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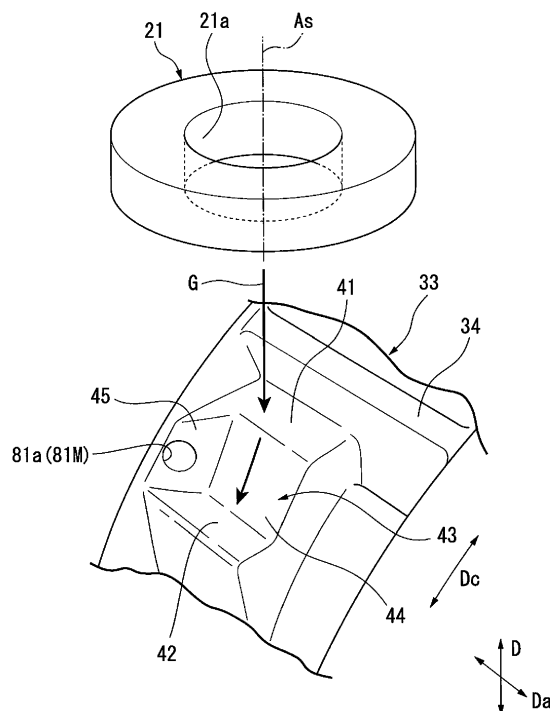
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(54) **OPEN TYPE COMPRESSOR**

(57) The present invention prevents a refrigerant including a lubricant from flowing without being introduced to an oil supply path. An open type compressor includes a compression mechanism, a drive shaft, a bearing which supports the drive shaft, a side wall in which a through-hole through which the drive shaft protrudes is formed, and a housing which includes a bearing holding portion (33) which protrudes in a tubular shape from the side wall to hold the bearing, a suction port (21) through which a refrigerant is introduced to an inside of the housing, and an oil supply path (81M) through which the lubricant is introduced from an outside of the bearing holding portion (33) in a radial direction to one side of the bearing in the axial direction. The bearing holding portion (33) includes a first surface (41) being provided at a position at which a refrigerant (G) introduced from the suction port (21) hits, a connection surface (43) which is connected to the first surface (41) and is oblique to the first surface (41) so as to extend away from the suction port (21) as going away from the first surface (41), a second surface (42) which is connected to the connection surface (43) and is oblique to the connection surface (43) so as to extend close to the suction port (21) as going away from the connection surface (43), and an opening portion (81a) of the oil supply path which is formed on the connection surface (43).

FIG. 5



Description

BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to an open type compressor.

Description of Related Art

[0002] An open type compressor includes a drive shaft which is rotationally driven by an electric motor or an engine, a crank pin (eccentric shaft) which is provided at a position offset from the drive shaft, a turning scroll which is rotatably supported by the crank pin, and a fixed scroll which faces the turning scroll in a metal housing (for example, refer to Patent Document 1). The turning scroll revolves (performs turning motion) about the axis of the drive shaft without rotating. Accordingly, a volume of a compression chamber formed between the fixed scroll and the turning scroll is changed, and a fluid introduced into the compression chamber is compressed.

[0003] In the open type compressor, a lip seal (oil seal having lip) is provided in a protrusion portion of the drive shaft, that is, a through-hole of the housing and prevents a refrigerant inside the housing from leaking to the outside. The lip seal is lubricated by a mist-like lubricant introduced along with the refrigerant. However, it is considered that oil supplied to the lip seal is insufficient at a low load operation where a circulation amount of the refrigerant decreases, or the like.

[0004] Patent Document 1 discloses an open type compressor in which an oil supply path extending toward a lip seal and a bearing member positioned around the lip seal is formed on an inner wall surface of a housing and a refrigerant and a lubricant flowing through the inside of the housing during an operation are supplied to the lip seal and the bearing member via the oil supply path.

[0005] [Patent Document 1] Japanese Unexamined Patent Application, First Publication No. 2016-156310

SUMMARY OF THE INVENTION

[0006] However, in the open type compressor of the related art, a mist-like lubricant introduced into the inside of the housing via a suction port is not easily introduced to the oil supply path, and there is a problem that lubrication with respect to the lip seal and the bearing member is insufficient.

[0007] In the open type compressor in which an oil supply path extending toward a lip seal and a bearing member positioned around the lip seal is formed on an inner wall surface of a housing, an object of the present invention is to provide an open type compressor capable of preventing a refrigerant including a lubricant from flowing without being introduced to the oil supply path.

[0008] According to a first aspect of the present invention, there is provided an open type compressor, including: a compression mechanism which compresses a refrigerant including a lubricant; a drive shaft which rotates around an axis to drive the compression mechanism; a bearing which rotatably supports the drive shaft; and a housing which includes a side wall in which a through-hole through which the drive shaft protrudes toward one side in an axial direction is formed, a bearing holding portion which protrudes in a tubular shape from the side wall toward the other side in the axial direction to hold the bearing, a suction port through which the refrigerant is introduced to an inside of the housing, and an oil supply path through which the lubricant is introduced from an outside of the bearing holding portion in a radial direction to one side of the bearing in the axial direction, in which the bearing holding portion includes a first surface which is a surface which is provided at a position at which the refrigerant introduced from the suction port hits (collides) and intersects a flow direction of the refrigerant, a connection surface which is connected to the first surface and is oblique to the first surface so as to extend away from the suction port as going away from the first surface, a second surface which is connected to the connection surface and is oblique to the connection surface so as to extend close to the suction port as going away from the connection surface, and an opening portion of the oil supply path which is formed on the connection surface.

