preferably also used as a drive device for rotating the drum, which is held in suspension during operation. This eliminates the need for mechanical components for rotating and supporting the drum, which favors the design as a separator with a separator insert for single use, since replacement of this separator insert is very easy to handle. These advantages are also exploited by the present invention.

Against this background, it is the object of the invention to design a generic separator insert, which can be used or designed as a one-way element, in such a way that the separation process can be better controlled.

The invention solves this problem by the subject matter of claim 1, i.e. by a separator insert for a separator which is designed for separating a flowable suspension in a centrifugal field into at least two flowable phases of different density and, which comprises the following:

a) a housing which is stationary in operation and which is designed in the manner of a container that is closed apart from a plurality of openings, wherein these openings are designed at least as follows: as a~~n~~ supply opening for the inflow of an inflowing suspension, formed on a first axial boundary wall of the housing, and as two openings for the discharge of respective flowable phases of different density ~~in~~ on an outer casing of the housing and a second axial boundary wall of the housing or as two opening for the discharge of respective flowable phases of different density on the first and the second axial boundary wall of the housing,

b) a rotor arranged within the housing and which can be rotated about an axis of rotation, and having a drum which has openings,

c) wherein a feed pipe, which does not rotate during operation, for feeding the suspension to be processed into the drum extends into one of the openings of the drum at a first of its two axial ends, ~~and~~ which pipe does not touch the drum, and wherein at least one outlet for a first of the flowable phases from the drum is in the form of a peeling disk which does not rotate during operation and which has a discharge pipe which is guided out of the drum at the opposite second axial end of the drum,

d) wherein a separating means is arranged in the drum, and

e) wherein at least two rotor units for magnetic bearing devices ~~are arranged~~ at two axially spaced-apart locations of the rotor with the drum, ~~with~~ by means of which the rotor with the drum can be held in a suspended state, can be rotatably mounted and can be made to rotate within the housing during operation.

This design makes it possible to control the separation process particularly well.

"In operation" means during a or the centrifugal processing when the rotor is turning.

It is preferred, because it is simple and practical, that the rotor units are located at both

CLAIMS

1. Separator insert for a separator designed for separating a flowable suspension (S) in a centrifugal field into at least two flowable phases (LP, HP) of different density, comprising:
   a) a housing (1) which is stationary in operation and is designed in the manner of a container which is closed except for a plurality of openings, wherein these openings are designed at least as follows: as a supply opening (8) for an inflowing suspension, formed on a first axial boundary wall (6) of the housing (1), and as two openings for the discharge (10, 34) of respective flowable phases of different density (LP, HP) on an outer casing of the housing (1) and a second axial boundary wall (7) of the housing, or as two openings for the discharge (24, 34) of respective flowable phases of different density (LP, HP) on the first and the second axial boundary wall (6, 7) of the housing (1),
   b) a rotor which is arranged within the housing (1) and is rotatable about an axis of rotation (D) and having a drum (3) which has openings,
   c) wherein a feed pipe (12), which does not rotate during operation, extends into one of the openings (12a) of the drum (3) at a first of its two axial ends for feeding the suspension to be processed into the drum (3), which pipe does not touch the drum (3), and wherein at least one outlet for a first of the flowable phases from the drum (3) is formed as a peeling disk (33) which does not rotate during operation and which has a discharge pipe (34) which is guided out of the drum (3) at the opposite second axial end of the drum (3),
   d) a separating means arranged on the drum (3),
   e) at least two rotor units (4b, 5b) for magnetic bearing devices (4, 5) at two axially spaced locations of the rotor (2) with the drum (3), by means of which the rotor (2) with the drum (3) can be held in a suspended state, can be rotatably mounted and can be made to rotate within the housing during operation.

2. Separator insert according to claim 1, characterized in that further openings of the drum (3) are designed as free radial outlets (21) for a second of the flowable phases from the drum (3) into the housing (1), from which it can be discharged.

3. Separator insert according to claim 2, characterized in that the free outlets (21) are associated with a trapping ring chamber (23) of the housing (1), which has a discharge (10) from the housing.

