



ABC Module Packaging Manual

Monofacial and Bifacial Modules



1. Overview

Thank you very much for choosing the products of Zhejiang Aiko Technology Co., Ltd. (hereinafter referred to as "AIKO"). This Packaging Manual contains important information regarding photovoltaic (PV) modules packaging. It also contains some other safety information that you must be familiar with. AIKO reserves the right to make revisions to the product specification and this Packaging Manual without prior notice.

2. Definition

Full pallet packaging

- Refer to the packaging method used when the number of modules is in accordance with the rated packaging quantity of standard packaging.

3. Instruction

3.1 Quantity of modules in one full pallet

Frame Thickness	Quantity
30mm	36pcs/pallet
33mm	33pcs/pallet
35mm	31pcs/pallet

3.2 Packaging Material

A full pallet module packaging contains the following packaging materials:

Pallet, lower covers, cardboard, top covers, paper edge protectors, inner corrugated (E-corrugated), paper corner protectors, glass-fiber tape, wrapping film, outer corner protectors, strapping belts and other 11 kinds of conventional packaging materials.

3.3 Packaging Tools

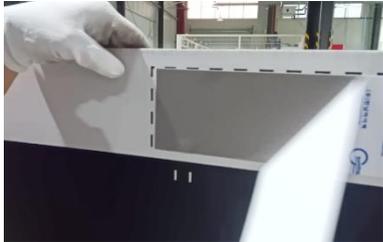
Knives, gloves, strapping belts, wrapping film, handheld-automatic strapping equipment, wrapping Machine, forklift.

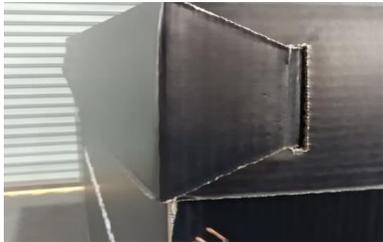
Personnel: Minimum 2 people.

3.4 Packing Methods

3.4.1 Full Black Carton Packing Method.

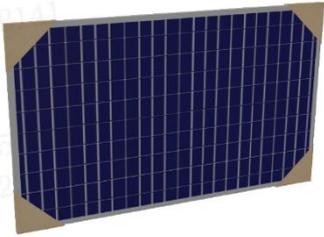
Steps as follow:

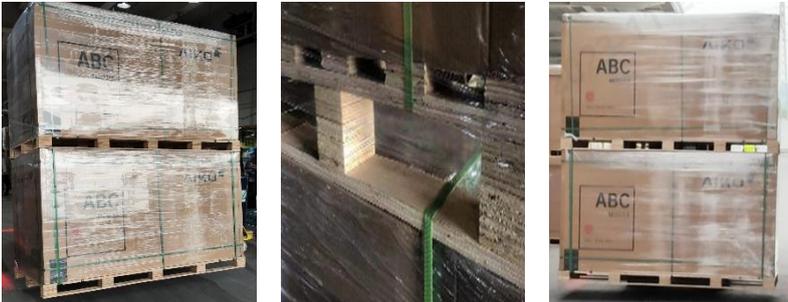
<p>1. Raise one side of the pallet for 40-80mm height for easy placement of module.</p> 	<p>2. Flip the cardboard upside down and fold the bottom edge inward along the indentation.</p> 	<p>3. Tape the double-sided tape by referring to the printed guide line.</p> 
<p>4. Remove the surface thin film of the double-sided tape.</p> 	<p>5. Lift and flip it, then glue the bottom to the pallet follow the edge of the pallet.</p> 	<p>6. Use foot to press along the bottom of the cardboard to make sure the paste is secure.</p> 
<p>7. Place a piece of paper board on the bottom.</p> 	<p>8. Place 2 E-corrugated at the corner of the inner cardboard, and glass-sided of the first module is placed inward.</p> 	<p>9. Then, place the others modules sequentially, with the outermost module facing inward.</p> 

<p>10. Stick the B-side cardboard with the A-side cardboard together.</p> 	<p>11. Paste glass-fiber tape at both ends of the top of the module, and reserve 60-100mm from the edge of cardboard.</p> 	<p>12. Place the upper cover on top of the module and folded along the indentation.</p> 
<p>13. The four long-side corners of the upper cover are slot inside of the short-side.</p> 	<p>14. Spread PE sheet on the top, and fix the outer strapping belt according to the position of the guide line on the cardboard, and use black plastic edge protector between the strapping belt and the carton, 2 in the horizontal and 4 in the vertical direction.</p> 	<p>15. Fix 2 vertical straps to the side, and attach the packing list in the frame with letter A, then wrap the carton with wrapping film, including the top PE sheet.</p> 
<p>16. Stack 2 pallets on top of each other, and 4 straps are fixed on the vertical, which pass through the upper pallet and secure with lower pallet.</p> 	<p>17. Fix 2 strapping belts on the side, which pass through the top of the upper pallet and fix with the lower pallet.</p> 	