[0009] According to this configuration, after the refrigerant introduced from the suction port hits with the first surface, the refrigerant flows to the connection surface to reach the second surface. Therefore, the refrigerant easily stagnates in the vicinity of the connection surface on which an oil supply port is formed, and it is possible to prevent the refrigerant from flowing without being introduced to the oil supply path.

[0010] In the open type compressor, the suction port may be formed in a tubular shape, and a portion of an opening portion of the suction port and a portion of the opening portion of the oil supply path may overlap each other when viewed in an extension direction of the suction port.

[0011] According to this configuration, the refrigerant introduced from the suction port can be easily introduced to the oil supply path.

[0012] In the open type compressor, the connection surface may include a first connection surface which is parallel to the axis and a second connection surface which is connected to one side of the first connection surface in the axial direction and faces the other side in the axial direction, and the opening portion of the oil supply path may be formed on the second connection surface.

[0013] According to this configuration, the refrigerant flowing along the first connection surface and the second surface hits with the second connection surface facing the other side in the axial direction. Therefore, more refrigerant can be introduced to the oil supply path.

[0014] According to the present invention, after the refrigerant introduced from the suction port hits with the first surface, the refrigerant flows to the connection surface to reach the second surface. Therefore, the refrigerant easily stagnates in the vicinity of the connection surface on which an oil supply port is formed, and it is possible to prevent the refrigerant from flowing without being introduced to the oil supply path.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015]

FIG. 1 is a sectional view showing a configuration of an open type compressor according to an embodiment of the present invention.

FIG. 2 is a perspective view of a front housing of the open type compressor according to the embodiment of the present invention.

FIG. 3 is a plan view when the open type compressor according to the embodiment of the present invention is viewed from above.

FIG. 4 is a sectional view taken along line A-A of FIG. 3.

FIG. 5 is a view for explaining effects of the open type compressor according to the embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0016] Hereinafter, an open type compressor 1 according to an embodiment of the present invention will be described in detail with reference to the drawings.

[0017] As shown in FIG. 1, the open type compressor 1 (open type scroll compressor) of the present embodiment includes a bottomed cylindrical housing 2, a front housing 3 (side wall) which closes an opening of the housing 2, a drive shaft 5 which is rotationally driven around an axis A, a scroll compression mechanism 6 which is driven by the drive shaft 5, a main bearing 7 (bearing) which rotatably supports the drive shaft 5, and a sub bearing 8 which is disposed on the front housing 3 side with respect to the main bearing 7.

[0018] The drive shaft 5, the scroll compression mechanism 6, the main bearing 7, and the sub bearing 8 are accommodated in the housing 2.

[0019] The housing 2 extends in an axial direction Da in the axis A. The housing 2 is formed in a bottomed cylindrical shape in which one end portion 2a is open and the other end portion 2b is closed. The housing 2 includes a suction port 21 through which a refrigerant (refrigerant gas) which is a fluid and a mist-like lubricant are introduced to the inside of the housing 2 from the outside and a discharge opening 22 through which the refrigerant compressed by the scroll compression mechanism 6 is discharged to the outside of the housing 2.

[0020] Moreover, hereinafter, a direction in which the axis A extends is referred to as the axial direction Da. In

the axial direction Da, a protrusion direction of the drive shaft 5 is referred to as one side Da1 (left side in FIG. 1) in the axial direction and a side opposite to the one side Da1 in the axial direction is referred to as the other side Da2 (right side in FIG. 1) in the axial direction. A radial direction based on the axis A is simply referred to as a radial direction. A direction around the axis about the axis A is referred to as a circumferential direction.

[0021] The front housing 3 is attached to the housing 2 to close an opening of the housing 2 on the one side Da1 (one end portion 2a side) in the axial direction. The front housing 3 configures a side wall of the housing 2. The front housing 3 is fixed to the housing 2, and thus, forms a sealed space inside the housing 2 along with the housing 2. The scroll compression mechanism 6 and the drive shaft 5 are accommodated in the sealed space. A through-hole 32 penetrating the front housing 3 in the axial direction Da is formed at the center portion of the front housing 3. The drive shaft 5 is inserted into the through-hole 32.

[0022] A bearing holding portion 33 which extends in a tubular shape toward the other side Da2 in the axial direction is formed in a portion of the front housing 3 inserted into the housing 2. The front housing 3 includes an annular front housing base portion 31 which is fitted to one end portion 2a of the housing 2 and the bearing holding portion 33 which protrudes from the front housing base portion 31 to the other side Da2 in the axial direction. The bearing holding portion 33 is a portion which holds the main bearing 7 from the outside in the radial direction.

[0023] In the front housing 3, a first oil supply path 81 (oil supply path) is formed, which penetrates the bearing holding portion 33 from the outside of the bearing holding portion 33 in the radial direction to the inside of the bearing holding portion 33 in the radial direction. An opening portion 81a on the outside of the first oil supply path 81 in the radial direction is open to an outer peripheral surface of the bearing holding portion 33. An end portion on the inside of the first oil supply path 81 in the radial direction is open to a portion between the main bearing 7 and the sub bearing 8 on an inner peripheral surface of the bearing holding portion 33. That is, the first oil supply path 81 connects the outside of the bearing holding portion 33 in the radial direction and the one side Da1 of the main bearing 7 in the axial direction on the inside of the bearing holding portion 33 in the radial direction to each other.

[0024] In the front housing 3, an internal space S3 and a second oil supply path 82 which communicates with an outer peripheral side of the sub bearing 8 inside the through-hole 32 are formed.

[0025] An opening portion 21a of the suction port 21 is formed in a tubular shape. A center axis As of the opening portion 21a of the suction port 21 extends in up and down directions Dv. Accordingly, the refrigerant introduced from the suction port 21 flows in the up and down directions Dv.

