WHAT IS CLAIMED IS:

1. A compressor, comprising:

a crankshaft; and

a connecting structure arranged on the crankshaft, the connecting structure comprises a first bearing, a second bearing and a piston,

wherein an avoidance part is arranged on the connecting structure and/or the crankshaft, the avoidance part is located at the part that the connecting structure is matched with the crankshaft, and the avoidance part is configured to be suitable for avoiding at least one of the connecting structure and the crankshaft,

wherein a gap is formed between the crankshaft and the connecting structure, and the gap corresponding to the avoidance part is enlarged to the direction far away from the middle part of the connecting structure along the axial direction of the crankshaft,

wherein

the sum of gaps at the two sides of the axis of the crankshaft is defined as a bilateral gap at the same axial height in the cross section of the compressor in the axial direction of the crankshaft;

the minimum value of the bilateral gap corresponding to the avoidance part is δ_0, the difference between the maximum value of the bilateral gap corresponding to the avoidance part and δ_0 is δ, the diameter of the crankshaft corresponding to the minimum part of the bilateral gap corresponding to the avoidance part is D, and the length of the avoidance part is h along the axial direction of the crankshaft,

wherein the product of δ/δ_0 and D/h is more than or equal to 0.2 and less than or equal to 5.

2. The compressor according to claim 1, wherein

the avoidance part comprises a plurality of avoidance sections, and the plurality of avoidance sections are sequentially connected with one another along the axial direction of the

crankshaft, wherein at least one of the avoidance sections satisfies the condition that the product of δ/δ_0 and D/h is more than or equal to 0.2 and less than or equal to 5.

3. The compressor according to claim 1, wherein

the product of δ/δ_0 and D/h is more than or equal to 0.5 and less than or equal to 2.5.

4. The compressor according to claim 1, wherein

the h is more than or equal to 2 mm and less than or equal to 20 mm.

5. The compressor according to any one of claims 1-4, wherein

the dimension of the gap corresponding to at least part of the avoidance part changes linearly along the axial direction of the crankshaft.

6. The compressor according to claim 5, wherein

a wall surface formed by the avoidance part comprises a conical surface.

7. The compressor according to any one of claims 1-4, wherein

in the compressor, an acute angle between a tangent line of the wall surface formed by at least part of the avoidance part and the direction perpendicular to the axis of the crankshaft is gradually reduced along the direction far away from the middle part of the connecting structure in the cross section in the axial direction of the crankshaft.

8. The compressor according to claim 7, wherein

the wall surface formed by the avoidance part comprises a curved surface.

9. The compressor according to any one of claims 1-4, wherein

the avoidance part is annular in the cross section perpendicular to the axis of the crankshaft.

10. The compressor according to any one of claims 1-4, wherein the crankshaft comprises:

a main body which comprises a first shaft part and a second shaft part that are coaxially arranged; and

an eccentric part connected with the main body, wherein the main body and the eccentric part are eccentrically arranged.

11. The compressor according to claim 10, wherein the connecting structure comprises:

the first bearing sleeved on the first shaft part;

the second bearing sleeved on the second shaft part; and

the piston sleeved on the eccentric part.

12. The compressor according to claim 11, wherein

based on the condition that the avoidance part is arranged on the crankshaft, and the avoidance part is arranged at the part that the first shaft part is close to the second shaft part, and/or the avoidance part is arranged at the part that the first shaft part is far away from the second shaft part, and/or the avoidance part is arranged at one end that the eccentric part is close to the first bearing, and/or the avoidance part is arranged at one end that the eccentric part is close to the second bearing, and/or the avoidance part is arranged at one end that the second shaft part is close to the eccentric part; and/or

based on the condition that the avoidance part is arranged on the connecting structure, the avoidance part is arranged at one end that the first bearing is close to the second bearing, and/or the avoidance part is arranged at one end that the first bearing is far away from the second bearing, and/or the avoidance part is arranged at one end that the piston is close to the first bearing, and/or the avoidance part is arranged at one end that the piston is close to the second bearing, and/or the avoidance part is arranged at one end that the second bearing is close to the first bearing.

13. The compressor according to claim 11, wherein the compressor also comprises:

a cylinder which comprises a cylinder chamber, wherein the piston is arranged in the cylinder chamber, the crankshaft is arranged in the cylinder chamber in a penetrating manner, and a sliding piece groove is formed in the cylinder;

a sliding piece arranged in the sliding piece groove and connected with the piston in a rolling manner; and

a rotor connected with the first shaft part.

14. The compressor according to any one of claims 1-4, wherein

the compressor is an inverter compressor; and/or

the compressor is filled with coolants, and the coolants are difluoromethane or propane.

15. A refrigeration device, comprising:

the compressor according to any one of claims 1-14.