

2026



Photovoltaic Floating System Project



Contents

CONTENTS

01 Introduction to Solar Floating System

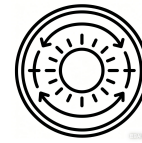
02 Project Sharing

03 Introduction to Solar Floating
System Junction Point

01 Advantages of Solar Floating Systems



Water cooling and natural ventilation enhance power generation efficiency



Superior annual energy yield is achieved without sunlight obstruction



Floating installation on water surfaces conserves valuable land resources



Environmentally friendly materials enable full recyclability at end of life

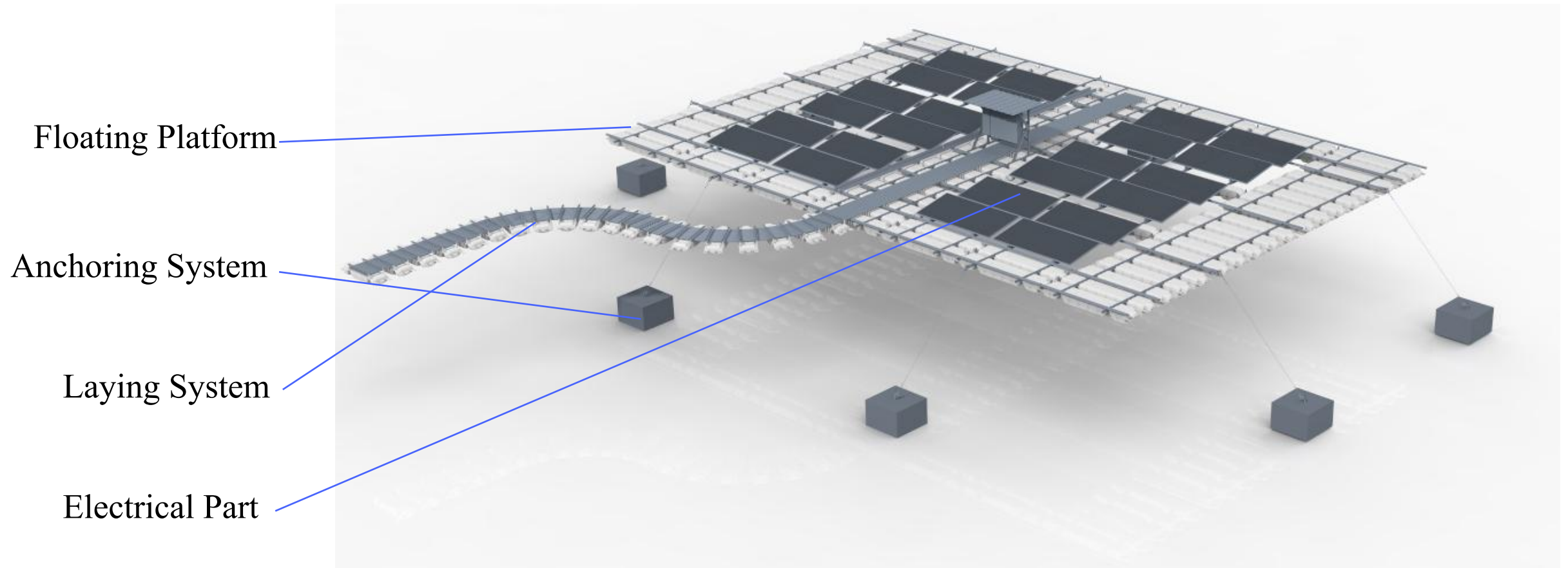


Shading the water body reduces evaporation and protects aquatic ecosystems

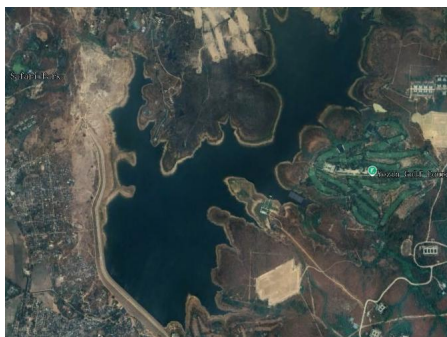


Convenient cleaning access results in low operation and maintenance costs

02 Components of Solar Floating Systems



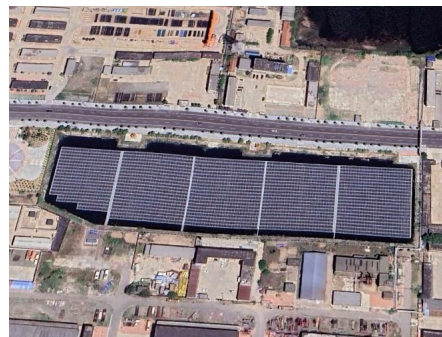
03 Where can Solar Floating System be Built?



Reservoirs



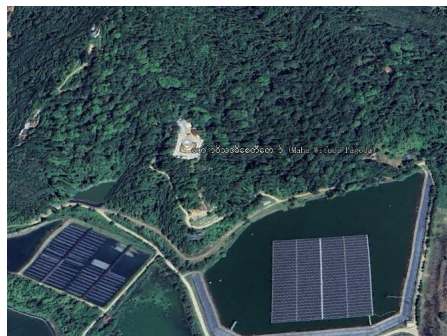
Subsidence areas



Industrial water storage pool



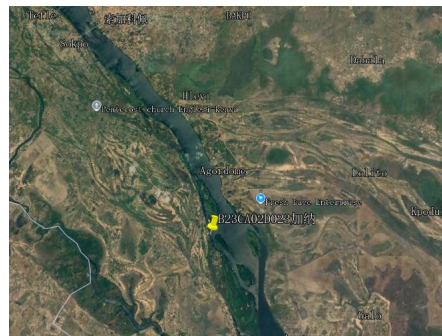
Irrigation reservoir



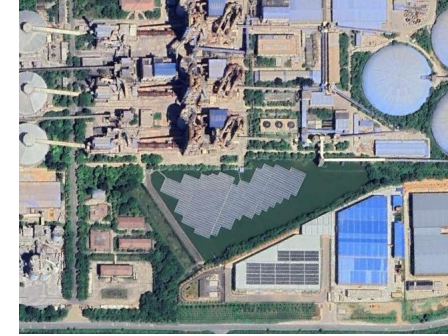
Lakes



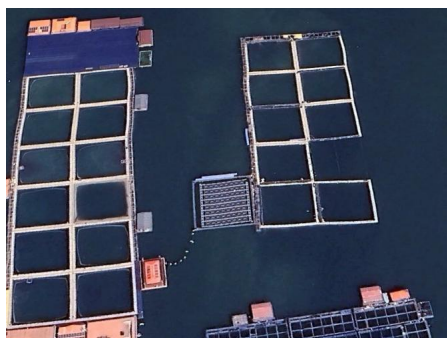
Fish farms



River/Canals



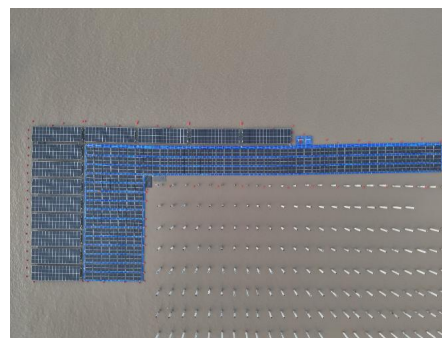
Wastewater treatment plant /Oxidation pond



