

Drilling Company Gets Longer Lasting Drill

Setting the Scene

A drilling company needed to update the design of their man-portable drill rig used in California. This company drills holes into bedrock for pilings used in residential foundations. Due to the nature of the job, high vibration and a very dirty environment were commonplace. Problems within the drill rig would often occur. Thus they came to Pacific Bearing Company to implement their new drill. The equipment had to be light enough for two men to handle, yet robust enough to withstand drilling into rock.

Previous design used a Delrin carriage that wore away material over time, resulting in loose fit. The loss in tolerance created vibration and inaccuracy.

The Challenge

The user wanted to improve precision and increase life cycle of drilling equipment. The goal was to improve precision by 10% and life cycle by 50%. Also PBC wanted to use a design that would reduce carriage friction significantly.



The Solution

Hevi-Rail® was proposed to the customer as a heavy duty solution that would stand up to the high torque loading and dirty environment. The profile rails also provided the necessary rigidity – when coupled with I-beams – for the required seven foot span. The Hevi-Rail components were selected as being able to handle the load required to offset the drilling force, as well as the torque created on the system during drilling. The robust construction of the bearings and rails coupled with the high load capacity of the bearings were key components in solving this application.



Products Used

The Hevi-Rail HVB-055/HVP1 bearing and flange plate assemblies and HVR-1 profile rails provided the main moving components of the drill rig. The drill head weighs 1500 pounds, providing the down pressure on the drill bit. The head is cantilevered out from the rails at a distance of 16 inches. The drill motor provides 2800 ft-lbs of torque. In addition to stabilizing the drill head carriage, the Hevi-Rail bearings also provide the means to raise the head after drilling is complete. The carriage is drawn along the rails by a cable or a chain.



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