

Test Code Sheet Number	1	5	1	1	2
---------------------------------------	----------	----------	----------	----------	----------

WRAS TEST & ACCEPTANCE CRITERIA

Issue No: 6

Date of issue: November 2000

Sheet 1 of 4

TEST CODE SHEET

1. TYPE OF TEST(S)

Flush Rate.

2. WATER REGULATIONS REQUIREMENTS FOR FITTINGSSchedule 2

25 (1) Subject to the following provisions of this paragraph

(a) every water closet pan shall be supplied with water from a flushing cistern, pressure flushing cistern or pressure flushing valve, and shall be so made and installed that after normal use its contents can be cleared effectively by a single flush, or, where the installation is designed to receive flushes of different volumes, by the largest those flushes;

(b) no pressure flushing valve shall be installed

(i) in a house, or

(ii) in any building not being a house where a minimum flow rate of 1.2 litres per second cannot be achieved at the appliance.

(c) where a pressure flushing valve is connected to a supply pipe or distributing pipe, the flushing arrangement shall incorporate a backflow prevention device consisting of a permanently vented pipe interrupter located not less than 300mm above the spillover level of the WC pan or urinal;

(d) no flushing device installed for use with a WC pan shall give a single flush exceeding 6 litres;

(e) no flushing device designed to give flushes of different volumes shall have a lesser flush exceeding two-thirds of the largest flush volume;

(f) every flushing cistern, other than a pressure flushing cistern, shall be clearly marked internally with an indelible line to show the intended volume of flush, together with an indication of that volume.

(g) a flushing cistern designed to give flushes of different volumes

(i) shall have a readily discernible method of actuating the flush of different volumes; and

(ii) shall have instructions, clearly and permanently marked on the cistern or displayed nearby, for operating it to obtain the different volumes of flush

(h) every flushing cistern, not being a pressure flushing cistern or a urinal cistern, shall be fitted with a warning pipe or with a no less effective device;

(i) every urinal that is cleared by water after use shall be supplied with water from a flushing device which

(ii) in the case of a flushing cistern, is filled at a rate suitable for the installation;

(iii) in all cases, is designed or adapted to supply no more water than is necessary for effective flow over the internal surface of the urinal and for replacement of the fluid in the trap; and

(j) except in the case of a urinal which is flushed manually, or which is flushed automatically by electronic means after use, every pipe which supplies water to a flushing cistern or trough used for flushing a urinal shall be fitted with an isolating valve controlled by a time switch and a lockable isolating valve, or with some other equally effective automatic device for regulating the periods during which the cistern may fill.

Test Code Sheet Number	1	5	1	1	2
---------------------------------------	----------	----------	----------	----------	----------

Issue No: 6
Date of issue: November 2000

Sheet 2 of 4

(2) Every water closet, and every flushing device designed for use with a water closet, shall comply with a specification approved by the regulator for the purposes of this schedule.

(3) The requirements of the sub-paragraphs (1) and (2) do not apply where faeces or urine are disposed of through an appliance that does not solely use fluid to remove the contents.

(4) The requirement in sub-paragraph (1) (i) shall be deemed to satisfied

(a) in the case of an automatically operated flushing cistern servicing urinals which is filled with water at a rate not exceeding

- (i) 10 litres per hour for a cistern serving a single urinal;
- (ii) 7.5 litres per hour per urinal bowl or stall, or, as the case may be, for each 700mm width of urinal slab, for a cistern serving two or more urinals;

(b) in the case of a manually or automatically operated pressure flushing valve used for a flushing urinals which delivers not more than 1.5 litres per bowl or position each time the device is operated.

(5) Until 1 January 2001 paragraphs (1) (a) and (d) shall have effect as if they provided as follows

(a) every water closet pan shall be supplied with water from a flushing cistern or trough of the valveless type which incorporates siphonic apparatus;

(b) no flushing device installed for use with a WC pan shall give a single flush exceeding 7.5 litres.

(6) Notwithstanding sub-paragraph 1(d), a flushing cistern installed before 1st July 1999 may be replaced by a cistern which delivers a similar volume and which may be either single flush or dual flush; but a single flush cistern may not be so replaced by a double flush cistern.

(7) In this paragraph

‘PRESSURE FLUSHING CISTERN’ means a WC Flushing device that utilises the pressure of water within the cistern supply pipe to compress air and increase the pressure of water available for flushing a WC pan.

‘PRESSURE FLUSHING VALVE’ means a self closing valve supplied with water directly from a supply pipe or a distributing pipe which when activated will discharge a pre determined flush volume.

‘TRAP’ means a pipe fitting or part of a sanitary appliance, that retains liquid to prevent the passage of foul air; and

‘WARNING PIPE’ means an overflow pipe whose outlet is located in a position where the discharge of water can be readily seen.

