TEST CODE SHEET

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1. TYPE OF TEST(S)

Porosity.

2. BYELAW REQUIREMENT FOR FITTINGS

Byelaw 52

Every water fitting shall be constucted of materials.....which ..... prevent, so far as is reasonably practicable, damage from.....(c) internal water pressure.....

Byelaw 53

Every water fitting which - (a) is installed below ground; or (e) is in any other position which is inaccessible, or to which access is difficult; shall be - (i) constructed to withstand without bursting , buckling, fracture or leaking an internal hydraulic pressure twice that to which it would normally be subjected.

Byelaw 64

Every stopvalve.....shall .....(b) be watertight when open and subjected to an internal hydraulic pressure 1.5 times the pressure to which it is normally subject...

Byelaw 66

Every supply pipe in premises shall be fitted with a draining tap which - (a) is watertight when closed and subjected to an internal hydraulic pressure 1.5 times the pressure to which it is ordinarily subject.

Byelaw 71

Every servicing valve shall be ....(c) capable of withstanding without leaking an internal hydraulic pressure of 1.5 times the pressure to whch it is ordinarily subject.

Byelaw 87

Every draw-off tap .....shall.....(e) be designed when new to withstand, without leaking an internal water pressure 1.5 times that to which it will ordinarily be subject.

3. BRITISH STANDARDS OR WATER SPECIFICATION, DEEMED TO SATISFY BYELAW REQUIREMENTS

(See Water Supply Byelaw Guide)

3.1 Fittings with ‘kitemarks’ which are deemed to satisfy the requirements of byelaws are listed in the directory.

4. TEST PROCEDURE

Note: Unless otherwise stated the temperature of the test fluid shall be 20 ± 10°C.

4.1 Tests applicable to the following fittings:-

INDIVIDUAL FITTINGS

Ferrules - various
Dosing equipment
Filters

Fittings for use with tube/pipe - various
Heaters
- electric instantaneous, closed outlet (with or without thermal storage)
- gas instantaneous, close outlet
- water jacketed tube
Taps and valves - various

Water conditioners - various
Water meters - various

ASSEMBLIES OF FITTINGS

Baths - special geriatric

Drinking fountains
Ejectors - laboratory
Haemodialysis machines
Hose reel assemblies
Ice making machines
Irrigation equipment
Plumbing units-packaged with boiler etc.
Vending machines - various
Washing machines - domestic, various
Water softeners - various

(A) **UNDERGROUND FIRE HYDRANTS** (Derived from BS 750, Clause 7.2.2, Appendix C.3.2)

TEST METHOD

Connect the underside flange of the hydrant to a pressurised water supply in accordance with setting - up procedure IGN 1-50-61 and blank off the hydrant outlet. With the hydrant valve open, subject the hydrant to a hydraulic pressure of 24 ± 0.5 bar for a time of 60 ± 5 seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no leakage or seepage through the walls.

(B) **DRAW OFF TAPS ABOVE GROUND STOPVALVES** (Derived from BS 1020. Part 2, Clause 1.7.1, Clause 1.7.2)

(i) TEST METHOD

Connect the inlet of the fitting to a pressurised water supply in accordance with setting-up procedure IGN 1-50-61 and close the tap (valve). Apply an internal hydraulic pressure of 20 ± 0.5 bar for a time of 60 ± 5 seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no sign of leakage or seepage through the walls.

(ii) TEST METHOD

Connect the inlet of the fitting to a pressurised water supply in accordance with setting-up procedure IGN 1-50-61. With the tap (valve) in the fully open position, and the outlet sealed, apply an internal hydraulic pressure of 5 ± 0.5 bar for a time of 60 ± 5 seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no sign of leakage or seepage through the walls.

(C) **UNDERGROUND PLUG COCKS** (Derived from BS 2580, Clause 18)

(i) TEST METHOD

Connect one end of the fitting to a pressurised water supply in accordance with Setting-up Procedure IGN 1-50-61 and close the plug cock. Apply an internal hydraulic pressure of 20 ± 0.5 bar for a time of 6 ± 1 seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no sign of leakage or seepage through the walls.

(ii) TEST METHOD

Repeat Test (i) with pressure applied at the other end of the plug cock.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no sign of leakage or seepage through the walls.

(iii) TEST METHOD

Repeat test(i) with the plug cock in the fully open position and with the fitting outlet sealed.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no leakage or seepage through the walls.

