CLAIMS

1. A breathing assistance apparatus for delivering a flow of gas, comprising:

an apparatus main housing with a recess for receipt of, or containing, a motor ~~and/or sensor~~ module, and

a gasflow passage from the recess and that is in fluid communication with an outlet port for a flow of gas,

wherein the recess is defined by at least one wall of the apparatus main housing that is substantially continuous, gas impermeable, and unbroken, other than the gasflow passage from the recess, ~~and~~ wherein an interior of the apparatus main housing comprises electrical and/or electronic components, and wherein the at least one wall of the recess is/are configured to pneumatically isolate the electrical and/or electronic components from gasflow through or from the motor module, wherein the apparatus comprises an inlet to deliver gases to the motor module in the recess, wherein the recess comprises a recess opening in an exterior wall of the apparatus main housing, wherein the recess opening is for receipt of a motor module, and wherein the recess extends into the apparatus main housing from the recess opening.

2. A breathing assistance apparatus according to claim 1, wherein the recess opening is ~~for receipt of a motor and/or sensor module and is~~ in a bottom of the apparatus main housing.

3. A breathing assistance apparatus according to claim 1, wherein the recess opening is ~~for receipt of a motor and/or sensor module and is~~ in a top of the apparatus main housing.

4. A breathing assistance apparatus according to any one of claims 1 to 3, comprising a motor ~~and/or sensor~~ module positioned in the recess.

5. A breathing assistance apparatus according to claim 4, wherein the motor ~~and/or sensor~~ module is a motor and sensor module~~comprises a base, a sensing layer, and a cover layer assembled together to form a sub-assembly housing~~.

6. A breathing assistance apparatus according to claim 5, wherein the motor module comprises a base, a sensing layer, and a cover layer assembled together to form a sub-assembly housing ~~has a shape that is complementary to a shape of the recess~~.

7. A breathing assistance apparatus according to claim ~~5 or~~ 6, wherein the sub-assembly housing has a shape that is complementary to a shape of the recess~~ motor and/or sensor module comprises a motor with an impeller, the motor arranged to deliver gas through the gasflow passage~~.

8. A breathing assistance apparatus according to claim 6 or 7, wherein the motor module comprises a motor with an impeller, the motor arranged to deliver gas through the gasflow passage~~ is positioned on the base of the sub-assembly~~.

9. A breathing assistance apparatus according to ~~any one of~~ claim~~s 5 to~~ 8, wherein the motor is positioned on the base of the sub-assembly~~base is configured to close the recess opening when the sub-assembly is positioned in the recess~~.

10. A breathing assistance apparatus according to any one of claims ~~5~~6 to 9, wherein the base is configured to close the recess opening when the sub-assembly is positioned in the recess~~motor and/or sensor module is maintained in position in the recess by fasteners, clips, or a quick release arrangement~~.

11. A breathing assistance apparatus according to any one of claims ~~5~~6 to 10, wherein the motor module is maintained in position in the recess by fasteners, clips, or a quick release arrangement~~sensing layer comprises a gasflow path with one or more sensors~~.

12. A breathing assistance apparatus according to any one of claims 6 to 11, wherein the sensing layer comprises a gasflow path with one or more sensors~~ is arranged to deliver gas through the gasflow passage~~.

13. A breathing assistance apparatus according to ~~any one of~~ claim~~s 4 to~~ 12, wherein the gasflow path is arranged to deliver gas through the gasflow passage~~motor and/or sensor module comprises a gasflow path that comprises a sinuous arrangement~~.

14. A breathing assistance apparatus according to any one of claims ~~1~~5 to 13, wherein the motor module comprises a gasflow path that comprises a sinuous arrangement~~an interior of the apparatus main housing comprises electrical and/or electronic components, and wherein the wall(s) of the recess is/are configured to pneumatically isolate the electrical and/or electronic components from gasflow through or from the motor and/or sensor module~~.

15. A breathing assistance apparatus according to any one of claims 1 to 14, wherein the apparatus main housing comprises an upper chassis and a lower chassis, and

wherein the interior of the apparatus main housing is defined between the upper chassis and the lower chassis.

16. A breathing assistance apparatus according to claim 15, wherein the recess opening is in a bottom of the apparatus main housing, wherein the exterior wall is ~~an outer~~a bottom wall of the lower chassis, and wherein said at least one wall that defines the recess is integrally formed with the ~~outer~~ bottom wall.

17. A breathing assistance apparatus according to claim 16, wherein said at least one wall comprises a peripheral wall and a ceiling.

18. A breathing assistance apparatus according to claim 17, comprising a gasflow passage tube that is integrally formed with the ceiling, wherein the gasflow passage is provided by the gasflow passage tube.

19. A breathing assistance apparatus according to claim 18, wherein the gasflow passage tube extends through an outer tube that is integrally formed with the upper chassis.

20. A breathing assistance apparatus according to claim 18 or 19, wherein the outlet port is provided in an elbow, and wherein the gasflow passage tube is in fluid communication with a gasflow inlet port of the elbow.

21. A breathing assistance apparatus according to any one of claims ~~14~~15 to 20, wherein the wall(s) of the recess is/are configured such that if there is any leaking of gas from the motor ~~and/or sensor~~ module or gasflow passage, the leaking gas will vent to atmosphere rather than ingressing into the interior of the apparatus main housing that comprises electrical and/or electronic components.

22. A breathing assistance apparatus according to any one of claims 1 to 21, wherein the motor ~~and/or sensor~~ module is removable from the recess.

23. A breathing assistance apparatus according to any one of claims 1 to 22, wherein gas that is or comprises oxygen flows through the gasflow passage and/or the outlet port.

24. A breathing assistance apparatus according to claim 23, wherein the gas is isolated from electrical and/or electronics components in the apparatus main housing.

25. A breathing assistance apparatus according to claim ~~7~~8, wherein pressure is lower upstream of the motor impeller and pressure is higher downstream of the motor impeller, and wherein the motor comprises an electrical connection that is positioned upstream of the motor impeller, in the lower pressure region.

26. A breathing assistance apparatus according to any one of claims ~~14~~15 to 21, wherein the electrical and/or electronic components comprise one or more printed circuit boards.

27. A breathing assistance apparatus according to claim 1, wherein the gasflow passage receives gas from the motor module, wherein the gasflow passage is provided by a gasflow passage tube, and wherein said at least one wall that defines the recess comprises a peripheral wall and a ceiling, wherein the gasflow passage tube is integrally formed with the ceiling, and wherein the peripheral wall, the ceiling, and the gasflow passage tube are formed as a single continuous unbroken integral part.