Offshore aquaculture farms/
Nuclear temperature drainage areas



Swamp



Mudflats



Wind-solar hybrid

04 Required Parameters for Solar Floating System

Parameters required for preliminary design

- 1. Site boundary (red line):** Used to define the water surface area and confirm water surface leasing arrangements.
- 2. Topographic map:** Includes water surface outline, underwater bathymetric map, and latitude/longitude coordinates.
- 3. Geotechnical investigation report:** Provides preliminary engineering geological survey data for the solar floating system site, covering water quality analysis and corrosivity assessment of water and soil.
- 4. Hydrometeorological data:** Includes 50-year return period maximum flood (or tidal) water level (depth), extreme water level conditions, maximum water flow velocity, and maximum wave height.

05 Workface Types for Solar Floating System



Steel pipe scaffold platform



Grassland surface



Slope with formwork



Slope with bamboo track



On-water installation Type 1



On-water installation Type 2

06 Anchoring System Types for Solar Floating System

Anchoring system types for solar floating system arrays are primarily classified into shore anchoring and submerged anchoring.

Shore anchoring refers to on-land anchoring, with foundations typically including spiral piles, cast-in-place concrete anchor blocks, or cast-in-place concrete piles. This method is suitable when at least one side of the floating array is relatively close to the shoreline.

Submerged anchoring involves underwater foundations, typically using precast concrete anchor blocks or PHC (prestressed high-strength concrete) piles. This method is suitable for deeper water conditions or arrays located farther from shore.

Combined anchoring – A single floating array may adopt both shore and submerged anchoring simultaneously, depending on site topography and water depth variations.



Shore Anchoring



Submerged anchoring

07 Support Structure Types for Solar Floating System

Support structure types for solar floating systems are currently divided into two main categories: integral float structure and linkage structure.

Integral float structure uses HDPE main floats as the core buoyancy units, with PV module supports and mounting brackets directly integrated into the floats. Main floats and walkway floats are interlocked to form the complete floating array.

Linkage structure employs steel or aluminum alloy linkage trusses as the main load-bearing frame, while only walkway floats provide buoyancy. PV modules are fixed onto rigid purlins, which are connected end-to-end to form a floating array through the linkage system.



Integral float structure



Linkage structure



08 Floating Access Walkways Outside the Main PV Array

- Floating access walkways shall be arranged such that every PV module, inverter, combiner box, and cable within the array is accessible for operation and maintenance. No obstruction shall prevent personnel from reaching any component requiring service.



Contents

CONTENTS

01

Introduction to Solar Floating System

02

Project Sharing

03

Introduction to Solar Floating
System Junction Point

01 Project-The distributed solar floating system project of Guangzhou Zhujiang Cement Co., Ltd.

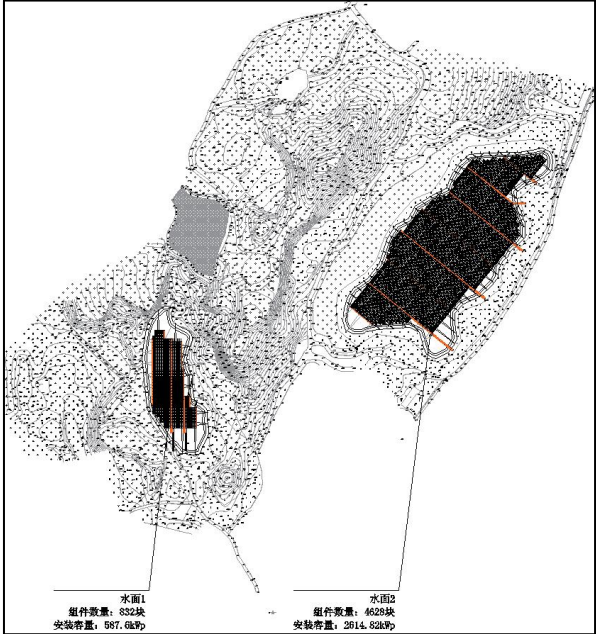
The distributed solar floating system project of Guangzhou Zhujiang Cement Co., Ltd. has a total PV system installed capacity of 3,084.9 kWp. The system adopts 5,460 monocrystalline silicon bifacial double-glass PV modules. Among them, 832 modules (470.08 kWp) are installed on the small lake, and 4,628 modules (2,614.82 kWp) on the large lake.

Project Information	
Installed Capacity	3.0849 MWp(DC)
Module Power	565 Wp
Module Quantity	5460 Pcs
Module Dimensions	2333 1134 30 mm
Installation Angle	15°
Latitude and Longitude	23.32325, 113.14226
Wind Load	0.45kN/m²
Snow Load	/
Maximum Water Depth	55 m
Minimum Water Depth	0.5 m
Water level Fluctuation	5 m
Flow Velocity	0 m/s
Wave Height	0 m

Project Information



Aerial Photograph



Layout Drawing of PV Modules on Water Surface

Anchoring foundation construction for the Guangzhou Zhujiang Cement Co., Ltd. distributed floating PV project. The anchoring method adopted for this project is shore anchoring. The anchoring foundations consist of cast-in-place concrete gravity anchors.



