

Reducing water use in washrooms: urinals

ENVIROWISE WATER
MANAGEMENT LEAFLET



Why think about urinals?

Over half of 'domestic' water used in commercial premises can be due to urinals operating without flush controls.

A large number of water saving devices are available to businesses to reduce water use substantially. This leaflet provides guidance on what you need to consider and how to evaluate the best solution to meet your needs.

Don't flush savings away!

Urinals often flush regardless of use, wasting a lot of water, especially out of hours. Typical uncontrolled flush of urinals is three times an hour, which with a 7.5 - 12 litre cistern will be using 197 - 315 m³ water/year.

In companies where the urinals operate without flush control, savings of over £3,800/year in water and sewerage costs can be achieved by installing passive infrared (PIR) sensors at a cost of around £350 - a payback of five weeks.

Based on 100 male staff working 260 days a year

Reducing water use

In many cases, a reduction in water use can be achieved by installing a retrofit control device to the urinal system rather than allowing the urinal to flush uncontrolled 24 hours/day 365 days/year.

Key considerations:

- Correct installation is important - a poorly fitted device or control system may not reduce water use - in fact it may increase it!
- When considering retrofitting or refurbishing urinals, consult your supplier about their suitability for the specific application.
- Is the mechanism robust enough to provide a long-term solution?
- Some devices need to be maintained and serviced correctly, eg some will require batteries, cartridges or chemicals.
- Public perception is often a barrier - waterless urinals can be stylish, effective and odour free, if installed correctly.

- Any fittings to the water main need to comply with the Water Supply (Water Fittings) Regulations 1999. For example, flush controls should now be fitted as standard on urinals in new commercial buildings.
- Are the products you are considering buying included on the Water Technology List (WTL)? The Enhanced Capital Allowance (ECA) Scheme¹ enables businesses to claim 100% first year capital allowances on investments in urinal controls and can be found at <http://www.eca-water.gov.uk/>

Water Saving Devices

The table overleaf outlines advantages and disadvantages of some of the water saving devices currently available.

¹ Developed by Defra and HM Revenue & Customs in partnership with Envirowise

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Device/activity	Potential water savings	Advantages	Disadvantages
<p>Manual shut-off A single valve such as a quarter turn ball valve can be installed in the pipework supplying the washroom.</p>	Can reduce water use by over 75% ²	<ul style="list-style-type: none"> Low-cost 	<ul style="list-style-type: none"> Only applicable if work hours are predictable Requires staff reliability
<p>Timer and solenoid valve A timer and solenoid valve can be installed on the pipework connected to the urinals, so that water supplied to the cisterns is shut off during periods of non-use.</p>	Can reduce water use by over 75% ²	<ul style="list-style-type: none"> Low-cost 	<ul style="list-style-type: none"> Only applicable if work hours are predictable
<p>Pressure sensitive hydraulic valve / pressure reducing valve (PRV) A pressure sensitive hydraulic valve can be fitted to the inlet pipework of the urinal system. When the inlet water pressure temporarily decreases through water being used elsewhere in the washroom, the diaphragm-operated valve opens, allowing a pre-set amount of water to pass to the urinal cistern.</p>	Can reduce water use by over 75% ²	<ul style="list-style-type: none"> Retrofit Valve remains closed when pressure remains unchanged (ie when urinal is not being used) 	<ul style="list-style-type: none"> Flushing is related to occupancy of washrooms³ rather than use of urinal
<p>Passive infrared (PIR) sensor A motion sensor is placed above the urinal to detect use. This controls a solenoid valve to allow a pre-set volume of water into the cistern per use. When the cistern is full, the auto-siphon will automatically discharge and flush the urinal.</p>	Can reduce water use by over 75% ²	<ul style="list-style-type: none"> Cheap to install - around £120 and can be operated by battery (lifetime of 3-4 years) or mains electricity. 	<ul style="list-style-type: none"> Dispose of the battery as hazardous waste
<p>Waterless urinals - retrofit <i>Siphonic trap</i> - contains a barrier fluid that is inserted in the urinal bowl. The urine passes through the siphon and drains to sewer, while the low-density barrier fluid (a deodorising disinfectant) remains in the siphon. <i>Deodorising pad</i> - pad impregnated with a deodorising chemical which is inserted into the urinal outlet. <i>Biological</i> - cartridge containing a microbial stick is fitted into the urinal bowl or trough to break down urine and biofilm.</p>	Can reduce water use by 90% ⁴	<ul style="list-style-type: none"> Retrofit (£80 - £90 unit) Easy to install 	<ul style="list-style-type: none"> Specialised cleaning Replace barrier fluid every 1 to 2 weeks depending on use (costs around £20 - £45/urinal/year) Replace and dispose of pads every week, depending on use (costs around £30/urinal/year) Stick dissolves and needs to be replaced 3 to 4 times a year, depending on use
<p>Waterless urinals - airflush Individual traps are replaced by a single trap at the drain end. A low wattage DC fan provides air flow down the bowl to prevent odour. The waste pipes are specified at 50 mm minimum and installed at 1:18 fall to prevent scale build up.</p>	Can reduce water use by 90% ⁴	<ul style="list-style-type: none"> No chemicals Single trap easy to clean Fan uses the same power as mains powered urinal controllers 	<ul style="list-style-type: none"> Not suitable as retrofit

² Based on an office working 8-hr day, 260 days a year

³ Can also be affected by changes in pressure resulting from use of other facilities supplied on the same water supply pipe

⁴ Water may still be required for hygiene flushing or cleaning

Further information

- Envirowise water pages www.envirowise.gov.uk/water. Use WaterNet (www.envirowise.gov.uk/waternet) to identify the most relevant publications for your requirements. These could include the following: *Cost-effective water saving devices and practices - for commercial sites* (GG522) and *Furniture manufacturer is sitting pretty on its water savings* (CS597).
- Water Supply (Water Fittings) Regulations 1999. SI 1999 No. 1148 (England and Wales)
<http://www.opsi.gov.uk/si/si1999/19991148.htm>



Harwell International Business Centre | Didcot | Oxfordshire | OX11 0QJ
E-mail: helpline@envirowise.gov.uk Internet: www.envirowise.gov.uk

Envirowise - Practical Environmental Advice for Business - is a Government programme that offers free, independent and practical advice to UK businesses to reduce waste at source and increase profits. It is managed by Momenta, an operating division of AEA Technology plc, and Serco TTI.



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**Environment
and Energy
Helpline
0800 585794**