed; apply your lips onto the patient's nostrils and blow into his nasal cavities (Fig. 3).


FIG. 3

5. During these operations watch to check whether the patient's chest rises (Fig. 4). If not, the nose may be obstructed: then, levering on

his chin with your hand, open the patient's mouth as wide as possible, put your lips around it and blow into the oral cavity. Watch if the patient's chest rises. You can use this latter method instead of the former even when the patient's nose is not obstructed, provided his nostrils are kept closed by your hand after moving the latter from his head.

THE PATIENT'S HEAD MUST BE KEPT TILTED BACK AS FAR AS POSSIBLE.


FIG. 4

6. Start by breathing out quickly and deeply for ten times, then go on with about twelve/fifteen expirations per minute. Continue until the patient has regained consciousness, or until a doctor ascertains

his death.

4.1 TREATMENT FORM BURNS

This treatment must be applied after the patient has regained consciousness. It may be applied even during artificial respiration (however, there must be at least two persons).

a. DO NOT TRY TO REMOVE CLOTHING FROM THE BURNED PARTS.

b. Apply dry gauze on burns.

c. DO NOT apply ointments or other oily tinctures.

4.2 SAFETY SUMMARY

The following are general safety precautions that are not related to any specific procedures and therefore do not appear elsewhere in this publication. These are recommended precautions that personnel must understand and apply during many phases of installation, operation and maintenance.

4.3 KEEP AWAY FROM LIVE CIRCUITS

Personnel are warned not to engage in repairs or adjustments within live, high-voltage equipment unless absolutely necessary. Moreover, though power has been removed from equipment circuits, dangerous potentials may still exist due to charges retained by capacitors. Always remove power, discharge and ground a circuit prior to touching it.

Before making adjustments, personnel should ensure that circuits are grounded. If possible, adjustments should be made with one hand, keeping the other free of the equipment.

4.4 DO NOT SERVICE LIVE EQUIPMENT UNASSISTED

When repair, replacement, or alignment is required with power applied, under no circumstances should it be attempted alone. The immediate presence of someone capable of rendering aid is required.

4.5 RESUSCITATION

Personnel working with or near high-voltage shall be instructed in the latest methods of cardiopulmonary resuscitation. Should someone be injured by electricity and stopped breathing, begin resuscitation immediately.

Warnings appear in the text in this manual, and are emphasized where necessary

5 INTRODUCTION

This document provides the Alex-Sistemi general requirements on the external protection, packaging and marking of boxes containing machines and plant materials during the period of storage subsequent shipping to the site.

The requirements of this document are to be considered as guidelines for final packaging completed by the supplier of the material.

The supplier should therefore comply with the following conditions specified in detail in appendix 1, depending on the material:

- Type of transport
- Duration of external conservation
- Storage (in the open//uncovered)

Applicable documents

- ISO668 - ISO780
- MIL-PRF-131-J - MIL-D-3464-D
- MIL PRF131K class 1
- DIN55473
- UNI9151
- IMDG-ADR-IATA-RID-IMO
- IPPC FAO ISPM-15
- UNI EN 1263-1

6 EXTERNAL PRESERVATION

6.1 AIM

The aim of external preservation is to guarantee the external protection of plant machine components during the storage and shipping period. This document describes the physical/chemical characteristics of the protective products to be used, their means of application and the preparation of the manufactured articles.

The place, means and maximum storage period of the various types of components and manufactured items will then be defined so as to guarantee their correct storage.

The labelling on the outside of any package must show the external storage expiry date.

Once this period has expired, the material must be externally re-stored following the same indications

as in this document. In any case, the internal storage expiry date shall also be taken into account so as to retain the correct maintenance of the materials.

This activity allows the external storage duration to be extended by a further 12 months from the package closure date.

6.2 APPLICABILITY

This specification applies to manufactured items (excluding those for the oxygen unit) constructed by Alex-Sistemi and/or or behalf of Alex-Sistemi, and constitute rules of general application.

6.3 PREPARATION OF THE SURFACE TO BE PROTECTED

The aim of preparation is to prepare the surfaces of the part in order to make them ready for protective treatment by ensuring that they are perfectly clean and dry, free from any foreign substance such as oil, water, dust, shavings any possible signs of oxidation.

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6.3.1 Degreasing using solvent

This is particularly required in all cases in which the presence of grease, oil, lathe work, etc are particularly noticeable.

The operation should be carried out using one of the following methods:

a) Total immersion of the item in solvent

b) Coating of the item with a jet of solvent

Where the degreasing is not carried out in accordance with the methods described above,(a, b), the operation shall be completed manually with using rags or a brush soaked in solvent. Regardless of the method selected, the solvent should be placed on the surface to be treated and not allowed to evaporate so as to avoid the dissolved greases from forming a thin film on the surface.

Particular attention should be paid to the selection of the solvents in relation to the flammability, operating conditions, toxicity limits and safety.