Test Code Sheet Number	1	5	1	1	2
---------------------------------------	----------	----------	----------	----------	----------

Issue No: 6
Date of issue: November 2000

Sheet 3 of 4

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

3.1 Fittings with 'kitemarks' which are deemed to satisfy the requirements of regulations are listed in the directory.

4. TEST PROCEDURE

4.1 Tests are applicable to the following fittings:

WC FLUSHING CISTERNS, which require to be tested to the regulators specification

(A) WC FLUSHING CISTERNS, which require to be tested to the regulators specification

Apparatus

- a) Cistern, complete with fitments including flushpipe and cover, installed in accordance with the manufacturer's instructions on a firm, flat, vertical surface.
- b) calibrated measuring container
- c) fluid level sensing devices
- d) electronic timer
- e) water supply controlled by a stopvalve
- f) power supply

Procedure

Assemble the cistern with its fitments supplied by the manufacturer, as described in the manufacturer's instructions. Fasten the cistern by its normal fixing devices to a solid background.

For *high level cisterns*, connect a back wall flush pipe having a internal diameter equal to the diameter of the outlet discharge valve and overall length of the minimum supplied by the manufacturer, with an engagement length of 50 mm maximum.

For *low level and close coupled cisterns* connect a flush pipe into the outlet valve having a internal diameter equal to the diameter of the outlet discharge valve and overall length of the minimum supplied by the manufacturer, with an engagement length of 50 mm maximum.

Set the dual-flush controller or setting if provided to the *full-flush volume* in accordance with the manufacturer's instructions. Connect the water supply to the flushing cistern that is controlled by a stop valve and fitted, if necessary with a pressure regulating valve to give a static pressure of 3 ± 0.5 bar at the inlet to the cistern float operated valve. Adjust the float operated valve so that the valve closes when the water level reaches the marked water line of the cistern operate the cistern at least once prior to carrying out the test. Fill the cistern to the marked water line, shut off the water supply, unless essential for the normal operation of the flushing device.

NOTE. Where a water supply is essential for the normal operation of the device, maintain the supply at a hydraulic pressure of (1.5 ± 0.1) bar or the minimum required to operate the device, whichever is the greater.

Operate the flushing device completing one flushing cycle. On completion of the flush, using the calibrated measuring container or calibrated weigh scales or platform, add 0.5 litres of water to the cistern. Locate and position a fluid sensing device at the water level in the cistern. Using the calibrated measuring container add further water to the cistern equivalent to the volume of full flush less 1.0 litres. Locate and position a second fluid sensing device at the water level in the cistern. Add further water to the cistern up to the marked water level for the full flush volume. Connect the two fluid level sensing devices to the electronic timer and connect to the power supply. Operate the flushing device and on completion of the flush record the time taken to discharge the volume of water between the fluid level sensing devices as displayed on the timer. Repeat the procedure a further four times.

Test Code Sheet Number	1	5	1	1	2
---------------------------------------	----------	----------	----------	----------	----------

Issue No: 6

Date of issue: November 2000

Sheet 4 of 4

If the flushing device is provided with a reduced flush facility shut off the water and power supplies, and operate the flushing mechanism. Using the calibrated container, add to the cistern a volume of water equivalent to the difference between the full flush volume and reduced flush volume as recorded. Add a further 0.5 litres. Locate and position a fluid level sensing device at the water level in the cistern. Using the calibrated measuring container or calibrated weigh scales or platform, add further water to the cistern until it is filled to a volume equivalent to the volume of full flush recorded less 1.0 litres. Locate and position a second fluid sensing device at this water level in the cistern. Add further water to the cistern, up to the marked water level for the full flush volume recorded. Turn on the power and water supplies. Set the dual-flush controller or setting to the reduced-flush volume in accordance with the manufacturer's instructions. Operate the flushing device and on completion of the flush record the time taken to discharge the volume of water between the fluid level sensing devices as displayed on the timer. Repeat the procedure a further four times.

Expression of results

From the five recorded times, at each flush volume, determine the average time and, using the following formula, calculate the mean rate of discharge using the following methods.

For the FULL FLUSH

$$\frac{\text{Volume of discharge per full flush in litres} - 1.5 \text{ litres}}{\text{Average time in seconds}}$$

For the REDUCED FLUSH

$$\frac{\text{Volume of discharge per reduced flush in litres} - 1.5 \text{ litres}}{\text{Average time in seconds}}$$

5. ACCEPTANCE CRITERIA

When tested as described above, the mean flush rate of discharge per flush shall be ≥ 1.85 L/s for full flush and ≥ 1.6 L/s for reduced flush - if provided.