

FPC Laminating and Testing Device

Technical field

The utility model relates to an FPC laminating and testing device.

Technique Background

FPC (Flexible Printed Circuit), is a highly reliable, excellent flexible printed circuit board. Its important components are: double-sided adhesive, insulation cover film, reinforced plate, electromagnetic shielding film and other auxiliary materials, need to be attached to the copper substrate to achieve their respective role. The auxiliary materials are attached to the FPC through the splicing device, subject to the characteristics of various auxiliary materials, FPC board quality and the stability of the automatic laminating equipment, paste the work process there may be leakage and re-paste the situation, that Should be attached to the A at the auxiliary material is not successful and with the next piece of auxiliary materials attached to the B, resulting in a leak at the A, B re-posted. If the leaked and re-posted part of the part has not been removed and into the next process or even assembled for the finished product, will cause serious consequences. The major manufacturers put a lot of energy can not be completely eliminated.

Utility model content

The utility model is intended to at least to some extent solve one of the above technical problems or at least provide a useful commercial choice. To this end, it is an object of the present invention to provide an FPC laminating detecting apparatus including a plurality of cylinders, a probe located at the top of the cylinder and a grating sensor connected to the probe, The probe is in contact with the measured FPC, and then calculating the displacement of the probe due to the counter-thrust generated by the contact with the FPC through the magnetic grid sensor to determine whether the FPC is leaked or re-posted, eliminating the FPC in the process of fitting Leakage or re-paste the possibility of reducing the rate of waste generated.

According to the FPC laminating detecting apparatus of the utility model, the FPC attaching detecting apparatus includes a mounting bracket, a first cylinder extending

outwardly along an end portion of the mounting bracket, and the first A second cylinder provided on said table and adjacent to said first cylinder; a third cylinder, said third cylinder, said second cylinder being disposed on said table adjacent to said first cylinder; A cylinder disposed on the table and remote from the first cylinder, the third cylinder being interlocked with the second cylinder and the bore of the third cylinder being smaller than a bore of the second cylinder; The probe being fixedly disposed on the third cylinder and extending outwardly in a direction along the second cylinder toward the third cylinder; and a magnetic grid sensor connected to the probe. According to the FPC lamination detecting device of the utility model, the FPC attaching detecting device includes a plurality of cylinders, a probe located at the top of the cylinder and a grating sensor connected to the probe, and after the probe is contacted with the measured FPC by the cylinder, And then through the magnetic grid sensor to calculate the probe due to contact with the FPC generated by the anti-thrust generated by the displacement can determine whether the FPC leakage or re-paste, put an end to the FPC in the process of laminating or paste the possibility of re-paste , Reducing the rate of scrap produced.

Further, according to the FPC laminating detecting apparatus described in the utility model, the following additional technical features may be provided:

The first cylinder is a double rod cylinder having a bore diameter of 25 mm.

Wherein the second cylinder is a double-acting cylinder, and the third cylinder is a single-push cylinder in which the cylinder bore of the second cylinder is 16 mm and the bore of the third cylinder is 6 mm.

And a push-pull coupling member is further provided between the second cylinder and the third cylinder.

Said third cylinder being fixedly provided with a slider provided with a guide rail for slidingly connecting said slider, said probe being fixedly disposed on said slider.

The mounting bracket includes a mounting plate and a reinforcing rib located on the mounting plate.

The top of the probe is rounded.

The FPC laminating device provided by the utility model includes an FPC laminating

detection device according to any of the above-mentioned structures.

The FPC laminating device comprises a plurality of cylinders, a probe located at the top of the cylinder and a magnetic grid sensor connected with the probe, and the FPC laminating detection device is connected with the tested FPC through the cylinder through the probe, The magnetic grid sensor calculates the displacement of the probe due to the counter-thrust generated after the contact with the FPC to judge whether the FPC is leaked or re-posted, thus eliminating the possibility of FPC in the process of laminating or re-paste, The resulting rejection rate.

Additional aspects and advantages of the utility model will be set forth in part in the description which follows, and in part will be apparent from the following description or through the practice of the utility model.

Description of the drawings

The foregoing and / or additional aspects and advantages of the utility model will become apparent and readily understood from the following description of the implementation taken in conjunction with the accompanying drawings in which:

BRIEF DESCRIPTION OF THE DRAWINGS

Figure 1 is a schematic view of a structure of an FPC laminating detection apparatus according to an embodiment of the utility model;

Figure 2 is a schematic structural view of an FPC laminating detecting apparatus according to another embodiment of the utility model.

