NAK CONSTRUCTION

KILN ALIGNMENT & INSPECTION • TIRE & ROLLER RESURFACING
FULL-SERVICE KILN REPAIR

Hot Kiln Alignment Technology

All rotary kilns require yearly kiln alignment and quarterly support roller adjustments. This work is done most accurately and cost effectively by NAK construction professionals using the most advanced procedures.

NAK construction uses state-of-the-art, laser-based equipment to measure the hot tire diameters and locate the tire centers. We then measure and record the shell flexing (shell ovality) at each pier and adjust the support rollers to minimize shell distortion that occurs during kiln rotation.

Shell flexing or distortion on a straight kiln is measurably higher near the burning zone than at the cold end. Refractory life can be maximized by lowering the shell shear load at piers with high shell ovality and increasing it at the other piers, assuring uniform and minimum shell flexing over the length of the kiln. A properly aligned kiln will have elevation misalignment consistent with uniform ovalities.

NAK construction uses laser theodolites to locate tire centers. All alignment calculations are computer generated. We utilize hydraulic wrenches for fast and accurate bearing adjustments. With NAK performing all support roller bearing adjustments, the plant is spared this labor-intensive activity as well as the risks associated with large bearing adjustments.

NAK Hot Kiln Alignment procedures provide the most comprehensive and accurate kiln alignment in the industry.

Measure Shell Ovalities	Measure Tire Clearances
Adjust Roller Thrust Loads	Check Tire Pads and Retainers
Correct Kiln Axis Alignment	Inspect Drive Alignment
Measure Shell Runout	Thorough Visual Inspection
Measure Roller Shaft Deflection	All Bearing Adjustments Included

The NAK Alignment Procedure

The alignment procedure used by NAK Construction consists of six steps:

1) With the kiln in normal operation, the tire centers are located and placed in a straight line using the most technologically advanced electronic equipment.

2) Ovality is then measured at each pier under normal operating conditions. Roller adjustments are made until the ovality is uniform and minimum over the length of the kiln.

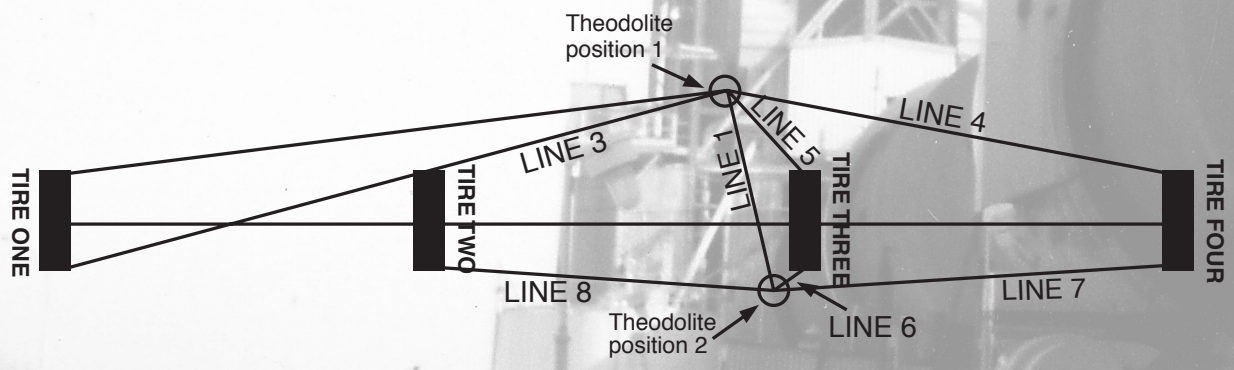
3) Roller bearings are adjusted for minimal thrust load. This assures very low thrust roller loads and low bearing temperatures.

4) Shell runout measurements are taken as necessary to determine if "dogleg" conditions threaten kiln mechanical stability.

5) A kiln alignment is not complete without considering the effect of roller slopes on kiln operation. Roller slope changes are necessary to assure minimum tire pad wear and stop block pressure.

6) A thorough visual inspection of all kiln components is conducted.

All of these procedures are performed with the kiln in operation and no kiln shutdowns are necessary. This is absolutely essential because a cold kiln that is straight has a measurable misalignment at operating temperatures.



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