CLAIMS

1. A modular gas delivery assembly, comprising a plurality of modular gas blocks coupled together to form a gas path along a length and a width of the modular gas delivery assembly, each of the plurality of modular gas blocks comprising a block body having an upper portion and a lower portion, wherein:

a first end of the upper portion extends beyond a first end of the lower portion and a second end of the lower portion extends beyond a second end of the upper portion;

a longitudinal axis of the block body extends from the first end to the second end of the upper portion;

the block body defines a first fluid channel that extends along the longitudinal axis, the first fluid channel comprising:

a first fluid port extending through an upper surface of the second end of the lower portion;

a second fluid port extending through an upper surface of a medial region of the upper portion; and

a third fluid port extending through a lower surface of the first end of the upper portion;

the block body defines a second fluid channel that extends transversely to the longitudinal axis and the first fluid channel;

the second fluid channel comprises the second fluid port and a fourth fluid port that extends through an upward facing surface of the block body and that is spaced apart from the second fluid port along a direction that is transverse to the longitudinal axis; and

a first modular gas block of the plurality of modular gas blocks is coupled with a second modular gas block of the plurality of modular gas blocks and a third modular gas block of the plurality of modular gas blocks such that the first fluid channels of each of the first modular gas block, the second modular gas block, and the third modular gas block are fluidly coupled with one another.

2. The modular gas delivery assembly of claim 1, wherein:

the first end of the upper portion of the first modular gas block is positioned above and coupled with the second end of the lower portion of the second modular gas block; and

the third fluid port of the first modular gas block is coupled with the first fluid port of the second modular gas block.

3. The modular gas delivery assembly of claim 1, wherein:

the second end of the lower portion of the first modular gas block is positioned below and coupled with the first end of the upper portion of the third modular gas block; and

the first fluid port of the first modular gas block is coupled with the third fluid port of the third modular gas block.

4. The modular gas delivery assembly of claim 1, further comprising a plurality of valves, wherein:

each of the plurality of valves is coupled with the medial region of the upper portion of a respective one of the plurality of modular gas blocks;

each of the plurality of valves comprises a valve port; and

each valve port is coupled with the second fluid port of the same respective one of the plurality of modular gas blocks.

5. The modular gas delivery assembly of claim 1, wherein:

a fourth modular gas block of the plurality of modular gas blocks is coupled with the first modular gas block in a direction that is transverse to the longitudinal axis of the first modular gas block.

6. The modular gas delivery assembly of claim 5, wherein:

the second fluid channel of the first modular gas block is fluidly coupled with the second fluid channel of the fourth modular gas block.

7. The modular gas delivery assembly of claim 1, wherein:

the modular gas delivery assembly comprises a proximal end in a direction of the first end of the upper portion of each of the plurality of modular gas blocks and a distal end in a direction of the second end of the lower portion of each of the plurality of modular gas blocks;

the third fluid port of a proximal-most one of the plurality of modular gas blocks is obstructed; and

the first fluid port of a distal-most one of the plurality of modular gas blocks is obstructed.

8. The modular gas delivery assembly of claim 7, wherein:

an obstruction of one or both of the first fluid port of the distal-most one of the plurality of modular gas blocks and the third fluid port of the proximal-most one of the plurality of modular gas blocks is removable to couple an additional plurality of modular gas blocks to the gas delivery assembly along the width of the modular gas assembly.

9. The modular gas delivery assembly of claim 1, wherein:

each of the plurality of modular gas blocks comprises an identical geometry.

10. The modular gas delivery assembly of claim 1, wherein:

top surfaces of each of the plurality of modular gas blocks are coplanar; and

bottom surfaces of each of the plurality of modular gas blocks are coplanar.

11. The modular gas delivery assembly of claim 1, wherein:

interfaces formed between at least some of the fluid ports of the plurality of modular gas blocks comprise C-seals.

12. The modular gas delivery assembly of claim 1, wherein:

the modular gas delivery assembly does not include any weldments extending beneath the plurality of modular gas blocks.

13. A modular gas block, comprising a block body having an upper portion and a lower portion, wherein:

a first end of the upper portion extends beyond a first end of the lower portion and a second end of the lower portion extends beyond a second end of the upper portion;

a longitudinal axis of the block body extends from the first end to the second end of the upper portion;

the block body defines a first fluid channel that extends along the longitudinal axis, the first fluid channel comprising:

a first fluid port extending through an upper surface of the second end of the lower portion;

a second fluid port extending through an upper surface of a medial region of the upper portion; and

a third fluid port extending through a lower surface of the first end of the upper portion; and

the block body defines a second fluid channel that extends transversely to the longitudinal axis and the first fluid channel, the second fluid channel comprising a fourth fluid port extending through the upper surface of the medial region of the upper portion.

14. The modular gas block of claim 13, wherein:

an upper surface of the first end of the upper portion and the upper surface of the second end of the lower portion each define a plurality of fastener receptacles.

15. The modular gas block of claim 13, wherein the lower surface of the first end of the upper portion and the upper surface of the second end of the lower portion are coplanar.

16. The modular gas block of claim 13, wherein:

a thickness of the first end of the upper portion and the second end of the lower portion are together as thick as the medial region.

17. A modular gas delivery assembly, comprising:

a first modular gas block;

a second modular gas block coupled with a first end of the first modular gas block; and

a third modular gas block coupled with a second end of the first modular gas block, wherein:

each of the first modular gas block, second modular gas block, and third modular gas block comprises a block body having an upper portion and a lower portion;

a first end of the upper portion extends beyond a first end of the lower portion and a second end of the lower portion extends beyond a second end of the upper portion; and

the block body defines a first fluid channel that extends from the first end of the upper portion to the second end of the lower portion, the first fluid channel comprising:

a first fluid port extending through an upper surface of the second end of the lower portion;

a second fluid port extending through an upper surface of a medial region of the upper portion; and

a third fluid port extending through a lower surface of the first end of the upper portion;

the block body defines a second fluid channel that extends transversely to the first fluid channel;

the second fluid channel comprises the second fluid port and a fourth fluid port that extends through an upward facing surface of the block body and that is spaced apart from the second fluid port along a direction that is transverse to a longitudinal axis extending between the first end and the second end; and

the first fluid channels of each of the first modular gas block, the second modular gas block, and the third modular gas block are fluidly coupled with one another.

18. The modular gas delivery assembly of claim 17, wherein:

the first end of the upper portion of the first modular gas block is positioned above and coupled with the second end of the lower portion of the second modular gas block; and

the third fluid port of the first modular gas block is coupled with the first fluid port of the second modular gas block.

19. The modular gas delivery assembly of claim 17, wherein:

the second end of the lower portion of the first modular gas block is positioned below and coupled with the first end of the upper portion of the third modular gas block; and

the first fluid port of the first modular gas block is coupled with the third fluid port of the third modular gas block.

20. The modular gas delivery assembly of claim 17, further comprising a fourth modular gas block coupled with the first modular gas block in a direction that is transverse to the first fluid channel of the first modular gas block.