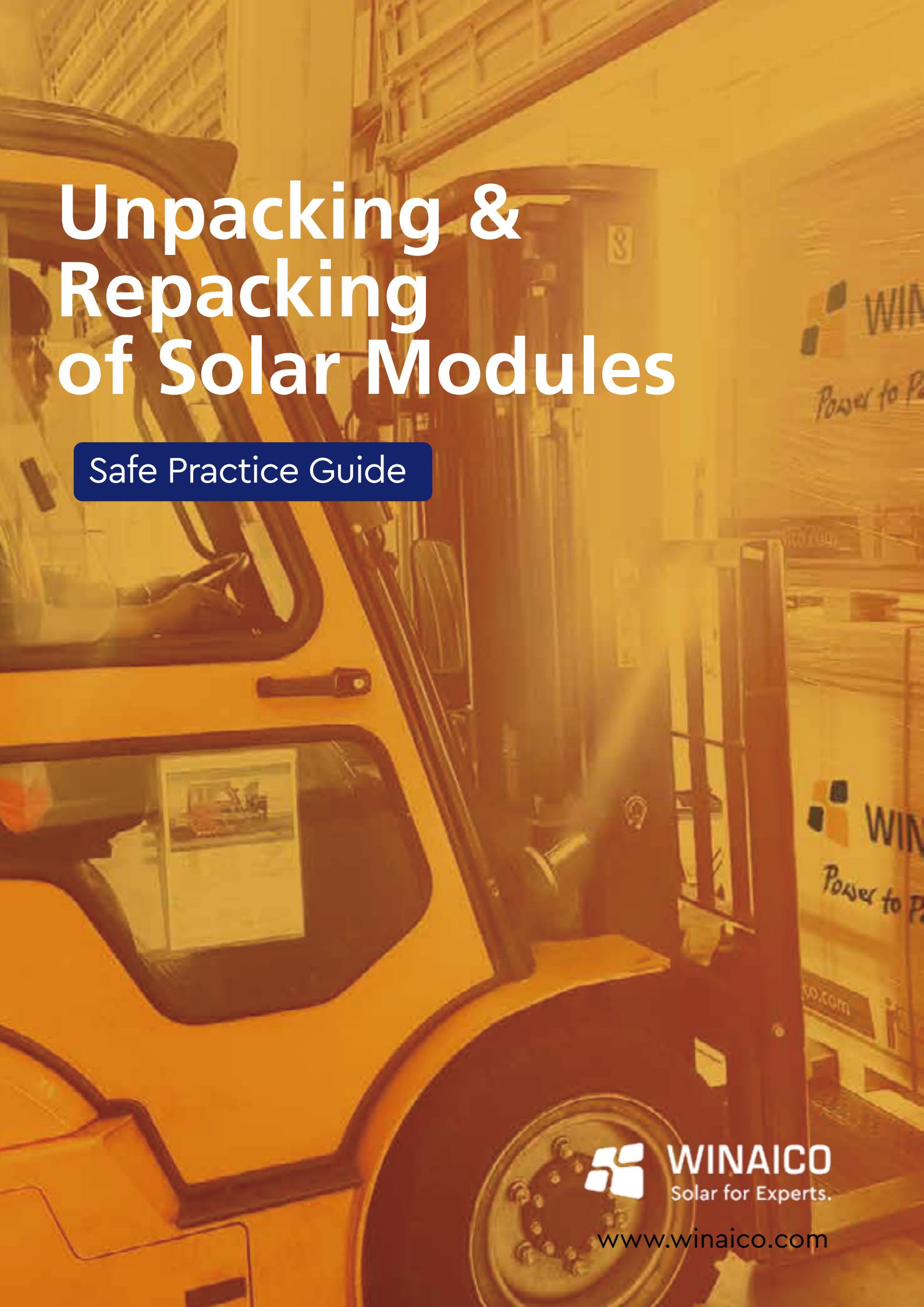
Unpacking & Repacking of Solar Modules

Safe Practice Guide



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No responsibility is accepted for the correctness of this information. We reserve the right to technical changes. The documentation in place at the time the module was manufactured applies when undertaking installation, mounting and maintenance work.

***Specifications included in this dataset are subject to change without notice.**

1. General information

Many thanks for choosing Winaico for your solar module needs! We want to extend our heartfelt congratulations on your decision to invest in solar energy.
Your solar modules have been carefully packaged and shipped to ensure they arrive in perfect condition. We are confident that you will be pleased with the quality of our products.
If you encounter any issues or have questions, please don't hesitate to reach out to your designated Winaico contact person. They will be more than happy to assist you and address any concerns.

Safety note

Please read the following safety instructions carefully before unloading and unpacking your solar modules.
It is crucial to follow the outlined measures and guidelines for the safe unloading and unpacking of your solar modules. Improper handling can lead to injury or damage.
Please hand these instructions to the individuals responsible for unloading and unpacking, or ensure they are properly briefed on the contents of this document.
Please be aware that Winaico is not liable for any damage or injury caused by disregarding these safety instructions or other related guidelines.

Information on packaging and transport

- Winaico solar modules are delivered on pallets. The goods are packed in protective corrugated cardboard boxes and tied up with plastic straps. The number of modules per pallet depends on the respective module type.

