



## Flexible plug expansion joints – Benefits of polyurethane versus bituminous

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### Abstract

A much improved type of flexible plug expansion joint has been developed, with a polyurethane surface, which offers a number of substantial advantages over the traditional bituminous type. The *Polyflex®Advanced* expansion joint offers all the benefits of the asphaltic plug joint, including smooth, safe, low-noise surface, great adaptability and easy installation. However, it overcomes numerous disadvantages and challenges that have always plagued asphaltic plug joints. It offers greatly improved strength, elasticity and durability, resulting in much less maintenance and far more reliable watertightness. Installation is also far easier and less prone to error, with the two-component compound being mixed at ambient temperatures. For these reasons and others, this joint should be considered for use in bridge construction and, in particular, in bridge maintenance.

**Keywords:** flexible plug expansion joint; polyurethane; non-bituminous; installation; maintenance; replacement; durability; ETAG 032.

### 1 Introduction

Flexible plug expansion joints, which create a completely closed, absolutely flat driving surface across a structure's movement gap, offer various benefits over other small-movement expansion joint types. The continuous, flexible surface results in unsurpassed driver comfort and extremely low noise under traffic, while also eliminating discomfort and safety risks for pedestrians and cyclists. Furthermore, the way the joints are constructed, by pouring freshly mixed material in

situ, facilitates transport and handling and makes expansion joints installable in sections, lane by lane, with any desired shape or longitudinal profile (e.g. with intersections or upstands).



Figure 1. A *Polyflex®Advanced* expansion joint