Base Load Power Hub (BLPH)

Handling, Packing, Shipping, Storage and Preservation Procedure

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Handling, Packing, Shipping, Storage and Preservation Procedure

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1. Purposes of Application.

The procedure purposes is to prevent GIS or GIB from being destroyed or damaged during transportation, handling and storage, to maintain the quality secured at the factory until installation and, ultimately, to provide satisfactory products to customers.

2. Scope of Application

The procedure is applied to the transportation, handling and storage of all types of GIS, GIB and their parts for worldwide projects.

3. Unloading & Packing Handling

3.1. Unloading and preparation

3.1.1. Prepare a wrecker to lift the product considering the weight of the product or the package (Refer to the diagram of package size and weight)

3.1.2. Select equipment and lifting device according to the wooden crate or type of packaging.

3.1.3. Prepare wire sling or sling belt, lifting accessories for lifting of the equipment.

3.1.4. During equipment lifting, lifting device has to be calibrated prior to use. Equipment has to be balanced during lifting with help of level tool to prevent equipment damage due to unbalancing.

3.2. Unloading

3.2.1. Appropriate lifting capacity crane / fork lift / wire rope sling / hook have to be prepared.

3.2.2. Check the lifting marks considering weight balancing as shown in the Figure 1.

3.2.3. Unload the equipment using crane or fork lift as shown in the Figure [2] / [3]

 [CAUTION]	**When moving, you must use a rope and fork lift according to the symbol (CARE & Caution Mark) on the packaging box.**

<Care & Caution Mark>



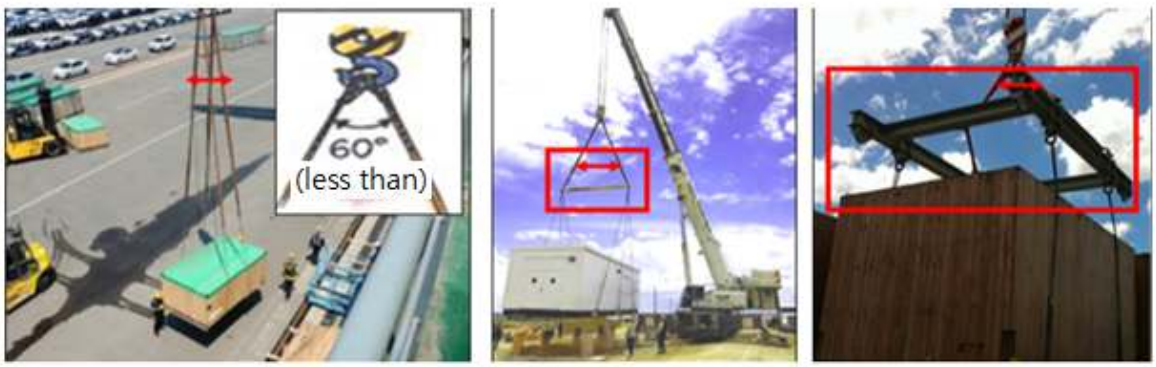
			
THIS SIDE UP	FRAGLE	SLING HERE	KEEP DRY
			
CENTER OF BALANCE	MULTI TIER LOADING PROBIBITED		DO NOT DROP



[Figure 1]



[Figure 2]



[Figure 3]

Maintain the angle of the hoisting rope within 60 degrees.
If the angle of the hoisting rope exceeds 60 degrees, a spreader must be used.

3.3. Transportation

3.3.1. Check the Vehicle capacity and specification for transportation.
3.3.2. Remove all foreign objects and obstacles that can be potentially dangerous during the transportation to the final destination point. Should be done before departure.
3.3.3. During transportation the equipment parts or wooden crates should be placed correctly, taking in to account weight center to avoid possible vibrations or damage.
3.3.4. When the package arrives at final destination, refer to item 3.2 of present manual for equipment unloading.
3.3.5. Product Transportation
- Compliance with safe transport speeds (escort provided if necessary)
- Escort : Control vehicles are positioned at the front and rear of the transport convoy to ensure adherence to speed limits and regulations, and to control obstacles and sudden situations to prevent abrupt starts and stops.
- Products with a high height that pose a high risk of accidents during transport, as well as products such as the main body to which shock recorders are attached, should be transported using an L/B vibration-free trailer
3.3.6 Speed Compliance: Consideration of local transportation restrictions
- Highways 80km/h, regular roads 40km/h, unpaved roads 10km/h or less
- Products with high transportation risks should be driven at least 30% slower than the above speeds
- In conditions like rain, snow, or ice, driving should be at least 50% slower than the above speeds
3.3.7 Multi-tier loading during transportation



- Single-tier loading is the standard.
- Boxes marked "No Multi-Tier Loading" should not be stacked in two tiers.
- Multi-tier stacking is prohibited on unpaved transport routes.
- If the transport route is in good condition, boxes with the same dimensions and a weight of up to 2 tons may be stacked up to two tiers (provided the total height of the stacked tiers does not exceed 2 meters).

