between the moving parts of the compressor. In particular, the "contact sections" are spherical shaped recesses, which are configured to cause a vortex flow of the oil retained therein. It is also noted that the aforementioned spherical recesses are shaped through grinding by machining. Furthermore, the teaching described in document US 7422423 is especially efficient when applied on hydrodynamic bearings where there is a rotational or alternating movement. However, embodiments are not produced that are especially dedicated to hydrodynamic bearings where there is orbital movement.

Based on the context explained above, it is evident that there is a need for the development of a solution capable of optimizing the hydrodynamic bearing of contact interfaces, where there is orbital movement particularly between elements that form part of fluid compressors especially based on spiral type mechanisms.

~~Objectives of the Invention~~

Accordingly, ~~it is one of the objectives~~embodiments of this invention seek to produce a hydrodynamic bearing applied on a contact interface of a fluid compressor based on a spiral type mechanism that may be capable of optimizing the hydrodynamic bearing of the contact interface between the lower face of the orbiting whorl and the upper face of the block.

~~It is also one of the objectives~~Embodiments of this invention also seek to disclose a hydrodynamic bearing applied on a contact interface of a fluid compressor based on a spiral type mechanism that may be capable of producing the effect known as an equivalent "Rayleigh step", for the conjoined effect of the partially texturized micro-cavities.

~~It is also one of the objectives~~Embodiments of this invention also seek to provide that the hydrodynamic bearing applied on a contact interface of a fluid compressor based on the disclosed spiral type mechanism ~~shall also~~that may be capable of shaping deposits for the abrasive particles produced from the wear of the internal components of the compressor during its entire life, removing them from the contact between the involved surfaces, thereby promoting less associated wear.

Summary of the Invention

~~These and other objectives of the disclosed invention are totally obtained by~~There is disclosed means of the hydrodynamic bearing applied on a contact interface of a fluid compressor based on a spiral type mechanism.

According to an aspect of the present invention, there is provided hydrodynamic bearing applied on a contact interface of a fluid compressor based on a spiral type mechanism, the compressor comprising of at least one hermetic housing, at least one electric motor, at least one block, at least a spiral type mechanism comprised by at least one orbiting whorl and at least one non-orbiting whorl; the hydrodynamic bearing is located in the contact interface between the lower face of the orbiting whorl and the upper face of the block, and wherein it comprises: at least two regions (2) spaced apart between regions (3); the regions (2) have surfaces comprised of a plurality of micro-cavities; the regions (3) have

smooth surfaces; each micro-cavity has a depth between 1 µm to 30 µm; each micro-cavity has a surface area between 5 µm to 100 µm; each micro-cavity has a border radius between 0.01 µm to 30 µm; and the micro-cavities are spaced apart by a distance between 1 µm to 100 µm.

According to ~~the principles and objectives~~embodiments of this invention, the compressor comprises of at least one hermetic housing, at least one electric motor, at least one block, at least a spiral type mechanism comprising of at least one orbiting whorl and at least one non-orbiting whorl.

Also according to ~~the principles and objectives~~embodiments of this invention, the hydrodynamic bearing, which is located in the contact interface between the lower face of the orbiting whorl and the upper face of the block, comprises of at least two regions having surfaces

CLAIMS

1. Hydrodynamic bearing applied on a contact interface of a fluid compressor based on a spiral type mechanism, the compressor comprising of at least one hermetic housing, at least one electric motor, at least one block ~~(1)~~, at least a spiral type mechanism comprised by at least one orbiting whorl and at least one non-orbiting whorl; the hydrodynamic bearing is located in the contact interface between the lower face of the orbiting whorl and the upper face ~~(11)~~ of the block ~~(1)~~, and ~~is CHARACTERIZED by the fact that~~ wherein it comprises:

at least two regions (2) spaced apart between regions (3);

the regions (2) have surfaces comprised of a plurality of micro-cavities ~~(21)~~;

the regions (3) have substantially smooth surfaces;

each micro-cavity ~~(21)~~ has a depth between 1 μm to 30 μm;

each micro-cavity ~~(21)~~ has a surface area between 5 μm to 100 μm;

each micro-cavity ~~(21)~~ has a border radius between 0.01 μm to 30 μm; and

the micro-cavities ~~(21)~~ are spaced apart by a distance between 1 μm to 100 μm.

2. Hydrodynamic bearing, according to claim 1, ~~CHARACTERIZED by the fact that~~wherein each micro-cavity ~~(21)~~ comprises a surface area that has a circular profile.

3. Hydrodynamic bearing, according to claim 1, ~~CHARACTERIZED by the fact that~~ wherein each micro-cavity ~~(21)~~ comprises a surface area that has an elliptical profile.

4. Hydrodynamic bearing, according to claim 1, ~~CHARACTERIZED by the fact that~~ wherein each micro-cavity ~~(21)~~ comprises a surface area that has a rectangular profile.

5. Hydrodynamic bearing, according to claim 4, ~~CHARACTERIZED by the fact that~~ wherein each micro-cavity ~~(21)~~ with a surface area that has a rectangular profile comprises micro-channels.

6. Hydrodynamic bearing, according to claim 1, ~~CHARACTERIZED by the fact that~~ wherein the regions (2) and the regions (3) are defined on the lower face of the orbiting whorl.

7. Hydrodynamic bearing, according to claim 1, ~~CHARACTERIZED by the fact that~~ wherein the regions (2) and the regions (3) are defined on the upper face ~~(11)~~ of the block ~~(1)~~.

8. Hydrodynamic bearing, according to claim 1, ~~CHARACTERIZED by the fact that~~ wherein the regions (2) and the regions (3) are defined simultaneously on the lower face of the orbiting whorl and the upper face ~~(11)~~ of the block ~~(1)~~.

9. Hydrodynamic bearing, according to claim 1, ~~CHARACTERIZED by the fact that~~ wherein the sum of the regions (2) corresponds from 30% to 80% of the area where they are located.

10. Hydrodynamic bearing, according to claim 1, ~~CHARACTERIZED by the fact that~~ wherein at least one radial channel ~~(31)~~ is located in at least one of the regions (3).

11. Hydrodynamic bearing, according to claim 1, ~~CHARACTERIZED by the fact that~~ wherein the micro-cavities ~~(21)~~ comprise of deposits of abrasive particles.