Floating mounting system installation



Onshore assembly



On-water splicing

Cable laying system and operation & maintenance



North-south maintenance access walkway



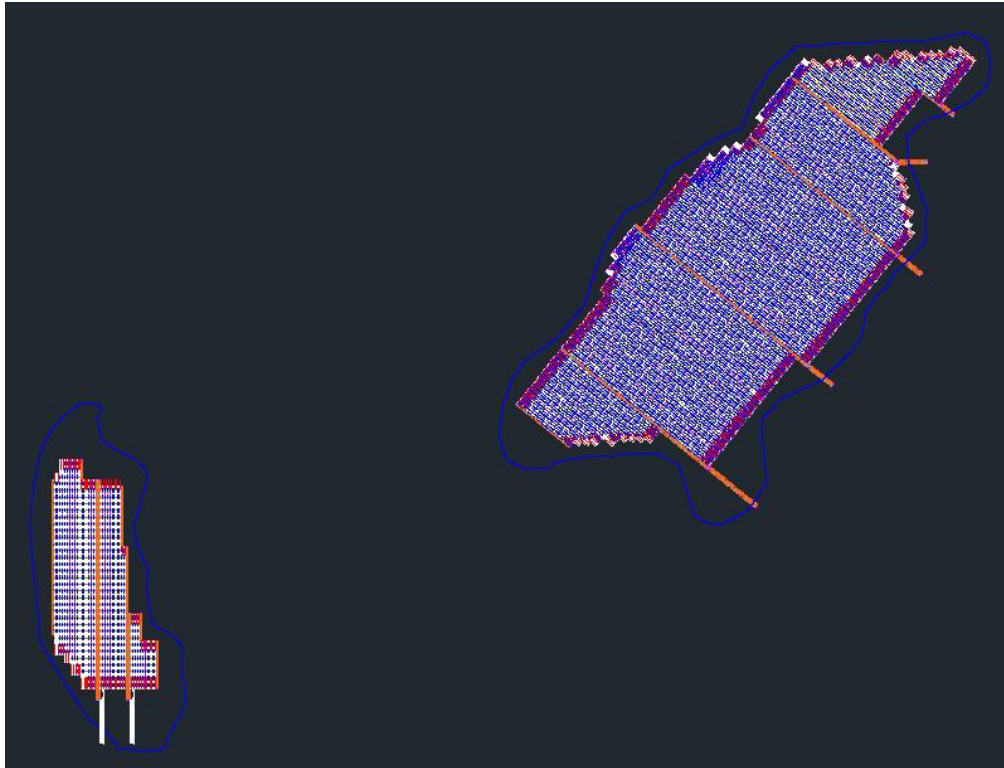
Cable laying and O&M in the central walkway of the floating array



East-west maintenance access walkway

Cable landing and maintenance walkways

Every PV module, inverter, combiner box, and cable shall be reachable via these walkways to ensure safe and efficient operation and maintenance.



Samll lake-Cable landing and maintenance walkways



Big lake-Cable landing and maintenance walkways

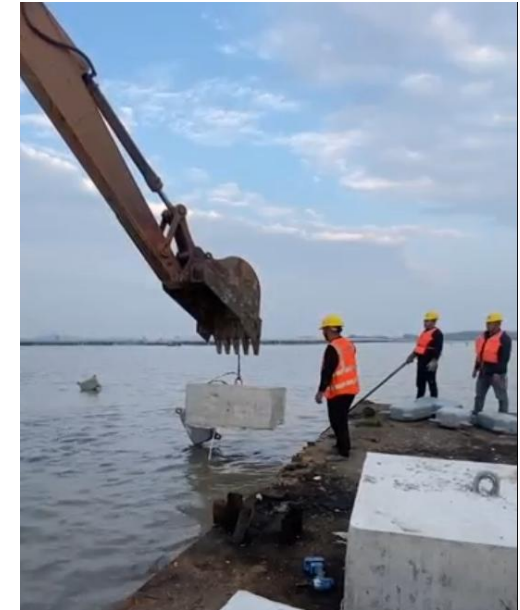
The anchoring method adopted for this project is submerged anchoring. The anchoring foundations consist of precast concrete gravity anchors.



Precast concrete gravity anchor



Anchoring foundation positioning



Anchor placement

Floating mounting system installation



Onshore assembly



On-water splicing

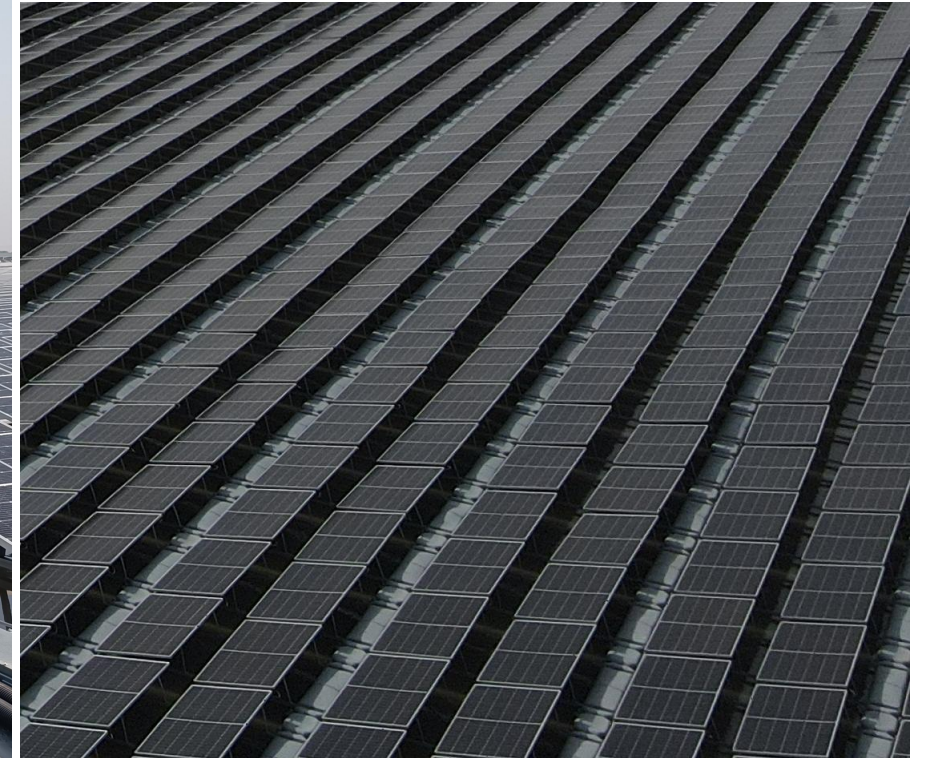
Cable laying system and operation & maintenance