(iv) TEST METHOD

Repeat test (ii) with the plug cock in the fully open position and with the fitting outlet sealed.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no sign of leakage or seepage through the walls.

(D) **VALVES FOR HOT WATER RADIATORS** (Derived from BS 2767, Clause 5.4.2.1)

TEST METHOD

Apply an internal hydraulic pressure in accordance with Setting-up Procedure IGN 1-50-61. With the valve in the fully open position and with the fitting outlet sealed, apply an internal hydraulic pressure of 1.5 times the maximum operating pressure rating (± 0.5 bar within range 4-30 bar) for a time of 60 ± 5 seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no sign of leakage or seepage through the walls.

(E) **DRAINING TAPS (SCREW DOWN PATTERN)** (Derived from BS 2879, Clause 18)

(i) TEST METHOD

Apply an internal hydraulic pressure in accordance with Settign-up Procedure IGN 1-50-61 of 20 ± 0.5 bar under the seat with the draining tap closed and the other side open to atmosphere. The duration of the test shall be 15 minutes ± 30 seconds.

5. **ACCEPTANCE CRITERIA**

For the duration of the test there shall be no sign of leakage or seepage through the walls.

(ii) TEST METHOD

Repeat this test with the drain tap open and the outlet closed. Apply an internal hydraulic pressure of 5 ± 0.5 bar for a time of 60 ± 5 seconds.

5. **ACCEPTANCE CRITERIA**

For the duration of the test there shall be no sign of leakage or seepage through the walls.

(F) **STATIONARY INSTANTANEOUS WATER HEATERS** (Derived from BS 3456, Part 3, Section 3.9, Clause 22.28)

TEST METHOD

Connect the inlet to a to a pressurised water supply in accordance with Setting-up Procedure IGN 1-50-61. Apply an internal hydraulic pressure of 2 times the maximum operating pressure rating (± 0.5 bar within range 4 - 30 bar), for a time of 5 minutes ± 10 seconds, for containers of closed appliances.

5. **ACCEPTANCE CRITERIA**

For the duration of the test there shall be no leakage or seepage through the walls.

(G) **FOOD AND DRINK VENDING MACHINE** (Derived from BS 5071, Clause 4.6.5)

TEST METHOD

Connect the inlet to a pressurised water supply in accordance with Setting-up Procedure IGN 1-50-61. Apply 1.5 times the rated operational pressure (± 0.5 bar within range 4-30 bar), for a time of 5 minutes ± 10 seconds, for containers of closed appliances.

5. **ACCEPTANCE CRITERIA**

For the duration of the test there shall be no leakage from the appliance or from the liquid conveying system.

(H) **BUTTERFLY VALVES** (Derived from BS 5155, Clause 12.3, 12.4.1)

TEST METHOD

The valve disk shall be open or partially open. Both ends of the body shall be blanked off so that the valve is subjected to the full pressure stresses in all directions. Apply a hydraulic pressure of 1.5 times the maximum permissable working pressure in accordance with Setting-up Procedure IGN 1-50-61 for the following time period:-

NOMINAL VALVE SIZE DN	TEST DURATION
Up to and including DN 50	15 ± 2 seconds.
DN 65 up to and including DN 200	60 ± 5 seconds.
DN 250 and DN 300	180 ± 10 seconds.
DN 350 up to and including DN 450	180 ± 10 seconds.
DN 500 and greater	180 ± 10 seconds.

5. **ACCEPTANCE CRITERIA**

For the duration of the test there shall be no visible signs of leakage or seepage through the shell of the valve. If there is seepage past the gland seals at the shell of the valve. If there is seepage past the gland seals at the shell test pressure this will not signify failure so long as the seepage stops when the test pressure is reduced to the maximum permissable working pressure.

(I) **PREDOMINANTLY KEY-OPERATED CAST IRON GATE VALVES**
(Derived from BS 5163, Clause 8, 18.2, 19.1)

Design working pressures. Valves shall be designed for maximum permissable working pressures at 20°C ± 10°C of one of the following:-

(i) 10 bar for PN10 valves.
(ii) 16 bar for PN16 valves.
(iii) 25 bar for PN 25 valves.

TEST METHOD

Apply an internal hydraulic pressure in accordance with Setting-up Procedure IGN 1-50-61. The test pressure shall be 1.5 times the maximum permissable working pressure ± 0.5 bar for the following time period:-

NOMINAL VALVE SIZE DN	TEST DURATION
DN 50 up to and including DN 200	30 minutes ± 60 seconds.
DN 250 and DN 600	60 minutes ± 120 seconds.

