

A CASE HISTORY

Vibration deadlines 500,000-pound forge press

Job Description:

In Springdale, AR, a heavy forge press had to be deadlined as dramatically visible vibration of the machine had continued to worsen during operation.

Deterioration of the concrete under the machine base was severe and led to excessive mechanical wear to the press.

This existing and deteriorating footing was "wrapped" with structural bands. Then, three foot lengths of 6x6 WF beam with mounting plates for the Atlas Resistance® Piers were welded to the bands for load transfer.



At left, Atlas Resistance® Piers were installed around the perimeter of the footing of this 50-foot tall forge press that weighs 500,000 pounds!



At right, photo shows the configuration used to apply an equal force to each of the 32 Atlas Resistance® Piers. Each pier was fitted with a 50,000-pound ram.

A soil analysis around the footing showed the backfill to be silty sand contaminated with water and oil.

Samples to 70 feet showed very loose to very stiff clayey sands. Water occurred at nine feet. Suitable bearing for the piers was found at 100 to 110 feet.

PROJECT SUMMARY	
Number of Piers:	32
Part Number:	AP-2-PP-3500.165
Avg. Pier Depth:	100 feet
Avg. Pier Load:	25,800 Pounds
Avg. Install Force:	65,200 Pounds
Ultimate Capacity:	85,000 Pounds
Factor of Safety:	3.10 : 1 (Ultimate to Lift)

Background Information:

The total supplemental support for the footing and the forge press was measured at 825,600 pounds. This supplemental support was in addition to an unknown number of originally installed 40 foot long timber piles clustered under the footing and terminating in a concrete cap below the footing. The total weight of the press and footing was estimated at 1,100,000 pounds!



At left, a technician installs an Atlas Resistance® Pier using quiet and portable hydraulic equipment. Each pier was "proof loaded" to an average 65,200 lbs. at a depth of 100 feet! Notice the additional structural support provided to transfer the load to the damaged concrete footing.