DNV·GL

Certificate No:
TAP000015T

TYPE EXAMINATION CERTIFICATE

This is to certify:

That the Compensator, Textile Material

with type designation(s)
FRENZELIT FLEXIBLE EXPANSION JOINTS

Issued to
Frenzelit GmbH
Bad Berneck, **Germany**

is found to comply with
RAL-GZ 719 – Expansion Joints – Quality Assurance, Edition March 2017

Application :

Refer to certificate

Temperature range: **see manufacturer's instruction**
Max. working press.: **see manufacturer's instruction**
Sizes:

Issued at **Høvik** on **2017-12-06**

This Certificate is valid until **2022-12-05**.
DNV GL local station: **Augsburg**

Approval Engineer: **Guido Friederich**

for **DNV GL**
Digitally Signed By: Drews, Olaf
Location: DNV GL Hamburg, Germany
Signing Date: 18.12.2017

Olaf Drews
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Examination Certificate and not to the approval of equipment/systems installed.

Product description

Fabric flexible expansion joints. Type: FRENZELIT FLEXIBLE EXPANSION JOINTS

The flexible expansion joints are made of non-asbestos fabrics depending upon the medium and temperature range:

Up to 250 [°C]:
The number of layers of coated fabrics and the geometry and processing are adapted individually to each requirement.
If necessary single layers can be fully glued up with each other.

Above 250 [°C] up to 450 [°C]:
Multi-layer construction, the compensators are made of isolating layers, sealing films and carrier layers. Carrier layers support the inner layers and the sealing films as well as outer layers.

Above 450 [°C] up to 1000 [°C]:
Multi-layer construction, using guiding plates and insulation pad from mineral and ceramic wool, fixed with stainless steel wire mesh, which is placed in front of the expansion joint.

Technical data

Isolating layers:	silica fabric, Isowool HT 1200, Isowool 750, isotherm fabric, isoglas fabric and isoglas needlemat.
Sealing films:	aluminium-, stainless steel foil, PTFE film, coated fabrics.
Carrier layers:	wire mesh, glass fabric with or without coating, if necessary outer layers fully glued.
Supporting rings:	supporting rings from stainless steel pipes will be used for stabilisation against positive pressure and vacuum.
Protection:	outer coatings from silicone or PTFE as protection against splashing water, dust etc., if required.

Application / Limitation

The fabric flexible expansion joints are approved for the use in:

- Exhaust gas lines of internal combustion engines, in case of supercharging only behind exhaust gas turbine
- Air inlet lines of internal combustion engines
- Exhaust gas lines of boilers
- Air inlet and exhaust gas lines of gas turbines
- Ventilation and aeration lines

Limitation

The installation has to be carried out in accordance with the instructions of the manufacturer.

The use of the above described fabric flexible expansion joints outside the specified application is not permitted.

Type approval documentation

- Product Specification
- Installation Requirements
- Quality Assurance Manual
- Type Approval Assessment Report, dated: 2017-12-01

Test Standards

- RAL-GZ-719 – Expansion joints Quality assurance (Edition 03/2017) /
  Quality levels and test specifications for fabric expansion joints

Marking of product

Every expansion joint is marked with a tag number on a label to clearly identify the production and supply data in manufacturers data base for traceability.

Certificate Retention Survey

A condition for retention of the Type Approval Certificate in its validity period is that periodical assessments are successfully carried out.

The objective of the periodical assessment is to verify that the conditions for the type approval have not been altered. The main scope of the periodical assessment will normally include:

- Verification of the TA applicant's production and quality system w.r.t ensuring continued consistent production of the type approved products at the TA applicant's own premises and at other companies that are given the responsibility for manufacturing of the products.
- Review of the TA documentation and that this is still used as a basis for the production
- Review of possible changes to the design, the material and the performance of the product
- Verification of the product marking

END OF CERTIFICATE