

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (currently amended) A system for conditioning the temperature of at least one fluid stream that is passed through a fuel cell stack, the system comprising:

a system module disposed upstream of the fuel cell stack and operable to humidify the fluid stream so that the fluid stream reaches a predetermined humidity level and the predetermined humidity level corresponds to a predetermined temperature;

at least one inlet of the fuel cell stack adapted to receive the fluid stream at a first temperature that is different from the predetermined temperature, the fuel cell stack having at least one outlet that is operable to present coolant having a temperature that is different from the first temperature of the fluid stream in response to receiving the fluid stream; and

a conditioning device operable to receive the fluid stream and the coolant and present the coolant to the fluid stream to change the first temperature of the fluid stream to be equal to the predetermined temperature or within a specified range thereof so that the inlet of the fuel cell stack receives the fluid stream at the predetermined temperature or within the specified range thereof, the conditioning device comprising:

an outer shell having first and second ends and the outer shell defining a cavity therein for receiving the coolant; and

at least one pipe extending through the cavity and between the ends to enclose and to deliver the fluid stream from the system module to the fuel cell stack.

2. (original) The system of claim 1 further comprising at least one temperature sensor disposed on the conditioning device and operable to measure the first temperature of the fluid stream and generate a first signal that corresponds to the measured first temperature.

3. (original) The system of claim 2 further comprising a controller operable to generate a control signal that corresponds to the amount of coolant that is presented to the conditioning device in response to the first signal.

4. (original) The system of claim 3 further comprising a valve coupled between the outlet of the fuel cell stack and the conditioning device and adapted to control the amount of coolant presented to the conditioning device in response to the control signal.

5. (original) The system of claim 4 wherein the controller controls the valve to increase the amount of coolant that is presented to the conditioning device in response to the controller determining that the first temperature is less than the predetermined temperature.

6. (original) The system of claim 4 wherein the fuel cell stack is adapted to transmit the temperature of the coolant to the controller, and the controller controls the valve to decrease the amount of coolant that is presented to the conditioning device in response to the controller determining that the first temperature is greater than the predetermined temperature and that the first temperature is less than the temperature of the coolant.

7. (canceled)

8. (currently amended) The system of claim [[7]] 1 wherein the conditioning device further comprises input and output ports and the fuel cell stack delivers coolant from the outlet of the fuel cell stack through the input port and to the at least one pipe to change the first temperature of the fluid stream to be equal to the predetermined temperature or within the specified range thereof.

9. (currently amended) The system of claim [[7]] 1 further comprising at least one humidity sensor ~~coupled to~~ positioned on the outer shell.

10. (currently amended) The system of claim 9 wherein the at least one humidity sensor is in fluid communication with ~~coupled to~~ the at least one pipe ~~and exposed to the fluid stream~~ to measure ~~[[the]]~~ an amount of water in the fluid stream.

11. (currently amended) The system of claim ~~[[7]]~~ 1 further comprising at least one temperature sensor operably coupled to the at least one pipe ~~and exposed to the fluid stream~~ to measure the first temperature of the fluid stream.

12.- 20. (canceled)

21. (new) The system of claim 1 wherein the at least one fluid stream comprises one of air and hydrogen.

22. (new) An apparatus in a system for conditioning the temperature of at least one fluid stream that is passed through a fuel cell stack, the system including a system module operable to humidify the fluid stream so that the fluid stream reaches a predetermined humidity level that corresponds to a predetermined temperature and at least one inlet of the fuel cell stack adapted to receive the fluid stream at a first temperature that is different from the predetermined temperature, the apparatus comprising:

a conditioning device operable to receive the fluid stream and the coolant, the coolant having a temperature that is different from the first temperature of the fluid stream and being further operable to present the coolant to the fluid stream to change the first temperature of the fluid stream to be substantially similar to the predetermined temperature so that the inlet of the fuel cell stack receives the fluid stream at the substantially similar predetermined temperature, the conditioning device comprising:

an outer shell having first and second ends and the outer shell defining a cavity therein for receiving the coolant; and

at least one pipe for extending through the coolant in the cavity between the ends and for delivering the fluid stream from the conditioning device.

23. (new) The apparatus of claim 22 further comprising at least one humidity sensor positioned on the outer shell.

24. (new) The apparatus of claim 23 wherein the at least one humidity sensor is in fluid communication with the at least one pipe to measure an amount of water in the fluid stream.

25. (new) The apparatus of claim 22 further comprising at least one temperature sensor operably coupled to the at least one pipe to measure a temperature of the fluid stream.

26. (new) The apparatus of claim 22 wherein the at least one fluid stream comprises one of air and hydrogen.

27. (new) An apparatus in a system for conditioning the temperature of at least one fluid stream that is passed through a fuel cell stack, the system including a system module operable to humidify the fluid stream so that the fluid stream reaches a predetermined humidity level that corresponds to a predetermined temperature and at least one inlet of the fuel cell stack adapted to receive the fluid stream at a first temperature that is different from the predetermined temperature, the apparatus comprising:

a conditioning device operable to receive the fluid stream and the coolant, the coolant having a temperature that is different from the first temperature of the fluid stream and being further operable to present the coolant to the fluid stream to change the first temperature of the fluid stream to be substantially similar to the predetermined temperature so that the inlet of the fuel cell stack receives the fluid stream at the substantially similar predetermined temperature, the conditioning device comprising:

an outer shell having first and second ends defining a cavity therein for receiving the coolant; and

at least one pipe extending through the cavity and between the ends and for passing the fluid stream through the coolant in the cavity.

28. (new) The apparatus of claim 27 further comprising at least one humidity sensor positioned on the outer shell.

29. (new) The apparatus of claim 28 wherein the at least one humidity sensor is in fluid communication with the at least one pipe to measure an amount of water in the fluid stream.

30. (new) The apparatus of claim 27 wherein the at least one fluid stream comprises one of air and hydrogen.