The treated surfaces should be free from grease or other contaminating residues. Any traces of oxidation should be removed mechanically and avoiding any damage to the surface area in question.

6.3.2 Washing using water-based detergents

Particularly recommended in all cases where the presence of greases, oils even if associated with dust or other solid substances are not so significant, barely attached to the material and are emulsifiable or soluble in water.

The operation shall be carried out in accordance with the following method:

a) Spray cleaning using aqueous detergent solutions formulated with emulsifying agents and surfactants. The pressure and temperature shall be determined by the product used.
b) Rinsing with water using a pressure jet suitable to remove any trace of detergent. The detergents used must be neutral, non-toxic and biodegradable.
c) Drying: the treated surface should be perfectly dry and totally free of any contaminating substances. Any traces of oxidation shall be removed mechanically and avoiding any damage to the surface area in question.

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6.3.3 Steam degreasing with or without detergents

Particularly recommended when substances are to be removed that are soluble in water or greasy substances mixed with dust, layers or varnish or thermoplastic coatings.

The operation shall be carried out in accordance with the following method:

a) The surface areas to be treated shall be hit with a water vapour jet produced using suitable equipment and applied at high pressure (60-120 bar).

b) Drying: the surface treated should be perfectly dry and totally free of contaminating substances. Any traces of oxidation shall be removed mechanically and avoiding any damage to the surface area in question.

6.4 PROTECTIVE PRODUCTS AND CORROSION INHIBITORS

The products used for external protection against humidity, salt, dirt, oxygen and anything else that can cause corrosion are:

- Oils
- Greases
- Polyethylene film mixed with additives of corrosion inhibitors
- Sponges with additives
- Detergents
- Barrier bag and dehydrating salts

Corrosion inhibitors (VpCI Vapour phase Corrosion Inhibitors) form a protective molecular layer on the surface on the metal to be protected. This protective layer impedes humidity, salt, dirt, rust and other materials from forming of the metal thereby causing corrosion.

6.4.1 Oils

Oils used to protect external surfaces, their relative physical characteristics and duration are listed in the following table.

Manufacturer	Product	Solvent	Thickness in microns (min) [1]	Opacity (1)	Drying time	Storage Time(2)
Agip	7921	Petroleum solvents	17	17 g/m²	0.5 - 1 h	12 months
Fuchs	Anticorit 2006	Petroleum solvents	20	29 g/m²	1 - 2 h	12 months
Valvoline	Tectyl 506	---	50	9.6 m²/l	2 h	12 months
Cortec	VpCI 368D	---	75	7 m²/l	12 - 24 h	12 months

Note:

(1) The information relating to the thicknesses of the films and the hiding power refer to perfectly smooth surfaces free of any abrasions.
(2) The product applied should have a preservation time expiry date equal to, or greater than, 12 months.

6.4.2 Application

Oils can be applied using sprays, brushes and/or by immersion as temporary protection to rough or altered surfaces (to be painted or not), particularly those made from materials subject to corrosion.

The spray method is generally the most appropriate. In this case it is necessary to ensure that the compressed air does not carry any humidity. The oil in question must be appropriately dissolved with the relative solvent so as to obtain the more suitable viscosity for the application that shall be carried out at room temperature.

6.4.3 Removal

This is done with the solvent used for the dilution or by washing with detergent in water or steam cleaning.

Removal can be carried out by using cloths soaked in solvent or by spraying the solvent itself. When the individual items are to be subsequently lubricated it is not necessary to remove the protective film.

6.4.4 Greases

VpCI (=Vapour phase Corrosion Inhibitor)	**Description**	**Application method**
VpCI 369	Oily/greasy protective liquid for external services with great anti - corrosion properties; has the consistency of honey. Used to protect bare unprotected machined parts. Leaves a sticky film that does not dry.	The product should be evenly mixed before use and then be applied using a spray, brush or by immersion. A litre of product preserves 12-13 square metres of surface area.

The VpCI 369 is a self-repairing protective, thermally stable up to 82°C, which removes humidity and protects against environmental attacks.

6.4.5 Polyethylene film with the addition of corrosion inhibitors

VpCI (=Vapour phase Corrosion Inhibitor)	**Description**	**Application method**
VpCI 126	Plastic polyethylene film with VpCI added	The film has a surface additive that must completely cover the manufactured item,thereby internally releasing the VpCI molecule that will protect the metal. Duct tape or heat sealing between the edges to be joined can be used. The surfaces areas to be wrapped should be dry, clean and without any traces of oxidation. $6m^2$ of film are needed to preserve a $1m^3$ vacuum. For higher volumes it will be necessary to integrate with film with the anticorrosive VpCI 130 sponge.

