CLAIMS

1. A mask assembly for respiratory therapy, comprising:

a mask frame configured to be connected to a headgear;

a vent for exhausting gas flow, the vent comprising:

a) at least two vent holes spaced apart from each other;

b) a support rib or land configured to protrude from the vent;

a diffuser comprising diffuser material defining a diffusing area sufficient to cover the at least two vent holes and having a periphery;

wherein a region of the diffuser material is supported by the support rib or land; and

wherein the diffuser material rests on the support rib or land which serves to space at least part of the diffuser material from the vent, wherein this space forms an auxiliary vent passage between the vent and the diffuser material, which terminates in an auxiliary vent at the apex of the vent, the auxiliary vent passage being in fluid communication with both an interior of the mask assembly and the ambient environment; and wherein

the vent is recessed into the mask frame, so as to define a recessed region in which the diffuser is inserted, with an outer surface of the diffuser flush with an outer surface of the mask frame.

2. The mask assembly of claim 1 wherein the vent has a generally trapezoidal or truncated triangular shape, when viewed from the front of the vent, generally along the axis of the vent holes, having a wider base, and two inclined, opposed, sides which are inclined toward an apex or truncated apex distal from the base.

3. The mask assembly of claim 1 or 2, comprising an inlet aperture having a central axis, the mask assembly comprising a central plane, wherein the general direction or longitudinal axis of the auxiliary vent passage is orthogonal to the central axis of the inlet aperture, and aligned with the central plane; and aligned with a longitudinal axis of the vent, when the vent is oriented in normal use.

4. The mask assembly of any one of the preceding claims wherein the elongate land or rib is overmoulded to the vent so that it joins fibres of the diffuser and provides a spacer between the vent and the diffuser.

5. The mask assembly of any one of the preceding claims wherein the auxiliary vent comprises an outlet, the outlet being provided at or near the top of the vent.

6. The mask assembly of any one of the preceding claims wherein a direction of gases flow through the auxiliary vent passage is substantially aligned with a longitudinal axis/central plane of the vent, when the vent is oriented in normal use.

7. The mask assembly of any one of the preceding claims wherein the vent comprises one or more vent arrays, the or each array comprising a plurality of vent holes.

8. The mask assembly of claim 7 wherein the array of vent holes has a shape when viewed in a direction substantially along the axis of at least one vent hole, wherein the shape comprises a pair of sides which incline toward one another, and a top and a base; and wherein any one or more of the sides, top or base is substantially straight or includes a straight portion; and/or wherein any one or more of the sides, top or base is substantially arcuate or include an arcuate portion.

9. The mask assembly of claim 8 when dependent on claim 3, wherein the base of the vent hole array is arcuate and follows the curve of the inlet aperture.

10. The mask assembly of any of claims 7 to 9 comprising five to fifteen vent holes; and preferably 8 to 40 vent holes; wherein preferably the vent holes are arranged in a plurality of rows.

11. The mask assembly of any of the preceding claims, wherein the support rib or land is positioned between vent holes, preferably such that there is at least one vent hole above the support rib or land, and at least one vent hole below the support rib or land, when the mask assembly is viewed from the front.

12. The mask assembly of claim 3 wherein the vent holes are positioned above the inlet aperture when the mask assembly is viewed from the front.

13. The mask assembly of any one of the preceding claims wherein the diffuser material is attached to a diffuser frame, the diffuser frame being attached to the mask frame; wherein

preferably the diffuser material is permanently attached to the diffuser frame for example by overmoulding the diffuser frame to the diffuser material at the periphery.

14. The mask assembly of claim 13 wherein the diffuser frame substantially surrounds the periphery of the vent array, and is spaced from the support rib or land when the mask assembly is viewed from the front, wherein preferably the support rib or land is in between vent holes, the vent holes being positioned between the diffuser frame and the support rib or land.

15. The mask assembly of claim 12 wherein the diffuser frame comprises a resiliently deformable region which can be resiliently deformed to remove or release the diffuser from the vent;

wherein preferably the resiliently deformable region comprises a raised lip or tab in a discrete region of the diffuser frame;

wherein preferably the underside of the raised lip or tab is spaced from a surface of the vent;

wherein preferably the raised lip or tab is resiliently deformable such that the raised lip or tab can be elastically deformed towards or away from the auxiliary vent to remove or release the diffuser from the vent.

16. The mask assembly of claim 15 comprising a pair of raised lips or tabs, each raised lip or tab being positioned at a respective side margin of the diffuser frame.

17. The mask assembly of any one of the preceding claims comprising a full face mask configured to seal around both the mouth and nose of the patient.