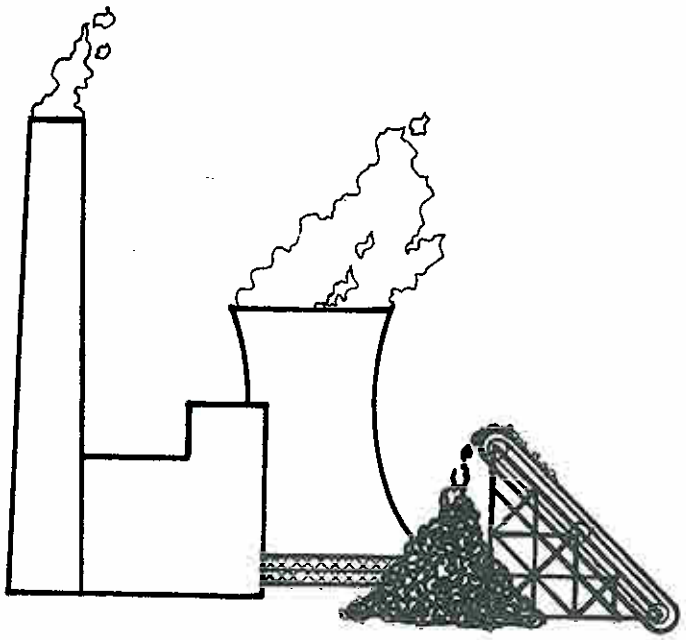
POWER PLANTS



WHY USE PINCH VALVES IN A POWER PLANT?

By George Raftis

Power Plants burn oil, coal, or gas to create energy, 20 years ago, this was a very simple process. The U.S. Department of Energy changed all of this. The environmental facilities associated with a power plant are as large as, if not larger than the steam generating boilers and the total original plant.

When any of these fuels burn, they create ashes that must be removed or fly ash or SO_2 going up the stack that must be removed. The SO_2 removal system is, in most cases, the largest of all these facilities.

RED VALVE has been providing Pinch Valves for these environmental facilities for over 25 years. Our standard Type "A" and Series "75" Manual Valves have proven performance on coal and fly ash slurries. Many special designs were also developed for power plants; such as Manually Operated Valves with limit switches to indicate the position of the valve on a panelboard. Power plants also required Diaphragm or Electric-motor Operated Control Pinch Valves for automatic control.

A list of power plants using Red Valves would be several pages long. Therefore, we are describing the applications which best describe advantages of Pinch Valves over other types of Valves for this industry.

FLORIDA POWER AND ELECTRIC

Florida Power and Electric is the largest fuel oil consumer in the United States. They buy more fuel oil to manufacture electricity than any other utility or industrial customer in the U.S.A. The Energy Commission requested that they reduce their dependency on oil by converting to coal. They decided to use an oil/coal slurry mix to avoid making major boiler modifications. Bechtel did the engineering on this project. They selected Red Valves since they had previous successful experiences with our products. They purchased 10 – 12" I.D. with 14" flanges Series "70" Red Valves and 4 – 14" I.D. with 16" flanges Series "70" Red Valves. Due to the abrasive action of this slurry, Type "DW" valves were furnished. This is a Pinch Valve with a heavy-duty sleeve that gives three times the abrasive life of a standard sleeve.

The valves were removed for inspection after 18 months of service in 30% abrasive coal slurry. There was no appreciable wear on the sleeve. They were reinstalled and the total life to date is 2½ years. The oil/coal slurry mixture was initially 20%, then 30%, and is presently 50%.

Bechtel already has specified Red Valves on other stations to be retrofitted.

I.U. CONVERSION

Power Plants used to dispose of their fly ash and bottom ash by dumping it on open fields. The Environmentalists stopped this practice because fly ash is too acidic and contaminates ground water.

I.U. Conversion is a firm that has developed an economical process to neutralize the fly ash. They mix lime with the fly ash and produce an ash slurry that is neutral. This slurry is then dried and used for landfill. They have purchased over $250,000.00 worth of Red Valves and Sensors. Red Valves are ideal for fly ash, bottom ash, and lime. Fly ash is the most destructive of the three. It has a diamond type molecular structure and will cut metal valves.

They use Series 75 Manual Valves, Series 70 Manual Valves, Series 5200 Control Valves, Type "DW" Jacket Valves, Series 30 and 40 Pressure Sensors, and Series 5800 Electric Motor Operated Red Valves.

The following is a partial list of utilities we have shipped valves to, for this application.

Allegheny Power System
American Viscose Plant
Big River Electric Corp.
Cincinnati Gas & Electric Co.
East Kentucky Power
Hoosier Energy Division
Lake City of Lakeland
Louisville Gas & Electric Co.

DETROIT STOKER

Detroit Stoker furnishes, among their various systems to Power Plants, "Bottom Ash Removal Systems". This system sluices the ashes at the bottom of a boiler. These ashes are pumped into either a holding tank to be hauled off or to settling ponds. The bottom ash is pumped at high pressures due to the long distance to the settling pond or holding tanks. High pressure pumping is necessary to overcome the abrasive resistance of the ashes. They have used many, many Red Valves on these high pressure applications. The cutting action of the ash slurry is severe. The feature they are looking for is what Pinch Valves provide when the valve is open; it is like a piece of pipe with absolutely no wear. In most cases, they have gone to Type "DW" sleeves for these applications. Red Valve has built special valves for several other manufacturers of ash handling systems.

