Expansion joints for bridges

Novel expansion joints are made of precast elements and characterized by flexibility in joint length and lane width, by low noise level and lack of corrosion risk. Researchers focused on low building costs, easy assembly and long service life. Investment costs as well as control and maintenance costs are extremely reduced in relation to state of the art expansion joints. Long service life postpones the need for reconstruction, reducing traffic interruptions to a minimum and saving on reinvestment costs.

Background

Examples of today’s expansion joints are finger joints, elastomeric mat joints, roller shutter and cover plate joints. Building costs are high due to sophisticated materials, complex structures and the need to install these complex joints on a waterproof sealing layer. State of the art in expansion joints is characterized by high costs for control and maintenance as well as limited service life.

Technology

The new building technology comprises:
- Building material concrete having the same creep and shrinking behavior than adjoining surfaces
- Precast elements connected by a tension member allowing for flexibility in lane width and joint length
- Tension member protected from corrosion
- Easy assembly combining precast elements with in-situ concrete

Advantages

- Low building costs
- Low noise level
- No corrosion risk
- Long service life, avoiding multiple reconstruction measures and therefore traffic interruptions and reinvestment costs

Potential applications

Potential applications can be found in all sectors of infrastructure construction, where expansion joints are needed. The technology is especially suited for the construction of integral bridges.

State of development

Proof of concept

IPR

Patent pending

Options

License agreement, sale, R&D cooperation

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