



AFS technology

Alternative fuel systems engineered for cement kilns



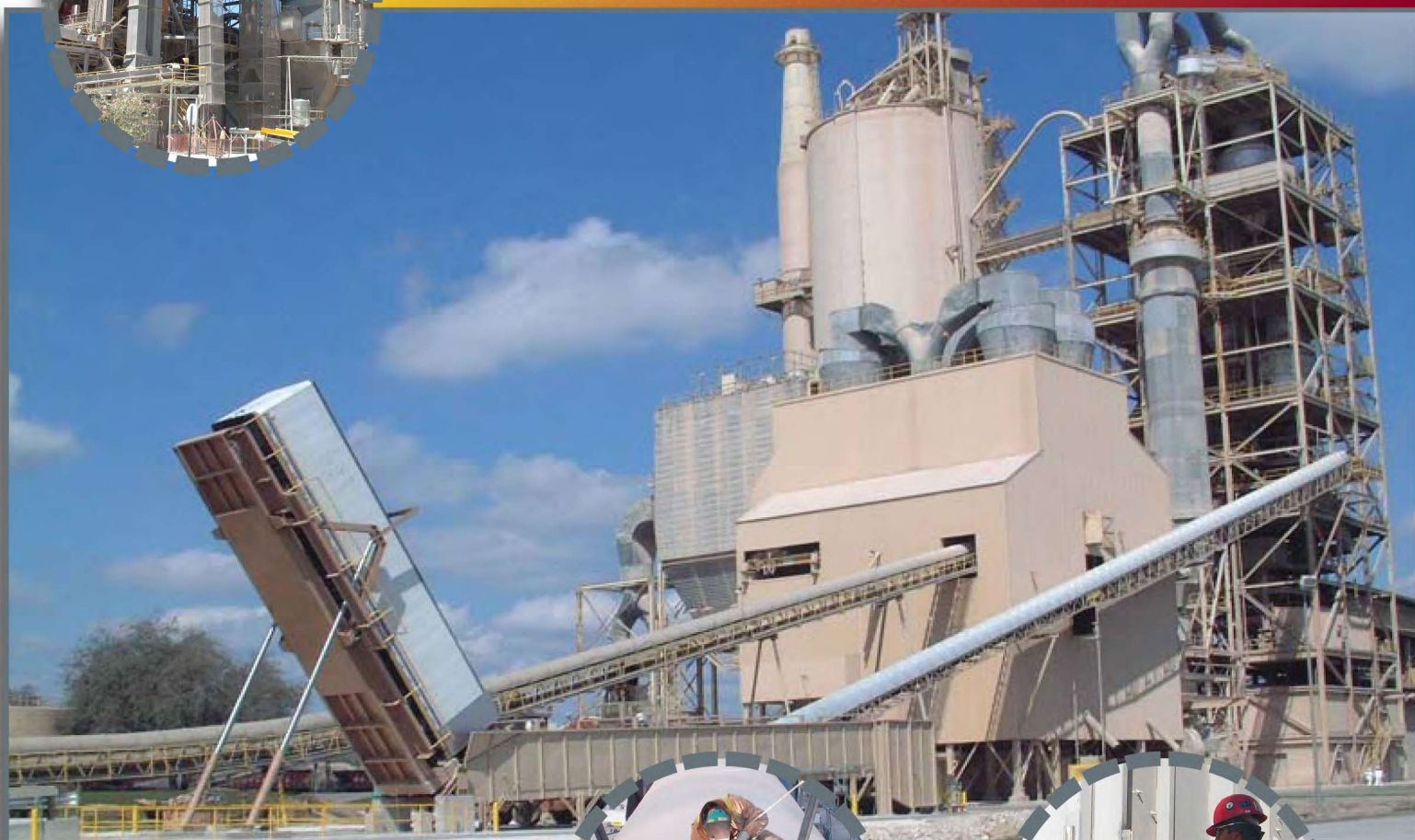
AFS - THE GLOBAL LEADER IN TIRE-DERIVED FUEL (TDF) SYSTEM TECHNOLOGY...

AFS, the leader in TDF system technology, specializes in augmenting cement manufacturing facilities with automated systems to utilize tire-derived and other solid-waste fuels. AFS systems maximize the benefits from TDF and other solid-waste fuels by providing precise reliable control of fuel feed rates. Our systems are built tough to withstand the demanding environment of the cement industry.

Daily use of our equipment saves thousands of dollars in fuel costs annually at cement manufacturing plants around the world.