MilCor VpCI shrink film	MilCor VpCI shrink film is a composite film with VpCI Cortec and UV ray inhibitors. Characteristics: 1.Protection against multi-metallic corrosion 2.Self-extinguishing 3.Protection against UV rays 4.High heat shrink force for larger applications 5.Can be used as protection against particularly severe weather conditions.	Before applying the product check that the surfaces to be protected have no traces of rust, are clean, free of grease, dust, salt and other elements that might trigger oxidation processes. 1. Roll out the film in the desired storage area. 2. Put the equipment on the film 3. Overlap the edges by at least 50 cm 4. Use the gun, carefully move the heat ventilator over the film and shrink it to the desired size.
VpCI 126 FR UV	VpCI heat shrink film with additives The VpCI126 FR-UV film is a thick film (200/250 micron) extremely resistant to mechanical strain and with consolidated VpCi anticorrosion efficiency combined with other important features: - Thermo shrinking - Self-extinguishing - Anti UV	Completely cover the manufactured item and shrink using the appropriate equipment, generally a flame gun

6.4.6 Sponges with additives

VpCI (=Vapour phase Corrosion Inhibitor)	**Description**	**Application method**
VpCI 130	Sponge with added VpCI	Used to preserve electrical, electronic parts where required in a localized way. A square meters of sponge with additive preserves 3 cubic meters of volume

6.4.7 Detergents

VpCI (=Vapour phase Corrosion Inhibitor)	**Description**	**Application method**
VpCI418LM	VpCI418LM (with pale yellow inconsistent appearance) is an alkaline detergent for the industrial cleaning of marine and commercial equipment. VpCI 418LM contains corrosion inhibitors that act on the surface of the metal and prevent it from rusting. It does not leave any residue.	VpCI 418LM can be applied with a pressure washer at a temperature that varies between 30 and 70°C. With a 5% dilution (per weight) of VpCI418LM in water. Must be shaken before use.

6.4.8 Moisture barrier bag

The type of moisture barrier bag to use in the following: MIL-PRF-131-J, class 1.

The moisture barrier bag must be wrapped around the manufactured item to be protected and then thermally sealed at the end. Prior to complete closure the air inside should be aspirated.

The air pressure bag should not contain any materials containing any humidity (for example wood fixtures, pallets, etc.). The use of phenolic glue plywood is allowed.

The reinforced moisture barrier bag complying with the MIL PRF131K class 1 standard is to be used for materials to be packaged with a volume greater than 40m^3.

The moisture barrier bag can be combined with humidity indicators, one for each 5 m3 of the moisture barrier bag and up to a maximum of three per crate and not more than one for each wall.

The indicators shall be placed in the positions felt most appropriate by the packer if possible, at an approximate height of 150 cm from the floor so as to facilitate reading through the inspection door.

6.4.9 Dehydrating salts

Dehydrating salts shall comply with the characteristics specified in standards MIL-D-3464-D and DIN 55473 and shall be applied within the package and within the internal parts of the product to be shipped or stored in the warehouse. The sachets containing the salts shall not come into direct contract with the product to be protected.

The quantity of salt should be sufficient to preserve the product for the period planned for storage in the warehouse or for shipping and subsequent warehousing.

The quantity should be selected on the basis of the overall volume of the area to be dehydrated. For indicative purposes, the amount of salt to use is 1kg/m^3 of packed volume.

6.5 SUMMARY OF CORTEC VPCI PRODUCTS TABLE

Identification code	Cortec product	Consistency	Class of materials to be preserved	Material description
C1	VpCI 126	PE film additive	Electrical, electronic and external mechanical parts	Instrument panels, motors, turbines and protection of materials in general
C2	VpCI 130	Sponge with additive	Electrical and electronic parts	Inside Skid, cab interior, engines, internal space in general
C4	VpCI 368D	Dry protective wax	Mechanical parts	Static mechanical parts, engine (not varnished)
C5	VpCI 369	Sticky greasy, oily, protective	Mechanical parts	Machined moving parts (not varnished), Engine
C6	Milcor VpCI shrink film	Composite Film	Mechanical parts	Rotors, Diaphragms, Engines
C7	VpCI418LM	Alkaline detergent (leaves no residue)	Mechanical parts	Rotors, Diaphragms
C8	VpCI126FRUV	Thermal shrink film with VpCI additive	Mechanical parts	Rotors, Diaphragms - Motors, Valves, Pumps

7 PACKAGING

7.1 SCOPE

The specification defines the type, physical, qualitative and quantitative characteristics of the packages for Alex-Sistemi products, based on the place of destination, the number of in transhipments, the storage time and environment.

The main purpose of packaging is that of providing mechanical protection of the materials from internal and external stresses during the phases of loading and unloading, transporting and storage and thus preventing any damage due to shock, stacking weight, stacking, forces of inertia and acceleration.

7.2 APPLICABILITY

This specification applies to manufactured items constructed by or o behalf of Alex-Sistemi, and should be applied when documents are referred to which define the characteristics of the manufactured item (design, specification, order, etc.).

7.3 CLASSIFICATION OF THE PACKAGES

- Package to be transported by land:

  Package suitable to be transported by land.

- Package to be transported by sea:

  Package suitable to be transported by sea under cover, including in a particularly severe climate.