If you opt for full container or full truck orders, your goods will be delivered in double-stacked pallet arrangements. This means each pallet is stacked directly on top of another, maximizing the use of space and enhancing transport efficiency. We believe this method aligns with sustainable practices by making the most of available transport capacity. To ensure stability and prevent any accidental shifting or toppling of the stacked pallets, we use extra plastic strapping for added security.

INFO!

For orders that involve module-specific packaging or quantities smaller than a standard full load, each delivery is carefully prepared to ensure safe transport. As a result, the loading conditions may differ from those described for full container or truck loads.

Applicable Module Type

Module Information				Pallet data		Quantity	
Product	Quantity of cells	Dimentions(mm)	Weight	Dimentions(mm)	Weight	Per pallet	Per 40 foot HC
WST-NGX-D3	108	1722 x 1134 x 35	24 kg (2.0 Gls) 21.4 kg (1.6 Gls)	1764 x 1145 x 1257	795 kg 714 kg	31 units	806 units
WST-NGXB-D3	108	1722 x 1134 x 35	24 kg	1764 x 1145 x 1257	795 kg	31 units	806 units
WST-NGX-D3	132	2093 x 1134 x 35	29.7 kg	2143 x 1145 x 1250	982 kg	31 units	682 units
WST-NFX54-B1	108	1762 x 1134 x 35	25 kg	1784 x 1115 x 1247	816 kg	31 units	806 units
WST-NCX48-AW	96	1762 x 1134 x 35	25 kg	1800 x 1140 x 1267	822 kg	31 units	806 units
WST-NCX48-BW	96	1762 x 1134 x 35	25 kg	1800 x 1140 x 1267	822 kg	31 units	806 units
WST-NCX54-AW	108	1960 x 1134 x 30	27.4 kg	1990 x 1125 x 1265	1041 kg	36 units	864 units
WST-NHX54-A4	108	1960 x 1134 x 30	27.4 kg	1976 x 1120 x 1255	1041 kg	36 units	864 units
WST-BDX54-B2	108	1800 x 1134 x 35	25 kg	1820 x 1130 x 1259	815 kg	31 units	744 units
WST-BKX54-B2	108	1800 x 1134 x 35	25 kg	1820 x 1130 x 1259	815 kg	31 units	744 units
WST-BKX54-B3	108	1800 x 1134 x 35	25 kg	1810 x 1120 x 1252	830 kg	31 units	806 units

Note:
2.0 Gls: 2.0 mm+2.0 mm specification of a double glass solar panel. (For Europe version)
1.6 Gls: 1.6 mm+1.6 mm specification of a double glass solar panel. (For Australia version)

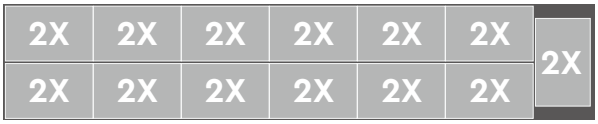
Technical specifications for transport

Container

WST-NGX-D3 (108 cells)

Quantity	**26 pallets** lengthwise: 12 x 2 pallets across: 1 x 2 pallets 806 modules
Weight	max. 24 tons
Dimensions (m)	12.03 L x 2.35 W x 2.69 H

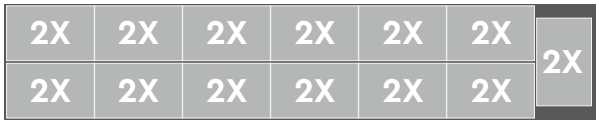
top view



WST-NGXB-D3

Quantity	**26 pallets** lengthwise: 12 x 2 pallets across: 1 x 2 pallets 806 modules
Weight	max. 24 tons
Dimensions (m)	12.03 L x 2.35 W x 2.69 H

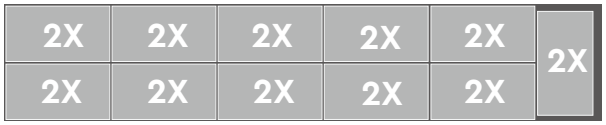
top view



WST-NGX-D3 (132 cells)

Quantity	**22 pallets** lengthwise: 10 x 2 pallets across: 1 x 2 pallets 682 modules
Weight	max. 24 tons
Dimensions (m)	12.03 L x 2.35 W x 2.69 H

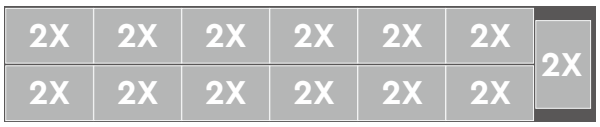
top view



WST-NFX54-B1

Quantity	**26 pallets** lengthwise: 12 x 2 pallets across: 1 x 2 pallets 806 modules
Weight	max. 24 tons
Dimensions (m)	12.03 L x 2.35 W x 2.69 H

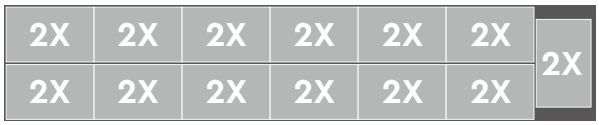
top view



WST-NCX48-AW

Quantity	**26 pallets** lengthwise: 12 x 2 pallets across: 1 x 2 pallets 806 modules
Weight	max. 24 tons
Dimensions (m)	12.03 L x 2.35 W x 2.69 H

