



Application Story

Home Construction

Drilling company gets improved drill

A drilling company needed to update the design of their man-portable drill rig. This company drills holes into bedrock for pilings used in residential foundations. Due to the nature of the job, high vibrations and a very dirty environment were problematic.

PBC Linear was asked to implement new drilling equipment light enough for two men to handle, yet robust enough to withstand drilling into rock. The previous design used a Delrin carriage that wore away material over time, resulting in loose fit. The loss in tolerance then created vibration and inaccuracy. The goal was to improve precision by 10-percent and the life cycle by 50-percent.

The PBC Linear 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 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.

Product Details

Hevi-Rail Components Used:
Hevi-Rail HVB-055/HVP1 bearings, HVR-1 profile rails, and flange plate assemblies

Drill head weight: 1,500 lb

Drill motor torque: 2,800 ft-lbs

The drill head is cantilevered out from the rails at a distance of 16 inches. The Hevi-Rail bearings stabilize the drill head carriage and provide the means to raise the head after drilling is complete. The carriage is drawn along the rails by a cable or a chain.

Location: California