North-south
maintenance access
walkway



Cable laying and O&M in the central walkway of the floating
array



East-west maintenance access walkway

Cable laying system and operation & maintenance



Low-voltage cable laying



Collector cable laying

Contents

CONTENTS

01

Introduction to Solar Floating System

02

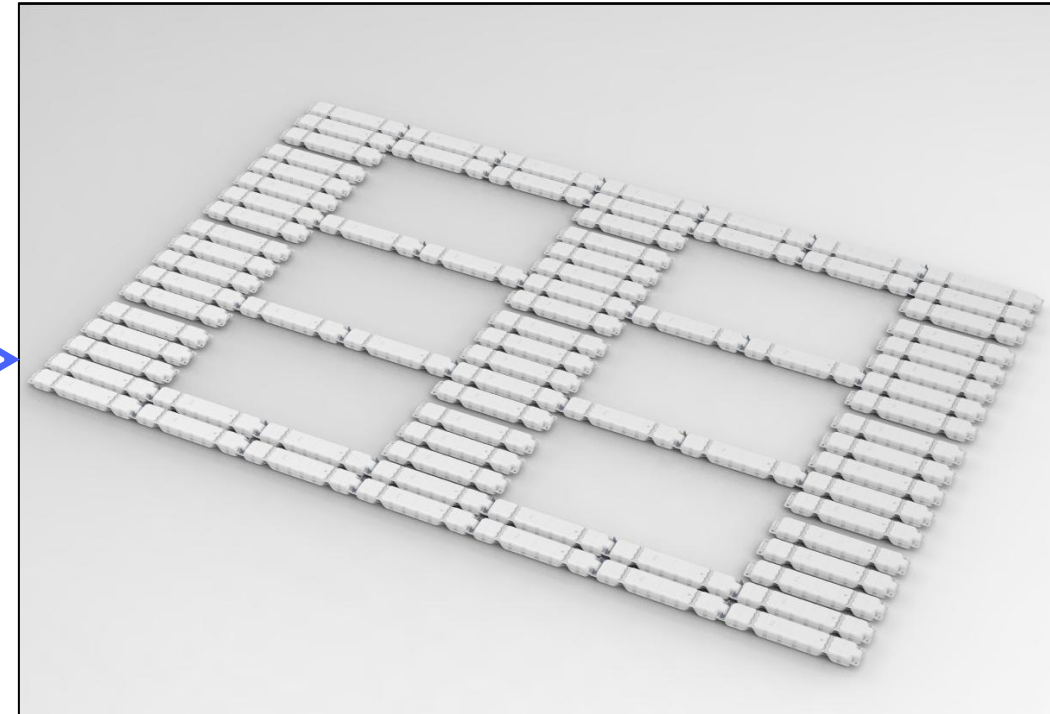
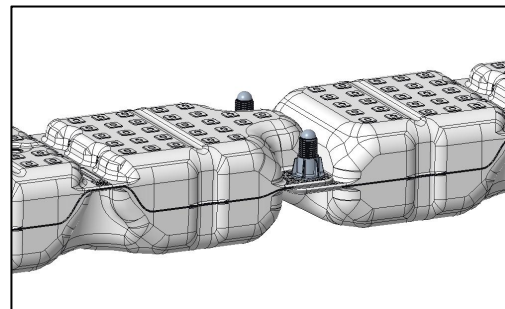
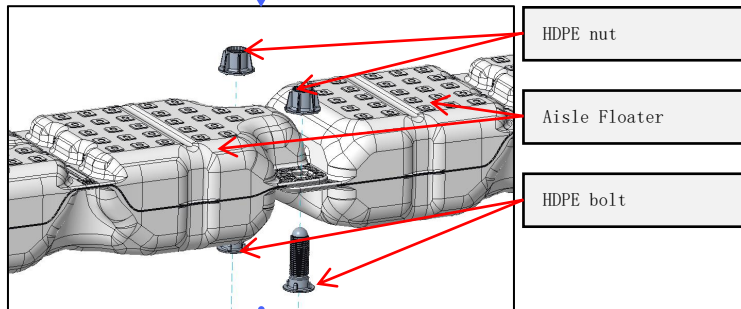
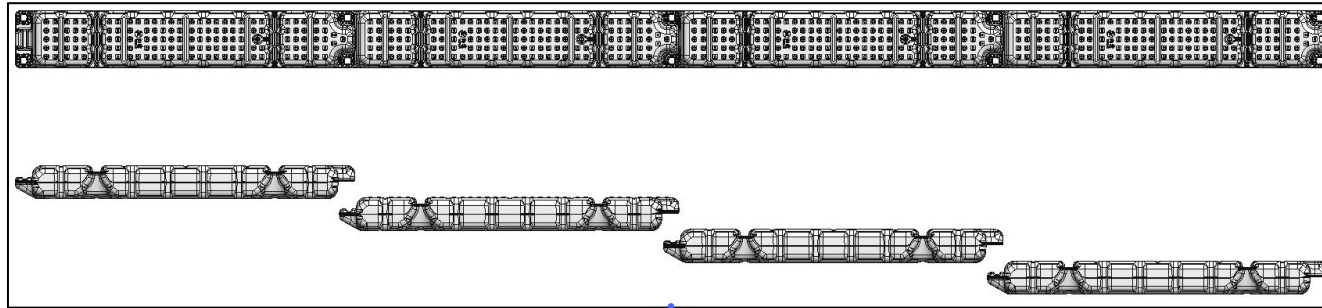
Project Sharing