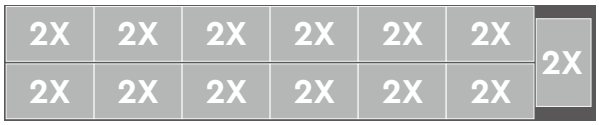
top view



WST-NCX48-BW

Quantity	**26 pallets** lengthwise: 12 x 2 pallets across: 1 x 2 pallets 806 modules
Weight	max. 24 tons
Dimensions (m)	12.03 L x 2.35 W x 2.69 H

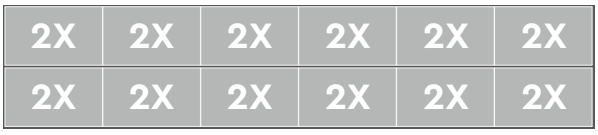
top view



WST-NCX54-AW

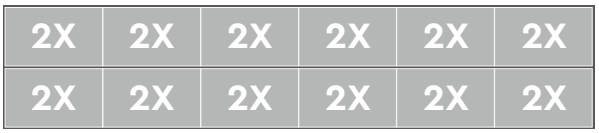
Quantity	**24 pallets** across: 12 x 2 pallets 864 modules
Weight	max. 24 tons
Dimensions (m)	12.03 L x 2.35 W x 2.69 H

top view



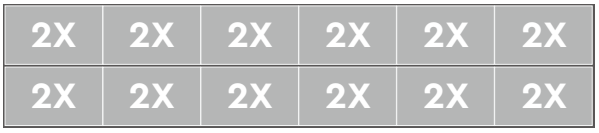
WST-NHX54-A4

Quantity	**24 pallets** across: 12 x 2 pallets 864 modules	**top view**
Weight	max. 24 tons	
Dimensions (m)	12.03 L x 2.35 W x 2.69 H	



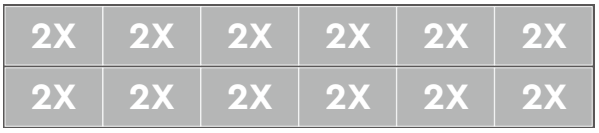
WST-BDX54-B2

Quantity	**24 pallets** across: 12 x 2 pallets 744 modules	**top view**
Weight	max. 24 tons	
Dimensions (m)	12.03 L x 2.35 W x 2.69 H	



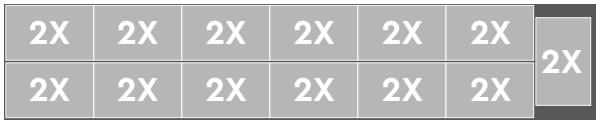
WST-BKX54-B2

Quantity	**24 pallets** across: 12 x 2 pallets 744 modules	**top view**
Weight	max. 24 tons	
Dimensions (m)	12.03 L x 2.35 W x 2.69 H	



WST-BKX54-B3

Quantity	**26 pallets** lengthwise: 12 x 2 pallets across: 1 x 2 pallets 806 modules	**top view**
Weight	max. 24 tons	
Dimensions (m)	12.03 L x 2.35 W x 2.69 H	



2. Notes on unloading

Safety Instructions for Unloading Your Solar Modules

1. **Ground Conditions:**

   Ensure the ground where unloading will take place is level and solid. Unloading on uneven or unpaved surfaces can increase the risk of tipping over.

2. **Use of Unloading Ramp:**

   We recommend unloading from the rear side of the trailer using an unloading ramp. This method provides better stability and reduces the risk of accidents.

3. **Alternative Unloading Methods:**

   If an unloading ramp is not available and unloading from the rear is not feasible, you may unload via the long side of the trailer (if possible). Ensure this is done cautiously to prevent damage or injury.

4. **Handling Pallets:**

   When unloading to the side, start by unloading the front pallets first as a double stack.

5. **Repositioning Pallets:**

   After unloading the front pallets, use a pallet truck to move the remaining pallets from the back into the front row. This will position them for easier unloading using a forklift or other suitable equipment.

6. **Forklift usage:**

   When unloading, please ensure that suitable aids (front loader, forklift, or similar) with the following minimum requirements are used:

   When using a forklift to unload the modules, please choose a forklift with suitable tonnage according to module weight. The forks should go into the pallet at least 3/4 of the pallet depth during unloading

   (the forks length ≥ 3/4 of pallet length).

   In order to ensure better stability during forklift transport, the forks distance should be adjusted to the maximum position without any interference.

   Please drive slowly and do not allow forks to hit the cartons or pallets.

7. **Equipment Use:**

   Unloading by hand or with a pallet truck is not suitable or permitted for solar panels. Use forklift exclusively for positioning the modules within the truck or container. Ensure that all equipment is in good working condition before use.

8. **Risk Awareness:**

   Be aware of the risk of injury and crushing during transport and unloading. Always prioritize safety and handle all equipment and materials with caution.

9. **Lifting Equipment:**

   After unloading from the truck or container, make sure auxiliary equipment is available for lifting the top pallet from the stack.

Important Safety Note: Always use appropriate personal protective equipment and follow safe handling practices throughout the unloading process.

3. Instruction for unpacking

General Information

1. **Safety First:**

   Always prioritize your safety during the unpacking process, as there is a risk of injury and crushing.

2. **Surface Requirements:**

   Ensure that the pallets are placed on a flat and solid surface to maintain stability during unpacking.

