

CLAIMS

1. A solar cell curing and hydrogen passivation integrated machine, is characterized in that, it comprises a rack, a curing furnace used for carrying out curing treatment on solar cells, a hydrogen passivation furnace used for carrying out hydrogen passivation treatment on the solar cells, and a conveying device used for conveying the solar cells, the curing furnace and the hydrogen passivation furnace are sequentially arranged on the rack, one end portion of the curing furnace outputting pieces is adjacent to one end portion of the hydrogen passivation furnace intaking pieces, the conveying device is continuously arranged on the rack, and the conveying device respectively passes through the curing furnace and the hydrogen passivation furnace;

the hydrogen passivation furnace comprises an optical module, an electrical module, and a temperature control system for controlling the temperature in the furnace cavity of the hydrogen passivation furnace; the optical module, the electrical module and the temperature control system are all arranged on the rack, the optical module and the electrical module are connected by a line, and the temperature control system comprises a control box arranged on the rack and located at the bottom of the optical module, a heating unit arranged in the control box, and a cooling unit arranged on the control box;

the optical module comprises a light source box arranged on the rack, a plurality of independently controllable light source devices arranged on the light source box, and a plurality of condensing lens devices covering outside the light emitting surfaces of the light source devices, and each light source device provides at least one unit of light intensity.

2. The solar cell curing and hydrogen passivation integrated machine according to claim 1, is characterized in that, the optical module further comprises a first cooling device for cooling light-emitting back sides of the light source devices and/or a second cooling device for

cooling light-emitting front sides of the light source devices, the first cooling device is a water-cooling unit, and the second cooling device is a wind cooling unit.

3. The solar cell curing and hydrogen passivation integrated machine according to claim 1, is characterized in that, the curing furnace comprises a heating module for heating and curing solar cells, and a waste discharge device and a combustion tower arranged on the top of the heating module; the heating module is arranged on the rack, the top of the heating module is provided with waste discharge ports, the combustion tower and the waste discharge device are respectively connected to different waste discharge ports, the heating module has a heating chamber, the heating chamber comprises a plurality of unit heating chambers arranged side by side, the temperature of each of the unit heating chambers can be independently controlled, and the conveying device passes through each of the unit heating chambers.

4. The solar cell curing and hydrogen passivation integrated machine according to claim 3, is characterized in that, the heating module comprises an upper heating module and a lower heating module, the upper heating module and the lower heating module are both arranged on the rack in a manner of being able to be raised and lowered up and down.

5. The solar cell curing and hydrogen passivation integrated machine according to claim 1, is characterized in that, the conveying device comprises a plurality of conveying rollers rotatably arranged on the rack and a driving device arranged on the rack for driving the rotation of the conveying roller, and the plurality of the conveying rollers is arranged in parallel, and the driving device comprises a transmission shaft rotatably arranged on the rack, a driving wheel fixedly arranged on the transmission shaft, and a driven wheel fixedly arranged on one end portion of each of the conveying rollers, and a motor for driving the transmission shaft to rotate, the driving device further comprises a transmission mechanism that is arranged between the driven wheel and the driving wheel and drives the driven wheel to rotate when the driving wheel rotates, and the transmission mechanism is a magnetic transmission mechanism, a belt transmission mechanism or a gear transmission mechanism.

6. The solar cell curing and hydrogen passivation integrated machine according to claim 1 or 5, is characterized in that, the conveying device comprises a plurality of conveying rollers rotatably arranged on the rack, each of the conveying rollers is provided with a positioning structure for positioning solar cells at the same axial position, the positioning structure comprises a recess portion arranged on each conveying roller and two positioning portions at two ends of the recess portion, and the solar cells are located in the recess portion, and are limited by the positioning portions on their opposite sides.

7. The solar cell curing and hydrogen passivation integrated machine according to claim 1, is characterized in that, the integrated machine further comprises a third cooling device arranged on the rack, the third cooling device is arranged on the rack close to the end portion of the hydrogen passivation furnace in the outputting direction, the third cooling device comprises a cooling box arranged on the rack and a cooling fan arranged on the cooling box, the cooling box has a cooling chamber, the conveying device passes through the cooling chamber, the cooling box is provided with an air inlet and an air outlet, the air inlet and the air outlet are respectively located above and below the conveying device, the cooling fan is arranged at the air inlet, the cooling box is provided with a confluence area with a tapered structure, and the air outlet is arranged at a small end of the confluence area.

8. The solar cell curing and hydrogen passivation integrated machine according to claim 1, is characterized in that, the solar cells comprise crystalline silicon cells, amorphous silicon cells or hetero-junction cells.