03

Introduction to Solar Floating
System Junction Point

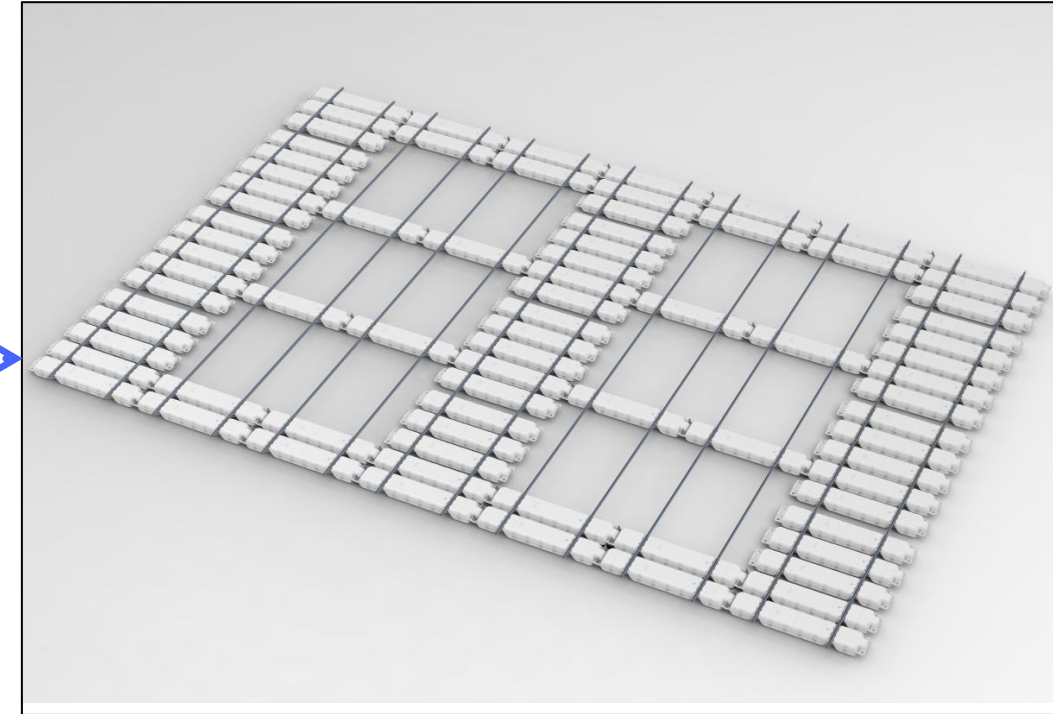
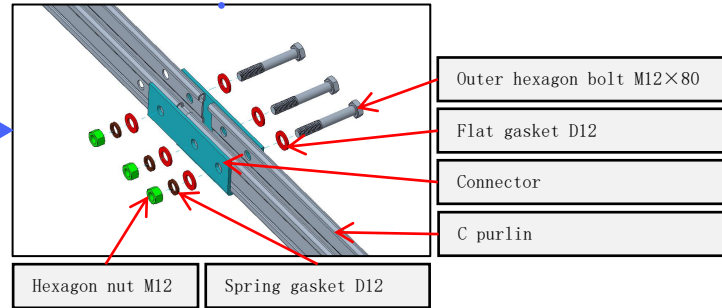
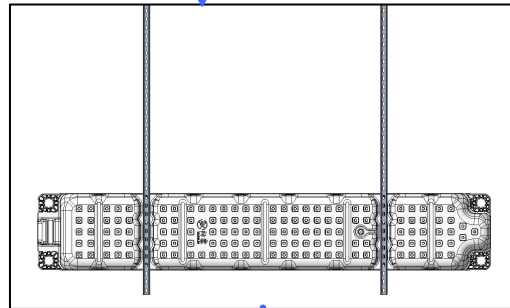
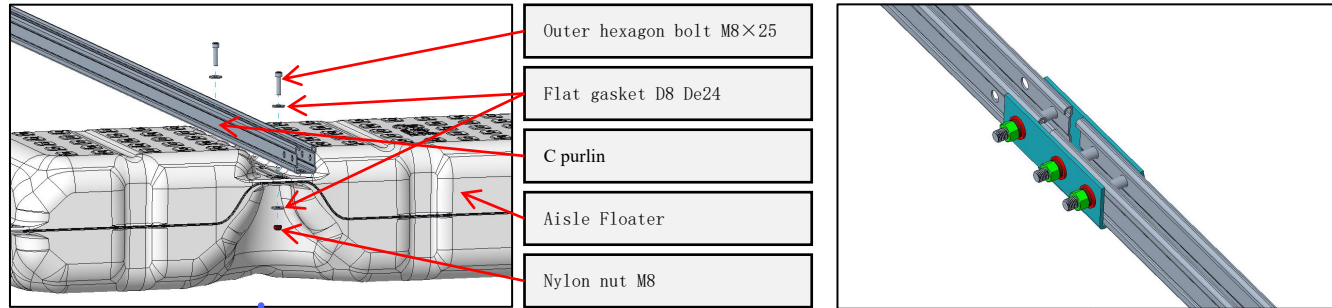
01 Connection Joint: Float-to-Float Connection

During the connection of walkway floats, the floats shall be arranged end-to-end in a straight line, ensuring that the bolt holes of adjacent floats are properly aligned. The connection shall be secured using HDPE bolts and HDPE nuts.



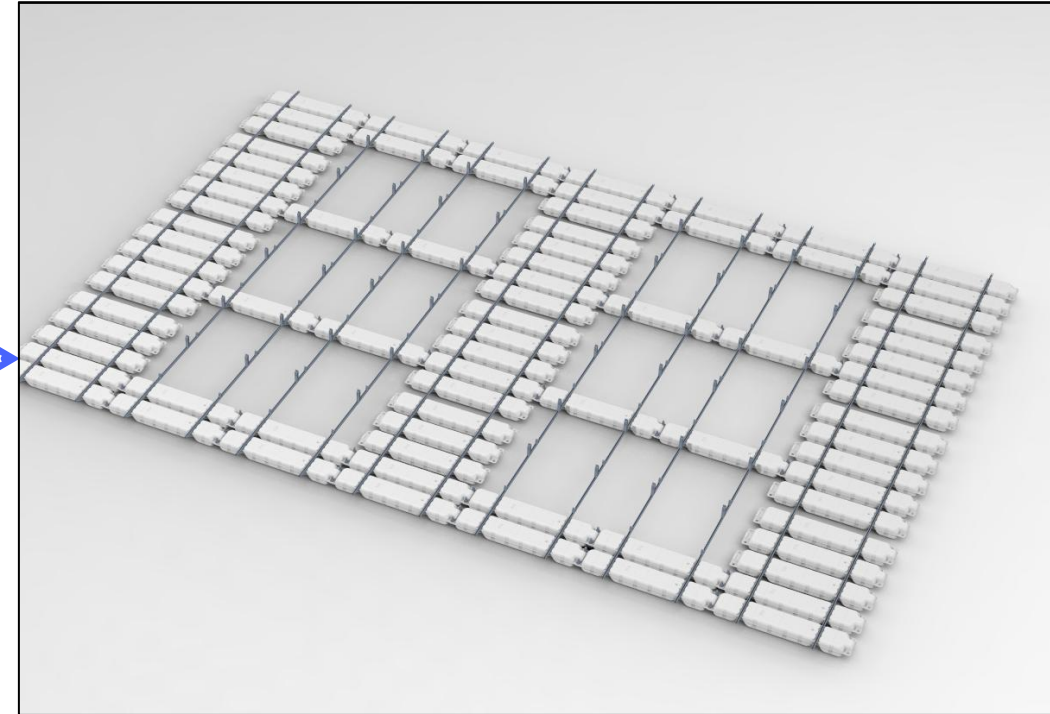
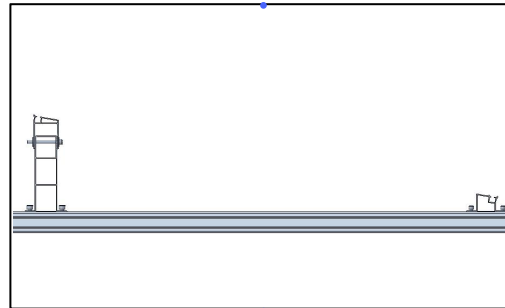
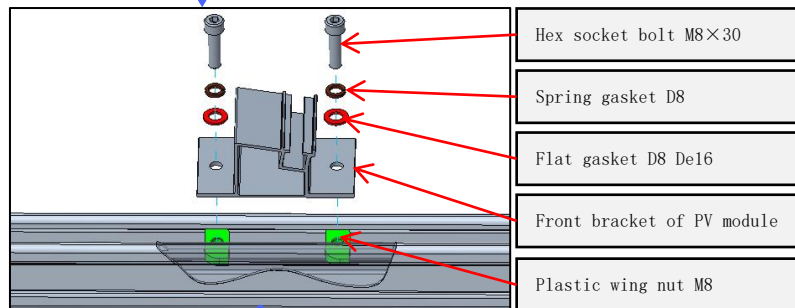
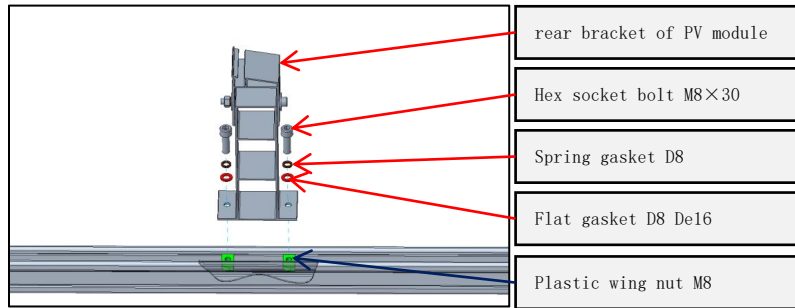
02 Connection Joint: Float-to-C Channel Steel Connection

When connecting the walkway float to the C-channel, the holes of the C-channel shall be aligned with the holes of the walkway float. The connection shall be secured using M8*35 hex head bolts, D8*De24 flat washers and nylon lock M8 nuts.



