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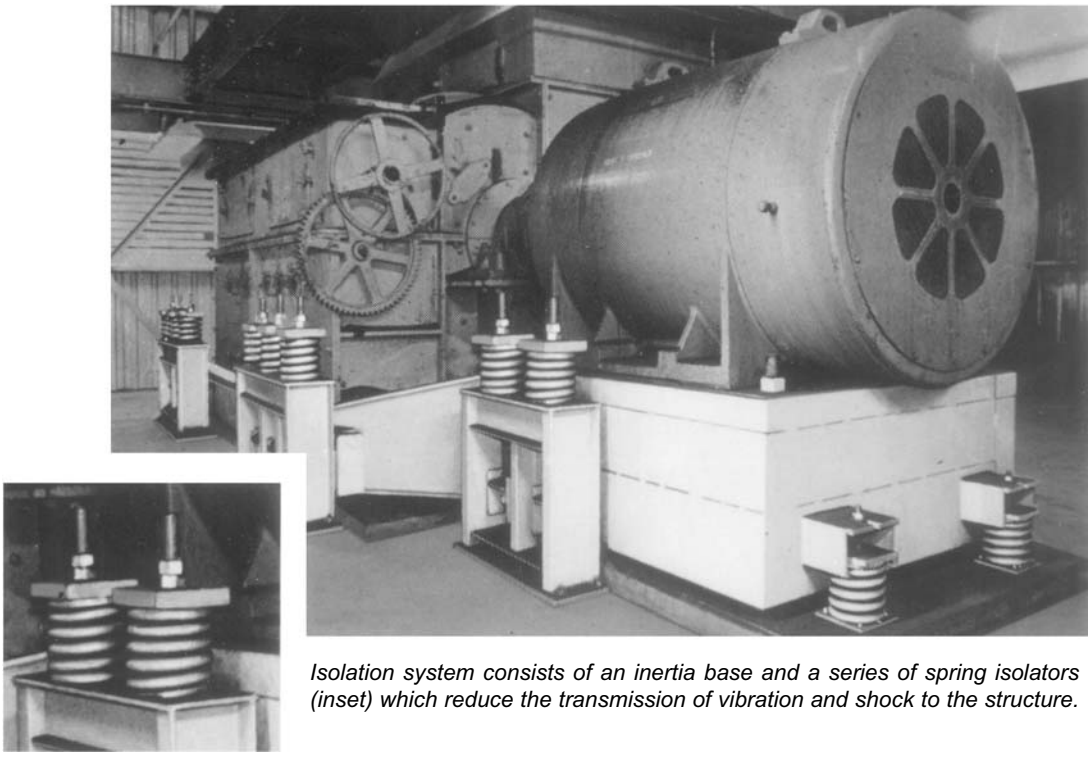
Problem-solvers in vibration isolation, noise control and seismic restraint.

Vibration Isolation System Reduces Structural Damage in Coal-Fired Power Plants



Isolation system consists of an inertia base and a series of spring isolators (inset) which reduce the transmission of vibration and shock to the structure.

When coal is processed, it is reduced in size to increase its burning efficiency. This sizing of coal is done by passing mixed coal through a series of heavy-duty crushers which pulverize it into smaller, more desirable particles.

Generally located in the upper levels of fabricated, structural steel buildings, the crushers generate a considerable amount of vibration. Transmitted to the structure, this vibration can result in structural damage over a period of years. Typical coal crushers, driven by up to 1,000 horsepower (750 kW) motors, can have a total system weight of up to 50 tons (45.5 tonnes). At speeds of 450 to 900 rpm, the resulting shock and structural vibration is not only a danger to the integrity of the building, but to the safety of personnel and the reliability of the facility.

The Kinetics solution to this vibration transmission problem is to support the crusher on an isolation system consisting of a structurally stiff steel and concrete inertia base and a series of spring vibration isolators.

The inertia base supports the motor and crusher while maintaining a shaft alignment tolerance between the crusher and motor of ±0.0005" (13 microns).

The specification of high-deflection, low-stress steel spring vibration isolators effectively reduces the transmission of vibration to the structure. Attached to the inertia base at designated locations to provide equal performance, the isolators effectively reduce the transmission of vibration to the building to an almost imperceptible level.

With the use of the Kinetics isolation system, the structure supporting the coal crusher is safer and maintenance free. Because of the reduction of vibration and shock loads, workers are permitted to move about in areas which might previously have been considered hazardous. From the operator's perspective, the reliability of the power plant is greatly increased and the threat of downtime due to structural or equipment failure is virtually eliminated.