

CLAIMS

1. An apparatus for testing a water deluge system having a wet side and a dry side separated by a valve, the apparatus comprising:
 - 5 a blower configured for coupling to an inlet of the water deluge system, the blower configured to provide a supply of pressurised air through the water deluge system from the inlet to one or more outlet of the water deluge system;
 - a sensor arrangement coupled to or operatively associated with one or more of the outlets of the water deluge system, the sensor arrangement configured to measure
10 the pressure of the air at the one or more outlets of the water deluge system and output one or more output signals indicative of the pressure of the air at the one or more outlets; and
 - a communication arrangement configured to convey the one or more output signals from the sensor arrangement to a processing system configured to determine
15 from said one or more output signals the flow rate of the air supply at the one or more outlets.
2. The apparatus of claim 1, wherein the apparatus comprises, is coupled to, or is operatively associated with, the processing system.
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3. The apparatus of claim 1 or 2, wherein the blower is configured for coupling to an inlet valve coupled to or forming part of the water deluge system.
4. The apparatus of claim 1, 2 or 3, wherein the blower comprises or takes the form
25 of an electric blower.
5. The apparatus of any preceding claim, wherein the blower comprises, is coupled to, or is operatively associated with, a variable frequency drive (VFD).
- 30 6. The apparatus of any preceding claim, comprising at least one of:
an air conditioner configured to control the humidity of the air supply;
a moisture filter provided at an inlet of the blower.

7. The apparatus of any preceding claim, wherein the sensor arrangement comprises sensors coupled to or operatively associated with a subset of the outlets of the water deluge system.
- 5 8. The apparatus of any one of claims 1 to 6, wherein the sensor arrangement comprises sensors coupled to or operatively associated with all of the outlets of the water deluge system.
- 10 9. The apparatus of any preceding claim, wherein the sensor arrangement comprises one or more temperature sensors coupled to or operatively associated with one or more outlets of the water deluge system and configured to measure the temperature of the air at said one or more of the outlets.
- 15 10. The apparatus of any preceding claim, wherein at least one of the sensors of the sensor arrangement is configured to be removably coupled to the water deluge system.
- 20 11. The apparatus of any one of claims 1 to 9, wherein at least one of the sensors of the sensor arrangement is configured to be permanently coupled to the water deluge system.
- 25 12. The apparatus of any preceding claim, wherein the sensor arrangement comprises at least one sensor coupled to or operatively associated with the inlet to the deluge system.
- 30 13. The apparatus of claim 12, wherein the sensor arrangement comprises at least one of:
one or more sensors configured to measure the flow of the air at the inlet valve;
one or more sensors configured to measure the pressure of the air at the inlet valve;
one or more sensors configured to measure temperature at the inlet valve.
14. A water deluge system comprising the apparatus of any preceding claim.
15. A method of testing a water deluge system, comprising:

providing a supply of pressurised air through a water deluge system using a blower coupled to the water deluge system;

measuring the pressure of the air at one or more outlets of the water deluge system and outputting an output signal indicative of the pressure of the air at the

5 one or more outlets;

conveying the output signal to a processing system configured to determine from said one or more output signals the flow rate of the air supply at the one or more outlets.

16. The method of claim 15, comprising determining a condition of the water deluge
10 system from the output signals from the outlets.

17. The method of claim 15 or 16, comprising at least one of:

measuring the flow rate of the air at an inlet valve of the water deluge system;

outputting an output signal indicative of the flow rate of air at the inlet valve; and

15 conveying the output signal to the processing system;

comparing the output signal indicative of the flow rate of air at the inlet with the output signals from the outlets;

determining a condition of the water deluge system by comparing the determined flow rate of the air at the one or more outlets to a reference signal.

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18. The method of claim 15, 16 or 17 comprising at least one of:

comparing the results of the test method of any one of claims 15 to 17 with a previous wet test;

25 subsequently performing a wet test and comparing the results of the test method of any one of claims 15 to 17 with the subsequent wet test.

19. A method, comprising:

performing the test method of any one of claims 15 to 18 at a first time period to provide a first test data set indicative of the condition of the water deluge system;

30 performing the test method of any one of claims 15 to 18 or a wet test at a second time period to provide a second test data set indicative of the condition of the water deluge system; and

outputting the first data set and the second data set.

20. The method may comprise performing a comparison of the first data set and the second data to determine a condition of the water deluge system.
21. An apparatus for testing a fire suppression system, the apparatus comprising:
5 a blower configured for coupling to an inlet of the fire suppression system, the blower configured to provide a supply of pressurised gas through the fire suppression system from the inlet to one or more outlet of the fire suppression system;
a sensor arrangement coupled to or operatively associated with one or more of the outlets of the fire suppression system, the sensor arrangement configured to
10 measure the pressure of the gas at the one or more outlets of the water deluge system and output one or more output signals indicative of the pressure of the gas at the one or more outlets; and
a communication arrangement configured to convey the one or more output
15 signals from the sensor arrangement to a processing system configured to determine from said one or more output signals the flow rate of the gas supply at the one or more outlets.
22. The apparatus of claim 21, wherein the fire suppression system comprises or takes the form of a nitrogen fire suppression system, the pressurised gas comprising or
20 taking the form of nitrogen gas.
23. A fire suppression system comprising the apparatus of claim 21 or 22.
24. A method of testing a fire suppression system, comprising:
25 providing a supply of pressurised gas through a fire suppression system using a blower coupled to the fire suppression system;
measuring the pressure of the pressurised gas at one or more outlets of the fire suppression system and outputting an output signal indicative of the pressure of the pressurised gas at the one or more outlets;
30 conveying the output signal to a processing system configured to determine from said one or more output signals the flow rate of the pressurised gas supply at the one or more outlets.
25. A method, comprising:

performing the test method of claim 24 at a first time period to provide a first test data set indicative of the condition of the fire suppression system;

performing the test method of claim 24 or an inert gas test at a second time period to provide a second test data set indicative of the condition of the fire suppression system; and

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outputting the first data set and the second data set.