caused by the deformation of oriented rod.

According to figure 1 , it is possible to note that the connecting rod, when deformed interferes (even momentarily) in alignment between piston and cylinder. This misalignment (where at least one end of the piston is forced against the inner face of the cylinder) is very detrimental to the life time of the compressor, as the "drag" between the piston and the cylinder causes thinning of the material and changes (over time) the hermetic sealing of the piston-cylinder assembly, thus reducing the efficiency of the compressor.

Based on all the context explained above, it remains obviously need to develop a solution that can alleviate or even eliminate, the negative aspects discussed above.

Objects of the Invention

Therefore, it is one of the objects of the present invention to provide a reciprocating compressor connecting rod, made of integral body (monoblock), able to compensate every deflection effort occurring during compressor operation.

It is also another object of the present invention to provide a reciprocating compressor connecting rod which, in addition to compensate every deflection effort which occurs during compressor operation, also prevents misalignment between the piston and the inner surface of the cylinder.

Thus, it is also an object of the present invention to provide a reciprocating compressor connecting rod able to boost the compressor capacity, allowing, for example, compressors with a medium-capacity constructivity aspects act as high-capacity compressors with similar capacities.

Summary of the Invention

These and other objects of the invention disclosed herein are fully achieved by the connecting rod for reciprocating compressor disclosed herein, which converts a circular movement of an eccentric shaft into reciprocating linear movement to a piston. The said connecting rod comprises a first connecting end and a second connecting end, both physically associated with a body.

The concerned connecting rod provides for means capable to compensate deflection efforts and ensure alignment of the piston inside the cylinder, such means comprising at least two regions liable to oriented resilient deformation. The above regions capable of oriented resilient deformation are formed in the body and are capable of oriented resilient deformation in opposite directions~~.~~, wherein said regions are diametrically opposite between each other asymmetrically disposed in relation to the longitudinal axis of the connecting rod.

Preferably, each of regions capable of resilient deflection is located at one of body distal ends. Specifically, each of regions capable of oriented resilient deflection is located between one of the distal ends of the body and ~~its said end~~ the corresponding opposite connection end.

According to the concepts of the present invention, the oriented resilient deformation regions comprises, each of them, a bend or relief area formed in the body.

CLAIMS

1. ~~The~~A connecting rod of a reciprocating compressor of the type which converts a circular motion from an eccentric axis ~~(EE)~~ into reciprocating linear movement to a piston ~~(P)~~, comprising a first connecting end ~~(3)~~ and a second connecting end ~~(4)~~, both physically associated by a body ~~(2)~~; wherein the rod ~~(1)~~ comprises:
- means able to compensate deflection efforts and ensure alignment of the piston ~~(P)~~ inside the cylinder ~~(C)~~;
- means able to compensate deflection efforts and ensure alignment ~~and~~ of the piston ~~(P)~~ inside the cylinder ~~(C)~~ comprising at least two regions ~~(5, 6)~~ capable of oriented resilient deformation;
- regions ~~(5, 6)~~ capable of oriented resilient deformation being shaped in the body ~~(2)~~ ~~and~~;
- regions ~~(5, 6)~~ being capable of oriented resilient deformation in opposite directions~~,~~ which is perpendicular to the longitudinal axis of the rod;

wherein said regions are diametrically opposed between each other and are asymmetrically disposed in relation to the longitudinal axis of the connecting rod.

2. ~~A reciprocating compressor~~ The connecting rod~~,~~ according to claim 1, wherein each regions ~~(5, 6)~~ capable of oriented resilient deformation is in a distal end of the body ~~(2)~~.

3. ~~A reciprocating compressor~~ The connecting rod~~,~~ according to claim 2, wherein each regions ~~(5, 6)~~ capable of guided resilient deformation is between one of distal ends of the body ~~(2)~~ and ~~its said~~ the corresponding opposite connection end ~~(3, 4)~~.

4. ~~A reciprocating compressor~~ The connecting rod~~,~~ according to claim 1 , wherein the regions ~~(5, 6)~~ capable of oriented resilient deformation comprise each one a curvature conformed in the body ~~(2)~~.

5. ~~A reciprocating compressor~~ The connecting rod~~,~~ according to claim 1 , wherein the regions ~~(5, 6)~~ capable of oriented resilient deformation, comprise each one a relief area formed in the body ~~(2)~~.

6. ~~A reciprocating compressor~~The connecting rod~~,~~ according to claim 4, wherein:
- at least one of the regions ~~(5, 6)~~ capable of resilient deformation has its apex oriented ~~vertically upwards~~ in one direction, and
- at least one of the other regions ~~(5, 6)~~ capable of resilient deformation has its apex oriented ~~vertically downwards~~ in the opposite direction.