4. Separator insert according to claim 1, characterized in that it comprises a second peeling disk (22).

5. Separator insert according to claim 4, characterized in that the second peeling disk (22) comprises a peeling disk shaft (24) in the manner of a discharge pipe, which is formed coaxially with the feed pipe (12) and is guided coaxially therewith out of the drum and through the opening (12a) in the first axial boundary wall (6) of the housing (1).

6. Separator insert according to one of the preceding claims, characterized in that a regulating valve (36) is connected on the flow side downstream of the first peeling disk (33).

7. Separator insert according to one of the preceding claims 4 to 6, characterized in that a regulating valve (39) is connected on the flow side downstream of the second peeling disk (22).

8. Separator insert according to one of the preceding claims, characterized in that the separator insert (II) forms a pre-assembled, exchangeable unit for insertion into a frame (I) of the separator.

9. Separator insert according to claim 1 or 2, characterized in that the housing (1) and the drum (3) are made entirely or predominantly of plastic or a plastic composite material.

10. Separator insert according to one of the preceding claims, characterized in that the rotor units (4b, 5b) for the magnetic bearing devices (4, 5) are arranged at the two axial ends of the drum (3), and in that the feed pipe (12) and the discharge pipe (34) of the first peeling disk (33) each pass axially through one of the two rotor units (4b, 5b).

11. Separator insert according to one of the preceding claims, characterized in that one or both of the magnetic bearing devices (4, 5) can also be used for rotating and for adjusting the speed of the drum, and in that one or both of the magnetic bearing devices (4, 5) act in a radially and axially bearing manner and keep the rotor (2) suspended in the drum (1) at a distance therefrom during operation.

12. Separator insert according to one of the preceding claims, characterized in that a stack of separator disks (17) is inserted into the drum (3) as the separating means, and in that the first peeling disk (33) is arranged in the drum (3) below the distributor (14) and below the disk stack (17).

13. Separator insert according to one of the preceding claims, characterized in that all of its components are assembled into the pre-assembled unit, wherein all of the

product-contacting elements are made of plastic or other non-magnetic material.

14. Separator insert according to one of the preceding claims, characterized in that the feed pipe ~~(12)~~ and the discharges or discharge pipes project outwardly from the housing ~~(1)~~ in the manner of nozzles, wherein these nozzles are connected to the housing ~~(1)~~ in a sealed manner or are formed integrally therewith.

15. Separator insert according to one of the preceding claims, characterized in that the housing is designed hermetically closed except for the openings with the feed pipe ~~(12)~~ and the discharges or discharge pipes.

16. Separator comprising a frame ~~(I)~~ and a separator insert ~~(II)~~ exchangeably arranged on the frame according to one or more of the preceding claims.

17. Separator according to claim 16, characterized in that on it are formed spaced-apart holders ~~(I-4, I-5)~~ with stator units ~~(4a, 5a)~~ of the bearing devices ~~(4, 5)~~, between which the separator insert ~~(II)~~ can be inserted in a non-rotatable and exchangeable manner.

18. Separator according to claim 17, characterized in that the relative distance of the holders ~~(I-4 and I-5)~~ with the stator units ~~(4a, 5a)~~ of the bearing devices ~~(4, 5)~~ is adjustable in order to change the separator insert ~~(II)~~.

19. Separator according to claim 16, 17 or 18, characterized in that the housing ~~(1)~~ of the separator insert ~~(II)~~ can be attached non-rotatably to the frame ~~(I)~~ in a form-fitting and/or force-fitting manner.

20. Separator according to claim 19, characterized in that the housing ~~(1)~~ and at least one of the holders ~~(I-4, I-5)~~ have corresponding interlocking elements to hold the housing ~~(1)~~ non-rotatably on the holder.

21. Separator according to claim 20, characterized in that the housing ~~(1)~~ and only one holder ~~(I-5)~~ have corresponding interlocking elements ~~(41a, 41b)~~ to hold the housing ~~(1)~~ non-rotatably on the holder ~~(I-5)~~.

22. Separator according to claim 20, characterized in that the housing ~~(1)~~ and the holders ~~(I-4 and I-5)~~ have corresponding interlocking elements ~~(41a, 41b, 42)~~ to hold the housing ~~(1)~~ non-rotatably on the holders.

23. Separator according to one of the preceding claims, characterized in that it comprises a control device ~~(37)~~ connected to at least the one or more regulating valves ~~(36, 39)~~.