CLAIMS

What is claimed is:

1. An apparatus, comprising:

a flow cell having one or more channels, each channel has a first channel opening and a second channel opening, the first channel openings being positioned at a first end of the flow cell and the second channel openings being positioned at the second end of the flow cell; and

a gasket assembly coupled at each second channel opening, each gasket assembly, comprising:

an adhesive stack; and

a gasket, the adhesive stack comprising a first side bonded to the gasket and a second side bonded to the flow cell.

2. The apparatus of claim 1, wherein the adhesive stack has a through hole and the gasket has a through hole that is aligned with the through hole of the adhesive stack to enable fluidic communication through the gasket assembly.

3. The apparatus of claim 1, wherein the adhesive stack comprises a first adhesive coupled to the flow cell and a second adhesive coupled to the gasket and positioned between the first adhesive and the gasket.

4. The apparatus of claim 3, wherein each gasket assembly further comprises a separating layer positioned between the first adhesive and the second adhesive, the first adhesive bonding to both the flow cell and the separating layer and the second adhesive bonding to both the separating layer and the gasket.

5. The apparatus of claim 4, wherein the separating layer comprises polyethylene terephthalate.

6. The apparatus of claim 4, wherein the separating layer comprises a through hole and the gasket has a through hole aligned with the through hole of the separating layer and wherein the first adhesive coats a first side of the separating layer and the second adhesive coats a second side of the separating layer.

7. The apparatus of claim 3, wherein the first adhesive comprises acrylic adhesive.

8. The apparatus of claim 3, wherein the second adhesive comprises silicone adhesive.

9. The apparatus of claim 1, wherein the gasket comprises a silicone elastomer.

10. The apparatus of claim 1, further comprising a flow cell manifold coupled to the first end of the flow cell and including a flow cell manifold inlet, a plurality of fluidic lines, and a plurality of flow cell manifold outlets fluidically coupled to the flow cell manifold inlet by the corresponding fluidic lines, each of the flow cell manifold outlets being coupled to a corresponding first channel opening of the flow cell.

11. The apparatus of claim 10, further comprising a manifold gasket assembly coupled to the flow cell manifold inlet.

12. The apparatus of claim 10, wherein the manifold gasket assembly comprises a first adhesive coupled to the flow cell manifold, a gasket, and a second adhesive coupled to the gasket and positioned between the first adhesive and the second adhesive.

13. The apparatus of claim 10, wherein the flow cell manifold comprises a laminate.

14. The apparatus of claim 1, wherein the flow cell comprises a plurality of the channels.

15. An apparatus, comprising:

a gasket assembly, comprising:

an adhesive stack, comprising:

a first adhesive;

a separating layer having a first side at least partially covered by the first adhesive and a second side;

a second adhesive at least partially covering the second side of the separating layer, the separating layer being positioned between the first adhesive and the second adhesive; and

a gasket bonded to the second adhesive, the second adhesive being positioned between the separating layer and the gasket; and

a release liner to which the first adhesive of the adhesive stack is releasably bonded.

16. The apparatus of claim 15, further comprising a plurality of the gasket assemblies, each of the gasket assemblies being spaced apart and coupled to the release liner.

17. The apparatus of claim 16, wherein the plurality of gasket assemblies coupled to the release liner form a roll.

18. An apparatus, comprising:

a system including a flow cell interface;

a flow cell having one or more channels, each channel has a first channel opening and a second channel opening, the first channel openings being positioned at a first end of the flow cell and the second channel openings being positioned at a second end of the flow cell; and

a gasket assembly coupled at each second channel opening, each gasket assembly, comprising:

an adhesive stack; and

a gasket, the adhesive stack comprising a first side bonded to the gasket and a second side bonded to the flow cell;

wherein the flow cell interface is engagable with the corresponding gaskets to establish a fluidic coupling between system and the flow cell.

19. The apparatus of claim 18, wherein the flow cell interface comprises a plurality of plungers that are engagable with the corresponding gaskets.

20. The apparatus of claim 19, further comprising springs that bias the corresponding plungers.

21. The apparatus of claim 19, wherein the flow cell interface comprises a plunger guide including plunger bores in which the corresponding plungers are positioned.

22. The apparatus of claim 18, wherein the system further comprises a vacuum chuck that supports the flow cell.

23. The apparatus of claim 22, wherein the vacuum chuck supports a substantial length of the flow cell between the first end and the second end.

