CLAIMS

1. An apparatus comprising:

two or more fluid prime channels connected to a fluid inlet of a fluidic device;

a flow control valve operatively associated with each fluid prime channel to control flow between the associated fluid prime channel and the fluid inlet;

one or more outlet channels connected to a fluid outlet of the fluidic device; and

a flow control valve operatively associated with each outlet channel to control flow between the fluid outlet and the associated outlet channel;

a plate that is rotatable about an axis of rotation that is orthogonal to a surface of the plate, wherein the fluidic device is coupled to the plate;

a plurality of fluid compartments disposed on the plate, each compartment having a fluid exit port formed through the plate; and

a lid placed over the plurality of fluid compartments, wherein the lid includes valve actuators for opening and closing valves for controlling fluid flow from the fluid exit ports.

2. The apparatus of claim 1, wherein each flow control valve is a pinch valve or a pneumatically actuated elastomeric valve.

3. The apparatus of claim 1, further comprising a bypass channel bypassing the fluid inlet and the fluid outlet.

4. The apparatus of claim 1, wherein fluid is moved through the apparatus and the device by a pressure differential.

5. The apparatus of claim 1, wherein at least two fluid prime channels, but less than all fluid prime channels, merge before the fluid inlet.

6. A method comprising:

caching a different fluid in each of two or more fluid prime channels connected to a fluid inlet of a fluidic device coupled to a plate that is rotatable about an axis of rotation that is orthogonal to a surface of the plate, wherein a plurality of fluid compartments are disposed on the plate and a lid is placed over the plurality of fluid compartments, wherein the lid includes valve actuators for opening and closing valves for controlling fluid flow from fluid exit ports from the fluid compartments, and wherein a flow control valve operatively associated with each fluid prime channel controls flow between the associated fluid prime channel and the fluid inlet;

moving at least a portion of a first fluid in a first of the two or more fluid prime channels into the fluid inlet;

moving the first fluid through a fluid outlet of the fluidic device into an outlet channel connected to the fluid outlet, wherein a flow control valve operatively associated with the outlet channel controls flow between the fluid outlet and the outlet channel;

moving at least a portion of a second fluid in a second of the two or more fluid prime channels through a shared fluid prime channel connecting the first and second fluid prime channels to the fluid inlet to flush the shared fluid prime channel; and

moving at least a portion of the second fluid in the second fluid prime channel into the fluid inlet.

7. The method of claim 6, further comprising moving the second fluid through the fluid outlet into the outlet channel.

8. The method of claim 7, further comprising moving at least a portion of the first fluid from the outlet channel into the device through fluid outlet.

9. The method of claim 6, further comprising, prior to moving the second fluid into the fluid inlet, drawing a volume of air into the fluid inlet to separate the second fluid from the first fluid.

10. The method of claim 6, wherein moving the first and second fluid comprises applying a pressure differential to the fluid prime channels.

11. An apparatus comprising:

a plate that is rotatable about an axis of rotation that is orthogonal to a surface of the plate; and

a plurality of fluid compartments disposed on the plate, each compartment having a fluid exit port formed through the plate, wherein the fluid exit ports of the plurality of fluid compartments are disposed at a common radial distance from the axis of rotation, wherein each exit port is positioned to align with a fluid inlet of a fluidic device as the plate rotates about the axis of rotation; and

a lid placed over the plurality of fluid compartments, wherein the lid includes valve actuators for opening and closing valves for controlling fluid flow from the fluid exit ports.

12. The apparatus of claim 11, wherein the plate is circular and the fluid compartments span the circumference of the plate.

13. The apparatus of claim 11, wherein the plate is in the shape of a rectangular toroid.

14. The apparatus of claim 11, wherein the plate is circular and the fluid exit ports are disposed on outer circumference of the plate.

15. The apparatus of claim 11, wherein the plate is circular and the fluid exit ports are disposed near a midpoint of the plate.

16. The apparatus of claim 11, further comprising an elastomeric seal between the exit port of each fluid compartment and the fluid inlet.

17. The apparatus of claim 16, wherein the elastomeric seal is overmolded to the bottom of the well plate.

18. The apparatus of claim 11, further comprising a plate drive system for effecting powered rotation of the plate about the axis of rotation.

19. The apparatus of claim 17, wherein the plate drive system comprises a motorized drive gear engaged with mating gear teeth formed on the periphery of the plate.