CLAIMS

1. An exchangeable separation insert (1) for a centrifugal separator (100), for separating a fluid mixture, comprising

a first (3) and a second (4) stationary portion, a rotor casing (2) enclosing a separation space (17) in which a stack (19) of separation discs is arranged to rotate around an axis (X) of rotation, said rotor casing (2) being axially arranged between said first (3) and said second (4) stationary portion;

a feed inlet (20) for supply of the fluid mixture to be separated to said separation space (17),

a light phase outlet (21) for discharge of a separated phase of a first density, and a heavy phase outlet (22) for discharge of a separated phase of a second density higher than said first density, wherein two of said feed inlet (20), light phase outlet and heavy phase outlet are arranged at a first axial end (5) of said rotor casing (2);

a first seal assembly sealing and connecting said two of said feed inlet, light phase outlet and heavy phase outlet to corresponding inlet conduit and/or outlet conduits in said first stationary portion (3),

wherein said first seal assembly (15) comprises a rotatable part (15b) attached to said rotor casing (2) and a stationary part (15a) attached to said stationary portion (3);

wherein said rotatable part (15b) and said stationary part (15a) are axially aligned and seal against each other;

wherein a first of said two of said feed inlet (20), light phase outlet and heavy phase outlet is arranged axially at the axis of rotation and a second of said two of said feed inlet (20), light phase outlet and heavy phase outlet is arranged axially outside of said first of said two of said feed inlet (20), light phase outlet and heavy phase outlet in such a manner that both said first and second of said two of said feed inlet (20), light phase outlet and heavy phase outlet are led through said rotatable part (15a) and said corresponding inlet conduit and/or outlet conduits are led through said stationary part (15b) of said first seal assembly (15).

2. An exchangeable separation insert (1) for a centrifugal separator (100) according to claim 1, wherein said light phase outlet (21) is arranged at said first axial end (5).

3. An exchangeable separation insert (1) for a centrifugal separator (100) according to one of claims 1 or 2, wherein said feed inlet (20) is arranged at said first axial end (5).

4. An exchangeable separation insert (1) for a centrifugal separator according to one of claims 1 or 2, wherein said stationary heavy phase outlet is arranged at said first axial end.

5. An exchangeable separation insert (1) for a centrifugal separator (100) according to any previous claim, wherein said rotatable part (15b) is a plate-formed seal element with a centre-hole for said feed inlet (20) and at least one outlet-hole for one of the light phase or heavy phase outlets (21).

6. An exchangeable separation insert (1) for a centrifugal separator (100) according to any previous claim, wherein said stationary part (15a) comprises two concentrically arranged ring-formed seal elements (15f, 15g).

7. An exchangeable separation insert (1) for a centrifugal separator (100) according to claim 6, wherein the inner of said ring-formed seal elements (15f) is arranged to engage with the rotatable part (15b) axially outside said centre-hole and axially inside said at least one outlet-hole.

8. An exchangeable separation insert (1) for a centrifugal separator (100) according to any of claims 6-7, wherein at least one fluid connection (15d, 15e) is formed within at least the inner of said two ring-formed seal elements (15f).

9. An exchangeable separation insert (1) for a centrifugal separator (100) according to claim 8, wherein at least the inner of said two ring-formed seal elements (15f) has a recess (28) in its surface facing said rotatable part (15b) of said seal assembly (15), which recess (28) is connected to said at least one fluid connection (15f).

10. An exchangeable separation insert (1) for a centrifugal separator (100) according to claim 9, wherein the at least one fluid connection (15d, 15e) comprises a seal fluid inlet (15d) for supplying fluid to the at least one of said recesses (28).

11. An exchangeable separation insert (1) for a centrifugal separator (100) according to claim 10, wherein the at least one fluid connection (15d, 15e) also comprises a seal fluid outlet (15e) for removing fluid from the at least one of said recesses (28).

12. An exchangeable separation insert (1) for a centrifugal separator (100) according to claim 11, wherein said seal fluid inlet (15d) and said seal fluid outlet (15e) both are attached to a container (36) forming a closed circulation system (37).

13. An exchangeable separation insert (1) for a centrifugal separator (100) according to claim 12, wherein a pump (38) is arranged in said seal fluid inlet (15d) to supply liquid to said first seal assembly (15).

14. An exchangeable separation insert (1) for a centrifugal separator (100) according to claim 11, wherein said container (36) is pre-pressurized to supply liquid to said first seal assembly (15).

15. A centrifugal separator (100) comprising a stationary frame (30) and a rotatable member (31) journaled in said stationary frame (30), comprising an exchangeable separation insert (1) according to one of the previous claims, which exchangeable separation insert is arranged in such manner that said rotor casing is fitted in said rotatable member (31), and said first and second stationary portions are fitted in said stationary frame (30).

16. A centrifugal separator according to claim 15, wherein said centrifugal separator (100) comprises a stationary frame (30) and a rotatable member (31) journaled in said stationary frame (30) and wherein the exchangeable separation insert (1) is configured to be inserted and secured within said rotatable member (31).