

CLAIMS

1. An apparatus comprising:

a fluidic circuit-~~(110)~~;

a bypass fluidic circuit-~~(120)~~;

a first set of fluid wells-~~(130)~~;

a second set of fluid wells-~~(140)~~;

a first valve ~~(150)~~ having a first valve outlet port ~~(154)~~ and a plurality of first well ports ~~(155)~~, the plurality of first well ports ~~(155)~~ operatively associated with the first set of fluid wells ~~(130)~~, the first valve ~~(150)~~ selectively fluidly connecting a first well of the first set of fluid wells ~~(130)~~ to the first valve outlet port ~~(154)~~ when in a first position and selectively fluidly connecting a second well of the first set of fluid wells ~~(150)~~ to the first valve outlet port ~~(154)~~ when in a second position; and

a second valve ~~(160)~~ having a second valve outlet port ~~(164)~~, a bypass selector channel ~~(163)~~, and a plurality of second well ports ~~(167)~~ operatively associated with the second set of fluid wells ~~(140)~~, the second valve outlet port ~~(164)~~ operatively associated with the fluidic circuit-~~(110)~~, the bypass selector channel ~~(163)~~ operatively associated with the bypass fluidic circuit ~~(120)~~ and the first valve outlet port ~~(154)~~, the second valve ~~(160)~~ selectively fluidly connecting a first well of the second set of fluid wells ~~(160)~~ to the fluidic circuit ~~(110)~~ to permit fluid flow from the first well of the second set of fluid wells ~~(160)~~ to the fluidic circuit ~~(110)~~ when in a first well position and selectively fluidly connecting the bypass selector channel ~~(163)~~ to the bypass fluidic circuit ~~(120)~~ when in a bypass position;

a common channel ~~(105)~~ fluidly connecting the first valve outlet port ~~(154)~~ to the second valve ~~(160)~~;

an outlet channel ~~(170)~~, fluidly connected to a waste outlet ~~(191)~~; and

a valve array ~~(180)~~ comprising one or more valves disposed along the outlet channel ~~(170)~~ to selectively control at least one of flow between the bypass fluidic circuit ~~(120)~~ and a pump ~~(190)~~, flow between the fluidic circuit ~~(110)~~ and the pump ~~(190)~~, and flow between the outlet channel ~~(170)~~ and the waste outlet ~~(191)~~.

2. The apparatus of claim 1 further comprising a common channel fluidly connecting the first valve outlet to the second valve.

23. The apparatus of claim 1, wherein the second valve is rotatable between a plurality of positions.

34. The apparatus of ~~any of claims 1-2~~ claim 1, wherein the second valve selectively fluidly connects the first valve outlet ~~port~~ to the fluidic circuit when in a first valve position.

45. The apparatus of ~~any of claims 1-3~~ claim 1, wherein the second valve selectively fluidly connects a second well of the second set of fluid wells to the fluidic circuit when in a second well position.

56. The apparatus of ~~any of claims 1-4~~ claim 1, wherein the first valve is rotatable between a plurality of positions.

7. The apparatus of claim 1 further comprising:
an outlet channel fluidly connecting the bypass fluidic circuit and the fluidic circuit to a pump.

8. The apparatus of claim 7, wherein the outlet channel is fluidly connected to a waste outlet.

9. The apparatus of claim 8 further comprising:
a valve array comprising one or more valves disposed along the outlet channel to selectively control flow between the bypass fluidic circuit, the fluidic circuit, the pump, and the waste outlet.

10. The apparatus of ~~any of the previous claims~~ claim 1, wherein the bypass fluidic circuit comprises a bypass cache reservoir to hold a first predetermined volume of fluid.

11. The apparatus of ~~any of the previous claims~~ claim 1, wherein the fluid circuit comprises a fluidic device and a fluidic cache reservoir, the fluidic cache reservoir holding a second predetermined volume of fluid downstream from the fluidic device.

