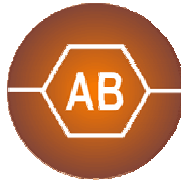

TYPE AB AIR GAP WEIR CALCULATOR



Version 2 August 2004



INSTRUCTIONS FOR USE

Protection against backflow by fluids containing contaminants up to fluid category five can be provided by using a type AB air gap in conjunction with a storage cistern. The type AB air gap overflow is a simple device complicated by the requirements of the validation criteria. It is a requirement that the dimensions of the weir overflow slot in the cistern wall comply with the Regulators' Performance Specification.

The Water Industry has provided this **Type AB Air Gap Calculator** to ensure the Regulators' requirements for the weir overflow of the Type AB air gap are met. The calculator has been derived from the British Standard BS EN13077: 2003, which supersedes BS6281-1: 1992. The calculator shows the minimum distances and values required to satisfy these requirements. This Note is to assist designers or installers in interpreting the calculator and in ensuring a satisfactory installation.

There are two types of overflow. In one, the overflow weir slot has no screens to obstruct the water overflowing during fault conditions. The second has the addition of a mesh screen to prevent the ingress of insects and other creatures. A screen will be required where the use of the water in the storage cistern requires it to be wholesome and it may be needed in other circumstances where maintaining water quality is important (e.g. for some industrial purposes). The calculator takes into account the effect that a screen might have on the overflow.

The Air Gap weir calculator has several options. Where no screen is used on the overflow weir, dimensions for option **Op1** are to be used. When a screen is to be used, one of two methods must be employed to ensure the air gap is not compromised. To maintain the air gap, in option **Op2** the base width is increased and in option **Op3** the overall height is increased. All validation criteria must be met to ensure the overflow will function as designed when fault conditions occur; these are listed separately for each option. Only one option should be selected and the relevant validation criteria for that option are used depending on the design.

Interpretation

(N. B. The weir calculator includes a diagram to illustrate these dimensions.)

W – The minimum overall width of the slot in the storage cistern.

Ow – The minimum height of the slot; this measurement is taken from the lowest point of discharge of the inlet device to the bottom of the overflow slot.

Cw – The maximum distance allowed from the inside face of the cistern wall where the water will start to overflow to where the water will fall vertically downwards outside the cistern.

Uw – This is the minimum vertical distance from where water will spill out of the overflow slot to the point where water will reach the first horizontal surface outside the cistern. Where the overflow is installed in a raised housing the measurement is taken to the lid of the storage cistern. Where the overflow is in the side of a cistern then the measurement is taken to either the floor or to a point where the overflowing water is directed away from the side of the cistern.

A – Minimum air gap required, which shall be twice the bore of the inlet.

h – Depth of water above the base of the weir slot that will build up during fault conditions, when there is maximum inlet flow and outlet flow is only via weir).

It is the installer's responsibility to ensure that the air gap and overflow weir comply with the Regulations when first installed. It is the user's responsibility to ensure that whether or not a screened overflow is used, suitable maintenance is carried out when necessary, to enable the overflow to work as designed when it is required.