CLAIMS

1. A flow restrictor (1) for use in bearing formationbetween a piston (2) and acylinder (3) of a gas compressor (4), gas compressor (4) comprising:

- aprotective pad (5) that externally surroundsthe cylinder (3);
- aninner cavity (6) disposed between the protective pad (5) and the cylinder (3), aninner cavity (6) being fluidly fed by a discharge flow from a compression movement exerted by the piston (2) within the cylinder (3);
- abearing formation gap (7) that separates an outer wallof the piston (2) and aninner wallof the cylinder (3); and
- aflow restrictor (1) provided withahousing (12) thatfluidly associatesinner cavity (6) to bearing formation gap (7),

flow restrictor (1) being characterized in that it comprises one limiting tube (8) of metalpositionatedwithinthe housing (12)ensuring the sealing between the outer wall of said limiting tube (8) and the inner wall of housing (12), the limiting tube (8) being provided withat leastone restraining portionwith a cross section to limit the gas flowthat flows from the inner cavity (6) to the bearing formation gap (7).

2. The flow restrictorof claim 1 characterized in thatthe restraining portionis positioned within thehousing (12).

3. The flow restrictorof claim 1 or 2 characterized in thatthe cross section of the restraining portionis circular, the circular cross section having an inner diameterbetween 30 and 200 um.

4. The flow restrictorof any preceding claims, characterized in thatthe limiting tube (8) is cylindrical.

5. The flow restrictorof any preceding claimscharacterized in that thelimiting tube (8) has a I-shaped profile.

6. The flow restrictorof any of claims 1 to 4 characterized in thatthe limiting tube (8) has a L-shaped profile.

7. The flow restrictorof any of claims 1 to 4 characterized in thatthe limiting tube (8) extends radially from the housing (12) and is tangent to an outer wallof the cylinder (3).

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8. The flow restrictorof any of claims 1 to 3 characterized in thatthe limiting tube (8) comprises one end portion (23) configured in a conical shape, the end portion (23) being insertible in the housing (12).

9. The flow restrictorof any preceding claims characterized in thatthe limiting tube (8) is positionedwith the housing (12) by means of interference fit.

10. The flow restrictorof any preceding claimscharacterized in thatthe limiting tube (8) is fixed in the housing (12) by means of glue or soldering, the glue or soldering being capable of filling a space between the limiting tube (8) and the housing (12).

11. The flow restrictorof claim 1 characterized in thatthe limiting tube (8) is positionedwith the housing (12) by means of a connector (9) having a L-shaped profile, where a firstend of the connector (9) is associated with the housing (12), and, a secondend of the connector (9) is associated with the limiting tube (8).

12. The flow restrictorof any preceding claimscharacterized in that it comprises at leastone sealing ring (10) disposed within the housing (12), the sealing ring (10) radially surrounding at leasta portion of the limiting tube (8).

13. The flow restrictorof any preceding claims, characterized in thatit comprises a sealing bush (11) disposed within the housing(12), the sealing bush (11) longitudinally surrounding the limiting tube (8).

14. The flow restrictorof claim 13 characterized in thatthe sealing bush (11) is conical.

15. The flow restrictorof any preceding claimscharacterized in thatthe housing (12) is cylindrical.

16. The flow restrictorof any of claims 1 to 14 characterized in thatthe housing (12) is conical.

17. The flow restrictorof any of claims 1 to 14 characterized in thatthe housing (12) has a chamfered end facing the inner cavity.

18. A flow restrictorfor use in aerostatic bearing formationbetween a piston (2) and acylinder (3) of a gas compressor, the gas compres-

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sorcomprising:

- aprotective pad (5) that externally surrounds the cylinder (3);

- aninner cavity (6) disposed between the protective pad (5) and the cylinder (3), the inner cavity (6) being fluidly fed by a discharge flow from a compression movement exerted by the piston (2) within the cylinder (3);

- abearing formation gap (7) that separates an outer wallof the piston (2)and aninner wallof the cylinder (3); and

- aflow restrictor (1) provided witha housing (12) that fluidly associatesthe inner cavity (6) to the bearing formation gap (7),

the flow restrictor (1) being characterized in thatit comprises at leastone limiting tube (8) of metalpositionatedwithin the housing (12)ensuring the sealing between the outer wall of said limiting tube (8) and the inner wall of housing (12), the limiting tube (8) being provided witharestraining portionwith a cross section having a pre-established area, the limiting tube (8) having a pre-established length, where the relationship between the cross section areaof the restraining portionand the length of the limiting tube (8) is configured to limit the gas flowthat optimally flows from inner cavity (6) to the bearing formation gap (7).

