Section 7

GLASS STRAIN TESTS

(Note:- Where in Specifications dated prior to 1st January, 1954, mention is made of K1001/7.1 or K1001/7.2 these references should now be amended to read K1001/6.1).

Where the Test Specification requires that Glass Strain Tests shall be performed on valves, either at Qualification Approval or during acceptance testing, they shall be performed in accordance with one or other of the methods below:-

Sampling procedure shall be as specified in the individual specification.

7.1. Glass Envelope Strain Test

The glass bulb, but not the base, shall be immersed in boiling water at a temperature between 97°C and 100° C for 15 seconds and then immediately plunged into ice-cold water for 5 seconds. The volume of water shall be large enough to ensure that the temperature of the water shall not be appreciably affected by the test. The glass bulb shall not crack or break. For all-glass valves the entire valve shall be submerged.

7.2. Base Strain Test for Pinned Miniature Valves

This test shall be performed on a sampling basis. The test shall consist of forcing the pins of the valve over the specified cone and then completely submerging the valve and cone in boiling water for a specified time. Any defects resulting from glass strain shall be noted and classified separately into groups as follows:

Group	Defect
A	Bulb and/or tip cracks
B	Base cracks
C	Seal cracks

7.2.1. Equipment

7.2.1.1. Holders

The holders for the valves shall be spaced so that the valves do not touch one another. A minimum of six holes of three-eighths inch diameter shall be drilled in the plate for the holders

7.2.1.2. Container for Boiling Water

The container shall be sufficiently large so that, while the test is being made, no valve is within three-quarters inch of the retaining wall of the vessel. The container shall have a minimum capacity of two litres per fifteen valves and shall be at least three quarters full for every strain test.

7.2.1.3. Boiling Water

The boiling water shall be at a temperature between 97 °C and 100°C.

7.2.1.4. Deflection Cones

The deflection cones used for the mechanical loading of the pins by uniform deflection of the pins, shall be in accordance with Appendix X, Drawing No.1.

7.2.2. Procedure

7.2.2.1. Sampling

Unless otherwise stated in the Test Specification, the sample shall consist of thirty (30) valves taken at random from each production lot.

7.2.2.2. Testing

All valves shall be at room temperature and shall have been submitted to approved pin straightening.

(a) Align the axis of the valve with the axis of the specified deflection cone and carefully push the small end of the cone into the circle formed by the valve pins until the cone lies firmly against the valve bottom.

Note: If observation after the removal of the cone shows some pins are bent more than others, the test is being made improperly.

(b) Place the holder of valves into boiling water so that the valves and cones are completely submerged for a period of ten seconds.

(c) After the ten seconds submersion period, remove the valves from the water and allow to cool to room temperature on a wooden support.

(d) Examine the valves visually for each class of strain test failure.

7.2.3. Acceptance Requirements

A lot shall be

(a) Accepted if not more than three defectives for "A", "B" or "C" group defects respectively, or if not more that a total of four defectives are found in the sample;

or (b) Rejected if four or more defectives for "A", "B" or "C" group defects respectively, or if a total of five or more defectives are found in the sample.