Delivery and horizontal installation of reusable expansion-joint sealing

Special requirement for routine bridge inspections

- No matter what the position of the joint, it must be possible to non-destructively remove and reinstall the **expansion-joint sealing system (valve) by deflation** from below.

The delivery and installation of the sealing system (valve) that is resistant against non-pressing chemical mixtures with values of pH_2 (HCl), pH_{12} (NaOH) and/or 80 % mixtures of water, petrol, diesel, kerosene, paraffin oil, for an expansion and settlement value of ± 15 mm, while at the same time permitting a movement of ± 15 mm parallel to the joint, for offsets measuring 20 mm to 80 mm, with variations in offset values of 60 mm over a length of 1 m, at temperatures of -15°C to +30°C).

The expansion-joint seal must be made of a laminate resistant to chemicals, ageing and diffusion, have a total leak rate of 5.6×10^{-8} mbarl/s = 2.7 mbarl/year, and be completely coated on both sides with swelling sealing tape, 450 g/m^2.

Installation:

The edges of the horizontal joint must be free to a depth of at least t_F = 20 cm, with no chips in the concrete deeper than > 1 cm and no concrete rubble > 1.5 cm.

The installation of the seal must be carried out in such a way that it forms a sloping drainage channel. For joint length l_F at least two cushions (valve) must be used, overlapping completely for min. 20 cm/max. 1m, and with the valve ends in an area that is easily accessible (near a footpath or similar place).

For drainage, an air cushion must be attached to at least one of the bridge supports with a drip edge facing the drainage chamber of the bridge or a drainpipe.

The pressure filling of the sealing cushion (valve) is then carried out according to the manufacturer's instructions, to an overpressure of 0.5 ± 0.1 bar, whereby the longer cushion is inflated before the shorter one.

Verification of tightness (with testing protocol) must accompany the construction protocol.

Planning and project management must be carried out by a building supervisor or foreman, who is qualified in the theory and practice (certificate) of joint-sealing installation.

Protection against vandalism:
In the area near the road, the expansion-joint sealing must be secured in position using transverse retaining elements (rope Ø 6-8 mm) to prevent it from falling out. The straps are positioned 1m from each cushion end and then at intervals of at least 3 m.

Manufacturer: Wolf Kabeltechnik Stuttgart

Example 1: Expansion joint length 11 m
Art. No. 21.1 QADK/V L 10 m
Art. No. 21.1 QADK/V L > 1 m ≤ 2 m

Example 2: Expansion joint length 27 m
Art. No. 21.1 QADK/V L 23 m
Art. No. 21.1 QADK/V L > 5 m - 7 m

Installation must be carried out professionally and according to the manufacturer's instructions.
The necessary installation aids must be provided by the client at each installation point.

Recommended installation aids, to be able to deal with installation problems on the spot:

Art. No. 21.5 RH360
Unwinder for installation of horizontal sealing elements/ valve up to 23 m

Art. No. 22.1 QV-DB 4,2 x 110/10 m
Swelling sealing tape for padding out gaps, compensating for unevenness and/or as protection against any concrete rubble, etc.

Art. No. 30.1 2K AM 280
Quick-curing 2-component mortar for repairing chipped joint edges and smoothing out uneven surfaces

Art. No. 21.5 PER xx or PE-REP
PE round cord, with a Ø 10 mm bigger than joint width b_F or PE rectangular profile

Art. No. 33 CPN 170-86-WOF
Portable compressor with 0 - 4 bar pressure gauge