[0026] A plurality of first oil supply paths 81 and second

oil supply paths 82 are formed at intervals therebetween in a circumferential direction Dc. In the present embodiment, the four first oil supply paths 81 and the four second oil supply paths 82 are provided at intervals of 90° in the circumferential direction Dc. The first oil supply paths 81 and the second oil supply paths 82 are formed such that a center axis of each of the first oil supply paths 81 and a center axis of each of the second oil supply paths 82 coincide with each other.

[0027] One of the four first oil supply paths 81 is provided immediately below the suction port 21. This first oil supply path 81 is referred to as a main oil supply path 81M.

[0028] As shown in FIGS. 1 and 2, the front housing 3 includes a plurality of ribs 34 which protrude from the front housing base portion 31 toward the other side Da2 in the axial direction and a compression mechanism support portion 35 which is provided on end portions on the other side Da2 of the plurality of ribs 34 in the axial direction. A gap is formed between the ribs 34 and the inner peripheral surface of the housing 2.

[0029] The drive shaft 5 is rotationally driven around the axis A. The drive shaft 5 extends in the axial direction Da. The drive shaft 5 is rotatably supported by the front housing 3 via the main bearing 7 and the sub bearing 8. One end portion 5a which is the one side Da1 of the drive shaft 5 in the axial direction protrudes from the front housing 3 to the outside in a state where the drive shaft 5 is inserted into the through-hole 32. A lip seal 9 is provided between the drive shaft 5 and the through-hole 32 to secure sealability. A disk-shaped disk portion 5d is formed on an end portion on the other side Da2 (the other end portion 2b side of the housing 2) of the drive shaft 5 in the axial direction.

[0030] A crank pin 51 is provided at a position eccentric by a predetermined dimension in the radial direction on the other side Da2 of the disk portion 5d of the drive shaft 5 in the axial direction. The crank pin 51 protrudes from the end portion of the disk portion 5d of the drive shaft 5 toward the other side Da2 in the axial direction. The crank pin 51 is integrally formed with the end portion on the other side Da2 of the drive shaft 5 in the axial direction. If the drive shaft 5 rotates in the circumferential direction Dc, the crank pin 51 turns along a circular orbit having an eccentric dimension in the radial direction with respect to the axis A as a radius.

[0031] The main bearing 7 is fixed to the inside of the bearing holding portion 33 of the front housing 3. The disk portion 5d is fitted to the inside of the main bearing 7 and is rotatably supported by the main bearing 7.

[0032] The sub bearing 8 is disposed on the one side Da1 (the front housing 3 side) in the axial direction with respect to the main bearing 7. The sub bearing 8 is provided inside the through-hole 32 of the front housing 3. The drive shaft 5 is rotatably supported via the sub bearing 8 in an intermediate portion between the one end portion 5a and the disk portion 5d in the axial direction Da.

[0033] A pulley 11 is rotatably provided in the front

housing 3 via a bearing 10.

[0034] A belt which transmits a driving force from a drive source such as a motor or an engine is wound around the pulley 11. The pulley 11 and the one end portion 5a of the drive shaft 5 are connected to each other via an electromagnetic clutch 12. If power which drives the pulley 11 and is input from the outside is transmitted to the drive shaft 5 via the electromagnetic clutch 12, the drive shaft 5 rotates around the axis A.

[0035] The scroll compression mechanism 6 is a mechanism which is connected to the drive shaft 5 and compresses a refrigerant including a lubricant. The scroll compression mechanism 6 includes a fixed scroll 61 and a turning scroll 62.

[0036] The fixed scroll 61 integrally includes a disk-shaped fixed end plate 61a and a spiral fixed lap 61b uprightly standing on the one side Da1 in the axial direction with respect to the fixed end plate 61a.

[0037] The fixed end plate 61a is fixed to the other end portion 2b of the housing 2 via a bolt 63.

[0038] A discharge port 64 through which the refrigerant compressed by the scroll compression mechanism 6 is discharged is formed at the center portion of the fixed end plate 61a.

[0039] The fixed lap 61b is formed such that the height in the axial direction Da decreases in stages from the outer peripheral side toward the inner peripheral side. In the fixed end plate 61a, a fixed scroll groove bottom surface 61c, which is a surface on the side where the fixed lap 61b is formed, is formed to increase in stages from the outer peripheral side toward the inner peripheral side to the side where the fixed lap 61b uprightly stands. An O ring 69 is provided on the other side Da2 of the outer peripheral surface of the fixed end plate 61a in the axial direction. The O ring 69 is in close contact with the inner peripheral surface of the housing 2. Accordingly, a space between the inner peripheral surface of the housing 2 and the outer peripheral side of the fixed end plate 61a is divided into a discharge chamber S2 on the other side in the axial direction Da with respect to the O ring 69 and a suction chamber S1 on the one side in the axial direction Da on which the front housing 3 is disposed with respect to the O ring 69.

[0040] The suction chamber S1 communicates with the suction port 21 formed in the housing 2. A low-pressure refrigerant circulating in a refrigeration cycle is sucked from the suction port 21, and the refrigerant is sucked into the compression chamber 65 via the suction chamber S1.

[0041] The turning scroll 62 integrally includes a disk-shaped turning end plate 62a and a spiral turning lap 62b uprightly standing on the other side Da2 in the axial direction with respect to the turning end plate 62a.

[0042] The turning lap 62b extends toward the other side Da2 in the axial direction with respect to the turning end plate 62a. The turning lap 62b is formed such that the height in the axial direction Da decreases in stages from the outer peripheral side toward the inner peripheral

side. In addition, a turning scroll groove bottom surface 62c, which is a surface on the side where the turning lap 62b is provided, is formed to increase in stages from the outer peripheral side toward the inner peripheral side to the side where the turning lap 62b uprightly stands.