Detailed description

implementation of the utility model are described in detail below, examples of which are shown in the accompanying drawings, wherein like or similar reference numerals refer to like or similar elements or elements having the same or similar functions throughout. The implementation described below with reference to the accompanying drawings are exemplary and are intended to be illustrative of the utility model and are not to be construed as limiting the utility model.

The FPC laminating detecting device is provided with an FPC laminating detecting device for detecting whether there is a leak in the FPC laminating process, and re Of the FPC.

Fig. 1 is a schematic structural view of an FPC laminating detecting apparatus according to another embodiment of the present invention; and Fig. 2 is a schematic diagram of an FPC laminating detecting apparatus according to another embodiment of the utility model. 1 to 2, there is provided an FPC laminating detecting device provided by the utility model including a mounting bracket 10, a table 20, a first cylinder 30, a second cylinder 40, a third cylinder 50, a probe 60, and a magnetic gate sensor 70, respectively.

The mounting fixing frame 10 is fixedly connected to the FPC laminating apparatus for fixing connecting the FPC laminating detecting apparatus of the utility model with the FPC laminating apparatus. In the present embodiment, the mounting bracket 10 includes a mounting plate 11 at the bottom and a reinforcing rib 12 on the mounting plate 11. As shown in Fig. The mechanical structure of the mounting bracket 10 can be enhanced by providing a reinforcing rib 12 on the mounting plate 11 so that the combination of the FPC laminating detecting device and the FPC laminating device is secure. Preferably, the mounting plate 11 is integrally formed with the reinforcing ribs 12, thereby facilitating processing and at a lower cost.

The first cylinder 30 is connected to the mounting bracket 10 and extends outwardly along one end of the mounting bracket 10. The first cylinder 30 is fixed with an operation table 20 at an end remote from the mounting bracket 10. As shown in Fig. That is, the first cylinder 30 is located between the mounting holder 10 and the console 20, and the first cylinder 30 is used for advancing and retracting the FPC laminating detecting device of the utility model, switching the operating state and the non-operating state. The first cylinder 30 is advanced and held when the FPC laminating detecting device is operated, the first cylinder 30 is retracted when the FPC laminating detecting device is not in operation, and the FPC laminating detecting device is pulled back to a position not to interfere with other work The

The second cylinder 40 is provided on the table 20 and is close to the first cylinder 30,

which is provided on the console 20 and away from the first cylinder 30, i.e., the third cylinder 50 is provided at a distance from the first cylinder 30. The position. The third cylinder 50 is interlocked with the second cylinder 40, that is, the second cylinder 40 is a reciprocating cylinder, and the third cylinder 50 is pushed and pulled, and the second cylinder 40 is pushed forward or pulled backward to drive the third cylinder 50. Push or pull backwards. The third cylinder 50 has a smaller cylinder diameter than that of the second cylinder 40, and the third cylinder 50 is a single push cylinder for use as a gas spring. Since the third cylinder 50 has a small bore diameter and adjusts the air pressure by the micro precision high pressure valve, the reaction force is small and the reaction sensitivity high. In the present embodiment, the bore diameter of the second cylinder 40 is 16 mm, and the diameter of the third cylinder 50 is 6 mm.

The probe 60 is fixedly provided on the third cylinder 50 and extends outwardly in the direction of the third cylinder 50 in the direction in which the second cylinder 40 is extended in the direction of the third cylinder 50, that is, the first cylinder 30 is sequentially provided in the direction in which the holder 10 is mounted to the stage 20, A second cylinder 40, a third cylinder 50, and a probe 60.

The magnetic grid sensor 70 is connected with the probe 60, and the magnetic grid sensor 70 is composed of a magnetic scale, a reading head and a detection circuit. The magnetic grid sensor 70 is composed of a magnetic scale, a reading head and a detection circuit. The magnetic grid sensor 70 has a high precision of ± 0.01 mm / m and a resolution of 1-5 micron. In particular, the magnetic scale is connected to the probe 60, and the magnetic scale is relatively stationary with the probe 60. When the second cylinder 40 pushes the third cylinder 50 to move, the magnetic grille is driven to move correspondingly to the probe 60; the reading head is fixed. In the table 20, the displacement data for recording the magnetic scale, i.e., the reading head, transmits the relative displacement number to the detection circuit by reading the relative displacement number of the magnetic scale and detecting the circuit according to the relative displacement. You can confirm whether the measured FPC leaked, re-posted, reducing the rate of waste generated.

