

oriented either in the same direction with each other, i.e. with similar poles always oriented in the same direction, or part of the magnets can be inversely oriented.

Devices for handling magnetic particles may be provided with a display which provides information on the status of the device. The display is typically on one side of an area where the vessel comprising the reaction mixture and the magnetic particles are located. The display located on a side of the device has a limited capability of reliably instructing a user of the device. Alternatively, the device may be operated via a computer comprising a dedicated operating software connected to the device.

Examples of commercially available devices are KingFisher™ magnetic particle processing instruments from Thermo Fisher Scientific.

Summary of the invention

An aspect of the present invention provides a device for handling samples that are located in sample wells of a sample vessel and contain magnetically responsive particles. The device comprises a sample handling area where the samples can be processed, the sample handling area comprising at least two predetermined sample handling locations, and a plurality of probes that are insertable into the sample wells for removing magnetically responsive particles from the sample wells or for inserting magnetically responsive particles into the sample wells. The device comprises a display which is located underneath one of the predetermined sample handling locations of the sample handling area.

The device according to embodiments of the invention comprises a display which is located underneath the sample handling area. Because of the display, various information can be shown to a user of the device in the area where the samples are processed. Because the user can simultaneously see both the display and the samples, the risk of making mistakes when using the device may be reduced. Also, the use of the device may be more effective, and the results of analysis performed on the samples may be more reliable.

The method of operating the device according to embodiments of the invention comprises the steps of indicating on the display that the device is ready for a user action or for a selection or input by a user, waiting for the user action, selection or input, determining whether the correct action has been accomplished or asking
5 for confirmation of the selection or input, and in case of a correct action or confirmed selection or input, proceeding to a following step of operation.

In the method according to embodiments the invention, the user is instructed on the display and the device determines whether the correct action has been performed or asks for confirmation of a selection or an input. The device thus inter-
10 acts with the user, which can reduce the risk of human errors, make the process of using the device more effective and improve reliability of results of assays performed on samples.

According to an embodiment of the invention, the device is configured to show on the display information instructing a user of the device.

15 According to an embodiment of the invention, the device is configured to indicate on the display when a sample vessel can be loaded into the device or removed from the device.

According to an embodiment of the invention, the device is configured to indicate on the display that the sample vessel is/is not correct for a selected sample handling process.
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According to an embodiment of the invention, the device is configured to instruct on the display how to load a sample vessel into the device.

According to an embodiment of the invention, the device is configured to identify on the display a sample vessel or sample wells requiring a specific action from a
25 user of the device.

According to an embodiment of the invention, the device comprises a barcode or a QR-code reader or an RFID tag reader for reading information from a code or tag located in a sample vessel, and the device is configured to show on the display information based on the read code or tag.

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Claims

1. A device for handling samples that are located in sample wells of a sample vessel and contain magnetically responsive particles, the device comprising a sample handling area where the samples can be processed, the sample handling
5 area comprising at least two predetermined sample handling locations, and a plurality of probes that are insertable into the sample wells for removing magnetically responsive particles from the sample wells or for inserting magnetically responsive particles into the sample wells, wherein the device comprises a display, which is located underneath one of the predetermined sample handling locations
10 of the sample handling area.
2. The device according to claim 1, wherein the device is configured to show on the display information instructing a user of the device.
3. The device according to claim 1 or 2, wherein the device is configured to indicate on the display when a sample vessel can be loaded into the device.
- 15 4. The device according to any of claims 1–3, wherein the device is configured to indicate on the display when a sample vessel can be removed from the device.
5. The device according to any of the preceding claims, wherein the device is configured to indicate on the display that the sample vessel is/is not correct for
20 a selected sample handling process.
6. The device according to any of the preceding claims, wherein the device is configured to instruct on the display how to load a sample vessel into the device.
7. The device according to any of the preceding claims, wherein the device
25 is configured to identify on the display a sample vessel or sample wells requiring a specific action from a user of the device.
8. The device according to any of the preceding claims, wherein the device comprises a barcode or a QR-code reader or an RFID tag reader for reading information from a code or tag located in a sample vessel, and the device is con-
30 figured to show on the display information based on the read code or tag.
9. The device according to any of the preceding claims, wherein the device comprises a rotatable platform for moving a sample vessel between the sample handling locations.

10. The device according to any of the preceding claims, wherein the display is located underneath a sample handling location which is configured to allow loading of a sample vessel into the device and/or removing a sample vessel from the device.

5 11. The device according to claim 10, wherein the display is configured to be visible to a user of the device while the sample vessel is being loaded into the device and/or removed from the device.

12. A method of operating the device according to any of the preceding claims, the method comprising the steps of

- 10 - indicating on the display that the device is ready for a user action or for a selection or input by a user,
- waiting for the user action, selection or input,
- determining whether the correct action has been accomplished or asking for confirmation of the selection or input, and
- 15 - in case of a correct action or confirmed selection or input, proceeding to a following step of operation.

13. The method according to claim 12, wherein a wrong action or a cancelled selection or input is indicated on the display.