24. The apparatus of claim 18, further comprising a flow cell frame to which the flow cell and the plurality of gasket assemblies are coupled.

25. A method, comprising:

picking up a gasket assembly using a head of a pick-and-place machine, the gasket assembly comprising an adhesive stack and a gasket, the adhesive stack comprising a first side bonded to the gasket and a second side; and

placing the second side of the gasket assembly onto a surface surrounding an opening of a channel of a flow cell.

26. The method of claim 25, further comprising pressing the gasket assembly toward the surface of the flow cell, thereby coupling the second side of the adhesive stack to the surface of the flow cell.

27. The method of claim 26, further comprising dispensing the gasket assembly from a roll comprising a plurality of the gasket assemblies.

28. The method of claim 27, wherein dispensing the gasket assembly from the roll comprises passing the gasket assembly through a guide.

29. The method of claim 27, further comprising detecting a location of the gasket assembly using a sensor prior to picking up the gasket assembly.

30. The method of claim 25, wherein the adhesive stack comprises a first adhesive on the first side of the adhesive stack, a second adhesive on the second side of the adhesive stack, and a separating layer positioned between the first adhesive and the second adhesive.

31. The method of claim 30, wherein the first adhesive comprises an acrylic adhesive, the second adhesive comprises a silicone adhesive, and the separating layer comprises a polyethylene terephthalate layer.

32. The method of claim 25, wherein the gasket comprises a silicone elastomer.

33. An apparatus, comprising:

a flow cell including a channel including a channel opening; and

a gasket assembly coupled at the channel opening, the gasket assembly, comprising:

an adhesive stack; and

a gasket, the adhesive stack comprising a first side bonded to the gasket and a second side bonded to the flow cell.

34. The apparatus of any one of claims 1 – 2, wherein the adhesive stack comprises a first adhesive coupled to the flow cell and a second adhesive coupled to the gasket and positioned between the first adhesive and the gasket.

35. The apparatus of any one of claims 4 – 5, wherein the separating layer comprises a through hole and the gasket has a through hole aligned with the through hole of the separating layer and wherein the first adhesive coats a first side of the separating layer and the second adhesive coats a second side of the separating layer.

36. The apparatus of any one of claims 3 – 6 and 35, wherein the first adhesive comprises acrylic adhesive.

37. The apparatus of any one of claims 3 – 7 and 36, wherein the second adhesive comprises silicone adhesive.

38. The apparatus of any one of claims 1 – 8 and 36 – 37, wherein the gasket comprises a silicone elastomer.

39. The apparatus of any one of claims 1 – 9 and 36 – 38, further comprising a flow cell manifold coupled to the first end of the flow cell and including a flow cell manifold inlet, a plurality of fluidic lines, and a plurality of flow cell manifold outlets fluidically coupled to the flow cell manifold inlet by the corresponding fluidic lines, each of the flow cell manifold outlets being coupled to a corresponding first channel opening of the flow cell.

40. The apparatus of any one of claims 10 – 11 and 39, wherein the manifold gasket assembly comprises a first adhesive coupled to the flow cell manifold, a gasket, and

a second adhesive coupled to the gasket and positioned between the first adhesive and the second adhesive.

41. The apparatus of any one of claims 10 – 12 and 39 – 40, wherein the flow cell manifold comprises a laminate.

42. The apparatus of any one of claims 1 – 13 and 35 – 41, wherein the flow cell comprises a plurality of the channels.

43. The apparatus of any one of claims 19 – 20, wherein the flow cell interface comprises a plunger guide including plunger bores in which the corresponding plungers are positioned.

44. The apparatus of any one of claims 18 – 21 and 43, wherein the system further comprises a vacuum chuck that supports the flow cell.

45. The apparatus of any one of claims 18 – 23 and 43 – 44, further comprising a flow cell frame to which the flow cell and the plurality of gasket assemblies are coupled.

46. The method of any one of claims 25 – 26, further comprising dispensing the gasket assembly from a roll comprising a plurality of the gasket assemblies.47. The method of any one of claims 27 – 28 and 46, further comprising detecting a location of the gasket assembly using a sensor prior to picking up the gasket assembly.

48. The method of any one of claims 25 – 29 and 46 – 47, wherein the adhesive stack comprises a first adhesive on the first side of the adhesive stack, a second adhesive on the second side of the adhesive stack, and a separating layer positioned between the first adhesive and the second adhesive.

49. The method of any one of claims 25 – 31 and 46 – 48, wherein the gasket comprises a silicone elastomer.