12. ~~The~~ An apparatus of any of the previous claims, wherein comprising:
the a fluidic circuit is fluidly connected to a flow cell;
the bypass fluidic circuit comprises a bypass channel;
a first fluid well;
a second fluid well;
wherein a first valve comprising a first valve outlet port and a plurality of first well ports, a first of the plurality of first well ports is operatively associated with the first fluid well such that the first valve selectively permits flow from the first fluid well to the first valve outlet port; and

a second valve comprising:

~~wherein the a second valve outlet port of the second valve is fluidly connected to the fluidic circuit, and the second valve comprises:~~

a bypass port fluidly connected to the bypass channel,

a second valve inlet port fluidly connected to the first valve outlet port,

a second fluid well port fluidly connected to the second fluid well, and

a second valve rotary body to rotate to a plurality of second valve positions such that the second valve selectively permits flow from a selected one of the second fluid well port and the second valve inlet port to the second valve outlet port or from the second valve inlet port to the bypass port.

913. The apparatus of claim ~~8~~12, wherein the bypass port, the ~~first~~ second valve inlet port, and the second fluid well port are arranged in a circumferential pattern, and the second valve rotary body comprises:

a second valve selector channel fluidly connecting the second valve outlet port to one of the second valve inlet port or the second fluid well port, and

a bypass selector channel fluidly connecting the second valve inlet port to the bypass port when the second valve rotary body is set at a bypass position.

~~1014.~~ The apparatus of claim ~~8 or 9~~ 12, wherein the first valve comprises a first valve rotary body to rotate to a plurality of first valve positions such that the first valve selectively controls flow from a selected one of the plurality of first well ports to the first valve outlet port; and wherein the first valve rotary body comprises a first valve selector channel fluidly connecting a selected one of the plurality of first well ports to the first valve outlet port.

15. The apparatus of claim 12, wherein the second valve selectively fluidly connects the first valve outlet port to the fluidic circuit when in a first valve position.

16. The apparatus of claim 12, wherein the second valve selectively fluidly connects the second fluid well to the fluidic circuit when in one of the second valve positions.

17. The apparatus of claim 12, wherein the second fluid well comprises one of a plurality of second fluid wells, and wherein the second valve includes a plurality of second fluid well ports, each fluidly connected to one of the plurality of second fluid wells.

18. The apparatus of claim 12 further comprising an outlet channel fluidly connecting the

bypass channel and the fluidic circuit to a pump.

19. The apparatus of claim 18, wherein the outlet channel is fluidly connected to a waste outlet.

20. The apparatus of claim 19 further comprising a valve array comprising one or more valves disposed along the outlet channel to selectively control flow between the bypass channel, the fluidic circuit, the pump, and the waste outlet.

~~11. A method comprising:~~

~~selecting a first fluid stored in a first fluid well of a first set of fluid wells operatively associated with a first valve by setting the first valve from a base position to a first fluid well position;~~

~~moving at least a portion of the selected first fluid from the first valve into a bypass channel operatively associated with a second valve by setting the second valve to a bypass position;~~

~~selecting a second fluid stored in a second fluid well of a second set of fluid wells operatively associated with the second valve by setting the second valve to a second fluid well position;~~

~~moving at least a portion of the selected second fluid into a fluidic circuit while the portion of the selected first fluid is in the bypass channel.~~

~~12. The method of claim 11 further comprising moving at least the portion of the selected first fluid from the bypass channel to the fluidic circuit.~~

~~13. The method of claim 11 or 12 further comprising moving at least the portion of the selected second fluid from the fluidic circuit to an outlet line.~~

~~14. The method of any of claims 11-13 further comprising:~~

~~selecting a second fluid stored in a second fluid well of the first set of fluid wells operatively associated with the first valve;~~

~~moving at least a portion of the selected second fluid to the fluidic circuit by setting the second valve to a first valve position.~~

15. — ~~The method of any of claims 11-14 further comprising introducing a volume of air into the bypass channel by setting the first valve to a purge position and setting the second valve to the bypass position.~~

- 5 16. — ~~The method of any of claims 11-15, further comprising blocking the first fluid stored in the first set of fluid wells from moving to the second valve by setting the first valve to a base position.~~