

CLAIMS

1. A canisterless pump system (100) configured for negative pressure wound therapy, the pump system (100) comprising:

a pump assembly (400) configured to provide a negative pressure, via a flow path, to a wound dressing (950) configured to be positioned over a wound, the flow path configured to fluidically connect the pump system (100) to the wound dressing (950);

a sensor configured to measure a pressure in the flow path; and

a controller configured to control operation of the pump system (100), the controller further configured to:

measure a first pressure value in the flow path at a first time;

measure a second pressure value in the flow path at a second time;

calculate a first rate of pressure change using the first and second pressure values; and

provide an indication that the wound dressing (950) is full in response to determining that the calculated first rate of pressure change satisfies a threshold rate of change.

2. The pump system of Claim 1, wherein the controller is further configured to:

measure a third pressure value in the flow path at a third time;

measure a fourth pressure value within the flow path at a fourth time;

calculate a second rate of pressure change using the third and fourth pressure values; and

provide the indication that the wound dressing is full in response to determining that the calculated first and second rates of pressure change satisfy the threshold rate of change.

3. The pump system of Claim 1 or 2, wherein the pressure in the fluid flow path is between a maximum pressure and a minimum pressure.

4. The pump system of any of Claims 1 to 3, wherein the controller is further configured to determine whether the second pressure value is less than a minimum pressure.

5. The pump system of any of Claims 1 to 4, wherein the controller is further configured to provide an indication that the wound dressing is full in response to determining that the calculated first rate of pressure change equals or exceeds the threshold rate of change.

6. The pump system of any of Claims 1 to 5, wherein the threshold rate of change is approximately -50 mmHg/second or wherein the threshold rate of change is approximately -70 mmHg/second.

7. The pump system of any of Claims 1 or 5, wherein the threshold rate of change is between approximately -20 mmHg/second and approximately -200 mmHg/second or wherein the threshold rate of change is between approximately -40 mmHg/second and approximately -100 mmHg/second.

8. The pump system of any of Claims 1 to 5, wherein the threshold rate of change is between approximately -50 mmHg/second and approximately -75 mmHg/second.

9. The pump system of any of Claims 1 to 8, wherein the controller is further configured to provide an indication of a transient blockage condition in response to determining that the calculated first rate of pressure change satisfies a maximum rate of change.

10. The pump system of any of Claims 1 to 9, wherein the controller is further configured to provide an indication of a transient blockage condition in response to determining that the calculated first and second rates of pressure change satisfy a maximum rate of change.

11. The pump system of Claims 9 or 10, wherein the maximum rate of change comprises about 110%, about 120%, about 130%, about 140%, or about 150% of the threshold rate.

12. The pump system of Claims 9 or 10, wherein the maximum rate of change

comprises between about 105% and about 155% of the threshold rate of change.

13. The pump system of any of Claims 9 to 12, wherein the controller is further configured to provide an indication of a transient blockage condition in response to determining that the calculated first rate of pressure change equals or exceeds the maximum rate of change.

14. The pump system of any of Claims 1 to 13 wherein the controller is further configured to sample a pressure within the fluid flow path during one or more time intervals and sample the pressure at least twice during each of the one or more time intervals and wherein the controller is further configured to average the pressure samples during each of the one or more time intervals.