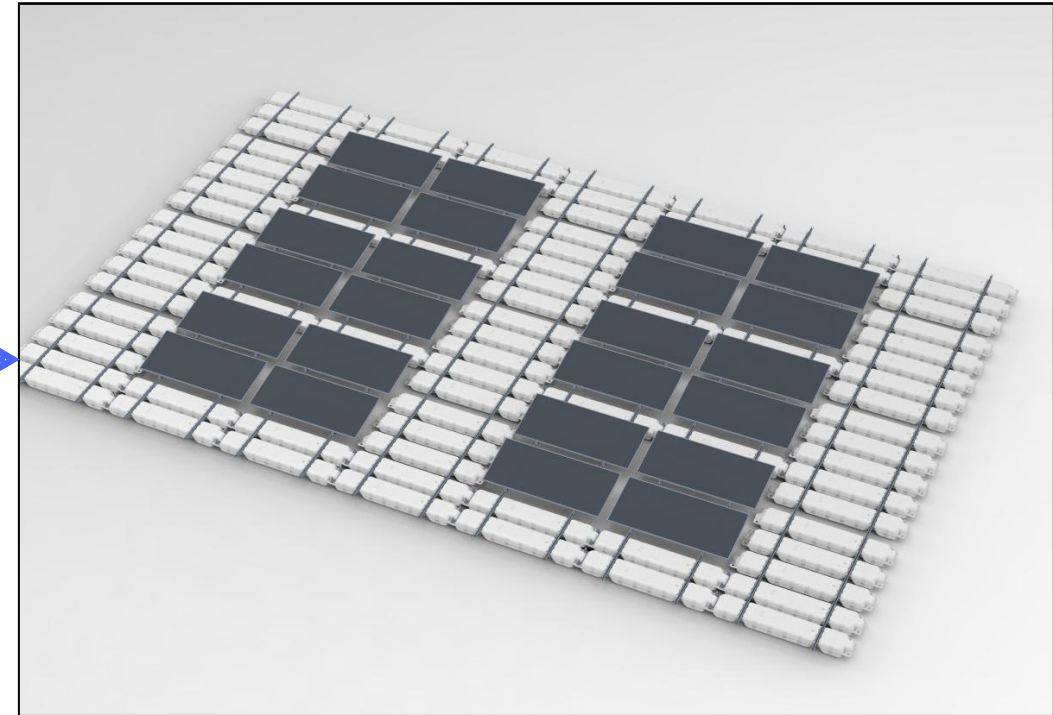
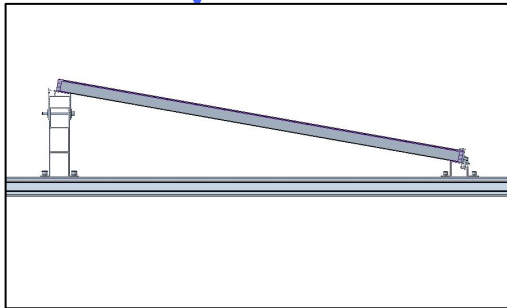
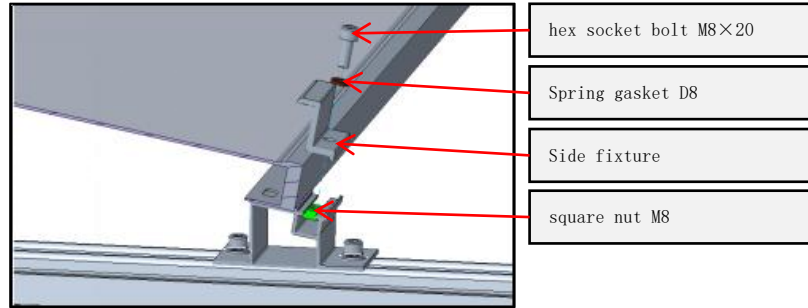
03 Connection Joint: Solar Mounting Bracket - C Channel Connection

When connecting the solar mounting bracket to the C-channel, first insert the wing nuts (spring nuts) into the C-channel slot. The positioning dimensions of the wing nuts shall follow the drawings. Then align the holes of the mounting bracket with those of the wing nuts, and secure the connection using M8*30 hex socket head cap screws, D8 spring washers and D8 flat washers.



