



Technical Information

Design recommendations and characteristics of fabric expansion joints

RAL-GZ 719

TI-021

Rev. 0

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1. General

Fabric expansion joints are used to absorb movements resulting from the duct system.

The fabric expansion joint must always be installed without stress.

The pipe connections must be supported and guided according to the movements that occur. Due to its material properties, the expansion joint only transmits minor forces.

Movements determine the design and the flange to flange dimension.

A duct system should be designed that mainly axial movements occur. In order to limit negative influences on the flow and cross-sectional ratios, lateral movements must be kept to a minimum.

Angular movement and torsion should be avoided as far as possible.

Due to its material properties, the fabric expansion joint offers the following advantages compared to metal and rubber expansion joints:

- Cost-efficient dimensioning of the pipeline and guides due to low adjustment forces
- Multi-dimensional movement absorption with only one expansion joint
- Decoupling of the pipeline connections (structure-borne noise, vibrations)
- High movement absorption with low installation height
- It can be adapted to the desired duct cross-section. All dimensions, cross-section variations and irregular shapes are feasible
- Regardless of its subsequent installation dimensions, it can usually be supplied in standard truck packing dimensions (see also TI-008)
- It can be supplied in several parts and can therefore be installed in areas with limited access (see also TI-009 and TI-010)

2. Range of application

Usually, fabric expansion joints are used in the pressure range below 0.5 bar and are therefore not subject to the Pressure Equipment Directive.

Depending on the design of the expansion joint system, all technically relevant temperature ranges can be covered with fabric expansion joints.

Mutual dependencies of pressure, temperature and movements must be taken into account.

**Edited by the Quality Committee of the Quality Association
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3. Possible movement absorption

Fabric expansion joints can accommodate the following types of movement. For further explanation see TI-004, topic 5 and TI-014.

- 3.1. Axial compression
- 3.2. Axial extension
- 3.3. Lateral movement
- 3.4. Angular movement
- 3.5. Torsion

To achieve the best economic and technical solution, the simultaneous occurrence of e.g. axial extension and lateral movement as well as axial extension and angular movement should be avoided.

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