

Problem 1

Grouting steel baseplates

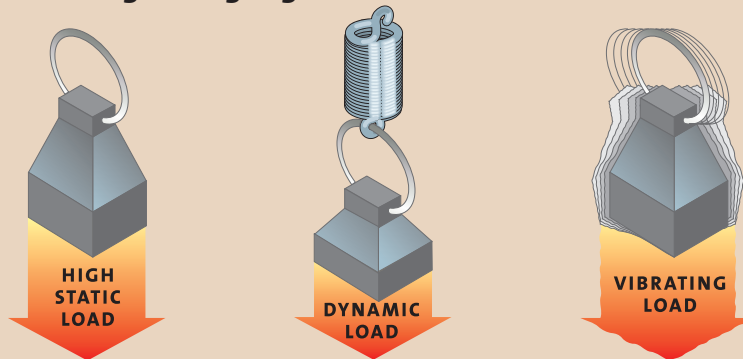
American Concrete Institute ACI 351.1R-93 report *Grouting And Support of Equipment And Machinery*. This report provides an overview of accepted practices for grouting of

equipment and machinery and describes materials and installation methods for grout used as load transfer material between machine or equipment bases and their

foundations. Machinery and equipment which have precise tolerances for alignment or require uniform support cannot be placed directly on finished concrete surfaces.

1

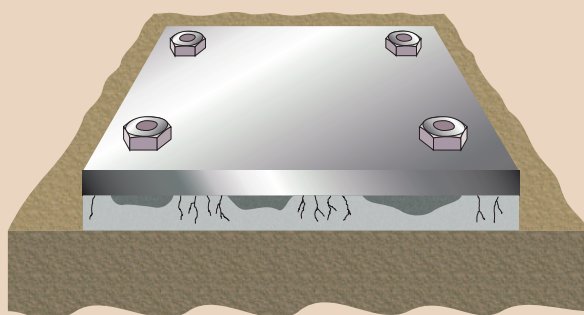
Choosing the right grout



The selection of a suitable bearing grout depends on the machine loading, size of bearing, gap size and grouting method. Choosing the wrong grout can lead to failure of the bearing grout; for example, most cement grouts are not able to resist continuous impact loading such as under vibrating machinery. Cement grouts are weak in tension and undergo fatigue failure. This can have serious repercussions on safety and the cost of remediation can outweigh the initial short-term cost benefit a hundred fold.

2

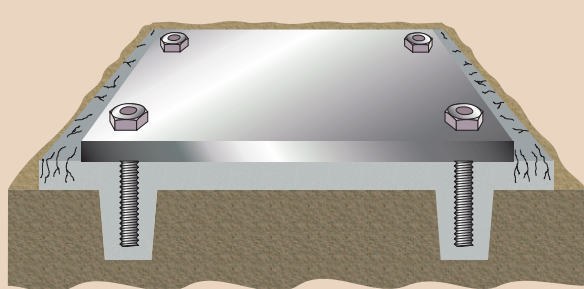
Voids in the grout



The support provided by a grout is the Effective Bearing Area (EBA). This can be affected by grout leakage, unlevel plate, shrinkage of grout, inadequate mixing of grout, wrong placement method, poor grout flow or entrapped air voids. EBA can lead to point loading on the grout which in turn can result in cracking and crumbling of the grout under the baseplate. This could have disastrous consequences on the machine.

3

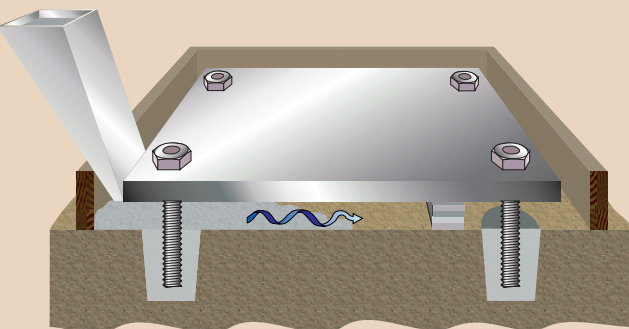
Cracks in the grout around the baseplate



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 baseplate, 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.

4

Grout not flowing under the baseplate



Rapid installation of machinery is essential. A grout with poor flow will slow down the process. Some inferior epoxy grouts are cut back with diluents to improve flow but this can lead to excess shrinkage and loss of EBA. **Weber** grouts have been developed to give good flow without any undesirable side-effects.



