CLAIM

What is claimed is:

1. A die-bonding machine, comprising:

a transferring unit, used to support and transfer a substrate to a bonding position;

a feeding unit, used to position and supply the substrate to the transferring unit;

a die supply unit, used to support a die ring and supply dies to a die supply position;

a die ring supply unit, used to supply full die rings to the die supply unit and recover empty die rings in the die supply unit;

a turret mechanism, configured for transferring the dies in the die supply position to a die extraction position;

a piercing mechanism, configured for downwardly piercing a blue film of a die on the die supply position to push the die to the turret mechanism; and,

a die-bonding mechanism, configured for sucking the die from the die extraction position and moving the die to the bonding position to be installed on the substrate;

wherein the turret mechanism is arranged between the piercing mechanism and the die-bonding mechanism, the piercing mechanism is arranged on one side of the die supply unit, the transferring unit is arranged on one side of the feeding unit, the feeding unit is located underneath the die-bonding mechanism.

2. The die-bonding machine of claim 1, wherein the die ring supply unit comprises:

a feeding mechanism, used to support a die ring box and drive the die ring box to move up and down;

a delivery platform, configured for supporting and driving the die ring to move, the delivery platform having at least two accommodating slots for storing the die ring;

a reclaiming mechanism, configured for taking full die rings in the die ring box and placing the full die rings to the delivery platform, and transferring empty die rings in the delivery platform to the die ring box; and,

a delivery mechanism, configured for transferring empty die rings of the die supply position to the delivery platform, and transferring the full die rings on the delivery platform to the die supply position;

wherein the feeding mechanism and the reclaiming mechanism are respectively arranged on opposite sides of the delivery platform, and the delivery platform is arranged below the delivery mechanism.

3. The die-bonding machine of claim 2, wherein the delivery platform comprises: a tray, and a linear driving module, configured for driving the tray to and from the reclaiming mechanism and the delivery mechanism; and each of the accommodating slots is arranged on the tray.

4. The die-bonding machine of claim 2, wherein the delivery mechanism comprises:

a grab assembly, configured for grabbing the die ring,

a connecting frame, configured for supporting the grab assembly,

a lifting seat, configured for supporting the connecting frame ,

a lift drive module, configured for driving the lifting seat to move up and down,

a mounting slide, configured for supporting the lift drive module,

a linear travel module, configured for driving the mounting slide to and from the die supply position and the delivery platform, and

a travel support, configured for supporting the linear travel module.

5. The die-bonding machine according to any one of claims 1-4, wherein

the die supply unit comprises:

a die frame rotation mechanism, configured for supporting the die ring and driving the die ring to rotate, and

a moving platform, configured for adjusting a spatial position of the die frame rotation mechanism; and

the die frame rotation mechanism comprises:

a supporting plate, arranged on the side of the moving platform, and the supporting plate connected to the moving platform;

a rotating die frame, configured for supporting the die ring, and installed on the supporting plate; and,

a rotary drive module for driving the rotating die frame to rotate;

wherein the rotary drive module is installed on the supporting plate, and the rotary drive module is located on a side of the rotary die frame close to the moving platform, and the supporting plate is defined with an opening exposing hollow position of the rotary die frame.

6. The die-bonding machine according to any one of claims 1-4, wherein the piercing mechanism comprises:

an ejector pin for piercing the blue film to eject the die on the blue film;

a needle seat for supporting the ejector pin;

a lift pusher, used to drive the needle seat to move up and down, so as to drive the ejector pin to go up and down; and

an installation support;

wherein the lift pusher is installed on the installation support.

7. The die-bonding machine according to any one of claims 1-4, wherein the turret mechanism comprises:

a die holder, configured for supporting the die; and,

a transfer module, configured for driving the die holder to receive the die from the die supply position and transfer the die to the die extraction position, and the transfer module being arranged between the die-bonding mechanism and the piercing mechanism.

8. The die-bonding machine according to claim 7, wherein the transfer module comprises a turret arm, a rotating base supporting the turret arm, a rotary driver driving the rotating base to rotate, and a positioning bracket supporting the rotary driver; and the die holder is installed on the turret arm.

9. The die-bonding machine according to any one of claims 1-4, wherein

the transferring unit comprises a splint mechanism for supporting and clamping the substrate and a plane movement platform for driving the splint mechanism to move on a plane; and

the splint mechanism comprises:

a support base plate, installed on the plane movement platform;

two sets of roller assemblies installed on opposite sides of the support base plate respectively, and used to cooperate with the opposite sides of the substrate; and,

two sets of clamping assemblies installed on opposite sides of the support base plate respectively, and used to press and fix the opposite sides of the substrate on the corresponding roller assemblies, so that each clamping assembly and corresponding roller assembly cooperates to clamp and fix the side edges of the substrate.

10. The die-bonding machine according to claim 9, wherein the roller assemblies comprise a roller support supported on the support base plate; a plurality of roller seats are arranged on the roller supports; a plurality of the roller seats are arranged at intervals along the length direction of the roller supports; and rollers are rotatably installed on each of the roller seats.