[0043] As shown in FIG. 1, a drive bearing accommodation portion 66 in which a drive bearing 67 is accommodated is formed on the one side Da1 of the turning end plate 62a in the axial direction. The drive bearing accommodation portion 66 is formed in a cylindrical shape protruding toward the one side Da1 in the axial direction.

[0044] The drive bearing 67 is fitted to an outer peripheral surface of a drive bush 68 fitted to the outer peripheral surface of the crank pin 51. Accordingly, the turning scroll 62 smoothly revolves around the fixed scroll 61 along with the crank pin 51 which turns along a circular orbit as the drive shaft 5 rotates around the axis A.

[0045] As shown in FIG. 1, a main balance weight 71 and a sub balance weight 72 which cancel out eccentric forces generated by turning of the crank pin 51 and the turning scroll 62 are provided in the drive shaft 5.

[0046] The main balance weight 71 is provided between the drive shaft 5 and the turning scroll 62 in order to eliminate unbalance generated by the turning scroll 62 which turns eccentrically with respect to the axis A. The main balance weight 71 is disposed to be adjacent to the other side Da2 in the axial direction with respect to the disk portion 5d.

[0047] The sub balance weight 72 is provided between the disk portion 5d of the drive shaft 5 and the sub bearing 8 in order to eliminate unbalance generated by the turning scroll 62 which turns eccentrically with respect to the axis A. The sub balance weight 72 is disposed to be adjacent to the one side Da1 in the axial direction with respect to the disk portion 5d.

[0048] The fixed lap 61b of the fixed scroll 61 and the turning lap 62b of the turning scroll 62 are provided to engage with each other. A pair of compression chambers 65, which is divided by the fixed end plate 61a and the fixed lap 61b and the turning end plate 62a and turning lap 62b and is spirally continuous, is symmetrically formed with respect to a scroll center between the fixed scroll 61 and the turning scroll 62. Accordingly, when the compression chambers 65 move while reducing the volume from the outer peripheral side to the center side to compress the refrigerant, the refrigerant is compressed in both the circumferential direction Dc and the axial direction Da of the fixed lap 61b and the turning lap 62b. Therefore, the scroll compression mechanism 6 becomes a so-called three-dimensional compressible structure.

[0049] As shown in FIGS. 2, 3, and 4, in a surface the bearing holding portion 33 facing the outside in the radial direction, a first surface 41 which is a surface intersecting a flow direction of the refrigerant, a connection surface 43 which is connected to the first surface 41 and is oblique to the first surface 41 so as to extend away from the

suction port 21 as going away from the first surface 41, and a second surface 42 which is connected to the connection surface 43 and is oblique to the connection surface 43 so as to extend close to the suction port 21 as going away from the connection surface 43.

[0050] The first surface 41 and the second surface 42 are connected to each other via the connection surface 43. The first surface 41, the connection surface 43, and the second surface 42 form a stepped shape.

[0051] In addition, the opening portion 81a of the first oil supply path 81 is provided on the connection surface 43.

[0052] Preferably, the first surface is a surface parallel to a horizontal surface. Preferably, the first surface 41 and the second surface 42 are formed in parallel.

[0053] The connection surface 43 is connected to one side of the first surface 41 in the circumferential direction Dc and the second surface 42 is connected to one side of the connection surface 43 in the circumferential direction Dc. The second surface 42 is formed at a position further away from the suction port 21 than the first surface 41.

[0054] An obtuse angle is formed between the connection surface 43 and the first surface 41. Specifically, the angle formed between the connection surface 43 and the first surface 41 is approximately 120°.

[0055] The first surface 41 is provided at a position at which the refrigerant introduced from the suction port 21 hits. Preferably, the first surface 41 is orthogonal to the flow direction of the refrigerant. Specifically, the first surface 41 may be inclined to a horizontal surface by approximately $\pm 10^\circ$.

[0056] The connection surface 43 includes a first connection surface 44 which is parallel to the axis A and a second connection surface 45 which is a surface which is connected to the one side Da1 of the first connection surface 44 in the axial direction and faces the other side Da2 in the axial direction. The second connection surface 45 has a rectangular shape, a first side 45a of the second connection surface 45 is connected to a side on the one side Da1 of the second surface 42 in the axial direction, and a second side 45b of the second connection surface 45 is connected to a side on the one side Da1 of the first connection surface 44 in the axial direction.

[0057] The opening portion 81a of the outside of the main oil supply path 81M in the radial direction is formed on the second connection surface 45. In other words, an inlet side of the main oil supply path 81M is open to the second connection surface 45.

[0058] The bearing holding portion 33 and the compression mechanism support portion 35 are separated from each other in the axial direction Da. The refrigerant introduced from the suction port 21 flows into the inside in the radial direction from a refrigerant passage hole 14 which is formed by the adjacent ribs 34, the bearing holding portion 33, and the compression mechanism support portion 35. In addition, the refrigerant passage hole 14 may be closed.

[0059] As shown in FIG. 3, when viewed in the extension direction (above) of the suction port 21, a portion of the opening portion 21a of the suction port 21 and a portion of the opening portion 81a of the main oil supply path 81M overlap each other. That is, when viewed from above, a portion of the opening portion 81a of the main oil supply path 81M can be viewed via the opening portion 21a of the suction port 21.

