



水務監督辦事處
Office of the Water Authority

香港灣仔告士打道七號入境事務大樓
Immigration Tower, 7 Gloucester Road, Hong Kong.

電子郵件
e-mail wsdinfo@wsd.gov.hk

電話
Telephone 2829 4446

圖文傳真
Facsimile 2824 0578

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Distribution : To all Licensed Plumbers and Authorized Persons

Dear Sir,

WSD Circular Letter No. 4/2000
The Use of Valve Type Flushing Devices
and Minimum Flushing Volume

Flushing devices can be classified broadly into two main types viz. the valveless syphonic type and the valve type devices. The current Waterworks Regulations require that flushing cisterns shall be of the valveless syphonic type capable of giving a flush between 7.5 and 15 litres. The practice of accepting only valveless syphonic type cisterns is mainly to prevent leakage of water into the toilet bowl, as in the past, the water-tightness of most valve type flushing devices was often a problem. However, a disadvantage of valveless syphonic type cisterns is that they require a comparatively larger volume of water to generate the necessary flushing effect and a cistern volume of 7.5 litres is seen the practically minimum requirement.

With the improvement in design and material, valve type flushing devices have become more reliable in their performance. A major advantage of valve type flushing devices is that they can give instantaneous flushing even with a relatively smaller volume of flushing water. This helps reduce water required for flushing. Valve type flushing mechanism also permits the design of "dual-flush" cisterns in which the volume of water to be discharged from the cistern can be selected by choosing either a "full-flush" or a "half-flush" depending on need. This allows further reduction in flushing water requirement.

Research and trials were conducted by this Authority since 1997 to review whether the use of valve type flushing devices can be adopted in Hong Kong. Site trials were conducted at various locations and the results were satisfactory. In the light of results of the trials and making prudent reference to overseas practice and

advice from the local plumbing trade, the use of valve type flushing devices with a maximum flushing volume less than 7.5 litres is considered feasible under the local conditions.

This Authority will proceed to amend the Waterworks Regulations to the following effects:

- a) to permit the use of valve type flushing devices (mechanical or sensor type with single flush or dual flush) in addition to valveless syphonic type flushing apparatuses; and
- b) to reduce the maximum flushing volume from 15 litres to 7.5 litres.

In the legislative amendments, it is proposed to grant a grace period (the length is yet to be determined) to allow new buildings to continue the use of the flushing devices giving flushing volume more than 7.5 litres and less than 15 litres after enactment of the new Regulations. On expiry of the grace period, installation of flushing devices giving a flushing volume greater than 7.5 litres will not be allowed in new buildings.

The proposed amendments to the Waterworks Regulations shall not apply to existing flushing apparatuses (including valve type flushing cisterns without our approval) installed before the commencement of the new Regulations. No person shall be required to alter or renew any such flushing apparatuses by virtue of the amendments unless such flushing apparatuses are in our opinion so defective or in such condition as to cause waste. In case the existing flushing apparatuses are found defective or leaking, consumers are allowed to either repair the defective flushing apparatuses or replace them by the approved type flushing apparatuses.

During the transition before legislative amendments are completed, this Authority, as empowered by Waterworks Regulation 25(1), will relax the requirements in respect of the flushing mechanism and minimum flushing volume as follows:

- i) the use of valve type flushing devices as mentioned in the above item (a).
- ii) the use of flushing devices which are capable to give a single flushing volume of less than 7.5 litres.

The requirements stipulated in the Annex 1 shall be observed if valve type flushing cisterns and flushing valves are to be installed and used. An essential requirement for the use of valve type flushing devices is that the design flushing

volume should be compatible with the bowl to ensure effective clearance of waste by a single flush. For the use of flushing valves, a good management system ensuring frequent inspection and cleaning of filters is required. Normally, only public toilets with good management will be considered. To ensure the water tightness of the valve components under repeated use, the flushing devices must pass an endurance test stipulated in Annex 1. Annex 2 provides a list of approved local testing agents who can perform such tests. To obtain general acceptances of valve type flushing devices, submissions have to be made to this Authority with testing certificates issued by approved local testing agents on the requirements (A)(iii), (A)(iv) and (A)(viii) for valve type flushing cisterns and requirements (B)(vii) and (B)(ix) for flushing valves.

With immediate effect, all plumbing proposals of new buildings including the installation of valve type flushing devices in compliance with the requirements in Annex 1 will be considered by this Authority.

Yours faithfully,



(CHAU Chi-wai, David)
for Water Authority

Encl.

A) Requirements on the Use of Valve Type Flushing Cisterns and Dual Flush Cisterns

- (i) The valve seal of the flushing cisterns should be easily replaceable.
- (ii) The design flushing volume of the flushing devices should be compatible with the toilet bowl to ensure that effective clearance can be achieved by a single flush of water.
- (iii) The maximum flushing cistern volume including that of dual flush cisterns should not exceed 7.5 litres per flush.
- (iv) For dual flush devices, the reduced flushing volumes should not be more than two-third of its larger flushing volume.
- (v) The dual flush cisterns should have a readily discernible method of actuating the different volumes of flush.
- (vi) Reliable regular attendance to maintenance of all valve type flushing devices is available.
- (vii) The components of all valve type flushing devices should be resistant to salt water corrosion.
- (viii) The flushing devices must pass the 200,000-cycle endurance test.

B) Requirements on the Use of Flushing Valves

- (i) Installation of filters before flushing valves is required. Without the filters, the flushing valves are liable to leak.
- (ii) A good management system for maintenance is in place for frequent inspection and cleaning of the filters. Normally only public toilets with good management system for maintenance would be considered.
- (iii) The cartridge and other valve components should be easily replaceable.
- (iv) The valve components should be resistant to salt water.
- (v) The flushing volume of the flushing valves should be adjusted to suit the design of the toilet bowl so that wastes can be cleared effectively by a single flush.
- (vi) Flushing valves should be used within the range of working pressures specified by the manufacturer.
- (vii) The maximum flushing volume of the flushing valves to be installed should not exceed 7.5 litres.
- (viii) Flushing valves not designed for operation by foot should be installed at a height such that the valves can conveniently be operated by hand.
- (ix) The flushing devices must pass the 200,000-cycle endurance test.

**List of Approved Local Testing Agencies
(1 July 1999 to 30 June 2002)**

- (1) Department of Mechanical Engineering,
the University of Hong Kong,
Haking Wong Building, Pokfulam Road,
Hong Kong.

Tel.: 2859 2622

Fax: 2858 5415

- (2) ETS-Testconsult Ltd.
8/F., Block B, Veristrong Industrial Centre,
34-36 Au Pui Wan Street, Fo Tan, Shatin,
Hong Kong.

Tel.: 2695 8318

Fax: 2695 3944

- (3) Nutek Systems, Ltd.
Unit F, 7/F., Universal Industrial Centre,
19-21 Shan Mei Street, Fo Tan, Shatin,
Hong Kong.

Tel.: 2605 5736

Fax: 2692 0798