RAL-GZ 719

Technical Information

TI-002

Flue-gas tight fabric expansion joints

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page 1 of 1

1. The Quality and Test Regulations for Fabric Expansion Joints mention in Item 2.1.4 and in 3.1.4 "Tightness" that expansion joints should be tight in accordance with the latest edition of the RAL TI-005 "Tightness test of fabric expansion joints with foam building liquid".

2. The bubble method acc. to RAL-TI-005 is a qualitative method. It serves for finding and proving an individual leakage.

3. In the RAL TI-005 statements are made regarding the sensitivity of test methods, namely measured as a PV product for characterising an amount of gas.

  3.1. The sensitivity of the bubble method to furnish proof is stated to be

$$L = 10^{-2} \text{ to } 10^{-4} \text{ mbar} \cdot l \cdot s^{-1}$$

  This indication refers to an individual leakage and cannot therefore be transferred to the integral leakage rate of an expansion joint.

4. Tightness is proved in a test unit by means of a foaming liquid (Nekal®) at room temperature.

  4.1. In conformance with the Quality and Test Regulations RAL-GZ 719, Item "2.2.6 Tightness", no bubbles may appear in the bellows area at a test pressure, which has to be 1½ times of the nominal pressure, but at least to 5000 Pa.

  4.2. As a complement to the Quality and Test Regulations RAL-GZ 719, Item "2.2.6 Tightness", the occurrence of a limited number of foam bubbles in the clamping area and joint area of the bellows is however permitted.

5. For convenience, the formation of bubbles is judged on either clamping side for a specific circumferential length (e.g. 1 m).

  5.1. The diameter and number of bubbles formed in a specific period of time may be used as a reference for evaluating the leakage rate.

  5.2. A spherical foam bubble of 13.66 mm diameter has a volume of approx. 1 cm^3. 100 bubbles of 2.94 mm each, or 10,000 bubbles of 0.63 mm each, or 1,000,000 bubbles of 0.14 mm diameter each, have an identical volume.

  5.3. According to the structure, leakages in the range of some $L \cdot min^{-1} \cdot m^{-1}$ are admissible.

6. The tightness test can be agreed for all gaseous media.

**Edited by the Quality Committee of the Quality Association
for Fabric Expansion Joints**