3. **Teamwork:**

   At least two people are required for unpacking the solar modules. Never attempt to unpack alone to avoid potential accidents.

4. **Cutting Straps:**

   Use strong scissors or side cutters to safely cut the straps securing the pallets. Avoid using carpet knives, as they pose a higher risk of injury. If carpet knives are used, ensure that protective gloves are worn to prevent cuts.

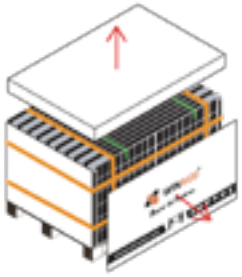
5. **Handling Modules:**

   On delivery, solar modules are stacked lengthwise on the transport pallet, allowing for double stacking. While they are relatively stable when packed, they can tip over without protective packaging. Take care to prevent injury and damage by ensuring stability during unpacking.

   Caution: Position the pallet with the packed solar modules in front of a fixed object that can withstand the module weight (such as a sturdy wall or a full pallet of modules). This setup helps prevent the pallet from tipping over when unpacking.

Packing method

The following are three commonly used standard packing methods for Winaico solar modules, please select the corresponding unpacking and repacking method according to the specific type of package.

Packing Method	Applicable module type
Box package	WST-NGX-D3 (108 cells) WST-NGXB-D3
U-type package 	WST-NFX54-B1 WST-NCX48-AW WST-NCX48-BW
Seperate frame package	WST-NGX-D3 (132 cells) WST-NHX54-A4 WST-NCX54-AW WST-BDX54-B2 WST-BKX54-B2 WST-BKX54-B3

Box package

1. Use scissors (or a utility knife) to cut the outer box's packing straps and remove the PE plastic bag (Be careful not to damage the carton).
2. Remove the top cover.
3. Move out the module sequentially.

Note: If repackaging is required, for 10 or more modules remaining, please refer to page 13 of this unpacking manual for the original box repacking.
If there are between 1 and 9 modules remaining, please refer to page 15 of this unpacking manual for the repackaging method.

