1. **PRINCIPLE OF OPERATION.**

Primary functions of the GW Type C1 wet alarm valve station:

1.1. To act as a non-return valve to stop static water in the sprinkler pipework from flowing backwards into the supply pipe.

1.2. To allow water to flow to a water turbine operated alarm bell (13) and operate a pressure switch (10) to generate an electrical signal if one or more sprinkler heads operate. The valve also includes the facility to test the bell and pressure switch without isolating or draining the system.

1.3. To allow the sprinkler system to be isolated (3) and drained down for maintenance purposes (4).

1.4. The GW model C1 wet alarm valve also incorporates a compensator non-return valve (5) in the clack to allow small fluctuations in supply pressure to feed through to the sprinkler system without causing a false alarm.

1.5. All ball valves illustrated are shown in the closed position for clarity. This does not represent their final position when the valve is in operation. Ball valves are shut when the handle is perpendicular to the pipe work.

**NOTE:** The valve chamber must be kept above freezing temperature at all times since the alarm valve and associated pipework are full of water during normal operation.

2. **COMMISSIONING - TO SET THE VALVE (Operating Mode)**

2.1. Close the drain valve (3), the test valve (2) and the bell line isolation valve (12).

   **Note:** If an optional monitoring switch is fitted to the alarm open valve (12) to test it’s operation.

2.2. Open the main supply valve (4) part way allowing water to enter the system slowly. Ensure that as much air as possible is vented from the system by either opening the drain valves on the system pipework or via any air release valves if fitted.

2.3. Close all system drain valves.

2.4. Fill the system until the supply (8) and system (9) gauges read the same pressure and water is no longer flowing.

2.5. Open the main supply valve (4) fully and padlock in position. Padlock the bell line isolation valve (12) fully open. If the alarm valve clapper is correctly seated, the water alarm gong (13) will remain silent. Should this not be the case and it does ring giving a false alarm, close valve (12) again and proceed as in fault finding section 4 below.

2.6. Padlock the test valve (2) and the drain valve (3) in the shut position.

2.7. The valve is now set and in its operating mode.
3. **TO FUNCTIONALLY TEST THE VALVE & TEST THE ALARM BELL & ALARM PRESSURE SWITCH**

3.1. The water turbine operated alarm bell (13) and the associated pressure switch (10) should be tested weekly and the results recorded on a chart kept in the valve chamber. This test should only be conducted by trained personnel.

3.2. Unlock and open bell test line valve (2). Water should flow through the restricted orifice (1) to represent a single sprinkler head operating. Check that the alarm bell (13) rings continuously and the pressure switch (10) transmits an electrical signal to the fire alarm panel. Water will flow from the drip orifice (11) in a continuous flow while the test is in progress.

3.3. Close the test valve (2) and secure with the padlock. The bell should stop ringing and the remaining water in the bell line should drain from the drip orifice (11). If the drip orifice continues to run or the bell continues to sound the clack has not re-seated correctly – see Fault Finding section 4 below.

3.4. Ensure that once the system has returned to normal, the pressure on the supply (8) and system (9) pressure gauges read similar values.

3.5. Record the time and duration of the test on the weekly bell test sheet

4. **FAULT FINDING**

4.1. If the bell rings and there is no emergency it should not be isolated using valve (12) until the cause is determined. Once the cause has been corrected the bell line valve (12) must be padlocked in the open position immediately or the system will not alarm if there is a fire. Note: This valve may be monitored by an alarm panel.

4.2. If the water motor alarm gong (13) fails to operate and water is flowing from the drip orifice (11).
   4.2.1. Check that the bell line isolation valve (12) is open.
   4.2.2. Check that the turbine jet and the turbine feed line filter are both clear.

4.3. If the water motor alarm gong (13) fails to operate and no water is flowing from the drip orifice (11).
   4.3.1. Check that the main isolation valve (4) is fully open.
   4.3.2. Ensure that water is flowing sufficiently from the bell test valve (2) and orifice (1) to allow the clack (6) to rise and allow water to feed into the bell line.

4.4. If the water turbine alarm bell (13) will not stop ringing or the drip orifice (11) will not stop running after a bell test or when the system is commissioned.
   4.4.1. Open the main drain valve (3) to flush any dirt from under the clack seal. Close and re-set the valve. Padlock the drain valve (3) closed.
   4.4.2. Close the bell line isolation valve (12). Allow the bell to stop and re-open the isolation valve (12). Padlock in the open position. Ensure all site alarms are reset correctly.

4.5. If the bell rings intermittently during test.
   4.5.1. Check for dirt in the supply jet and filter and that the isolation valve (12) is fully open.
   4.5.2. It is important that ALL trapped air is released from the pipe system before the Alarm Valve is set into service. Trapped air can cause false / intermittent alarms. If necessary additional air release valves should be installed in air trapping sections of the pipe system.
5. WET VALVE SET SCHEMATIC

![Diagram of the wet valve set schematic]

- **ITEM 1**: Description
- **ITEM 2**: Description
- **ITEM 3**: Description
- **ITEM 4**: Description
- **ITEM 5**: Description
- **ITEM 6**: Description
- **ITEM 7**: Description
- **ITEM 8**: Description
- **ITEM 9**: Description
- **ITEM 10**: Description
- **ITEM 11**: Description
- **ITEM 12**: Description
- **ITEM 13**: Description
- **ITEM 14**: Description
- **ITEM 15**: Description
- **ITEM 16**: Description

The right is reserved to vary or modify any specifications without prior notice.

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Data Sheet: C1 Wet Valve (CE) and Station Installation and Operation

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