Claims

1. A mechanical seal arrangement comprising:
   - a mechanical seal (2) comprising a rotating slide ring (3) and a stationary slide ring (4) defining a sealing gap (5) therebetween,
   - wherein the rotating slide ring (3) comprises a first sliding surface (30) having a first information structure (6)
   - wherein the stationary slide ring (4) comprises a second sliding surface (40) having a second information structure (7),
   - wherein the first information structure (6) and the second information structure (7) at least partially overlap in an overlap area (16),
   - at least one sensor (8) for detecting sound and/or vibration, the sound and/or vibration being generated by the first information structure (6) when moving past the second information structure (7), and
   - an evaluation unit (10), which is arranged to compare the sound and/or the vibrations detected with set values and to output a comparison result, wherein based on a change of the detected sound signals and/or vibration signals, it is inferred about the condition of the mechanical seal and an exchange thereof is arranged.

2. The mechanical seal arrangement according to claim 1, wherein the first information structure (6) and the second information structure (7) comprise defined recesses in the sliding surfaces (30, 40).

3. The mechanical seal arrangement according to claim 2, wherein the recesses are rectangular recesses or the like.

4. The mechanical seal arrangement according to one of the preceding claims, wherein the first information structure (6) comprises a first substructure (61) and a second substructure (62, 63, 64), the first and second substructures being arranged on the sliding surface of the rotating slide ring (3) at different heights in the radial direction, and the second information structure (7) comprises a third substructure (71 72, 73) and a fourth substructure (74), the third and fourth substructures being arranged on the sliding surface of the stationary slide ring (4) at radially different heights, such that the first substructure and the third substructure have an overlap area (16) on a first radius R1 and the second substructure and the fourth substructure have an overlap area (16) on a second radius R2.

5. The mechanical seal arrangement according to one of the preceding claims, wherein the sensor (8) is arranged directly on one of the slide rings.

6. The mechanical seal arrangement according to claim 5, wherein the sensor (8) is arranged directly on a rear side (41) of the stationary slide ring (4) or on a slide ring carrier.

7. The mechanical seal arrangement according to one of the preceding claims, wherein at least one sliding surface (30, 40) comprises grooves (17) provided in the sliding surface, wherein the first information structures and/or the second information structures are arranged in the groove (17).

8. The mechanical seal arrangement according to one of the preceding claims, wherein, during operation, a characteristic signal or melody is generated by the first information structure (6) when moving past the second information structure (7).

9. The mechanical seal arrangement according to one of the preceding claims, wherein the evaluation unit (10) is arranged to determine an amplitude ratio of a plurality of amplitudes generated by an information structure (6, 7).

10. The mechanical seal arrangement according to one of the preceding claims, wherein the sensor (8) is a structure-borne sound sensor or an acceleration sensor.

11. The mechanical seal arrangement according to one of claims 1 to 9, wherein the sensor is a structure-borne sound sensor arranged on the housing or on the stationary component.

12. A method of monitoring a mechanical seal (2) having a rotating slide ring (3) and a stationary slide ring (4), at least one information structure (6, 7) being provided on each of the sliding surfaces (30, 40) of the slide rings, in which method

- during operation, sound signals and/or vibration signals are generated by the first information structure (6) when moving past the second information structure (7), and the generated sound signals and/or vibration signals are compared with sound signals and/or vibration signals stored in an evaluation unit (10), wherein based on a change of the detected sound signals and/or vibration signals it is inferred about the condition of the mechanical seal and an exchange thereof is arranged.

13. The method according to claim 12, wherein a message is output in the event of any predetermined deviation of the sound signals and/or the vibration signals detected from the sound signals and/or the vibration signals stored.

14. The method according to one of the claims 12 to 13, wherein the sound signals and/or the vibration signals are detected directly at a slide ring or a slide ring carrier, especially the stationary slide ring.