CLAIMS

1. A connector configured for use downstream of a pressure relief valve, comprising:

a connector body having an inlet and an outlet defining a gas flow passage therebetween;

the connector body configured to removably connect to a downstream side of a second connector and having an overlap portion that is configured to overlap with a portion of the second connector when connected; and

an access passage extending through the overlap portion to the gas flow passage, the access passage configured to communicate with a gas bleed line in the pressure relief valve;

wherein the connector is configured for gas flow from the inlet to the outlet, the inlet being arranged to receive gas flow from a flow source and the outlet being arranged to provide gases to a patient.

2. The connector according to claim 1, wherein the access passage comprises an aperture to fluidly communicate with the gas flow passage to sense pressure in the gas flow passage.

3. The connector according to claim 1 or 2, wherein the gas flow passage is defined at least in part by a wall, and the access passage comprises an aperture in the wall of the connector.

4. The connector according to any one of the preceding claims, further comprising a cavity forming portion configured to form a cavity with the second connector wherein the cavity forming portion comprises one or more of: an arcuate surface; a recess in a surface of the connector body; a longitudinal dimension that is substantially parallel to a direction of gas flow in the gas flow passage; and/or the cavity forming portion is in fluid communication with the gas flow passage via the access passage.

5. The connector according to claim 4, further comprising a first sealing mechanism configured to form a first seal with a portion of the second connector, the first sealing mechanism optionally comprising one or more of: a face seal, an O-ring, a lip seal, a wiper seal, or a sealing surface; wherein the overlap portion optionally comprises the first sealing mechanism.

6. The connector according to claim 5, wherein the first sealing mechanism comprises an internal or external sealing surface for friction/interference fit with the second connector.

7. The connector according to claim 5 or 6, wherein the access passage and/or cavity forming portion is arranged upstream of the first sealing mechanism.

8. The connector according to any one of claims 5 to 7, further comprising a second sealing mechanism configured to form a second seal with a portion of the second connector, the second sealing mechanism optionally comprising one or more of: a face seal, an O-ring, a lip seal, a wiper seal, or a sealing surface;

wherein the overlap portion optionally comprises the second sealing mechanism.

9. The connector according to claim 8, wherein the cavity forming portion is between the first sealing mechanism and the second sealing mechanism.

10. The connector according to claim 8 or claim 9, wherein the access passage is positioned between the first sealing mechanism and the second sealing mechanism.

11. The connector according to any one of claims 8 to 10, wherein the second sealing mechanism comprises an internal or external sealing surface for friction/interference fit with the second connector.

12. The connector according to any one of the preceding claims, wherein a portion and/or surface of the connector is tapered, the connector optionally further comprising one or more alignment features.

13. The connector according to any one of claims 2 to 12, comprising one or more of the following:

the aperture is arranged substantially parallel or substantially perpendicular to a direction of gas flow in the gas flow passage;

the aperture is radially arranged about the gas flow passage;

the connector further comprises a stepped portion and the aperture is arranged on the stepped portion;

the aperture is in fluid communication with the gas flow passage via another aperture, the apertures in fluid communication with each other via a channel.

14. The connector according to any one of claims 6 to 13, further comprising a flow restriction, the flow restriction being optionally provided at an inlet end of the connector and optionally arranged in a recess; or the flow restriction being optionally provided by a constriction spaced away from an inlet end of the connector, for example a constriction such as a venturi.

15. The connector according to any one of claims 1 to 14, wherein the connector body tapers towards an inlet end, from a larger diameter to a smaller diameter at the inlet end.

16. The connector according to any one of the preceding claims, further comprising a stop such as a collar, a surface of the collar being optionally configured to form a face seal with a surface of the second connector.

17. The connector according to any one of the preceding claims, further comprising a radial clearance near the terminal end of the connector.

18. The connector according to any one of the preceding claims, wherein an outer dimension of an inlet end of the connector is smaller than an outer dimension of an outlet end of the connector.

19. A connection assembly configured for use downstream of a pressure relief valve, the connection assembly comprising:

a first connector comprising a connector body having an inlet and an outlet defining a first connector gas flow passage therebetween, and an overlap portion, wherein the first connector is configured for gas flow from the inlet to the outlet, the inlet being arranged to receive gas flow from a flow source and the outlet being arranged to provide gases to a patient;

a second connector comprising a connector body having an inlet and an outlet defining a second connector gas flow passage therebetween, and an overlap portion;

wherein the first connector and the second connector are configured to be removably connected such that the overlap portion of the first connector and the overlap portion of the second connector are contiguous to form an overlapping connection and provide an assembly gas flow passage; and

an access passage extending through the overlap connection to the assembly gas flow passage, the access passage configured to communicate with a gas bleed line in the pressure relief valve.