3.4.2 Conventional Carton Packing Method

Steps as follow:

<p>1. Place a paper cardboard on the pallet.</p> 	<p>2. Place the module on the pallet and rest on fixed support with glass-side facing inward.</p> 	<p>3. Place the others modules sequentially, the outermost module facing inward.</p> 
<p>4. Put the paper edge protector on the four edges of the module, the first and last pieces module must protect with paper edge protector.</p> 	<p>5. After that, the edges of the modules are protected at intervals until the carton is full. In case of numbers of module is even, the first/second modules must protect with paper edge protector.</p> 	<p>6. The distance between the modules on both sides to the edge of the pallet should be in centered, and if there is a positioning line for the module on the cardboard, follow the line.</p> 
<p>7. Place 2 inner E-corrugated at the 2-diagonal sided of inner cardboard to prevent the inner cardboard nails from scratching module frame.</p> 	<p>8. ① The 54P single-glass inner packaging are with 2 horizontal strapping belts by default, as shown in the left picture; ② The 54P double-glass/72P single and double-glass inner packaging are with 2 vertical and 2 horizontal strapping belts by default, the position refers to the pallet groove, and the position that is in direct contact with the frame is protected by a plastic corner protector, as shown in the right picture below; Note: The black corner protector is in 8pcs in one pallet.</p>  	

<p>9. Wrap the cardboard over the outside of the modules.</p> 	<p>10. Paste glass-fiber tape at both ends of top of the module, and reserve 60-100mm from the edge of the cardboard.</p> 	<p>11. Must sure do not pasted on the inner strapping belt.</p> 
<p>12. The upper top cover is buckled inward the cardboard, then covered with PE sheet film. Paper corner protectors are placed at the corners of the cardboard.</p> 	<p>13. Fix 2 horizontal strapping belts and 3 vertical strapping belts, and make sure fixed to the position of the foot pier, and the black plastic corner protection is used between the strapping belt and the carton.</p> 	<p>14. Fix 2 vertical straps on the side, and the packing list are pasted on the side close to the bottom.</p> 
<p>15. Wrap with wrapping film, make sure the wrapping film need to be wound at least 2 layers, and the film should cover the bottom of the pallet.</p> 	<p>16. After stacking, it is fixed with strapping straps, with two lanes on the long side and two lanes on the short side. The long side strap goes around of the upper packing pallet, and the strap on the short side needs to go around the top and bottom supports.</p> 	

3.5 Packaging Requirements

3.5.1 Packing Strength Requirement

- The automatic baler torque value $1800\pm 200\text{N}$ for the inner package; $1400\pm 200\text{N}$ for the outer.

Remarks: There will be some differences in the torque of the old and new balers, and the production can be adjusted according to the situation.

3.5.2 Module Placement

- Make sure the gap between modules $\leq 5\text{mm}$, the module should be placed in the center as a whole;
- The upper double strapping belt should be parallel and not crossed, and the spacing between the two strapping belts in the horizontal direction should be 30-60mm.

3.5.3 Storage Requirement

When the modules are packaged according to the above packaging methods, the following requirements should be followed during the storage process in the factory, external warehouse and customer.

- The number of stacking layers shall not exceed 2 pallets, it is strictly forbidden to stack goods of different specifications together, and the lower layer of goods must be full of goods;
- Module goods should be kept away from heat sources, radiation sources, electromagnetic field sources, etc., and avoid contact with acid and alkali items;
- The goods need to be placed smoothly and neatly, and the stacking error (length and width direction) of the upper and lower 2 pallets shall not exceed 2cm, and the goods shall not be squeezed or collided with each other, and a certain distance must be left;
- It is forbidden to stack other heavy objects, sundries, sharp objects and corrosive chemicals on the top of the goods and around them;
- After the module is packaged, the wrapping film shall not fall off or be damaged, the packaging will be seriously tilted, the strapping belt shall be broken or loose during the storage process, and it should be reworked and stored in time when found.

4. Precautions

- Avoid violent bumps and vibrations during the forklift movement of modules.
- Avoid the pallet tipping backwards during transport. If it is a manual forklift, it is best to enter from the short side of the pallet. If the length of the pallet is more than 2000mm, it is recommended to use a forklift with a fork ruler of 2000mm to insert from the short side of the pallet to prevent the fork teeth from being too small to damage the package and damage the modules.
- Check whether the carton is complete, the module power and other information marked on the outer box is matched.



Zhejiang Aiko Solar Technology Co., Ltd.
No.655 Haopai Road, Suxi Town, Yiwu City, Zhejiang Province, China.
Email: cs@aikosolar.com
Web: www.aikosolar.com
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