

Problem 2

Grouting bridge bearings

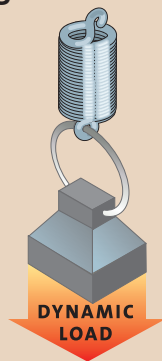
In the UK the use of grouts for bridge bearings is governed by the Specification for Highway Works: Clause 2601 Bedding Mortar. The bedding mortar shall satisfy the following performance requirements:

- 1 Bedding mortar shall have a compressive strength not less than 50 N/mm²
- 2 The flow characteristics shall be such that the volume of the bed or plinth is completely filled with homogeneous

material when placed within the range of ambient temperature between 5°C – 25°C

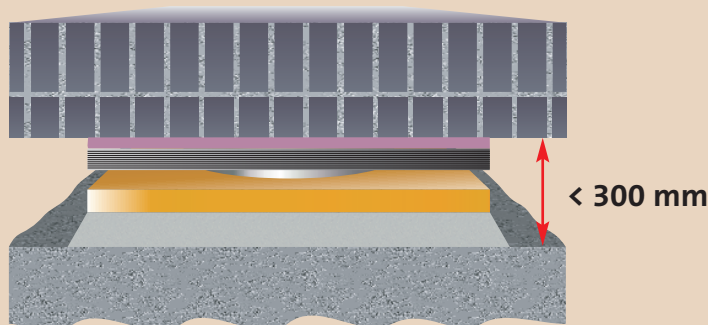
- 3 The physical and chemical properties shall be compatible with those of all adjoining surfaces.

1 Choosing the right grout for bridge bearings



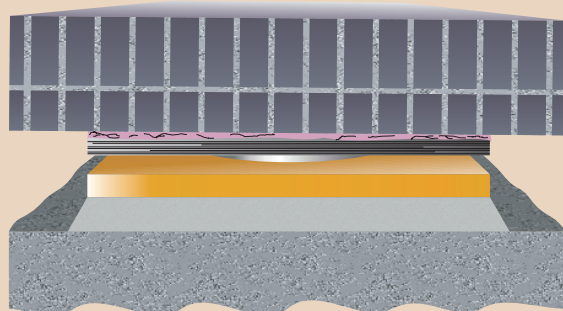
The selection of a suitable bridge bearing grout depends on the engineer's calculations of loading, the size of bearing, gap size and grouting method. The choice of material is governed by the requirements of the Highways Agency and these are specified in Clause 2601. Using inferior grouts can have serious repercussions on safety and the cost of remediation can considerably outweigh the initial short-term cost benefits.

2 Restricted access under the bridge beam



The normal method of pouring the selected grout is not possible where there is tight access under the bridge. The use of hoppers to increase the pressure is also excluded. The best option is to use a peristaltic pump which can easily be placed on the scaffold adjacent to the bearing and the grout mixed and then pumped into the prepared shuttering.

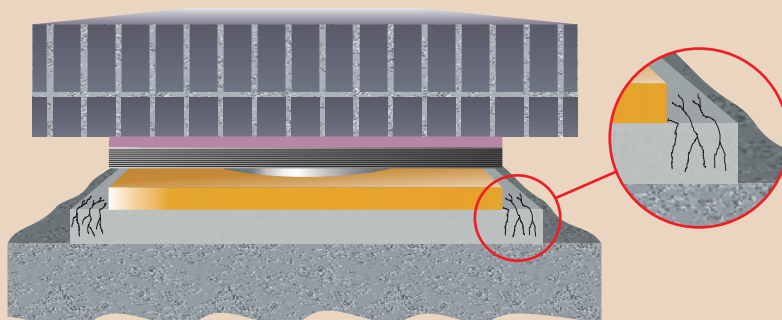
3 Glueing or fixing bridge bearing pads



Incorrect selection of adhesive can lead to deterioration of the rubber, cracking of the adhesive and failure of the bearing system.

Weber have a tried and tested range of products which have excellent bond to rubber as well as steel or concrete and are ideal for this critical application.

4 Failure of the grout around the bridge bearing baseplate



Cement grouts rely on expansion to provide the non-shrink properties required of a precision bearing grout. This expansion needs to be confined under the bridge bearing plate, but if allowed to expand freely, the grout may crack due to shrinkage. This cracking is often seen where a cement grout has not been finished properly. Epoxy grouts are not affected as much as they have low inherent shrinkage.