1

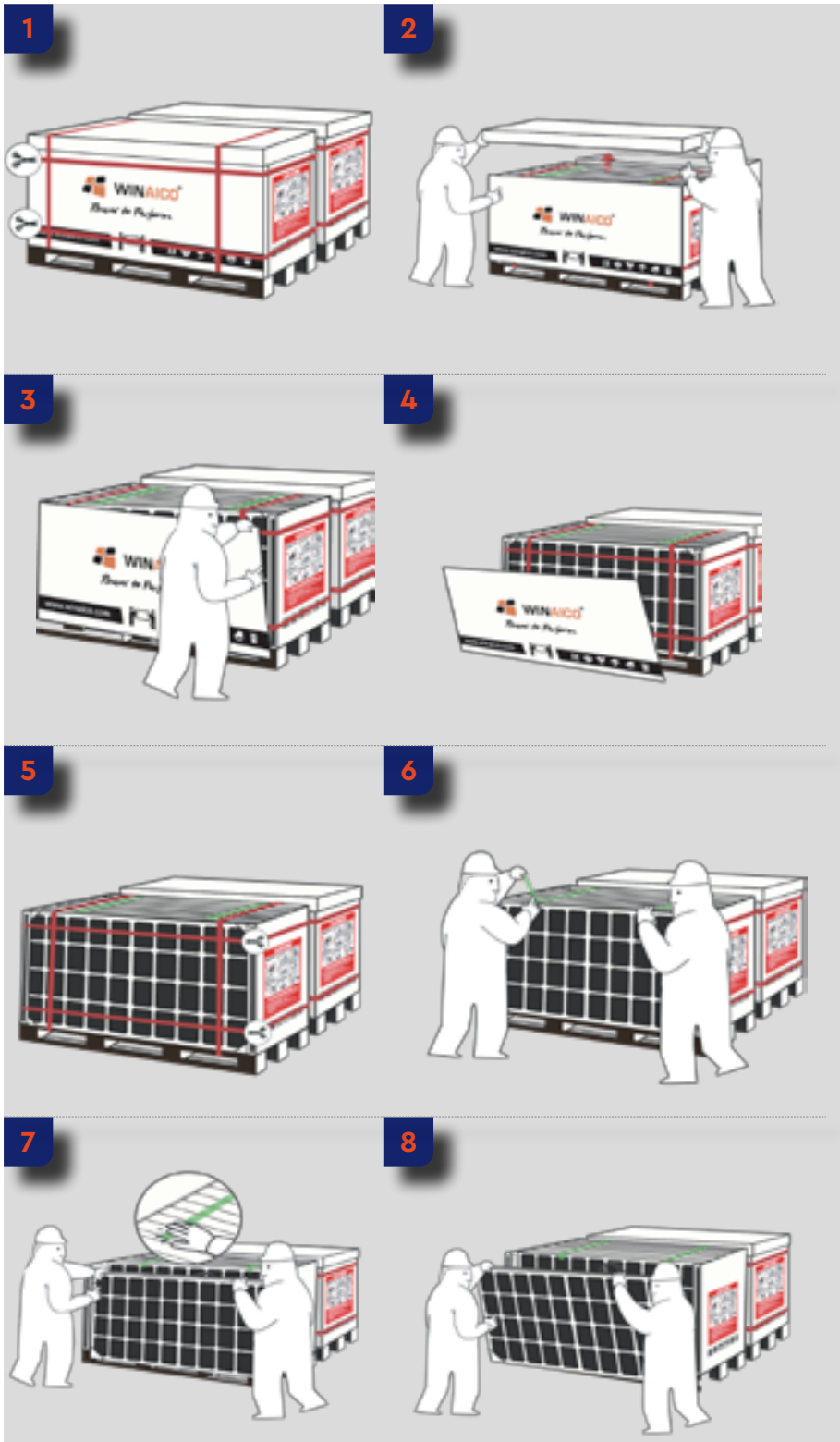
2

3

U-type package

1. Use scissors (or a utility knife) to cut the outer box's packing straps and remove the PE plastic bag (Be careful not to damage the carton).
2. Remove the top cover.
3. Rip open the hook and loop tape on both sides of the single-sided cardboard.
4. Remove the single-sided cardboard.
5. Cut or slit the packing straps of the inner box (horizontal straps first then the vertical straps). Be careful not to damage the modules.
6. Move out the module starting from the open side of the U-type frame. Tear off the anti-tip tape for one module.
7. Reapply the anti-tip tape to the next module that has not been moved.
8. Finally, move out the module. Repeat step 6 to 8 and move out the modules sequentially.

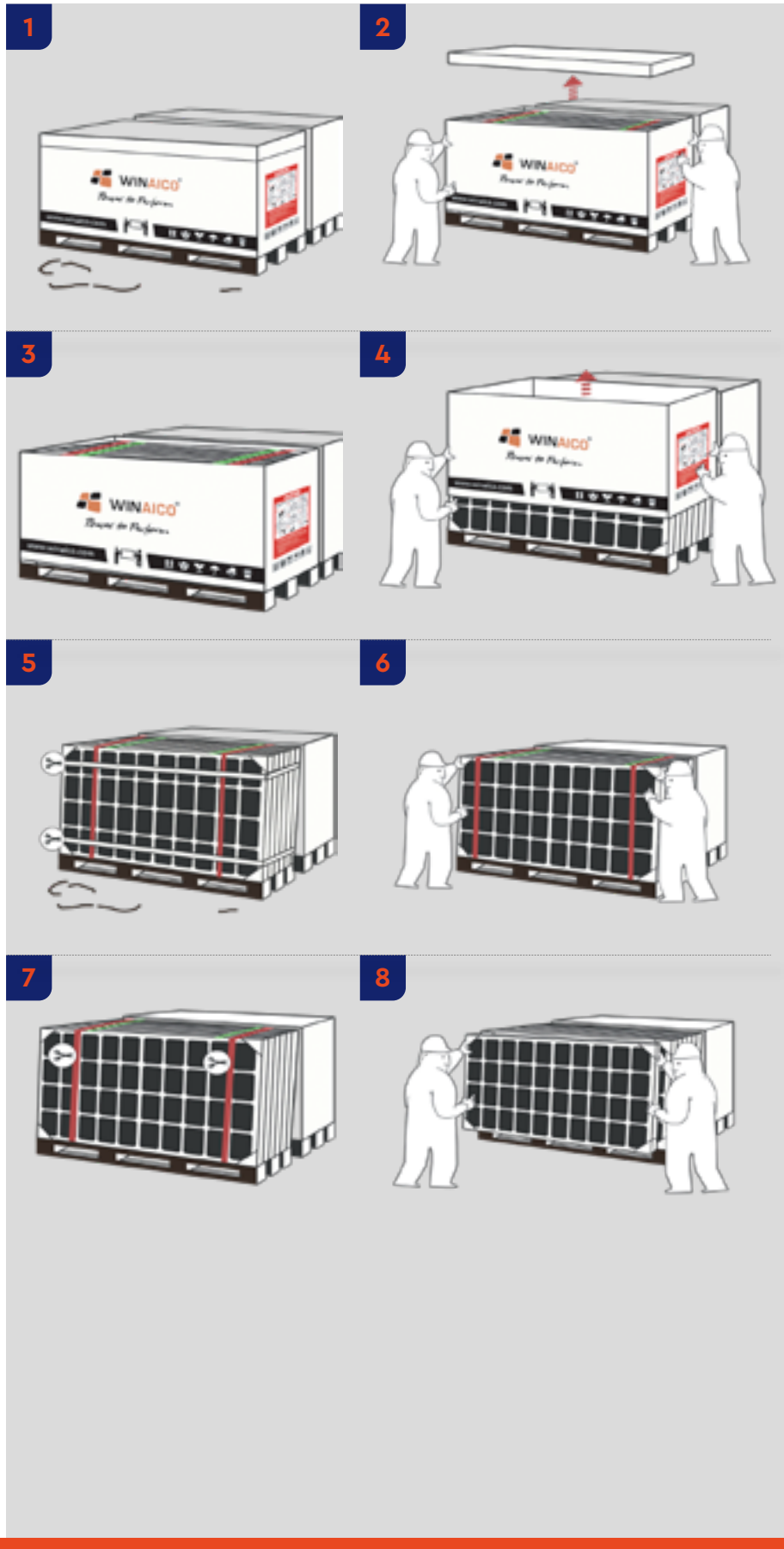
Note: If repackaging is required, for 10 or more modules remaining, please refer to page 14 of this unpacking manual for the original box repacking.
If there are between 1 and 9 modules remaining, please refer to page 15 of this unpacking manual for the repackaging method.



