

BACKFLOW PREVENTION
TYPE AG AIR GAP REQUIREMENTS FOR WCs

The purpose of this document is to provide clarification of the requirements of the Water Supply (Water Fittings) Regulations (Byelaws in Scotland) as they apply to Type AG air gaps in WC suites.

To be considered as a Type AG air gap, an arrangement must meet the definition of a Type AG air gap and satisfy an appropriate performance specification.

If the intention is for a Type AG air gap to form part of a Type AUK 1 air gap this would need to demonstrate compliance with Regulators' Specification test code sheet 2212.3.

Definition of a Type AG air gap

- A non-mechanical backflow prevention arrangement of water fittings with an air gap together with a circular overflow, the size of which is determined by measure or a vacuum test;

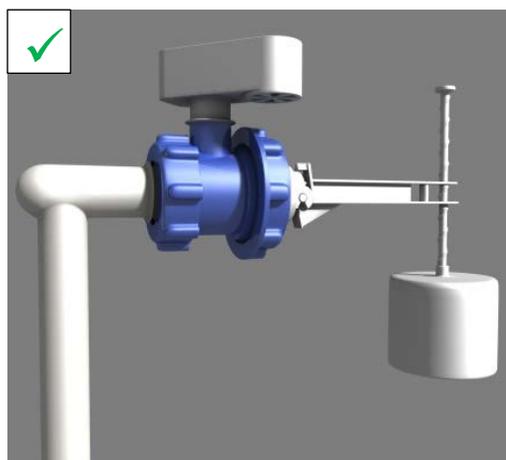


Fig 1:
Example of a WC inlet which could be used in a Type AG air gap arrangement

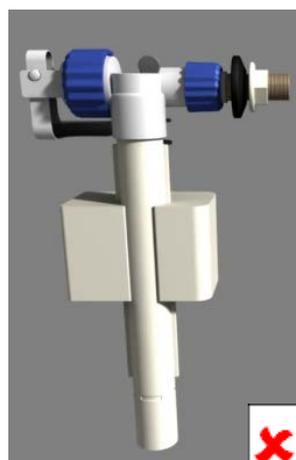


Fig 2:
Example of a WC inlet which could be used to provide a Type AC air gap but cannot achieve a Type AUK1 air gap arrangement

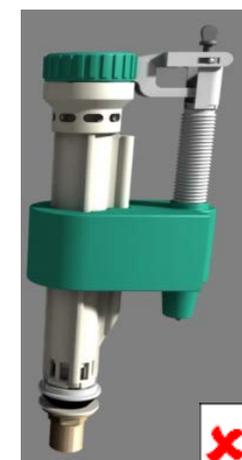


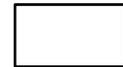
Fig 3:
Example of a mechanical WC inlet which cannot provide a recognised air gap

- The air gap being a visible, unobstructed and complete physical air break between the lowest level of water discharge and the critical water level (CWL) within a cistern. It must be not less than 20mm or twice the inlet internal diameter 'D' of the inlet pipe whichever is the greater ; and
- The overflow must be circular and of a minimum size, 19mm providing this is capable of accommodating maximum inlet flow.

Dimensional and design requirements Type AG air gap

Below is a summary of the dimensional and design requirements for Type AG air gaps. (Please refer to the Regulators' Specification for backflow and appropriate performance specification for further details.)

1. There must be a non-mechanical backflow prevention arrangement providing a visible, unobstructed and complete physical air break between the lowest level of water discharge and the critical water level (CWL) of not less than 20mm or twice the inlet internal diameter 'D' of the inlet pipe whichever is the greater



2. There can be no joints on the inlet valve below the critical water level which can be adjusted or dismantled.

BS 1212 part 2, 3 and 4 inlet valves are designed such that they can be dismantled for routine or essential servicing and/or repair, with ready access to the diaphragm within the inlet valve being essential to maintain appropriate backflow prevention.

To achieve a Type AG air gap there can be no joints on an inlet valve below the critical water level which can be adjusted or dismantled.

In the case of WCs only where a BS 1212 part2, 3 or 4 inlet valve is used in the Type AG component in a Type AUK1 air gap arrangement the WRAS Technical Committee has recommended there are compelling technical grounds not to consider the nuts on the diaphragm housing as a "joint" which can be adjusted or dismantled.



3. The fluid in a WC cistern shall not come into contact in anyway with the discharge outlet – for example due to splashing. If contact is observed the air gap has been compromised and it needs to be increased to the point where no contact occurs.



4. As they can affect air gaps, silencer tubes can only be permitted where they do not compromise the air gap in any way.

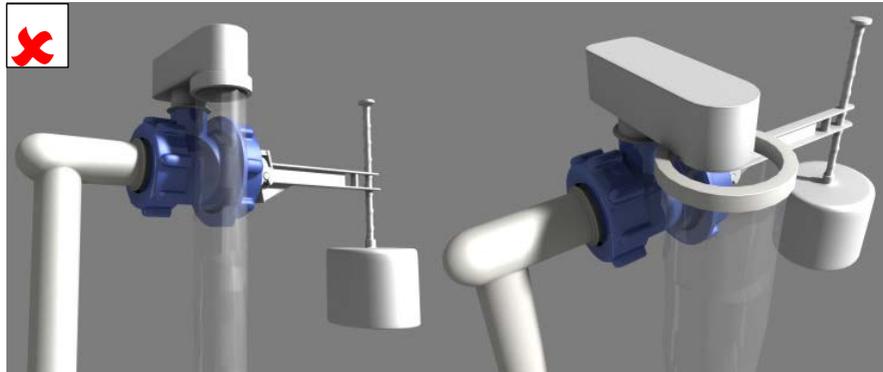


Fig 4:
Examples of
silencer
tubes which
compromise
the air gap
so are not
permitted



Fig 6:
Example of a
silencer tube
which does
not
compromise
the air gap

5. There must be a circular overflow of not less than 19mm internal diameter capable of accommodating the maximum inlet flow.

6. Although water in a WC cistern is not required to be wholesome, mains supplied water is required to remain wholesome to the point of discharge into a WC cistern. Consequently non-metallic materials used in the construction of WC inlet valves must be BS 6920 compliant, or equivalent, to the point of discharge.

7. 'D' is the maximum internal diameter found within the last metre of the supply pipe or the DN ('diametre nominel') of the inlet connection.