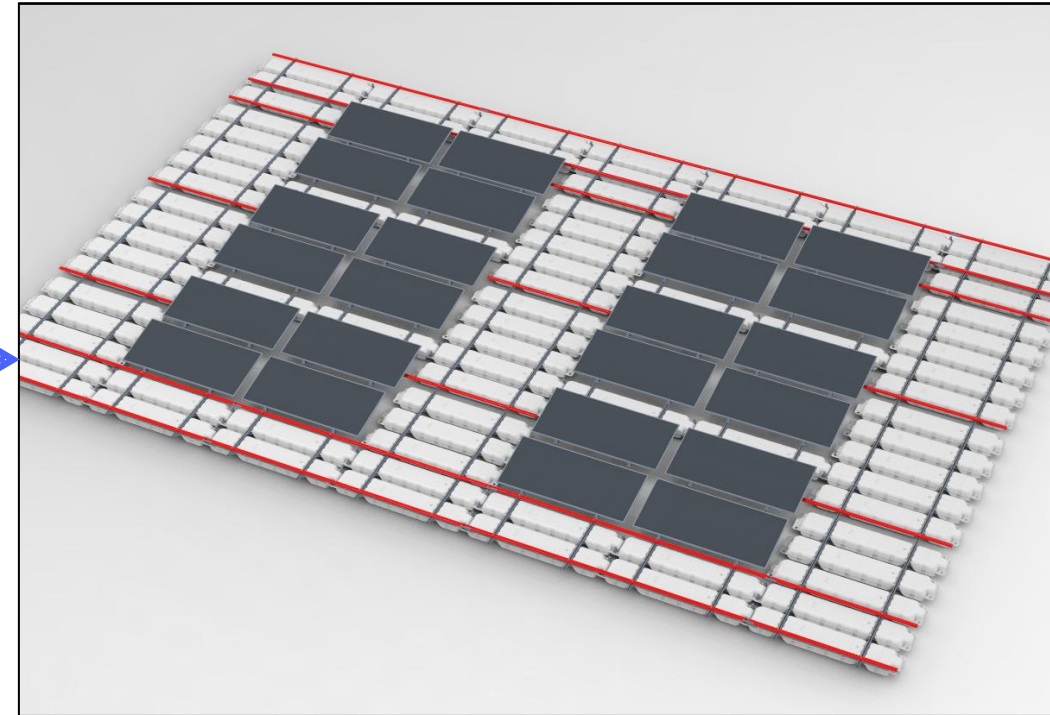
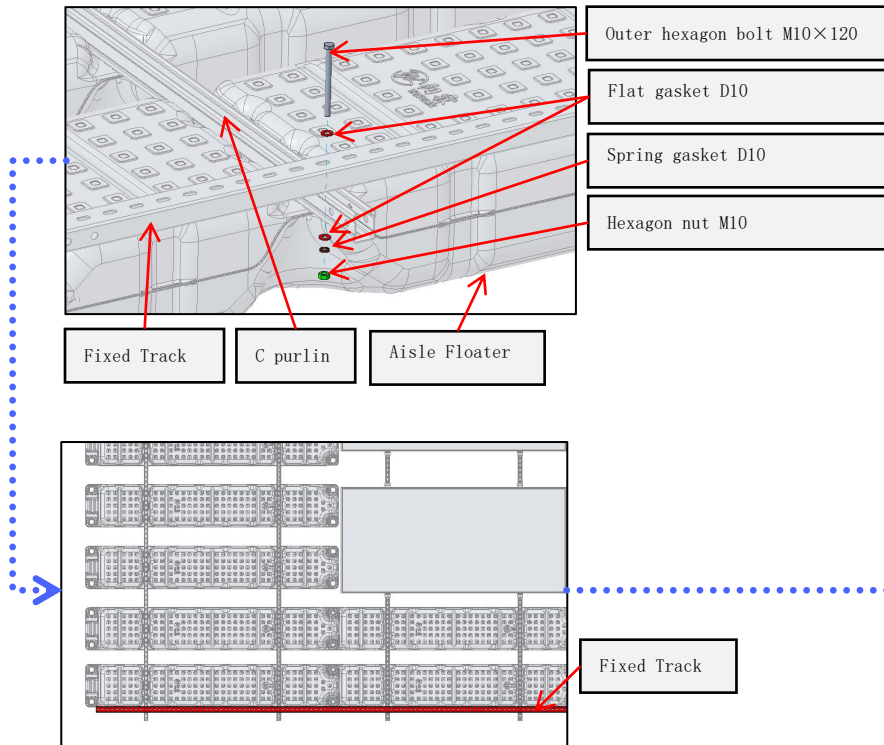
04 Connection Joint: PV Module Installation

When fixing the PV module, first snap the module frame into the slot of the module support. Then secure the connection using M8*20 hex head bolts, D8 spring washers, D8 flat washers (two) and hex nuts.

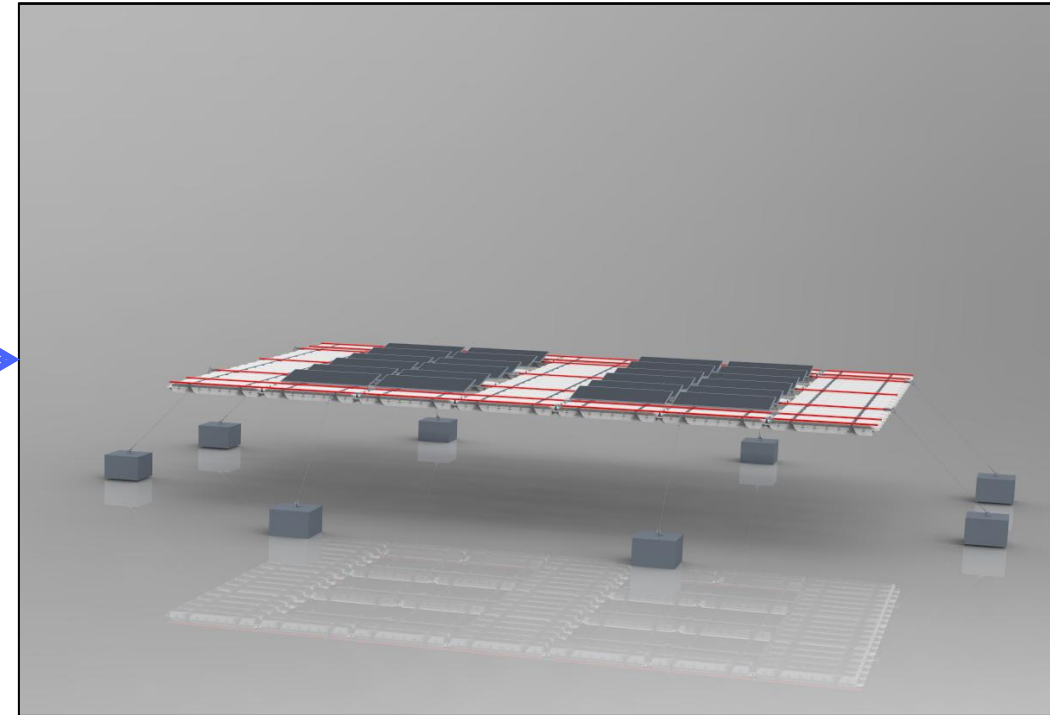
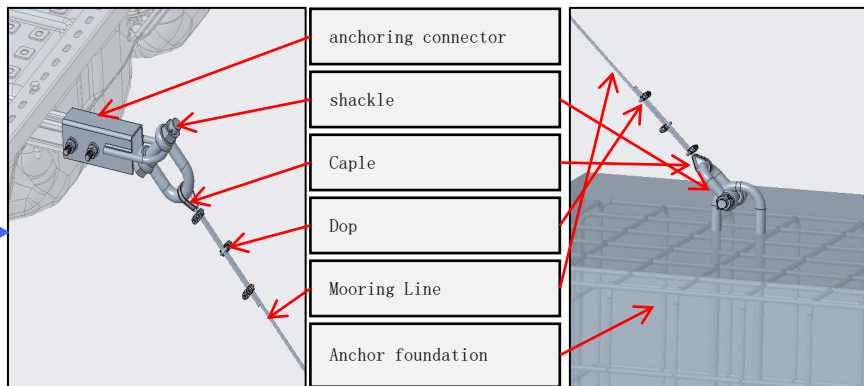
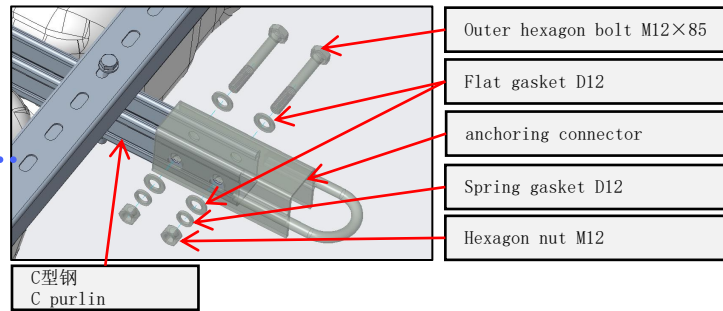