Correct grout selection and application

The stress in the mortar shall not exceed that defined in Appendix 21/1 for bridge bearings and Appendix 26/2 for other applications. Where the

mortar is required to resist stress before attaining its 28-day strength the compressive strength shall be confirmed by tests on mortar cubes

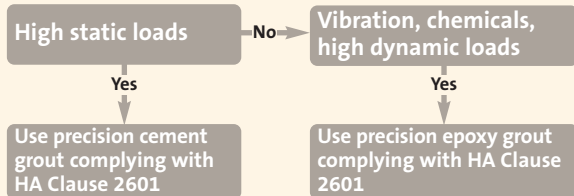
stored under conditions that simulate the field conditions.

Products required

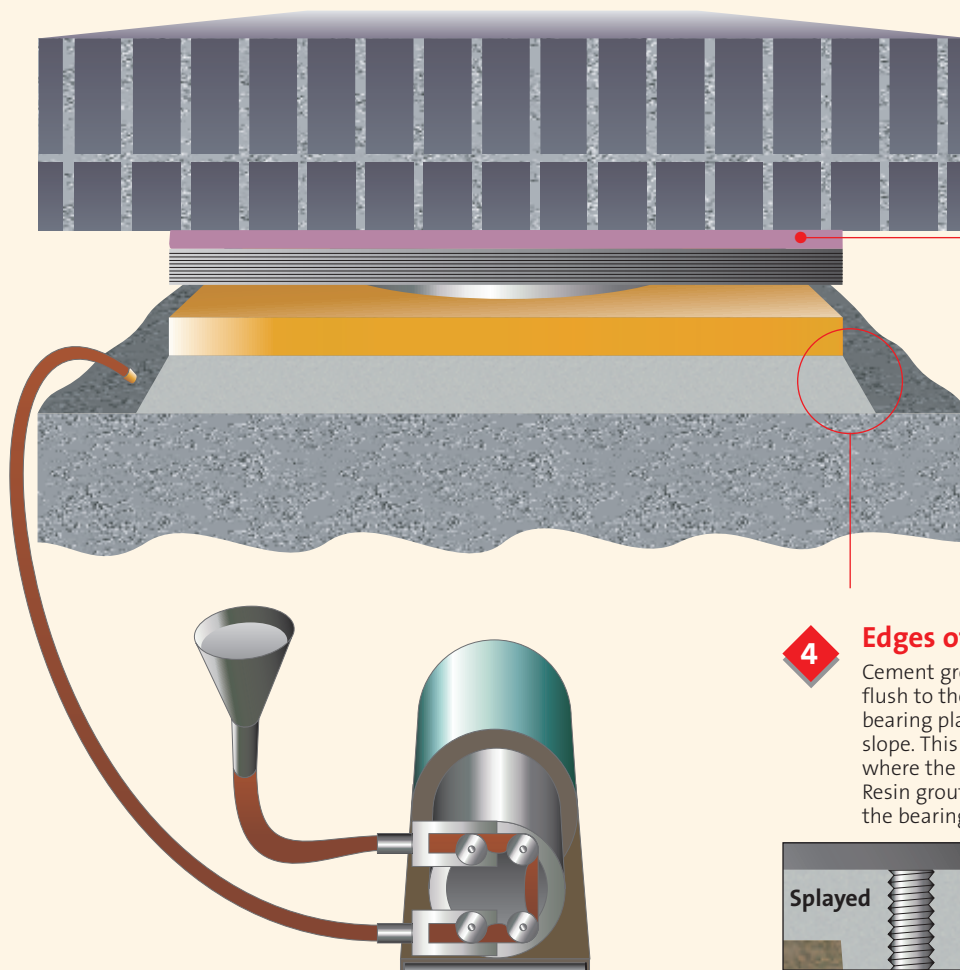
Cement: Five Star grout SP

Epoxy: weber.tec EP pourable grout
weber.tec EP pourable grout WG
weber.tec structural adhesive

1 Grout selection

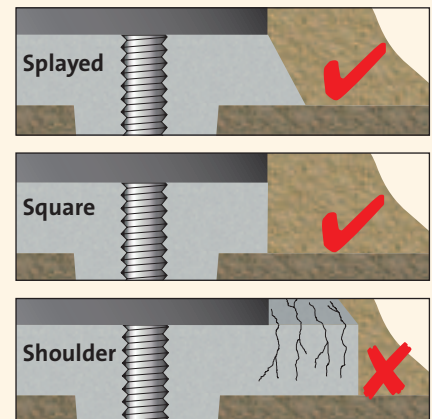


3 Glued bearings
Use an epoxy structural adhesive to glue the bearing into position.
weber.tec structural adhesive



2 Pumping the grout
Use a peristaltic pump to place the grout.

4 Edges of grout
Cement grouts should be finished flush to the edge of the steel bearing plate and chamfered at a slope. This is to prevent cracking where the grout is unrestrained. Resin grouts can be left proud of the bearing plates.



3.1

