The invention solves this further object by the subject matter of claim 5.

According to a first aspect of the present invention, a centrifuge is provided comprising a rotatable rotor and an assembly which is stationary in operation, wherein the rotatable rotor is rotatably mounted in or on the stationary assembly by means of one or more bearing devices, wherein the rotatable rotor has a rotatable drum and a drive element for rotating the drum, wherein a disc pack is arranged in the drum, which has a stack of separating discs and wherein the drum comprises an inlet and at least two different outlets, and one or more electrical loads arranged in the rotor, and at least one battery for supplying electrical power to the at least one load or the plurality of loads is further arranged on or in the rotor, wherein at least one actuator is provided as the at least one load, the at least one electrical load being arranged in the rotor being supplied with electrical energy from the battery arranged on or in the rotor both during an operating state in which the rotor is rotating and in a stationary state in which the rotor is motionless. Connections of the battery may be connected directly or via intermediate components to the respective load. The drive element may be a drive spindle or another element suitable for this purpose. The at least one load is an actuator. Further loads may be provided, in particular further actuators or other loads.

The battery, which can be rotated together with the rotor, can be used to easily provide electrical power on or in the rotor in order to supply the load(s) on or in the rotor with electrical power. In this context, the battery can also be used in the idle state - i.e. when the rotor is at a standstill - to continue supplying the load with energy.

Thus, buffered energy is also available when the drum is stationary due to the battery rotating with the rotor as it turns. This offers some advantages that have been surprisingly overlooked in previous developments for supplying loads in rotatable rotors of centrifuges. This is because one overlooked disadvantage of the known centrifuges mentioned at the outset is that only when the rotor is turning or rotating electrical power is available for the actuators or optionally other loads such as one or more sensors and/or data communication and/or data processing. When the drum is at rest, on the other hand, no electrical power is available to supply the actuators, sensors and data communication and data processing. This problem is solved in a simple way by the invention.

According to the invention, the loads can thus be supplied, for example, with a corresponding design of the rotors. Thus, the actuator or actuators can be operated or moved as loads even when the drum is stationary and/or data and/or signals from sensors and feedback signals from actuators can be transmitted when a corresponding transmitting and/or receiving unit is provided on the rotor. This can be advantageous for a variety of reasons, for example according to a variant to perform a temperature measurement in a cooled (chamber) drum for sensitive products, when a maximum

temperature of the drum must not be exceeded before it is loaded with product to be processed. Another example is a filling level measurement, which can also be useful for a stationary drum. Another advantage offered by a battery associated with the rotor and rotating with it is that it can be used directly or, optionally, in conjunction with other electrical components

CLAIMS

1. A centrifuge comprising a rotatable rotor and an assembly which is stationary during operation, wherein the rotatable rotor is rotatably mounted in or on the stationary assembly by means of one or more bearing devices, wherein the rotatable rotor comprises a rotatable drum and a drive element for rotating the drum, wherein a disc pack is arranged in the drum, which has a stack of separating discs and wherein the drum comprises an inlet and at least two different outlets, as well as one or more electrical loads arranged in the rotor, and at least one battery for supplying the at least one load or the plurality of loads with electrical power, said battery further arranged on or in the rotor, wherein at least one actuator is provided as the at least one load, the at least one electrical load being arranged in the rotor being supplied with electrical energy from the battery arranged on or in the rotor both during an operating state in which the rotor is rotating and in a stationary state in which the rotor is motionless

2. The centrifuge according to claim 1, characterized in that the battery or one of the batteries is designed as a rechargeable battery.

3. The centrifuge according to claim 1 or 2, characterized in that the battery or one of the batteries is designed as a non-rechargeable battery.

4. The centrifuge according to any of the preceding claims, characterized in that the load comprises a data memory in the rotor.

5. The centrifuge according to any of the preceding claims, characterized in that the load comprises one or more of the following devices: a sensor, an actuator and/or an initiator and/or a transmitting and/or receiving unit and/or a control unit in rotor.

6. The centrifuge according to any of the preceding claims, characterized in that it comprises an arrangement for generating electrical power, which is designed such that the electrical power is provided in the rotor, and in that a charging circuit is provided for charging the rechargeable battery.

7. The centrifuge according to any of the preceding claims, characterized in that the arrangement is designed to generate electrical power only during part of the revolutions of the rotor.

8. The centrifuge according to any of the preceding claims, characterized in that the

arrangement is designed to generate electrical power during the complete revolutions of the rotor.

9. The centrifuge according to any of the preceding claims, characterized in that the rotor as a load further comprises a data memory and/or a control device.

10. The centrifuge according to any of the preceding claims, characterized in that at least one sensor is further provided as the load.

11. The centrifuge according to any of the preceding claims, characterized in that the actuator is designed as a solenoid valve or an electrically actuatable control valve.

12. The centrifuge according to any of the preceding claims, characterized in that the actuator is designed as a solenoid valve or as an electrically actuatable control valve which is designed to open or close solids discharge openings of the drum and/or to change the cross-section of one or more solids discharge openings of the drum.

13. The centrifuge according to any of the preceding claims, characterized in that the drum has a vertical axis of rotation.

14. The centrifuge according to any of the preceding claims, characterized in that the drum is of single or double conical design on the inside and/or outside.

15. The centrifuge according to any of the preceding claims, characterized in that it is designed as a disc separator or as a solid drum screw centrifuge.

16. The centrifuge according to any of the preceding claims, characterized in that at least one transmitting and/or receiving unit for wireless transmission and/or reception of data is formed on or in the rotor.

17. The centrifuge according to claim 16, characterized in that the at least one transmitting and/or receiving unit for wireless transmission and/or reception of data comprises an antenna projecting from the rotor.

18. The Centrifuge according to claim 16 or 17, characterized in that a corresponding transmitting and/or receiving unit for wireless transmission and/or reception of data is formed on the stationary assembly.

19. The centrifuge according to claim 18, characterized in that the corresponding transmitting and/or receiving unit is connected to a control device for controlling the centrifuge.

20. The centrifuge according to any of the preceding claims, characterized in that it comprises solids discharge nozzles, and in that it comprises as a load an electrically controllable device for varying the nozzle cross-section of the solids discharge nozzles, which device is preferably designed as an electrically adjustable nozzle needle which is moved into the passage cross-section, whereby a remaining passage cross-section can be varied, or as an impact body which is pushed electrically adjustably in front of the nozzle opening, so that a gap with variable gap width is formed.

21. The centrifuge according to any of the preceding claims, characterized in that the drum has a hydraulically actuatable piston slide valve for opening or closing one or more solids discharge openings, wherein hydraulic fluid, in particular control water, is dischargeable from a control chamber on, in particular under, the piston slide valve by means of one or more electromechanical valves as load(s), which is/are arranged on or in the rotating drum, for actuating, in particular opening, the piston slide valve.