

MAURER XW1 - Expansion Joint

The wave shaped MAURER Single Seal Expansion Joint

- Gap width up to 100 mm – like XL 1-Expansion Joints
- Reduced noise emission – like XL 1-Expansion Joints
- Maintenance free – like standard single seal expansion joints
- Type approved according German specification TL/TP FÜ

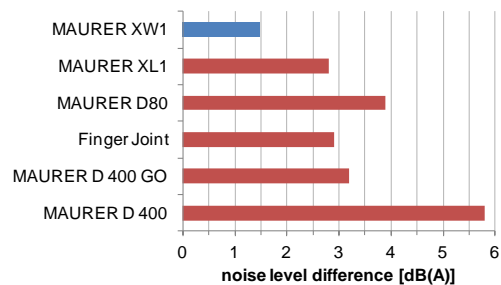


This further development of the single seal expansion joints combines the relatively simple design principle of the known strip seal expansion joint (2 edge beams + 1 strip seal) with

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the advantages of the XL-1 expansion joint (reduced noise emission+ maximum gap width 100 mm). Instead of bolted and wave shaped edge plates, the edge beams which are firmly anchored into the adjacent concrete are being designed in a wave shape. This way the role of the “kerb unit” which is taken by the straight edge beams of the expansion joints is being dissolved, and an optimum of noise protection is attained. Comparing the noise emission of this design with earlier measurements of the noise level leads to the result that this design emits the lowest noise

level difference when passing this expansion joints, in relation to the undisturbed asphalted carriageway.



Noise level difference between expansion joint and carriageway [BAST-Study 96 221/B2-V3 and Müller BBM-Report M90 658/1]

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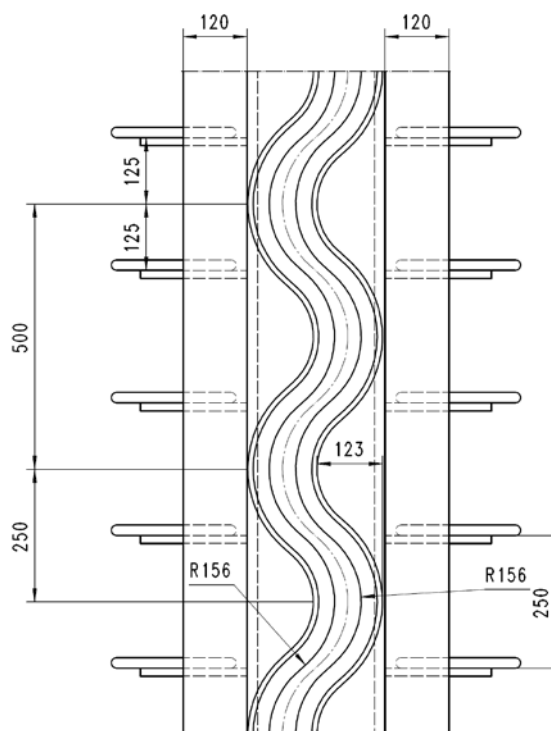
In addition to the known advantages of the XL1 design like the redundancy of the maintenance access in case of movements of up to 95 mm (movement range 5 mm to 95 mm) and reduced noise emission for the neighbourhood, the system "XW1" displays the following features:

- No additional bolted wave plates are required in order to reduce the noise emission – thus the self cleaning effect of the gap is no longer reduced.
- No more bolted connections to check.
- The patented and flexible sealing element guarantees by way of a superior clamping mechanism the watertightness of the expansion joint.
- The wave shaped and three dimensional design of the asphalt connection can be equalled with the installation of reinforcement ribs of conventional edge beams.
- The „template effect“ of the edge beam waves guarantees an exact installation into the asphalt.
- A superelevation of the asphalt layer by around 3-5 mm which is required according to German ZTV-K provisions

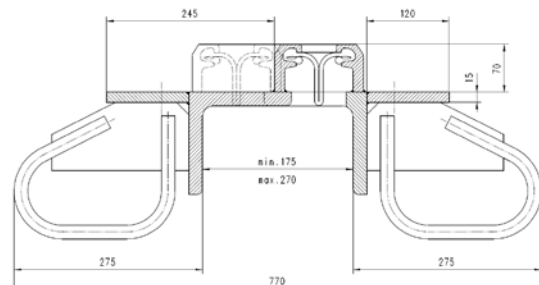
is no longer demanded. This way, the possible level surface with the asphalt leads to a further reduction of the noise emission.

- The wave shaped design of the expansion joint includes a protection from damages from snow ploughs.
- A further option is the implementation of the edge beams in well-proven HYBRID-quality.

The „wave phase“, which is the distance between 2 inflection points of the edge beams, is selected in such a way that when an axle passes the joints, at least one of the two wheels passes the expansion joint in skew angle, whereby the noise emission is greatly reduced.



Plan View and Section of the MAURER XW1 Expansion Joint



References:

- Donnersberger Bridge, Munich, Germany
- Föhringer Ring, Munich, Germany
- Bridge over Dzwina, Wolin, Poland
- Trosky Most Prague, Czech Republic