

Assessment of Joints in inlet valves that claim to be able to be used to form part of a type AG air gap arrangement

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Introduction

The WRAS approvals guidance and conditions set out below have been developed to be used when assessing products submitted for WRAS approval only.

Ambiguity

WRAS considers that there is an ambiguity in TCS 2212.3 relating to joints below the critical water line. In particular, it is not clear:

(a) *if a joint is considered submerged if part, but not all of the joint is below the critical water level;*

(b) *how “joints which are adjustable or can be dismantled” should be assessed.*

(c) *if joints that are part of the device, downstream of the diaphragm/membrane/valve would be considered part of the “supply pipe to the inlet device”.*

*and what is permitted under the terms of the specification (the **Ambiguity**). For the purposes of obtaining a WRAS Approval, WRAS will want to see evidence that the assessors’ recommendations have been met (the **Approach**)*

The Approach has not been endorsed by the water companies or the courts, and they could adopt a different approach to the Ambiguity. For this reason, WRAS cannot guarantee that enforcement action will not be taken by water companies under the water fittings regulations, or that the courts will hold that your product is compliant in this regard. No reliance should be placed on the Approach for the purposes of designing or producing any product, and you should rely on your own legal advice. WRAS, accordingly, accepts no liability for loss of goodwill, business, revenue or profits, anticipated savings or wasted expenditure (whether reasonably foreseeable or not) or indirect or consequential loss arising from or in connection with the Ambiguity or the Approach.

The Water Supply (Water Fittings) Regulations

Schedule 2 Paragraph 15 states “...every water system shall contain an adequate device or devices for preventing backflow of fluid from any appliance, fitting or process from occurring.”

The Test Code Sheet Requirements

The test code sheet for AG air gap 2212.3 states in section v.ii.iii
“Submerged supply pipes to the inlet device that have joints which are adjustable or can be dismantled, are not permitted below the critical water level (h)”

For reference purposes only, the BS standard for AG air gap BS EN 14623 states:
“Adjustable or dismantlable joints are not permitted below the maximum operational level.”

Please note BS EN14623 may be used as evidence of an air gap for a cistern but cannot be used as evidence as part of an AUK1 backflow arrangement.

Intention of the test code sheet

WRAS approvals have assumed that the intention of the requirement is to avoid a contamination risk as a joint can, over time, cease to provide a water tight seal. The ‘Regulators’ Specification for Backflow Prevention Arrangements’ does not recognise a mechanical joint as a recognised form of backflow prevention.

Approach

Scope: WRAS approvals shall apply this **clarification** to all applications for approval of inlet valves that claim to be able to be used to form part of a type AG air gap arrangement.

WRAS approvals have developed the following recommendations for assessors to follow when reviewing applications.

1. Joints that are not considered ‘adjustable or can be dismantled’ will include joints where joining surfaced are permanently fused together (e.g. weld by the application of heat or chemical processes). To validate the effectiveness of the welded joint, any secondary elastomeric seals must be removed for vacuum and pressure testing.
2. Joints which are adjustable or can be dismantled are referred to a **‘Mechanical Joints’** and will include:
 - a. Joints reliant upon an elastomeric seal to provide a water tight seal
 - b. Joints that solely rely upon the coupling of two components being dependent upon mechanically applied forces.
3. When assessing an inlet valve, the critical water level will not be known. For assessment purposes, WRAS approvals will consider the **“Maximum**

Permissible Critical Water Level” as being 20mm or 2D (whichever is the greater) below the lowest level of discharge.

4. All mechanical joints that are completely above the Maximum Permissible Critical Water Level on the supply pipe before and after the diaphragm valve will be acceptable.
5. The nut on the diaphragm housing shall not be considered as a joint.
6. Assessors must make a judgement about whether it may ever be possible to lawfully install an inlet valve, as part of an AG air gap arrangement, where there are mechanical joints present and the critical water level is not known. Assessors must consider:
 - a. Whether any Mechanical Joint on the inlet valve, when installed with the overflow in a cistern, is likely to be below the measured critical water level. At the point of assessment of the inlet valve WRAS approvals will require information to identify if such an installation is possible. Information will include:
 - i. The distance between the joint and the lowest level of discharge
 - ii. The distance between any “CL” or critical level marks on the product and the lowest level of discharge.
 - iii. The distance between the highest water level that can be set by adjustment of the float and the lowest level of discharge.
 - b. Where the information provided, supports the potential to meet the requirements of an AG air gap in some installations, approval may be granted with the addition of IRN R562
 - c. Where the information provided does not support the claim of having the potential to create an AG air gap in any circumstance, the product will be considered for approval but will not be granted as a device that can provide an AG air gap.
 - d. If the information required is not provided, the product will be considered for approval but will not be granted as a device that can provide an AG air gap.

Joins within AG airgap arrangements

Appendix A: Record of Amendments

Joins within AG airgap arrangements clarification document - Version Control		
Version	Issue Date	Summary of change(s)
WRAS.WAP-19001 Ver 1.0	23/10/2019	WRAS.WAP-19001 issued: Joins within AG airgap arrangements
WRAS.WCD-1001 Ver 2.0	25/08/2021	Document re-issued in the name of the new legal entity: Water Regulations Approval Scheme Limited
WRAS.WCD-1001 Ver 3.0	12/11/2021	Change of "Suggested Approach" to "Approach" In the Scope change of "Guidance and conditions" to "Clarification"