05 Connection Joint: Fixed Rail Installation

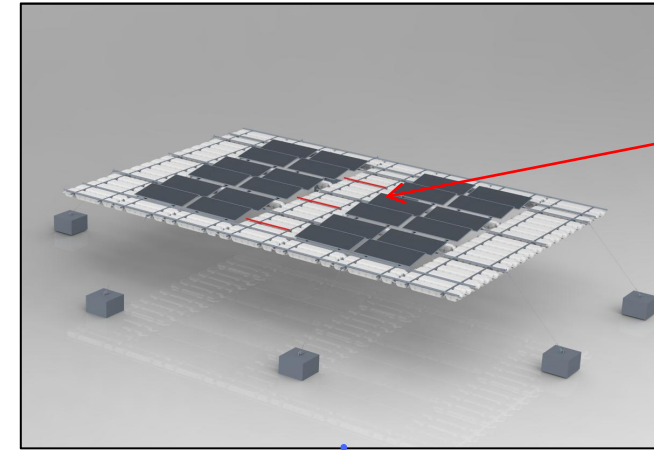
When fixing the module, first snap the module frame into the slot of the module support, then connect using M8*20 hex head bolt, D8 spring washer, D8 flat washer, D8 flat washer and hex nut.



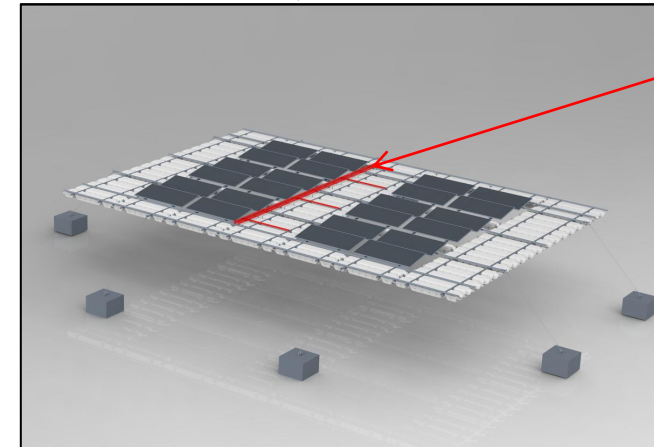
06 Connection Joint: Anchoring Accessory Installation



07 Connection Joint: Cable Tray Installation



Cable tray support
(C Channel Steel)



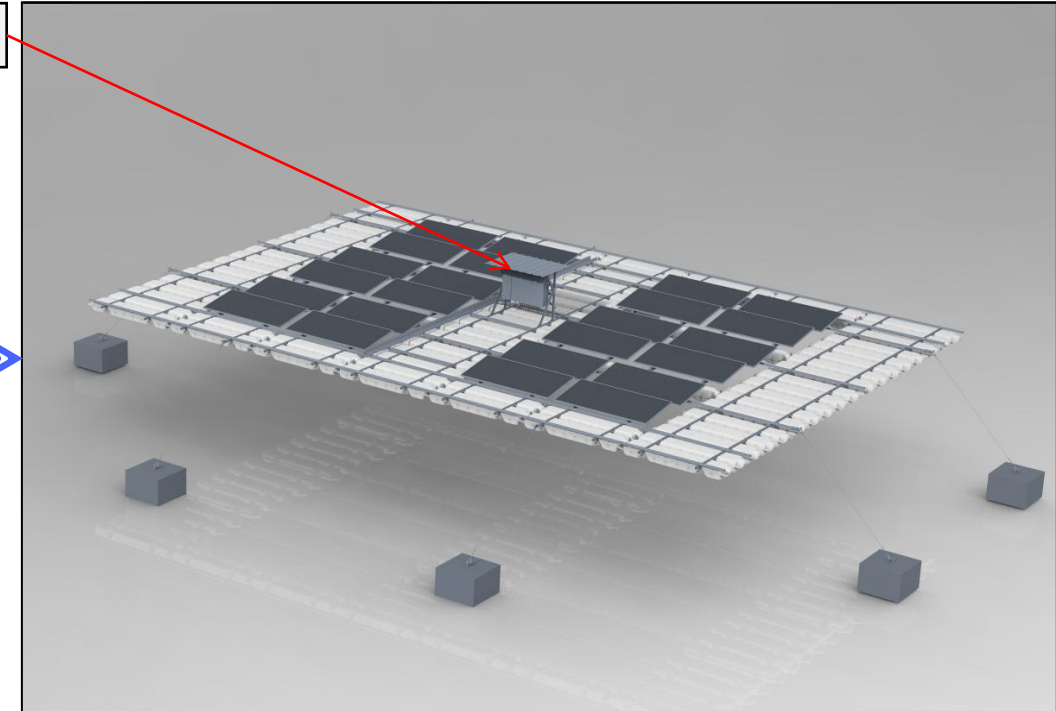
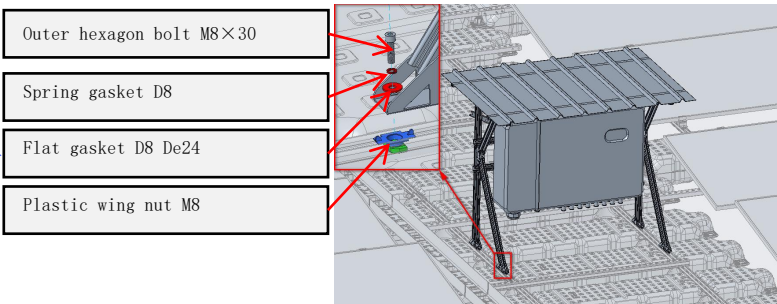
Cable tray

08 Connection Joint: Equipment Bracket Installation

The equipment bracket has been pre-assembled at the factory. Therefore, when installing the equipment support, it only needs to be secured using M8*30 hex head bolts, D8 spring washers, flat washers D8×De24 and M8 spring nuts.



Inverter and
equipment bracket



09 Connection Joint: Fixed Rail Installation

When fixing the PV module, first snap the module frame into the slot of the module support, then secure the connection using M8*20 hex head bolt, D8 spring washer, D8 flat washer, D8 flat washer and hex nut.