DRESDEN NUCLEAR POWER PLANT

This Nuclear Power Plant is one of several plants that are using Red Valves on Radioactive Waste. The radioactive waste is mixed with concrete and then pumped into 55 gallon drums for disposal. The system was furnished to them by one of our OEM customers. The reason Red Valves were selected is that there are no pockets for radioactive waste to collect. The system can be flushed easily with clean water and the Red Valves cleaned thoroughly. The valves also are ideal for handling the abrasive action of concrete. Standard Type "A" and Series "75" Valves are mostly used for these systems.

Red Valve has designed and has in service valves built to Nuclear Specs. These are shown in our catalog.

SO_2 REMOVAL SYSTEMS

Red Valve usage is the largest in SO_2 removal systems. Red Valves have been in service for over 10 years in SO_2 slurry.

SO_2 slurry consists of limestone, fly ash, bottom ash, and clinkers. This is a very abrasive slurry because limestone is ⅛" hard balls and is mixed with abrasive ash slurry. When pumped, it will wear out most pumps, valves, and other equipment.

We could continue to list applications in Power Plants where our Red Valves are being used. Instead, we prefer stating what they can do.

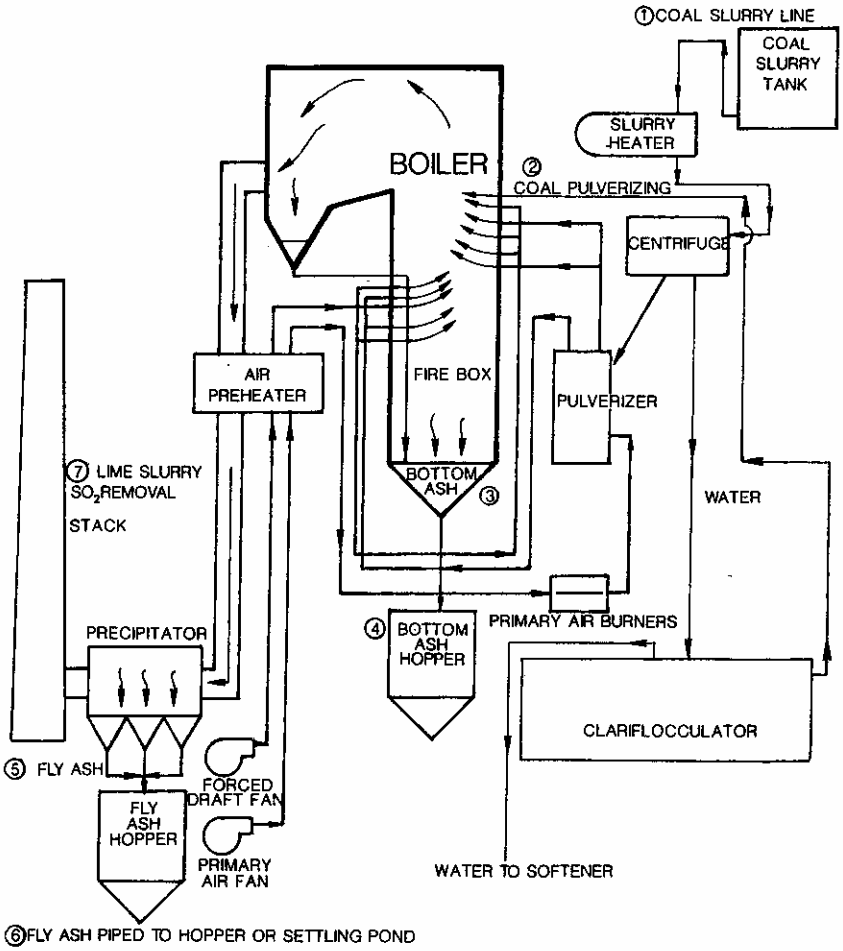
WHY USE PINCH VALVES?

The reason that Pinch Valves will outlast any type of valve is that when a Pinch Valve is open, it is like a piece of pipe. This can not be overemphasized. Wide open, a butterfly valve disc will cause turbulence. Wide open, the weir of a Saunders type valve will cause turbulence. Wide open, an eccentric plug valve will cause turbulence. This turbulence causes wear. WIDE OPEN, A PINCH VALVE IS LIKE A PIECE OF PIPE—NO TURBULENCE, NO WEAR.

Even in a throttle position, Pinch Valves have streamline flow and less turbulence.

Red Valve has gone even beyond that advantage by designing two special sleeves. A Double Wall Sleeve (Type "DW"), and Reduced Port Sleeves. The "DW" is a sleeve that has twice the thickness of the rubber tube that is normally furnished for a Pinch Valve. This means that life of the sleeve is extended two to three times longer. The Reduced Port is similar to Reduced Trim of metal valves. By using a smaller throat, wear is reduced considerably.

USAGE OF RED VALVES IN THE POWER INDUSTRY



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