CLAIMS

1. A device (410) for producing and distributing nitrogen, in particular for a liquid gas transport ship, comprising:
   - nitrogen generators (412) each comprising an air inlet (412a) and an air outlet (412b), at least one of these generators (412) comprising a compressor (426) comprising an air compression rotor; and
   - a nitrogen storage buffer tank (414),

   characterized in that it comprises at least one system (464) for variation of frequency or speed of the rotor of said at least one generator with a compressor, and in that it also comprises main means (416b) for distribution of nitrogen exiting from said at least one generator with a compressor, without passing via said buffer tank, for the supply of nitrogen to at least two distinct consumers (418, 420, 422).

2. The device (410) as claimed in the preceding claim, wherein said at least one compressor with a generator comprises, from upstream to downstream, from the inlet (412a) as far as the outlet (412b) for nitrogen, said compressor (426), a separator (428) of air from fluid(s), such as water and/or oil, a heater (430), and a filtration membrane (432) configured to separate the nitrogen from the remainder of the air.

3. The device (410) as claimed in one of the preceding claims, wherein at least certain of said inlets (412a) of said generators (412) are connected together and to a single air supply port, and/or at least certain of said outlets (412b) of said generators are connected together and to a single nitrogen outlet port.

4. The device (410) as claimed in the preceding claim, wherein said single nitrogen outlet port is connected, preferably via a valve (442), to an inlet (414a) of said buffer tank (114) and to said main nitrogen distribution means (416b).

5. The device (410) as claimed in one of the preceding claims, wherein it comprises secondary distribution means (416a) for distribution of nitrogen exiting from said buffer tank (414) for the supply of at least certain (418, 420, 422) of said consumers.

6. The device (410) as claimed in claim 5, wherein the main distribution means (416b) are connected to the secondary distribution means (416a) by a valve (462).

7. The device (410) as claimed in one of the preceding claims, wherein said consumers (418, 420, 422) comprise means (422) for supplying nitrogen to seals, in particular of compressors of said ship, means (418) for supply to insulation spaces, in particular of tanks of said ship, and means (420) for purging, in particular of supply lines of said ship.

8. The device (410) as claimed in the claim 7, wherein said main means (416b) for distribution of nitrogen supply directly at least said means (422) for supplying nitrogen to seals, and said means (418) for supply to insulation spaces.

9. The device (410) as claimed in one of the preceding claims, wherein said main means (416b) for distribution of nitrogen comprise at least one pressure and/or flow rate sensor (470, 472), this sensor being connected to a system (440) for control of said system (464) for variation of frequency or of speed.

10. The device (410) as claimed in one of the preceding claims, wherein said generators (412) are identical and oversized, such as each to be able to supply alone at least one of said consumers, the consumption of which in terms of flow rate is designed to be stable and continuous, when this generator is regulated to a load lower than 100% by means of said variation system.

11. A method for producing and distributing nitrogen by means of a device (410) as claimed in one of the preceding claims, comprising the steps of:

    a) production of nitrogen by said generators (412);

b) variation of the frequency or speed of the rotor of said at least one generator with a compressor (412); and

c) supply to at least certain (418, 420, 422) of said consumers, without passing via said buffer tank (414).

12. The method as claimed in claim 11, wherein the frequency or speed of the rotor of said at least one generator with a compressor is controlled such that the pressure or the flow rate is higher than a threshold value in said main means (416b) for distribution of nitrogen.

13. The method as claimed in the preceding claim, wherein the pressure threshold value in said main means (416b) for distribution of nitrogen is 5 barg.

14. The method as claimed in one of claims 11 to 13, wherein said buffer tank (414) is supplied with nitrogen if, and only if, the pressure measured in said main distribution means (416b) is higher than said pressure threshold value, and if the pressure measured in said buffer tank (414) is lower than a lower limit value.

15. The method as claimed in one of claims 11 to 14 wherein:

- a single one of the generators is used to produce nitrogen, when the flow rate of nitrogen required by said consumers is less than the maximum flow rate of nitrogen which this generator can produce alone;
- at least two of the generators, or all the generators, are used to produce nitrogen, when the flow rate of nitrogen required by said consumers is greater than the maximum flow rate of nitrogen which each of these generators can produce, but this flow rate of nitrogen required is lower than the maximum cumulative flow rates of nitrogen which these generators can produce when they are operating simultaneously; and
- at least two of the generators, or all the generators, are used to produce nitrogen, when the flow rate of nitrogen required by said consumers is greater than the maximum cumulative flow rates of nitrogen which these generators can produce when they are operating simultaneously, with

the buffer tank being used to supply an additional flow rate of nitrogen which is sufficient to comply with the requirement from the consumers.

16.The method as claimed in claim 15, wherein a maximum flow rate of nitrogen is required by said consumers, and in particular by a single one of said consumers, in order to cool a liquid gas storage tank.

17. The method as claimed in claim 16, wherein the flow rate of nitrogen is required by said consumer(s) in order to cool the tank, without the tank previously having been subjected to inerting, with the tank being able to be brought to a temperature higher than -40°C thanks to its supply with nitrogen.

18. The method as claimed in claim 16, wherein the flow rate of nitrogen is required by said consumer(s) in order to cool the tank, after the tank has been subjected to inerting, with the tank being able to be brought to a temperature higher than -10°C or 0°C thanks to its supply with nitrogen.