[0060] In the open type compressor 1 having the above-described configuration, the scroll compression mechanism 6 is driven by the drive shaft 5 and sucks the refrigerant flowing into the housing 2 from the suction port 21 formed on the housing 2 from the outer peripheral side into the compression chamber 65. The refrigerant sucked into the compression chamber 65 is compressed by moving the compression chamber 65 from the outer peripheral position to the center position while gradually reducing the volume. The compressed refrigerant is fed from the discharge port 64 formed on the fixed end plate 61a of the fixed scroll 61 to the discharge chamber S2 formed in a gap between the fixed end plate 61a of the fixed scroll 61 and the other end portion 2b of the housing 2. Thereafter, the refrigerant is discharged from the discharge opening 22 to a refrigeration cycle side outside the housing 2.

[0061] In addition, in the open type compressor 1 having the above-described configuration, the mist-like lubricant is introduced from the suction port 21 into the housing 2 along with the refrigerant. A portion of the mist-like lubricant introduced from the suction port 21 into the housing 2 is introduced into the internal space S3 of the bearing holding portion 33 via the first oil supply path 81. The lubricant is supplied to the main bearing 7 by a portion of the lubricant introduced into the internal space S3.

[0062] In addition, a portion of the mist-like lubricant introduced into the internal space S3 is supplied into the through-hole 32 through the second oil supply path 82. Accordingly, the lubricant is supplied to the sub bearing 8.

[0063] As shown in FIG. 5, a refrigerant G introduced from the suction port 21 hits with the first surface 41. The refrigerant G which hits with the first surface 41 flows to the connection surface 43 to reach the second surface 42. The refrigerant G staying on the connection surface 43 or the second surface 42 is introduced to the opening portion 81a of the main oil supply path 81M.

[0064] In addition, when viewed in the extension direction of the suction port 21, a portion of the opening portion 81a of the suction port 21 and a portion of the opening of the oil supply path overlap each other. Accordingly, a portion of the refrigerant introduced from the suction port 21 is directly introduced into the main oil supply path 81M.

[0065] According to the above-described embodiment, the refrigerant easily stagnates in the vicinity of the connection surface 43 on which the opening portion 81a of the main oil supply path 81M is formed and it is possible to prevent the refrigerant from flowing without being introduced to the main oil supply path 81M.

[0066] When viewed in the extension direction of the

suction port 21, a portion of the opening portion 21a of the suction port 21 and a portion of the opening portion 81a of the main oil supply path 81M overlap each other. Accordingly, the refrigerant introduced from the suction port 21 can be easily introduced into the main oil supply path 81M.

[0067] An obtuse angle is formed between the connection surface 43 and the first surface 41, and thus, when the refrigerant which hits with the first surface 41 flows to the connection surface 43 side, it is possible to prevent the refrigerant from being separated from the connection surface 43. Therefore, more refrigerant can be introduced to the second surface 42 or the main oil supply path 81M.

[0068] The connection surface 43 includes the first connection surface 44 parallel to the axis A and the second connection surface 45 which faces the other side Da2 in the axial direction, and the opening portion 81a of the first oil supply path 81 is formed on the second connection surface 45. Accordingly, more refrigerant can be introduced to the main oil supply path 81M.

[0069] Hereinbefore, the embodiment of the present invention is described with reference to the drawings. However, the specific configurations are not limited to the embodiment and include design modifications or the like within a scope which does not depart from the gist of the present invention.

[0070] In the above-described embodiment, the second oil supply path 82 is provided on the extension line of the first oil supply path 81. However, the second oil supply path 82 may be omitted.

EXPLANATION OF REFERENCES

[0071]

- 1: open type compressor
- 2: housing
- 2a: one end portion
- 2b: other end portion
- 3: front housing (side wall)
- 5: drive shaft
- 5d: disk portion
- 6: scroll compression mechanism
- 7: main bearing (bearing)
- 8: sub bearing
- 9: lip seal
- 10: bearing
- 11: pulley
- 12: electromagnetic clutch
- 14: refrigerant passage hole
- 21: suction port
- 22: discharge opening
- 31: front housing base portion
- 32: through-hole
- 33: bearing holding portion
- 34: rib
- 35: compression mechanism support portion

41: first surface
 42: second surface
 43: connection surface
 44: first connection surface
 45: second connection surface 5
 51: crank pin
 61: fixed scroll
 62: turning scroll
 64: discharge port
 65: compression chamber 10
 67: drive bearing
 68: drive bush
 81: first oil supply path
 81M: main oil supply path (oil supply path)
 81a: opening portion 15
 82: second oil supply path
 A: axis
 Da: axial direction
 Da1: one side in axial direction
 Da2: other side in axial direction 20
 Dc: circumferential direction
 Dv: up and down directions
 S1: suction chamber
 S2: discharge chamber
 S3: internal space 25

Claims

1. An open type compressor, comprising: 30
 - a compression mechanism (6) which compresses a refrigerant including a lubricant;
 - a drive shaft (5) which rotates around an axis (A) to drive the compression mechanism (6); 35
 - a bearing (7) which rotatably supports the drive shaft (5); and
 - a housing (2) which includes a side wall (3) in which a through-hole (32) through which the drive shaft (5) protrudes toward one side in an axial direction (Da1) is formed, a bearing holding portion (33) which protrudes in a tubular shape from the side wall (3) toward the other side in the axial direction (Da2) to hold the bearing (7), 40
 - a suction port (21) through which the refrigerant is introduced to an inside of the housing (2), and 45
 - an oil supply path (81M) through which the lubricant is introduced from an outside of the bearing holding portion (33) in a radial direction to one side of the bearing (7) in the axial direction (Da), 50
 - wherein the bearing holding portion (33) includes a first surface (41) which is a surface being provided at a position at which the refrigerant introduced from the suction port (21) hits and intersecting a flow direction of the refrigerant, a connection surface (43) which is connected to the first surface (41) and is oblique to the first

surface (41) so as to extend away from the suction port (21) as going away from the first surface (41), a second surface (42) which is connected to the connection surface (43) and is oblique to the connection surface (43) so as to extend close to the suction port (21) as going away from the connection surface (43), and an opening portion (81a) of the oil supply path (81M) which is formed on the connection surface (43).