4. Storage

4.1. Storage & Preservation method

4.1.1. Basically, it should be stored in indoor warehouse with flat concrete floor. Figure [5], [6]

4.1.2. Concrete floor level must be higher than ground level; if site condition is not applicable rain water drain channel has to be installed.

4.1.3. Warehouse should have enough space for easy storage and transportation

4.1.4. Secure sufficient height of the storage area in order to future transportation convenience.

4.1.5. Installation starts from the main body of the GIS, so when storing, be sure to bring in the main body first.

4.1.6. Humidity inside of the warehouse should be lower than 80% and inside temperature should be maintained in range -10C˚ ~ 35C˚.



[Figure 5]



[Figure 6]

4.2. In case warehouse does not have enough indoor space.

4.2.1. Handle the equipment carefully. Check it throughout for damage

4.2.2. During Storage, the GIS SHOULD BE PLACE IN UPRIGHT POSITION Only and on a leveled surface to prevent unnecessary strain and possible distortion

4.2.3. During the construction period, protection should be provided against dust, dirt, falling objects, dripping water, excessive water, excessive moisture, and other possible causes of damage to the equipment. Store in a clean, dry place with a moderate temperature such as 10~30 ºC.

4.2.4. Electric parts such as motor and operation parts shall be stored indoor.

4.2.5. SF6 gas tanks shall not be stored under direct sunlight. Storing temperature should be under 35C˚.

4.2.6. Outdoor storage packing or wooden crate must be stored on a flat level concrete ground.

4.2.7. Concrete floor level must be higher than ground level; if site condition is not applicable rain water drain canal has to be installed.

4.2.8. Rain water proof shelter shall be installed to prevent from rust and damage due to weather conditions as shown in [No③ Figure 7].

4.2.9. Additional water proof tarpaulin or plastic cover shall be applied for outdoor stored packages as shown in [Figure 8]

4.2.10. Fence should be installed all around the warehouse for forbidding the outsider's entrance.

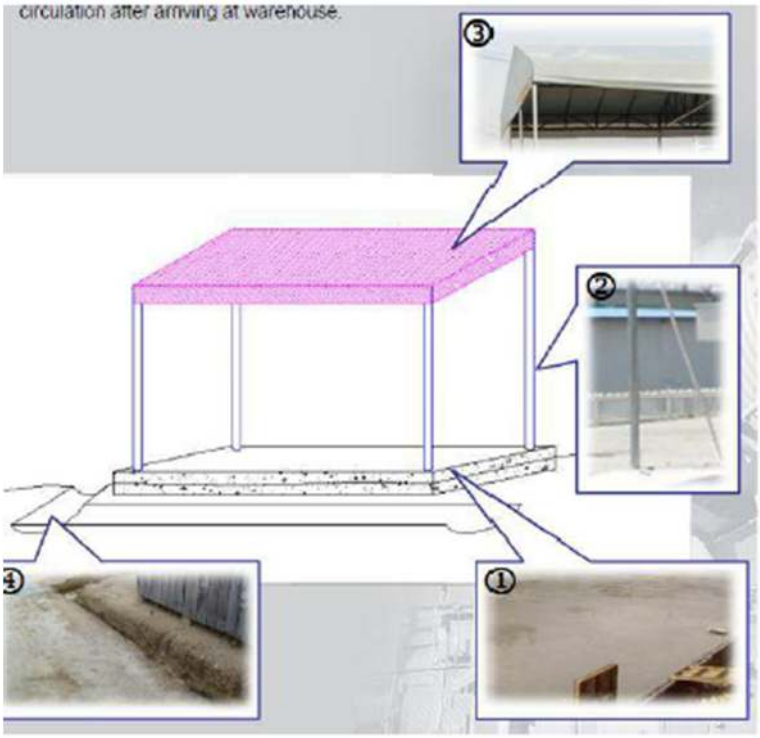
4.2.11. Guard should be staying all four side of fence for protection from the theft.