- Package to be transported by air:

  Package suitable for air transporting with covered storage. Cardboard packages are permitted. For the type of packaging to use the instructions of the airfreight company responsible for transport should always be consulted.

7.4 GENERAL PESCRIPTION FOR THE PACKAGES

7.4.1 Minimum supply requirements

Requirement	Wooden B&P	Thermo shrinking	Plastic B&P	Multi-packings (cage + Thermo Shrinking)
Temperature min/max: -20°C / +50°C*	✓ *	✓	✓ *	✓ *
Longitudinal acceleration max: 1.5 g	✓	✓	✓	✓
Maximum transverse acceleration: 0.3 g	✓	✓	✓	✓
Maximum vertical acceleration: 0.5 g	✓	✓	✓	✓
Stackable packaging: 500 Kg/m² (covered area)	✓		✓	✓

7.4.2 Size of the packages

With the aim of avoiding the use of oversize load transportation, the limits of the road and/or rail gauges are to be taken into account in the planning and/or construction phase of the packages.

The upper limits are shown below in respect of packages for transporting in Europe (sizes and maximum weights).

ROAD TRANSPORT

- Length: 13.50 m
- Width: 2.50 m
- Height: 4.00 m (see fig. 1a and 1b: the overall height is determined by a+b)
- Weight: 27,000 Kg

RAIL TRANSPORT

- Length: 12 m
- Width: according to appended gauge: Fig 1c – 1d
- Height: according to appended gauge: Fig 1c – 1d
- Weight: 20,000 Kg

AIR TRANSPORT

- Information to be received from the carrier used

SEA TRANSPORT

- For transport by sea, the minimum size per package is 1 m^3

If the values listed above are exceeded, it is obligatory to notify Alex-Sistemi.

Heavy Lift is defined as materials that, once packaged, exceed 15,000 kg in weight. The Shipping Sketch must always be placed on both long sides of the package.

Heavy Lift items are NOT stackable.

The Shipping Sketch should also be provided in cases in which, notwithstanding the weight of the package does not exceed 15,000 kg, its lifting requires the use of special equipment (spreader bar, swingle bar, etc.). In order to issue the Shipping Sketch, it is necessary to have the related Lifting Sketch.

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7.5 PRE-PACKAGING

The material within the package should be properly placed and blocked so as to prevent movement in any direction.

To this end, the moving parts of any item shall be securely fixed to the item itself and any delicate points shall be suitably protected so as to not interfere with the package.

Where the items have sharp edges, it is vital to cover these with a soft material so as not to tear the protective guard (moisture bag and/or polyethylene) where requested.

Nozzles and all internal orifices must be plugged.

Items of a small dimension shall be identified, quantified and collected code by code in intermediary containers.

For the protecting of materials shavings, paper and polystyrene should not be used. The use of foam or bubblewrap is recommended.

The list of contents should be shown on the outside of the pre-packaging.

7.6 TYPE OF PACKAGE

(see Appendix_1 for more informations, page 34)

The types of packaging requested are:

- Wooden packing;
- Thermo shrinking;
- Plastic packing;
- Multi packing (Crate + Thermo shrinking).

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8 MARKING AND DOCUMENTATION

8.1 EXTERNAL MARKING

Each package shall be marked on at least 3 sides.

The marking shall be resistant to bad weather conditions and light and shall be made with two plastic or laminated sheets with black letters on a white background. The fixing of the sheets should be done using metallic staples at the corner.

The format of the paper shall be A3, A4 or A5, and suited to the size of the packages.

As an exemption, where specially requested, it may be made using black stencil with characters having a height of 5 cm (2.5 cm for smaller crates having a volume of around 1 m^3).

Given the characteristics of the stencil marking, the information of the Box number is visible only in text format and not in bar code format.

On all other packages or loose items, where standard marking cannot be carried out, an indelible marking or engraving on galvanized sheet metal and/or enamel of the appropriate size and tied or nailed to the packages or items shall be made (at least 2 for each package).

THE MARKING SHOULD CONTAIN THE FOLLOWING MINIMUM INFORMATION:

8.1.1 Sheet 1

- Name of the recipient
- Destination location
- Plant (name)
- Order and any modification -
- Box number in text format and bar code

8.1.2 Sheet 2

- Box number in text form and bar code format
- Shipping Sales Order
- Order N°
- Type of package
- Gross weight (Kg)
- Net weight (Kg)
- Volume (Cubic meters)
- Dimensions (Meters)

8.1.3 Storage informations

- Storage code- (see table below)
- Presence of moisture barrier bag
- Date of closing package
- Date of storage expiry
- International signs (see description below)

Storage code table:

"A" – Air conditioned closed warehouse (From 5°C to 40°C 80% max humidity)
"B" – Closed warehouse
"C" – Warehouse under cover *
"D" – Open warehouse
"E" – Dangerous materials Air-conditioned Closed Warehouse (From 5°C to 40°C 80% max humidity
"F" – Dangerous materials closed warehouse
"G" – Dangerous materials warehouse under cover

* At the storage areas managed by Alex-Sistemi situated at sites that are not characterized by high changes in temperature and other rates of humidity, the packages destined to be stored under cover can be positioned in the open since a protective Propack Stirofilm will be applied (or equivalent), on the covering of the packages and with an edge of 20 cm that guarantees the sealing of the package.