Seperate frame package

1. Use scissors (or a utility knife) to cut the outer box's packing straps and remove the PE plastic bag or protective film. Be careful not to damage the carton (The outer packaging, such as PE plastic bags or protective film, varies depending on the product).
2. Remove the top cover.
3. Tear off the anti-tip tapes stuck to the carton (Note that the tapes are still attached to the frame of all the modules at this point).
4. Remove the carton (frame cardboard).
5. Cut the horizontal packing straps of the inner box, leaving the vertical packing straps (Please handle with care to avoid damaging the solar module).
6. Push the top edge of the module to gently tilt the module towards the stable support direction.
7. Cut the remaining packing straps and lean the module against a stable support (Please handle with care to avoid damaging the solar module).
8. Completely peel off the anti-tip tape and sequentially move out the modules.

Note: If repackaging is required, please refer to page 15 of this unpacking manual for the repackaging method.



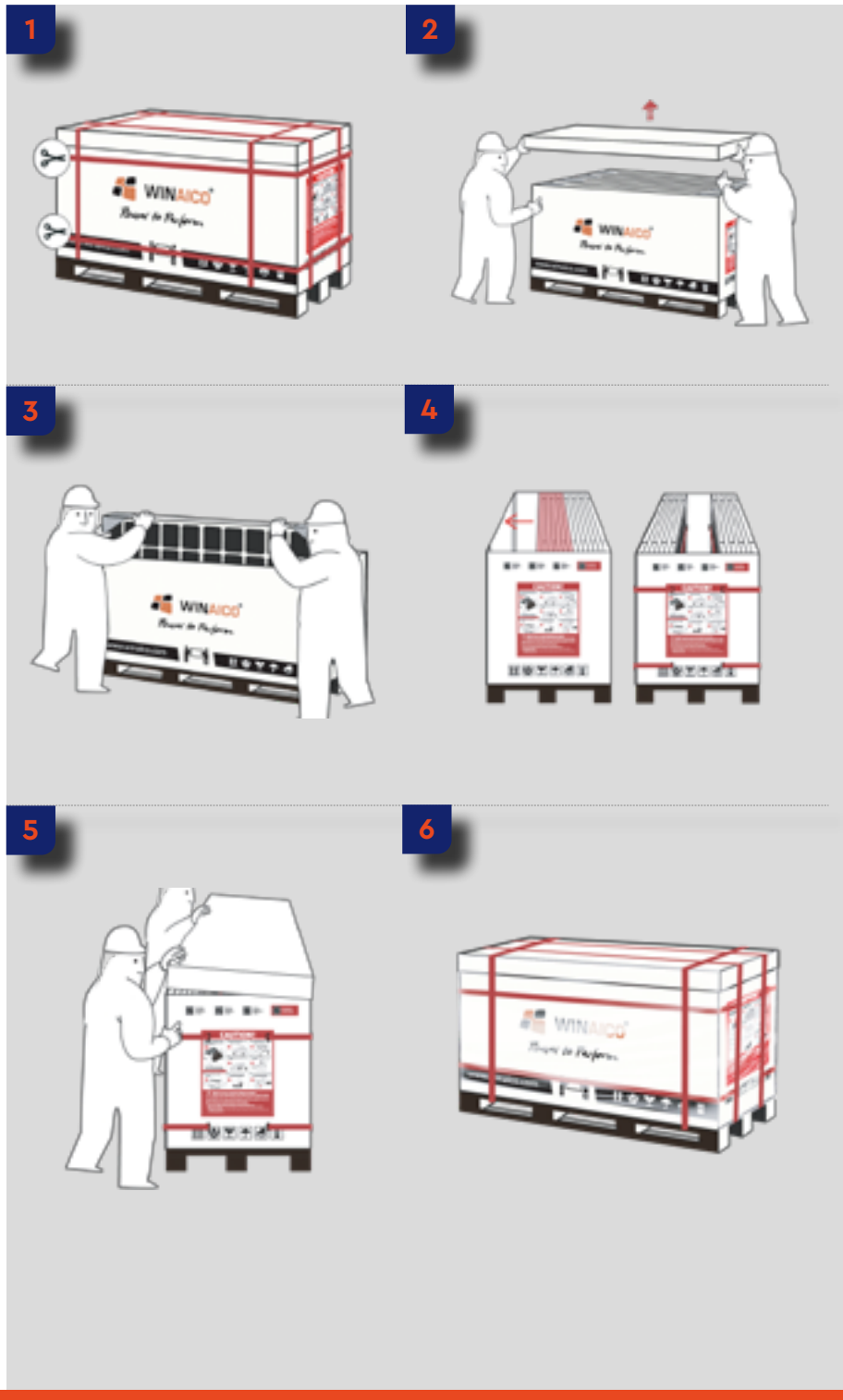
4. Instruction for repacking

When repacking modules, you should select the appropriate method based on the number of modules remaining. If there are 10 or more modules remaining, use the original box for repacking. However, if there are between 1 and 9 modules remaining, opt for the 2 in 1 packaging method. Please ensure you follow these guidelines to complete the repacking process correctly.