An FPC laminating detecting device provided by the utility model is used to push the

third cylinder 50 forward by the second cylinder 40, and when the probe 60 comes into contact with the measured FPC, a counter-thrust is generated to overcome the thrust of the third cylinder 50. The displacement generated by the probe 60 will be recorded and compared by the magnetic grid sensor 70 to determine whether there is a leak in the FPC, re-paste, thus eliminating the FPC in the process of laminating or paste the possibility of re-paste Sex, reducing the rate of waste generated.

In the specific embodiment, the second cylinder 40 is a double-acting cylinder, and the third cylinder 50 is a single-push cylinder in which the bore diameter of the second cylinder 40 is 16 mm and the bore of the third cylinder 50 is 6 mm.

In a specific implementation, a push-pull coupling 90 is also provided between the second cylinder 40 and the third cylinder 50. As shown in Fig. By providing a push-pull coupling member 90 between the second cylinder 40 and the third cylinder 50, the mechanical strength between the second cylinder 40 and the third cylinder 50 can be enhanced.

In a specific implementation, the third cylinder 50 is fixedly provided with a slider 80 provided with a guide rail 21 for slidingly connecting the slider 80, which is fixedly provided in the slider 80 on. The third cylinder 50 is fixedly provided on the slider 80 by fixing the third cylinder 50 to the slider 80 and the guide table 20 is provided with a guide rail 21 for slidingly connecting the slider 80. The horizontal displacement of the third cylinder 50 during the movement is avoided, and the movement of the third cylinder 50 can be facilitated by the sliding action of the guide rail 21 during the second cylinder 40 pushing the third cylinder 50, thereby facilitating the movement of the third cylinder 50. On the probe 60 to move, improve the detection efficiency, enhance the user experience.

In particular implementation, in order to avoid product crushing, the probe 60 is made of a rigid material, and the top end of the probe 60 is preferably rounded.

The utility model further provides an FPC laminating device comprising an FPC laminating detection device having the above-mentioned structure.

The FPC laminating and testing device includes an FPC laminating detecting device for urging the third cylinder 50 to move forward through the second cylinder 40, and

when the probe 60 comes into contact with the measured FPC, the FPC laminating apparatus includes an FPC laminating apparatus, The counter thrust is rebounded against the thrust of the third cylinder 50, and the displacement generated by the probe 60 is recorded and compared by the magnetic grid sensor 70 to determine whether or not the FPC is to be leaked and pasted, thereby eliminating the FPC The possibility of leakage or re-posting during the fitting process, reducing the rate of scrap produced.

In the description of this specification, the description of the terms "one embodiment", "some implementation", "examples", "specific examples", or "some examples" and the like means to refer to the specific features described in connection with the implementation or examples , The structure, the material, or the features are included in at least one embodiment or example of the utility model. In the present specification, the illustrative expression of the above-mentioned terminology does not necessarily refer to the same embodiment or example. Moreover, the particular features, structures, materials, or features described may be combined in any suitable embodiment or example in any suitable manner.

While the implementation of the utility model have been shown and described above, it is to be understood that the above-described implementation are exemplary and are not to be construed as limiting the present invention to those skilled in the art without departing from the scope of the present invention The present invention will be modified, modified, and modified within the scope of the utility model.

CLAIMS:

1. A first cylinder extending outwardly along an end portion of the mounting bracket, the first cylinder being fixedly provided with a table on an end remote from the mounting bracket; a second cylinder A second cylinder disposed on said table and adjacent to said first cylinder;

a third cylinder disposed on said table and remote from said first cylinder, said third cylinder being linked to said second cylinder and said third cylinder having a bore smaller than said first Two cylinder bore;

a probe fixedly provided on said third cylinder and extending outwardly in a direction along a second cylinder toward a third cylinder; and

a grating sensor connected to the probe.

2. FPC laminating and testing device to claim 1, wherein the first cylinder is a double rod cylinder having a bore diameter of 25 mm.

3. FPC laminating and testing device to claim 1 or 2, wherein the second cylinder is a double-acting cylinder, and the third cylinder is a single-push cylinder, wherein the second cylinder has a cylinder diameter of 16 mm , The third cylinder bore is 6mm.

4. FPC laminating and testing device to claim 1, wherein a push-pull coupling member is further provided between the second cylinder and the third cylinder.

5. FPC laminating and testing device to claim 4, wherein said third cylinder is fixedly provided with a slider provided with a guide rail for slidably connecting said slider, said The probe is fixedly mounted on the slider.

6. FPC laminating and testing device to claim 1, wherein the mounting fixing frame includes a mounting plate and a reinforcing rib on the mounting plate.

7. FPC laminating and testing device to claim 1, wherein the top end of the probe is a round head.

8. FPC laminating and testing device to any one of claims 1 to 7.