19. A gas compressor (4) comprising:

- a cylinder (3);

- a piston (2) reciprocally moveable within the cylinder (3);

- aprotective pad (5) that externally surrounds the cylinder (3);

- aninner cavity (6) disposed between the protective pad (5) and the cylinder (3), the inner cavity (6) being fluidly fed by a discharge flow from a compression movement exerted by the piston (2) within the cylinder (3);

- abearing formation gap (7) separating an outer wallof the piston (2) and aninner wallof the cylinder (3); and

- aflow restrictor (1) provided witha housing (12) that fluidly associatestheinner cavity (6) to the bearing formation gap (7),

the gas compressor (4) being characterized in thatthe flow restrictor (1) comprises one limiting tube (8) of metalpositionatedwithinhousing (12)ensuring the sealing between the outer wall of said limiting tube (8)and

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the inner wall of housing (12), the limiting tube (8) being provided withat leastone restraining portionwith a cross section to limit the gas flowflowing from the inner cavity (6) to the bearing formation gap (7).

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CLAIMS

1. A flow restrictor (1) of a fluid for aerostatic bearings of linear compressors (4), the flow restrictor (1) being characterized in that it comprises one limiting tube (8) of metal positionated and fixed within the housing (12) ensuring the sealing between the outer wall of said limiting tube (8) and the inner wall of said housing (12), the limiting tube (8) being provided with at least one restraining portion and having a pre-established length, wherein the ratio between the cross section area of the restraining portion and the length of limiting tube (8) is configured with a cross section to limit the gas flow that flows from the inner cavity (6) to the bearing formation gap (7).

2. The flow restrictor of claim 1 characterized in that the cross section of the restraining portion is circular, the circular cross section having an inner diameter between 30 and 200 um.

3. The flow restrictor of any preceding claims, characterized in that the limiting tube (8) is cylindrical.

4. The flow restrictor of any preceding claims characterized in that the limiting tube (8) has a I-shaped profile.

5. The flow restrictor of any of claims 1 to 3 characterized in that the limiting tube (8) has a L-shaped profile.

6. The flow restrictor of any of claims 1 to 3 characterized in that the limiting tube (8) extends radially from the housing (12) and is tangent to an outer wall of the cylinder (3).

7. The flow restrictor of any of claims 1 to 3 characterized in that the limiting tube (8) comprises one end portion (23) configured in a conical shape, the end portion (23) being insertible in the housing (12).

8. The flow restrictor of any preceding claims characterized in that the limiting tube (8) is positioned with the housing (12) by means of interference fit.

9. The flow restrictor of any preceding claims characterized in that the limiting tube (8) is fixed in the housing (12) by means of glue or soldering, the glue or soldering being capable of filling a space between the

limiting tube (8) and the housing (12).

10. The flow restrictor of claim 1 characterized in that the limiting tube (8) is positioned with the housing (12) by means of a connector (9) having a L-shaped profile, where a first end of the connector (9) is associated with the housing (12), and, a second end of the connector (9) is associated with the limiting tube (8).

11. The flow restrictor of any preceding claims characterized in that it comprises at least one sealing ring (10) disposed within the housing (12), the sealing ring (10) radially surrounding at least a portion of the limiting tube (8).

12. The flow restrictor of any preceding claims, characterized in that it comprises a sealing bush (11) disposed within the housing (12), the sealing bush (11) longitudinally surrounding the limiting tube (8).

13. The flow restrictor of claim 12 characterized in that the sealing bush (11) is conical.

14. The flow restrictor of any preceding claims characterized in that the housing (12) is cylindrical.

15. The flow restrictor of any of claims 1 to 13 characterized in that the housing (12) is conical.

16. The flow restrictor of any of claims 1 to 13 characterized in that the housing (12) has a chamfered end facing the inner cavity.

17. A gas compressor (4) characterized in that it comprises a flow restrictor as defined in claim 1.