Box package
(At least 10 modules remaining)

1. Use scissors (or a utility knife) to cut the outer box's packing straps and remove the PE plastic bag (Be careful not to damage the carton).
2. Remove the top cover.
3. Move out the module sequentially, until at least 10 modules remain.
4. Place the modules evenly along the two long sides of the cardboard box, and secure the modules and their side panels on both sides with two packing straps (one strap on the top and one on the bottom).
5. Place the top cover back on.
6. Put the PE plastic bag back, secure the packed carton with plastic straps vertically (two straps on the short side, placed over the modules, and two straps on the long side).

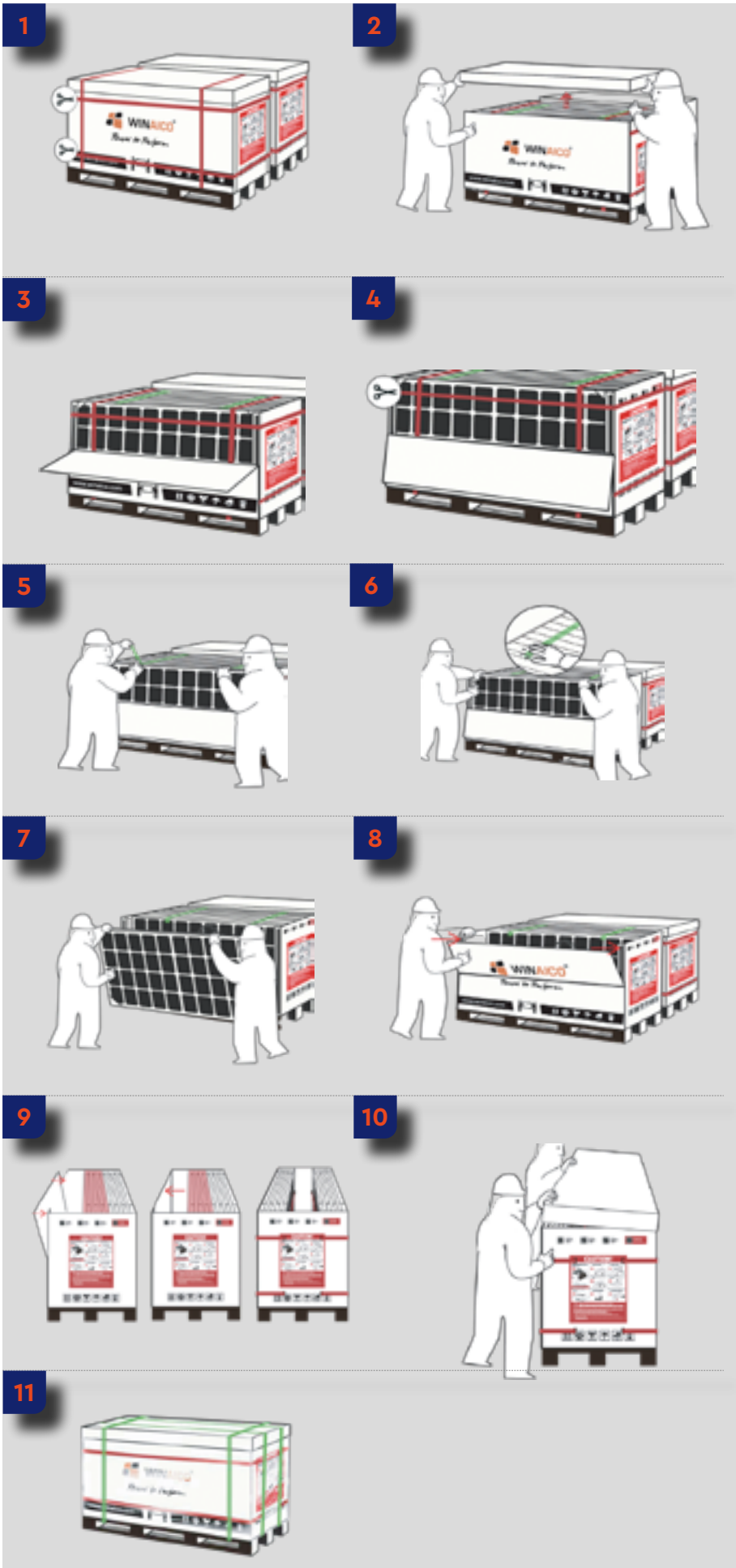
Note:
To avoid damage to modules, do not double-stack pallets that are not completely full.



U-type package
(At least 10 modules remaining)

1. Use scissors (or a utility knife) to cut the outer box's packing straps and remove the PE plastic bag (Be careful not to damage the carton).
2. Remove the top cover.
3. Tear open the upper part of the hook and loop tape on the single-sided cardboard, and fold the cardboard outward along the creased fold lines.
4. Cut or slit the packing straps of the inner box (horizontal straps first then the vertical straps). Be careful not to damage the modules.
5. Tear off the anti-tip tape for one module.
6. Reapply the anti-tip tape to the next module that has not been moved.
7. Move out the module.
8. Repeat step 5 to 7 and move out the modules sequentially. After ensuring that at least 10 modules remain, reattach the outward-folded single-sided cardboard back to the U-type frame and remove the anti-tip tape.
9. Place the modules evenly along the two long sides of the cardboard box, and secure the modules and their side panels on both sides with two packing straps (one strap on the top and one on the bottom).
10. Place the top cover back on.
11. Put the plastic bag back, secure the packed carton with plastic straps vertically (two straps on the short side, placed over the modules, and two straps on the long side).

Note:
To avoid damage to modules, do not double-stack pallets that are not completely full.