2. The open type compressor according to claim 1,

wherein the suction port (21) is formed in a tubular shape, and a portion of an opening portion of the suction port (21) and a portion of the opening portion of the oil supply path (81M) overlap each other when viewed in an extension direction of the suction port (21).

3. The open type compressor according to claim 1 or 2,

wherein the connection surface (43) includes a first connection surface (44) which is parallel to the axis (A) and a second connection surface (45) which is connected to one side of the first connection surface (44) in the axial direction (Da) and faces the other side in the axial direction (Da), and the opening portion (81a) of the oil supply path (81M) is formed on the second connection surface (45).

FIG. 1

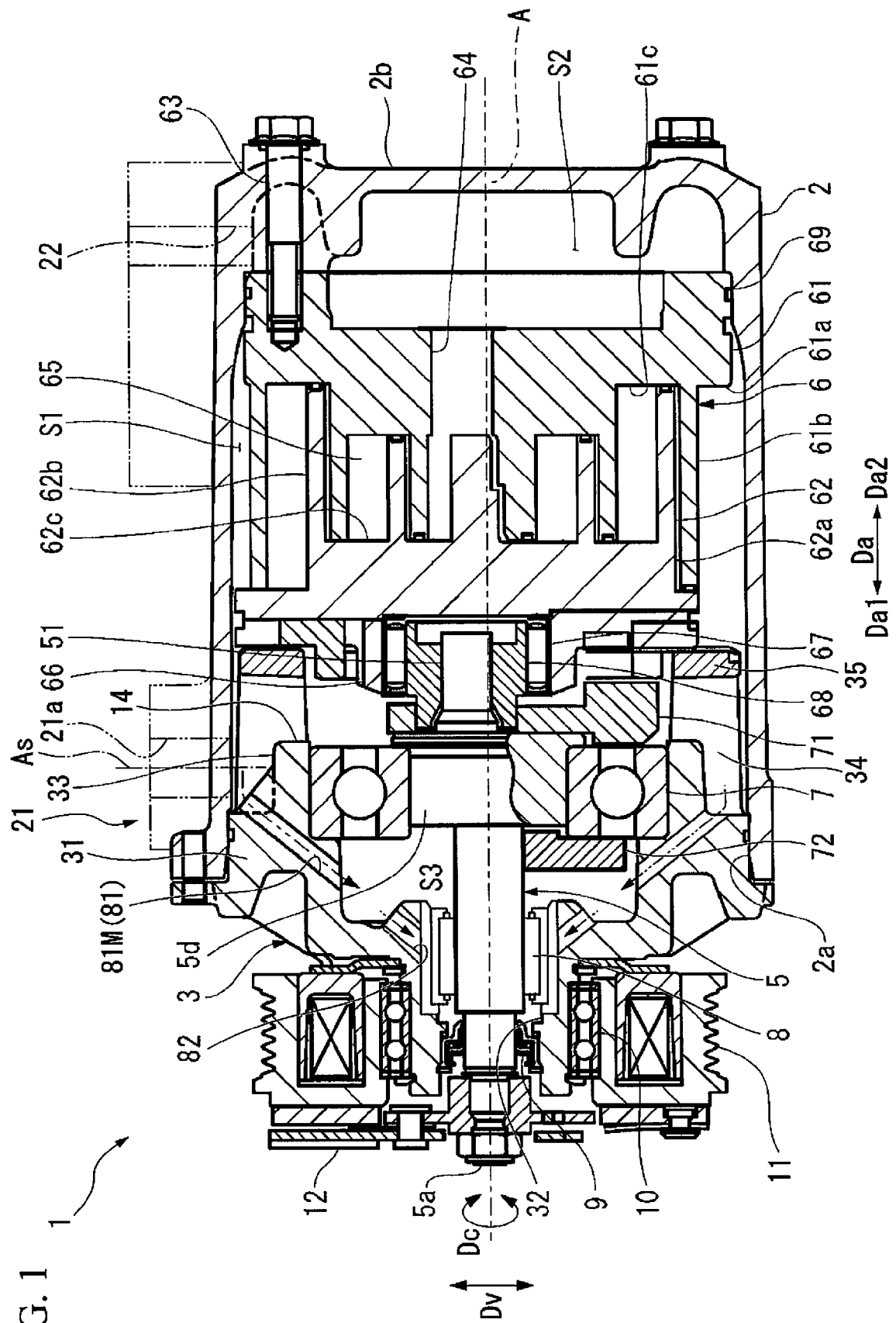


FIG. 2

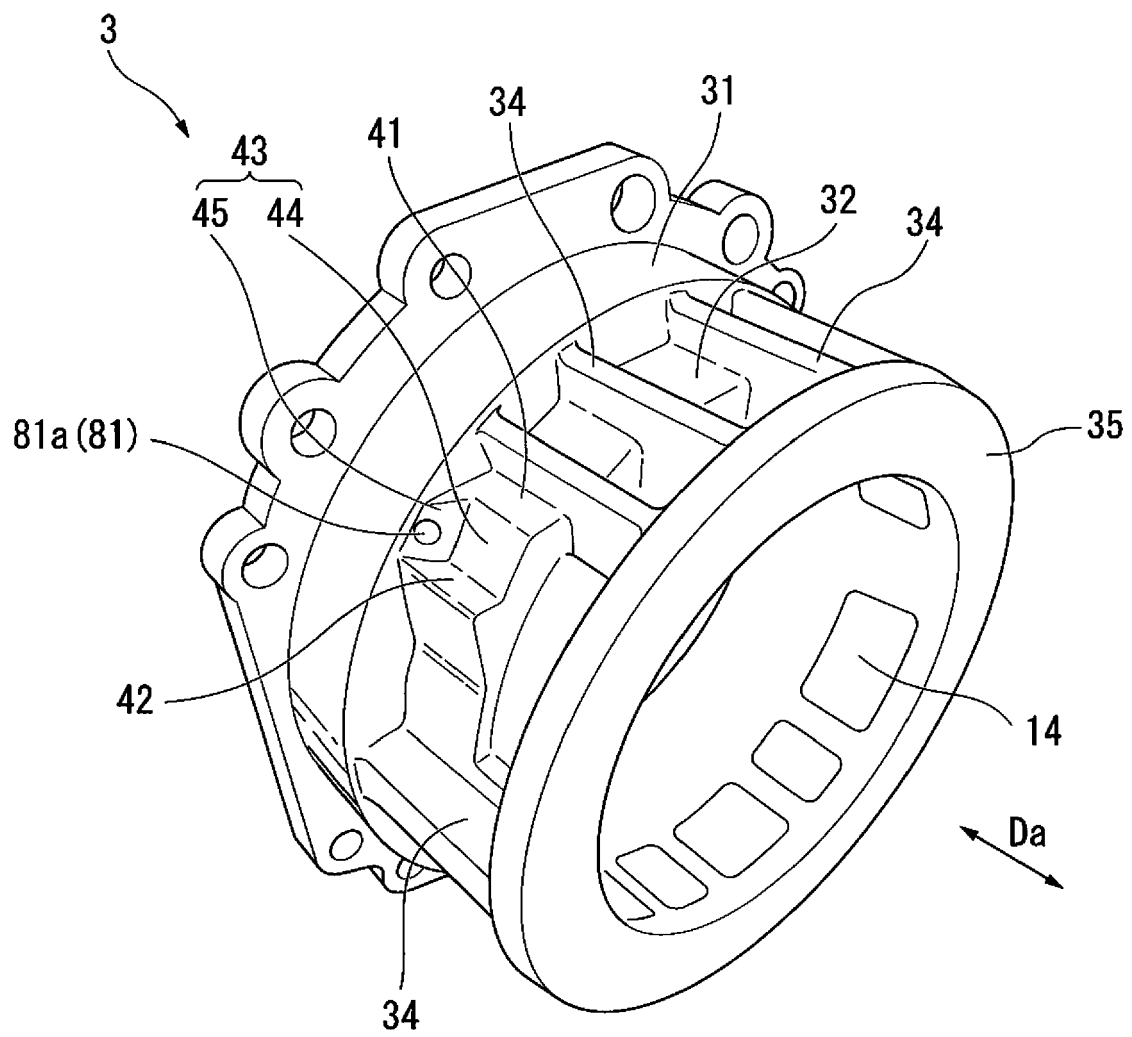


FIG. 3

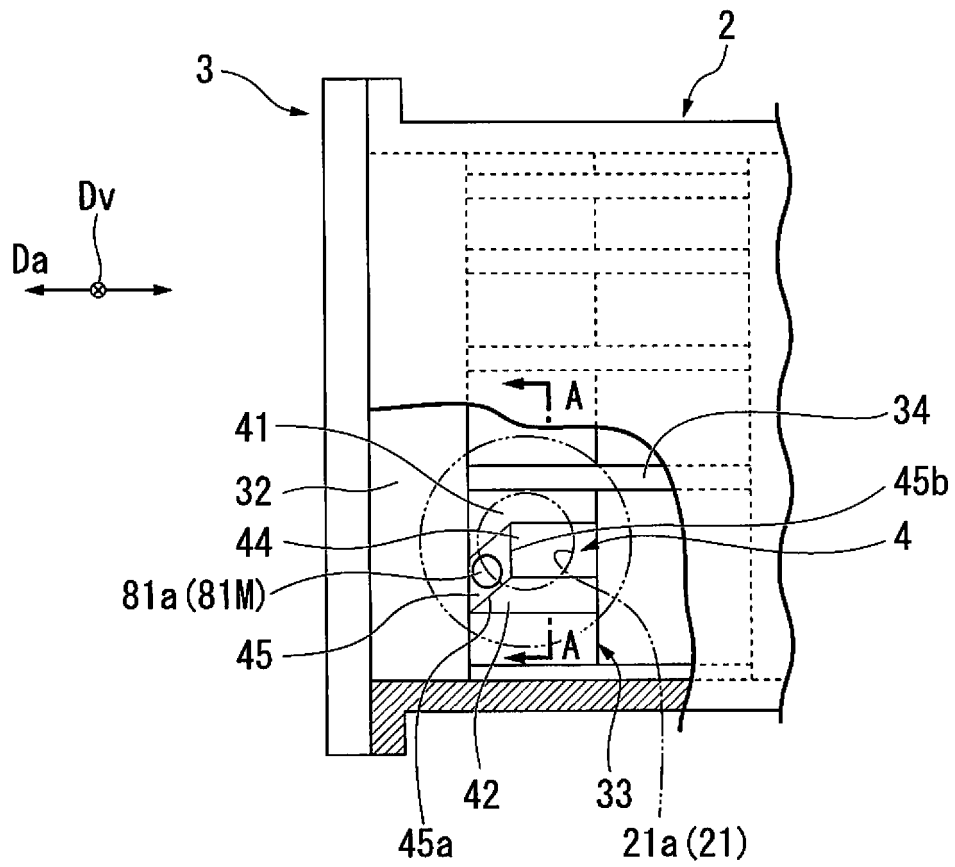


FIG. 4

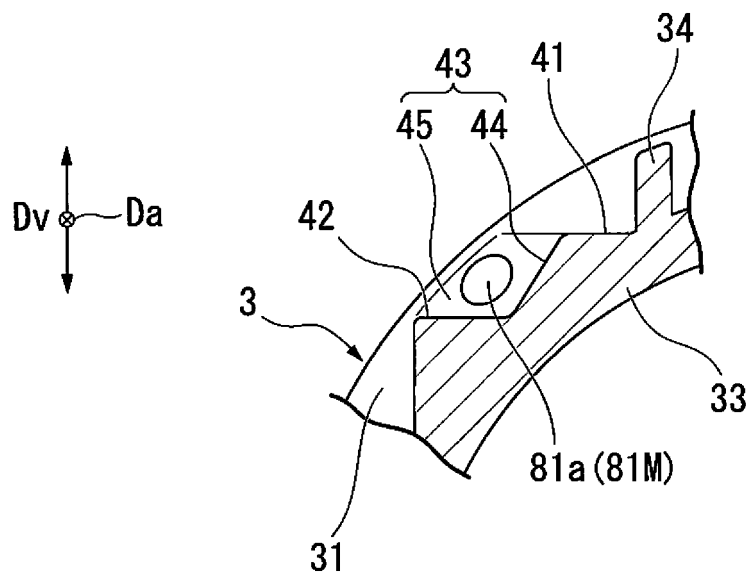
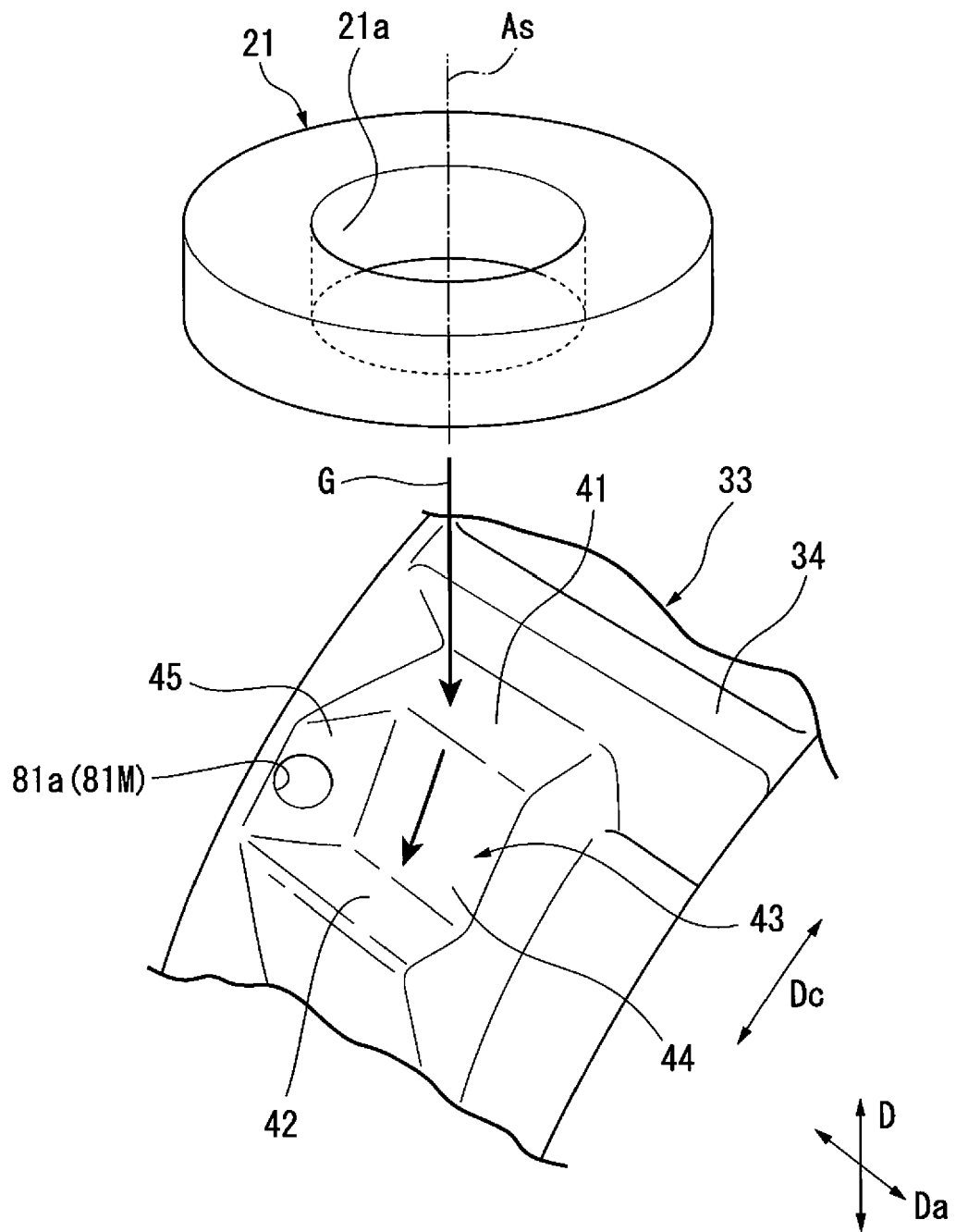


FIG. 5





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