5. **ACCEPTANCE CRITERIA**

For the duration of the test there shall be no leakage or seepage through the walls.

(J) **DRAW-OFF TAPS WITH METAL BODIES**
DRAW-OFF TAPS WITH PLASTIC BODIES (Derived from BS 5412/13, Part 2, Clause 9,11)

(i) TEST METHOD

Body upstream test. Apply a torque of 1.5Nm for 1/2 taps, or 2.5Nm for 3/4 taps, to the operating member closing the obturator onto the body seating. With the tap outlet open apply a hydraulic pressure in accordance with Setting-up Procedure IGN 1-50-61 of 16 ± 0.5 bar for a duration of 60 ± 5 seconds.

NOTE: Where the watertightness of the headwork is ensured by a stuffing box, the packing gland is loosened.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no leakage or seepage through the walls.

(ii) **TEST METHOD**

Body downstream test. Mount the tap in the test circuit with the obturator open and the gland loose. The oulet of the tap shall be sealed. Apply an internal hydraulic pressure of 4 ± 0.2 bar for a duration of 60 ± 5 seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no leakage or seepage through the walls.

(K) **UNDERGROUND STOPVALVES** (Derived from BS 5433, Clause 8)

(i) TEST METHOD

Connect the valve inlet to a pressurised water supply in accordance with Setting-up Procedure IGN 1-50-61 and fully close the valve with the other side open to atmosphere. Apply an internal hydraulic pressure of 21 ± 0.5 bar for a time period of 60 ± 5 seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no leakage or seepage through the walls.

(ii) TEST METHOD

Repeat test (i) with the valve in the fully open position, and with the valve outlet sealed.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no leakage or sweating.

(L) METHODS FOR DETERMINING PRINCIPAL CHARACTERISTICS OF SINGLE METERS
(Derived from BS 5728, Part 3, Clause 10.1.3.2)

(i) TEST METHOD

Connect the meter to a pressurised water suppl y in accordance with Setting-up Procedure IGN 1-50-61. Seal the outlet of the meter. Apply a hydraulic pressure of 16 ± 0.5 bar, or 1.6 times the operating pressure rating if it exceeds 10 ± 0.5 bar, applied for a time of 15 mins ± 30 seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no leakage or seepage through the walls and no damage to the meter.

(ii) TEST METHOD

Repeat test (i) applying 20 ± 0.5 bar or 2 times the operating pressure rating ± 0.5 bar if it exceeds 10 ± 0.5 bar, applied for a time of 60 ± 5 seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no leakage or seepage through the walls and no damage to the meter.

(M) SERVICING VALVES (COPPER ALLOY) FOR WATER SERVICES (Derived from BS 6675, Clause 12)

TEST METHOD

Connect the valve inlet to a presurised water supply in accordance with Setting-up Procedure IGN 1-50-61, with the valve in the open position and the outlet port closed, apply a pressure of 20 ± 0.5 bar, for a time of 15 minutes ± 30 seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no leakage or seepage through the walls.

(N) ALL OTHER TYPES OF VALVES/FITTINGS NOT REFERRED TO IN THE FOREGOING TO BE ASSESSED IN ACCORDANCE WITH THE FOLLOWING PROCEDURE:-

FITTING(S) DESIGNED TO BE INSTALLED BELOW GROUND OR IN ANY OTHER POSITION TO WHICH ACCESS IS DIFFICULT

(i) TEST METHOD

Connect the part of the fitting under test to a pressurised water supply in accordance with Setting-up Procedure IGN 1-50-61. Seal the outlet of the fitting. Apply a hydraulic pressure equal to 2 times the maximum operating pressure rating ± 0.5 bar within the range 4-30 bar, for a time of 60 ± 5 seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no signs of leakage or seepage through the walls of the fitting.

FITTINGS DESIGNED FOR ABOVE GROUND USE OR IN AN ACCESSIBLE POSITION

(ii) TEST METHOD

Connect the part of the fitting under test to a pressurised water supply in accordance with Setting-up Procedure IGN 1-50-61. Seal the outlet of the fitting. Apply a hydraulic pressure equal to 1.5 times the maximum operating pressure rating ± 0.2 bar within the range 1 bar - 4 bar or 0.5 bar within the range 4-30 bar, for a time of 60 ± seconds.

5. ACCEPTANCE CRITERIA

For the duration of the test there shall be no signs of leakage or seepage through the walls of the fitting.