Correct grout selection and application

Both the concrete surface and the machine base have irregularities which result in alignment difficulties and bearing load concentrations. For this reason, machine

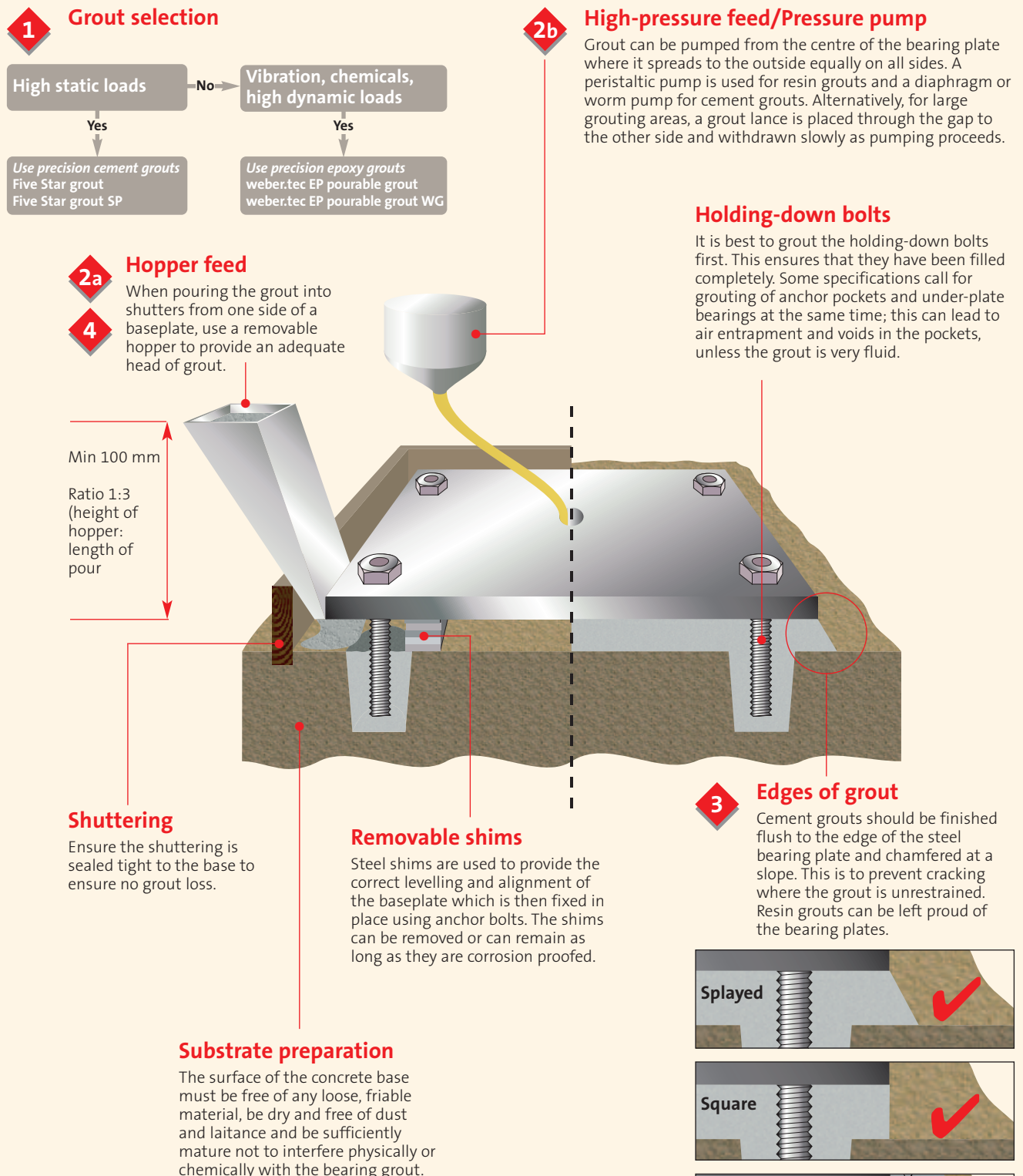
bases or soleplates are aligned and levelled by shimming or other means and the resulting space between the machine base and the foundation is filled with a load

transfer material. The load-transfer materials most frequently used are hydraulic cement and epoxy grouts.

Products required

Cement: Five Star grout
Five Star grout SP
Five Star grout fast set
weber.cem grout

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



3.1