4.2.12. SF6 gas tanks shall not be stored under direct sunlight. Use additional cover.

4.2.13. All packing shall be not open during storage.

4.2.14. Material with expiration date such as Sikaflex and absorbent may need replacement.

4.2.15. Photo reports should be submitted every three (3) month during storage.



[Figure 7]



[Figure 8]

4.3 Multi-tier storage

4.3.1. Boxes marked "No Multi-Tier Stacking" must not be stacked in two tiers.

4.3.2. CB, VT and LA are not suitable for multi-tier stacking.

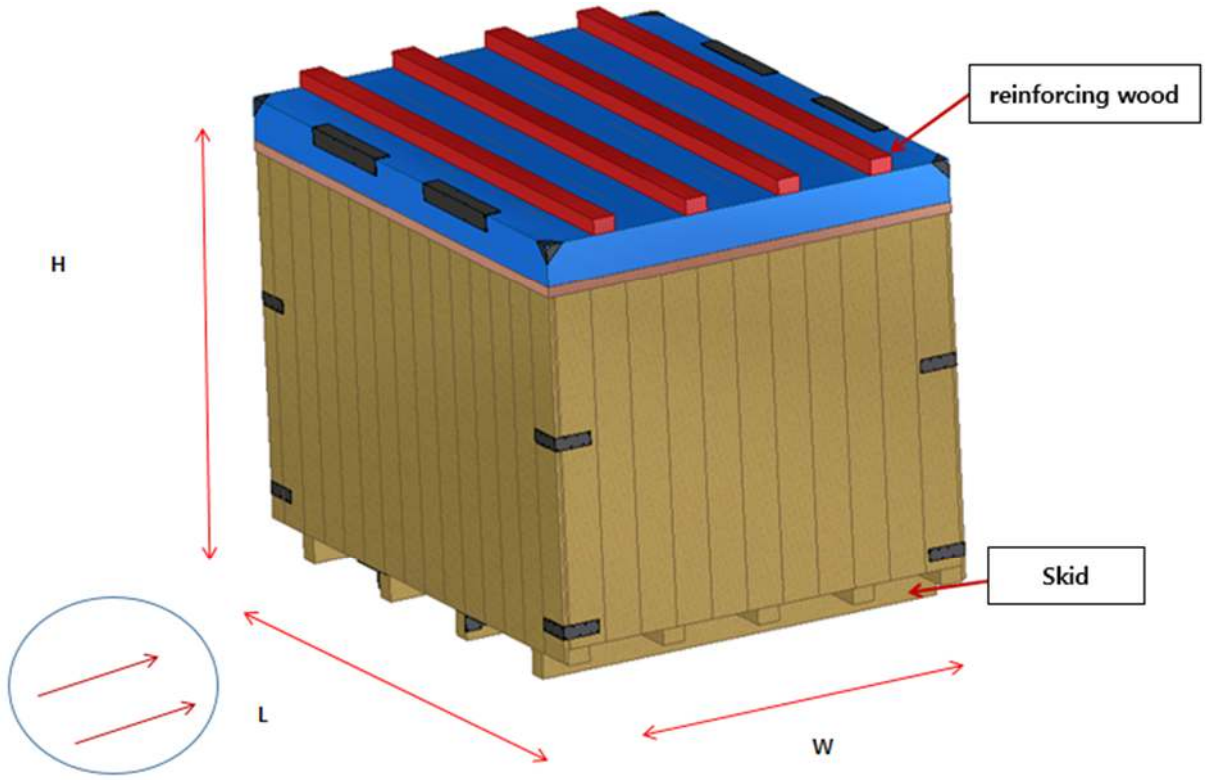


4.3.3. Boxes exceeding a height of 1.5 meters cannot be stacked in two tiers

- the height of the stacked boxes must be managed to remain under 3 meters

4.3.4. Stack boxes of similar sizes, placing heavier boxes on the first tier and lighter boxes on the second tier.

4.3.5. When stacking boxes of dissimilar sizes, place reinforcing wood (red wood) on top of the lower boxes before stacking. [Figure 9]



[Figure 9]

4.4. Manual for long term storage at site after shipment of GIS.

4.4.1. Absorbent in GIS compartment shall be replaced every 6 month in outdoor storage condition to prevent corrosion from the water and humidity.

4.4.2. Absorbent in GIS compartment shall be replaced every 12 month in indoor storage condition to prevent corrosion from the water and humidity.

4.4.3. Replacement work shall be conducted under witness condition with Hyosung GIS supervisor and it shall be discussed with Hyosung Customer Service team before replacement work. Contact info. Tel: +82 55 268 8226, e-mail : shincj@hyosung.com

4.4.4. Additional cost will be charged for replacement work of absorbent in that case of long term storage cause from customer requirement which is not mention in contract.