

a polishing

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pad prior to ^{the polishing} processing and the contour and thickness thereof after processing; and based on the differences between the pre- and post-processing contour and thickness, outputting from the controlling means a reproduction signal for surface reproduction or a replacement signal for pad replacement.

In addition, a second controlling method according to this invention is characterized in that it comprises forming an exposed portion from which the surface plate surface is exposed, at at least one end of the surface plate in its radial direction after the polishing pad has been adhered; using ^a the sensor to scan the surface plate in its radial direction, starting from the exposed portion in order to measure the thickness of the polishing pad based on the positions of the surface plate's surface and the pad surface and also to measure the contour of the pad; and based on changes in the contour and thickness of the polishing pad ^{both} before and after polishing, outputting from ^a the controlling means a reproduction signal for pad surface reproduction or a replacement signal for pad replacement.

The controlling method according to this invention may include the step of using the sensor to also measure the surface roughness of the polishing pad before and after processing and, depending on any change in surface roughness, outputting from the controlling means a

What is claimed is:

1. A polishing pad controlling method comprising the steps of:

using a sensor to scan the surface of a surface plate in its radial direction prior to the adhesion of a polishing pad, in order to measure the position of the surface plate surface and to set into a controlling means the position of the surface plate as a reference surface used to measure the thickness of the polishing pad;

adhering the polishing pad to the surface of said surface plate;

using the sensor to scan the surface of the polishing pad in the radial direction of the surface plate to measure the initial contour of the pad surface prior to ^{a polishing process} ~~processing~~ and also to measure the initial thickness of the polishing pad from the position of the pad surface;

using the sensor to scan the surface of the polishing pad in the radial direction of the surface plate after ^{polishing process} ~~the processing~~ while the surface plate is rotating or stopped, in order to measure the contour of the pad surface and the thickness of the polishing pad; and

comparing the measured contour and thickness to said initial contour and thickness to determine any changes in contour and thickness caused by polishing, and based on the changes, outputting from the controlling means a

reproduction signal for surface reproduction or a replacement signal for pad replacement.

2. A polishing pad controlling method comprising the steps of:

cutting said polishing pad to form an exposed portion from which the surface plate's surface is exposed, at at least one of the radial ends of the surface plate with the polishing pad adhered thereto;

using ^athe sensor to scan the surface of the surface plate in its radial direction ^{both} before and after polishing while the surface plate is rotating or stopped, to measure the thickness of the polishing pad based on the positions of the surface plate's surface and the pad surface at the exposed portion and also to measure the contour of the polishing pad; and

based on changes in the contour and thickness of the polishing pad caused by polishing, outputting from ^athe controlling means a reproduction signal for pad surface reproduction or a replacement signal for pad replacement.

3. A controlling method according to Claim 1 or 2 further including the step of using the sensor to also measure the surface roughness of the polishing pad before and after processing and depending on any changes in surface roughness, outputting from the controlling means a reproduction signal for pad surface reproduction.