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### Power Plant Valves

In these photos, a mammoth 7½-ton valve (left) and a gas-hydraulic actuator for quickly closing large valves (right) are undergoing shock and vibration testing on a "shake table" at Wyle Laboratories, Huntsville, Alabama. Intended for use in a nuclear power plant, they were subjected to enormous forces simulating the effects of a severe earthquake. Government regulations require that nuclear power generating equipment demonstrate ability to survive earthquake conditions.

The units shown are representative of a line of valve products manufactured by Rockwell International's Flow Control Division, Pittsburgh, Pennsylvania, for use in nuclear, fossil fuel, chemical and coal gasification

plants. In designing such equipment, Flow Control Division uses the NASTRAN® (NASA Structural Analysis) computer program, one of many programs supplied by NASA's Computer Software Management and Information Center (COSMIC)® as a service to industry. The NASTRAN program is employed to identify high stress areas in valve products and the mechanical configurations necessary to accommodate them. It is also used in seismic and vibration analysis of valves to establish design adequacy under severe conditions, such as those which might occur in an earthquake. Flow Control Division reports that the NASTRAN program offers significant savings in analysis effort compared with other analytical approaches.

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