The plastic stirofilm film is a multi-layer co-extruded film which gives it a high mechanical resistance, both mechanical and against perforation.

International signs:

In accordance with the characteristics of the materials, signage should always be present on packages in accordance with ISO780, made from indelible paint or labels (see Fig. 2 on next page).

8.2 DOCUMENTATION: BOX CONTENT LIST AND PACKING LIST

(see figures 3 and 4)

The Box Content List is the detailed indication of the material contained in a package.

The Packing List contains the same information as the Box Content list, with the addition of weight and sizes of the package.

A copy of the box content list (in a waterproof sealed envelope) should be inserted inside the package whilst a copy of the packing list should be inserted on the outside protected by galvanized sheet metal or glazed and secured with galvanized nails.

The Box Content List and Packing List must be in English.

Figure 1: Transport load profile (Sizes expressed in mm)

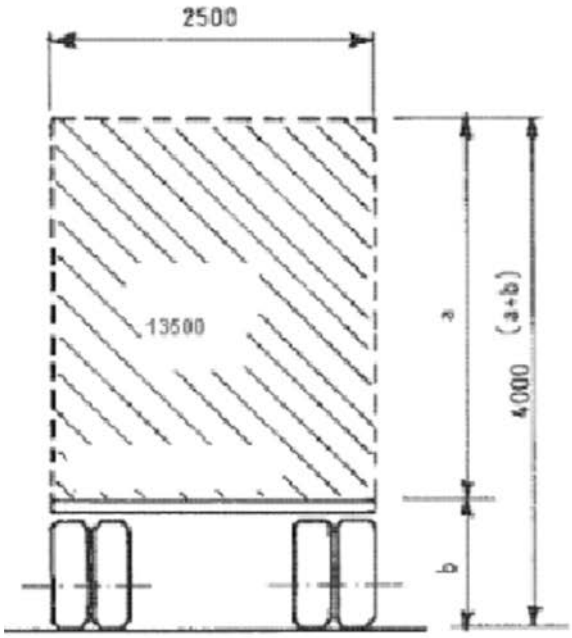


