

Ensuring a Foundation for Success

Correct Installation of Baseplates

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Correct installation and grouting of baseplates is crucial for ensuring reliable mechanical performance of rotating equipment such as pumps. Poor foundations are a common cause of premature bearing and seal failures and can prevent proper alignment of pump and motor shafts.

Prior to grouting, the pump baseplate should be levelled using shims or jackscrews. The piping connection should then be made and alignment of the pump and motor shafts checked. This will ensure that the baseplate is grouted into a position that allows piping and shaft alignment while there is still some adjustability with the installation. Anchor bolts are used to hold the aligned and levelled unit in position. Note that after grouting, the scope for adjustment in levelling and alignment is limited and may involve distortion of the piping or baseplate which, in turn, causes high shaft stresses and operational problems with bearings and seals.

The objective of grouting is to completely bond the baseplate to the foundation so that a single block of support is created with sufficient mass to provide effective vibration dampening. It is very important that the grout completely fills the cavity beneath the baseplate. Voids, which can result from the presence of air pockets or from "settlement shrinkage" of over-watered grout, can lead to baseplate resonance. In one recent installation such voids were the direct cause of baseplate and pump vibration levels that exceeded twice the acceptable limits. Once the foundations were repaired by the contractor, vibration levels plummeted and the chronic bearing and seal failures being experienced were eliminated.

Looking for voids in the grout and measuring baseplate vibration are two key checks on the installation that can be made during start-up. As a rule, vibration levels should not exceed 0.3 in/sec. Basic mounting procedures are also described in our Operation and Maintenance Manuals.

Figure 1: Well Grouted Pump



Figure 2: Poorly Grouted Pump