Repacking solar modules – 1 to 15 modules remaining

1. (a) Place the bottom cover on the full pallet of module.
(b) Place the bottom cover on the pallet.

2. Put corner protectors on the first module, and place it centered with the front glass facing up.

3. Stack the modules sequentially, placing corner protectors between every 2 modules.

(a) When stacking more than 5 modules, long corner protectors must be placed at all four corners.

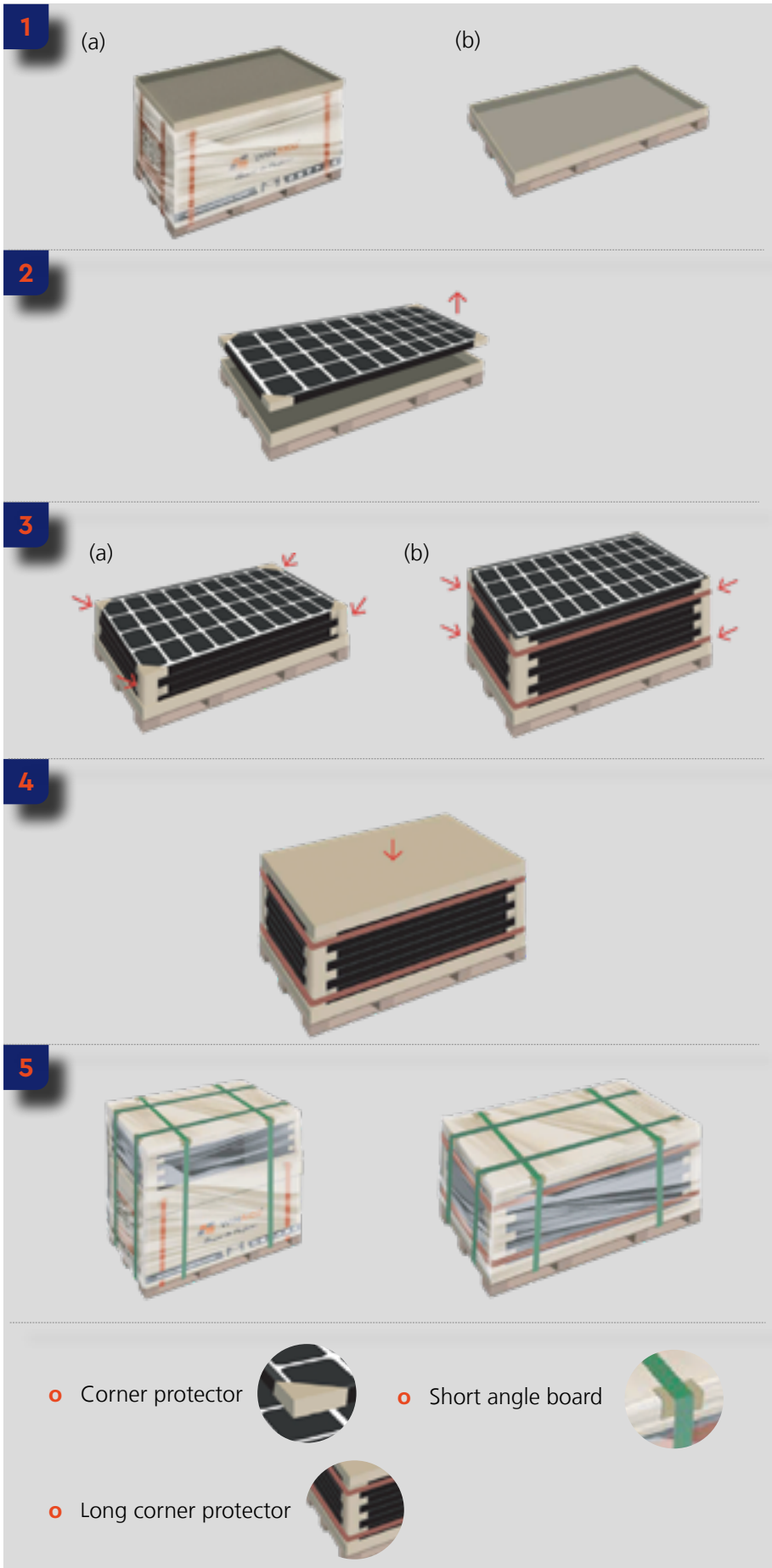
(b) When stacking more than 10 modules, two additional horizontal packing straps must be applied around the long corner protectors.

A maximum of 15 modules may be stacked.

4. Place the top cover on.

5. Wrap with protective film, and secure using four vertical packing straps tied to the bottom full pallet of module/pallet (two straps on the short side and two straps on the long side). Short angle boards must be placed at all contact points between the packing straps and the top cover.

Note:
To avoid damage to modules, do not double-stack pallets.
To avoid damage to modules, do not stack the packages on pallets of modules that are not fully loaded.
Corner protector, short angle board, and long corner protector from the original package can be reused.



5. General notes

Please check the completeness of the shipment immediately upon receipt:

- Compare the quantity listed on the consignment note, express note or delivery note
- Compare the number of packages
- Check the goods for damage (also damage to the packaging, such as footprints)

If defects are discovered during the inspection, these must be reported to Winaico immediately and before the modules are installed.

6. Contacts

If you have any questions, our WINAICO Team is available to assist you at all times:

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