Figure 1a
Road gauge

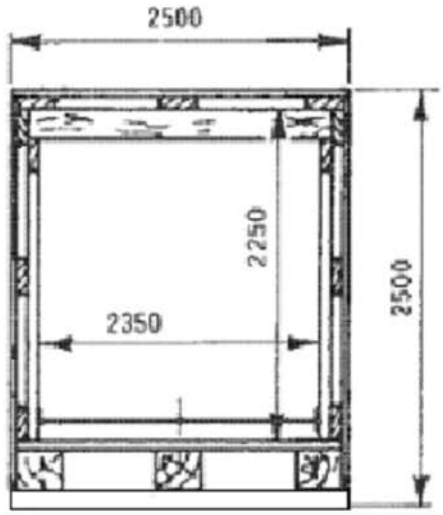


Figure 1b
Maximum internal dimensions for road transport

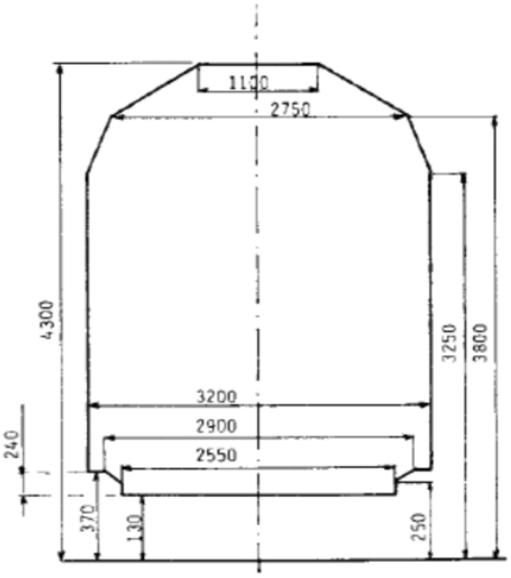


Figure 1c
Italian railway line gauge

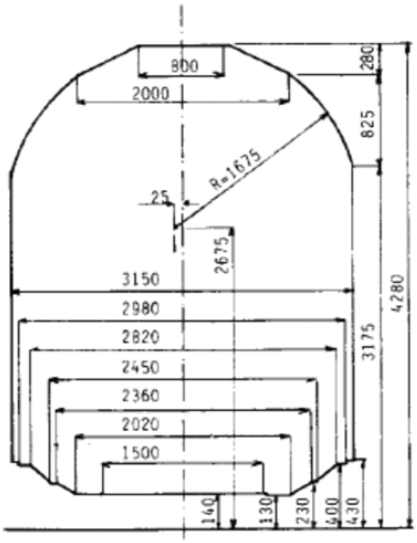
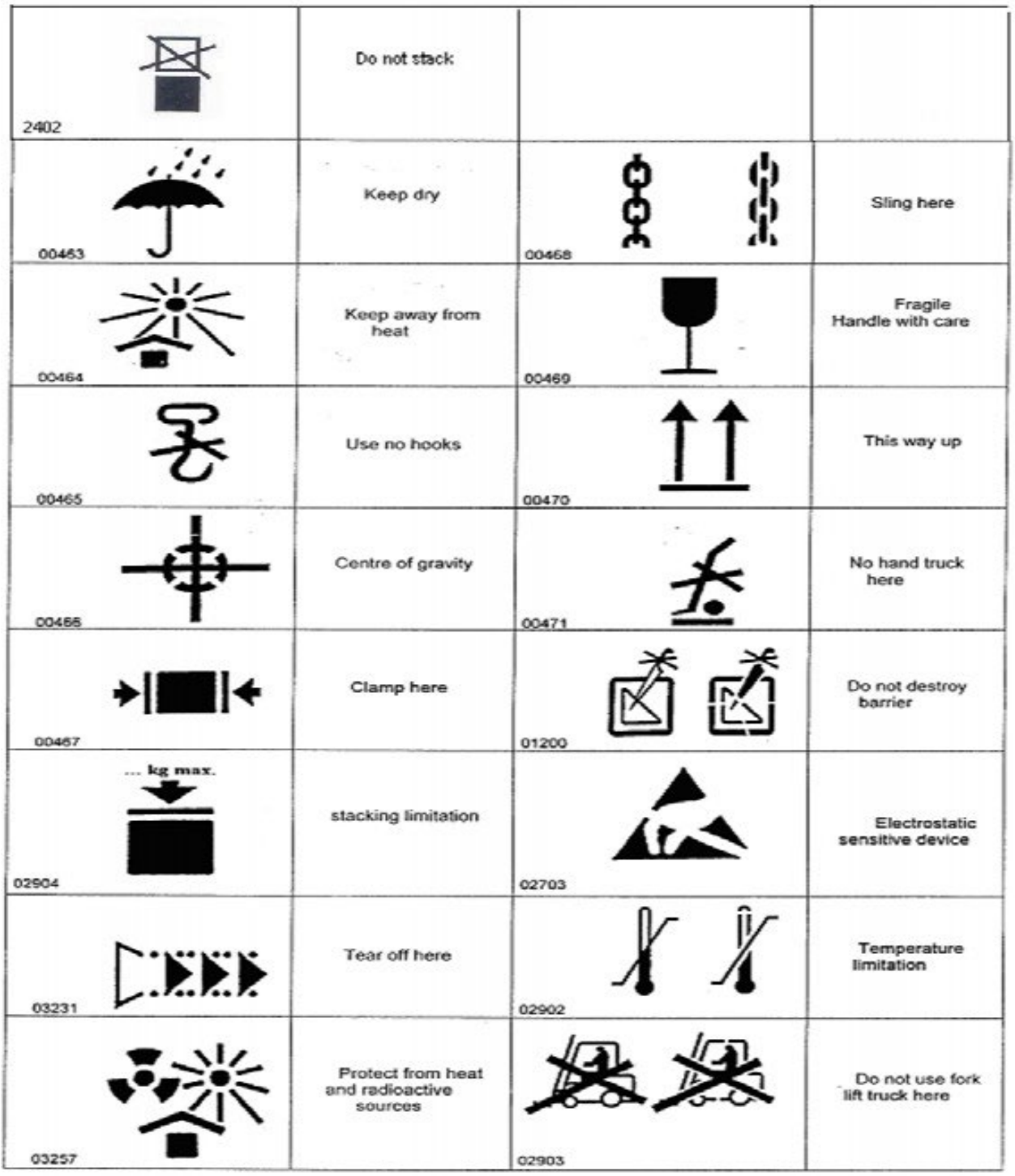


Figure 1d
International railway line gauge

Figure 2: International warning signs (ISO 780)



9 TRANSPORTATION AND STORAGE INTRUCTIONS

9.1 TRANSPORTATION

With regard to the transport you need to ensure the following:

1) Each opening for cables, ventilation, etc. .. must be hermetically sealed so as to prevent inlet water, moisture, debris and any other type of agent capable of altering the interior of the cabin and its contents.
2) Make sure there are no protruding parts with a maximum size reported (handles, knobs, sheds, etc. ..) so as to avoid inadvertent contact during maneuvers.
3) The cab must be firmly secured to the transport vehicle, making sure that all support points are level with each other so as to avoid twisting and deformation of the structure.

9.2 STORAGE

As regards the long-term storage (1 year) refer to the table of "appendix 1" bearing in mind that:

1) The expiry of the time limit indicated in the table, the packaging is considered unsuitable as expired. You will then need to restore it to prolong the storage phase.
2) If, due to inspection, for example, were to be temporarily removed / open the packaging will be restored as if it were expired.
3) If there is a need to inspect the cabin then you will have to restore what has been done for its storage as if it were past the period of validity.

With regard to the short-term storage must be followed the devices below:

1) Periodically inspect the cabin making sure the actual state of preservation.
2) If the cabin contains electrical (electrical panels, for example) are crammed inside the cabin the appropriate salts against moisture. They will be replaced periodically to prevent damage to the electrical components.
3) If no external protection must verify that there are no doors or other openings are not properly secured.

10 HANDLING – LIFTING METHOD / ANCHORING – ASSEMBLY PHASE

10.1 HANDLING – LIFTING METHOD

E&I Shelters must be lifted with an angle of anchoring of 60° respect to roof (is dangerous to reduce this angle). There are four lifting points, the location of the lifting points depends on the size of the E&I Shelters.

For detailed information regarding allowed lifting methods, safety working load, C.O.G. and scope of supply, please refer to doc. **1724000049-AR-DD-00062 LIFTING DRAWINGS - E&I SHELTERS**.



ANCHORING ANGLE > 60°
VERIFY IF THE ROPES CAPACITY LOAD IS SUITBLE FOR
THE WIGHT OF THE E&I Shelters.

10.2 ANCHORING – ASSEMBLY PHASE

E&I Shelters can have different sizes and so different number of fixing point, different size of anchoring kit and different location of HVAC units, landings and bottle rack.

Several loose part/material will be shipped separately from related E&I Shelters. Every loose part will be marked properly in order to identify it easily.

For detailed information regarding anchoring point, fixing kit and loose part, please refer to following docs:

- **1724000049-ST-DD-00010 B-100 FOUNDATION DRAWING - E&I SHELTERS**
- **1724000049-ST-DD-00012 B-200 FOUNDATION DRAWING - E&I SHELTERS**
- **1724000049-ST-DD-00013 B-300 FOUNDATION DRAWING - E&I SHELTERS**
- **1724000049-ST-DD-00014 B-400 FOUNDATION DRAWING - E&I SHELTERS**
- **1724000049-AR-DD-00018 B-100 DETAILED DRAWINGS - E&I SHELTERS**
- **1724000049-AR-DD-00019 B-200 DETAILED DRAWINGS - E&I SHELTERS**
- **1724000049-AR-DD-00020 B-300 DETAILED DRAWINGS - E&I SHELTERS**
- **1724000049-AR-DD-00021 B-400 DETAILED DRAWINGS - E&I SHELTERS**

Appendix 1: Type of package application

POS.	MATERIAL TYPE	SEA SHIPPING STANDARD PACKAGE	LAND TRANSPORT STANDARD PACKAGE	EXTERNAL PROTECTION (ref codes. Tab.2.5)	PROTECTION DURATION	STORAGE (ref. Par. 4.1.3)	ALTERNATIVE PACKAGING (9)
1	SKID MACHINES AND GT AUXILIARIES WITH SUPPORTING BASE	THERMO SHRINKING	THERMO SHRINKING	C1. C2. C4. C5. C6. C8	12 MONTHS	D	Crate/Wooden crate (7)
2	AUXILIARY SKIDS	THERMO SHRINKING	THERMO SHRINKING	C1. C2. C4. C5. C6. C8	12 MONTHS	D	Wooden crate (7)
3	HEAT EXCHANGERS, TANKS, LUNGS, SEPARATORS, REFRIGERATORS	SADDLE (1) + SHRINK-WRAP	SADDLE (1) + SHRINK-WRAP	C1. C2. C4. C5. C6. C8	12 MONTHS	D	Crate/Wooden cage; Multi-layered cage
4	CARPENTRY	WOODEN CRATE	TIES	C4	12 MONTHS	D	Cage; Multi-layered cage
5	BUNDLES OF TUBES	THERMO SHRINKING	THERMO SHRINKING	C4 . C6. C8	12 MONTHS	D	Wooden cage
6	GENERATORS, ENGINES, ENGINE PUMPS, TRANSFORMERS (6)	THERMO SHRINKING	THERMO SHRINKING	Cl. C2. C4. C5. C6. C8	12 MONTHS	B	Wooden crate (7)
7	REELED CABLE	EXTERNAL COVERING	EXTERNAL COVERING	-	12 MONTHS	D	-
8	TUBES, COMMERCIAL BARS, LAMINATES	TIES	TIES	-	12 MONTHS	D	-
9	SKETCH TUBING, TUBING, THREADED BARS	WOODEN CRATE	WOODEN CRATE	C1, C4, C5	12 MONTHS	D	Multi-layered cage (7)
10	FOUNDATION, ACCESSORIES, HARDWARE	WOODEN CRATE	WOODEN CRATE	C4, C5, MOISTURE BAG, SALTS	12 MONTHS	D	Plastic crate (7,8); Multi-layered cage
11	CYLINDER CABINET	WOODEN CRATE	WOODEN CRATE	C1, C2, C5, C6, C8, MOISTURE BAG, SALTS	12 MONTHS	D	Multi-layered cage (7)
12	ELECTRICAL PANELS BATTERY CHARGERS	WOODEN CRATE	WOODEN CRATE	C1, C2, C5, C6, C8 MOISTURE BAG, SALTS	12 MONTHS	A	Multi-layered cage (7)
13	IMO MATERIAL, BATTERIES, ELECTROLYTES, FLAMMABLE MATERIALS, SOLVENTS	ACCREDITED WOODEN CRATE	ACCREDITED WOODEN CRATE		12 MONTHS	F	
14	PRESSURISED CONTAINERS				12 MONTHS	G	
15	METAL OR PVC DRUMS , GENERAL CONTAINERS	PALLET	PALLET		12 MONTHS	D	Wooden cage; Multi-layered cage
16	FILTER CARTRIDGES	WOODEN CRATE/CONTAINER (2)	WOODEN CRATE / CONTAINER (2)	MOISTURE BAG, SALTS	12 MONTHS	C	Multi-layered cage (7)
17	CONTAINER CONTROL CABIN, CONTAINER CYLINDERS			C1, C2, C4	12 MONTHS	D	Shrink-wrap
18	ROOM FILTER MODULES / OUTLET PIPES	THERMO SHRINKING	THERMO SHRINKING	C1, C2, C4, C5	12 MONTHS	D	Wooden cage
19	SPARE PARTS, ROTORS, DIAPHRAGMS, GASKETS	WOODEN CRATE	WOODEN CRATE	C5 MOISTURE BAG, SALTS	12 MONTHS	B	Plastic cage (7,8); Multi-layered cage (7)
20	VENTILATION PIPES COMPLETE WITH ACCESSORIES	CONTAINER/WOODEN CRATE (5)	CONTAINER / WOODEN CRATE (5)		12 MONTHS	D	Multi-layered cage (7)
21	SPARE PARTS, ROTORS, DIAPHRAGMS IN PRESSURISED CONTAINERS	(3)	(3)	(3)	12 MONTHS	(3)	
22	CYLINDERS, FRAMES	WOODEN CRATE	WOODEN CRATE	C4, C5, C8 MOISTURE BAGS, SALT	12 MONTHS	C	Multi-layered cage (7)
23	ALTERNATIVE SKIDS WITH SUPPORTING BASE	THERMO SHRINKING	THERMO SHRINKING	Cl. C2. C4. C6	12 MONTHS	C	Wooden crate (7)
24	ISOLATING MATERIAL, ACOUSTIC PANELS AND COVERS	WOODEN CRATE/ CONTAINER	WOODEN CRATE / CONTAINER		12 MONTHS	D	Multi-layered cage
25	VALVES, JOINTS	WOODEN CRATE/ CONTAINER	WOODEN CRATE	C4, C5, MOISTURE BAG, SALTS	12 MONTHS	B	Plastic crate (7,8); Multi-layered cage (7)
26	ELECTRICAL MATERIAL INSTRUMENTS, FITTING	WOODEN CRATE/ CONTAINER	WOODEN CRATE	MOISTURE BAG, SALTS	12 MONTHS	B	Plastic crate (7,8); Multi-layered cage (7)
27	VENTILATORS	SHRINK-WRAP/ CONTAINER	SHRINK-WRAP / CONTAINER	C1. C2. C4. C5. C6. C8	12 MONTHS	D	Multi-layered cage (7)
28	GAS GENERATOR	(6)	(6)	(6)	(6)	(6)	
29	HSPT MODULES	(6)	(6)	(6)	(6)	(6)	

1 The saddle is used when the material to be packaged does not have its own support structure.
2 The container is used if the volume allows the container allows lashing and the cartridges are provided with their own container. When the container is used the moisture bag does not apply
3 The applicable specification is SOS87281
5 If the package is made using a crate, additional metal fasteners, gaskets and electrical parts are inserted in the moisture bag or using salt
6 Preservation and packaging are in accordance with the specifications of the supplier
7 The use of the moisture bag is envisaged
8 The use of plastic crates is envisaged for volumes of less than 8 cubic metres and as an alternative form of packaging can be extended to all miscellaneous materials in accordance with
9 Alternative packaging can be requested by the Client on the basis of particular phyto-sanitary and/or protection requirements (e.g.: Quarantine).

NOTE: WHERE THE ORIGINAL PACKAGING IS RE-OPENED, THE EXTERNAL PRESERVATION GUARANTEE DURATION SHALL BECOME VOID. PACKAGING SHALL BE REPEATED IN ACCORDANCE WITH BOTH THIS PROCEDURE AND WITH THE MEANS OF APPLICATION