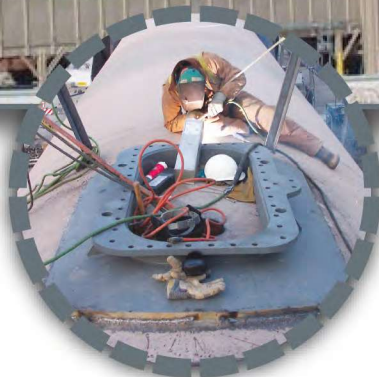
Scrap tires and other select solid-wastes, when properly integrated and injected into the cement manufacturing process, typically result in savings of 15% to 30% over the cost of conventional fuels without disturbing a kiln's operational capabilities, product quality, or environmental compliance.

AFS - PUTTING WASTE TO WORK



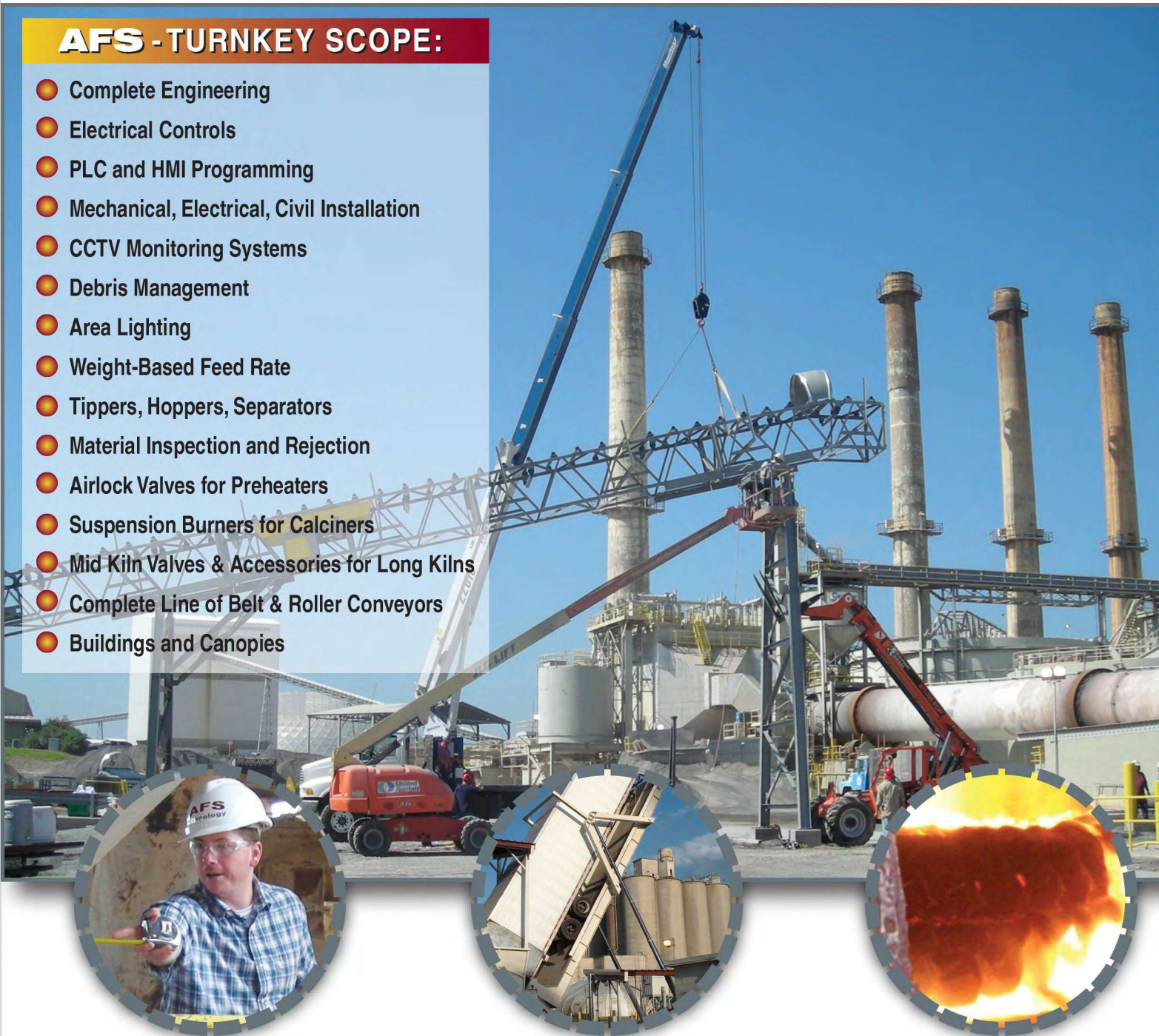
AFS - SYSTEMS WITHOUT LIMITATIONS...

Let AFS add the flexibility of conveying multiple bulk waste materials. By considering all available waste fuels at the beginning of your project, appropriate provisions can be made for adding new fuels in the future or including them from the start. AFS engineers have designed feed systems for iron waste, shredded carpeting, baled refuse, packaging waste and even coconut husks!



AFS - TURNKEY SCOPE:

- Complete Engineering
- Electrical Controls
- PLC and HMI Programming
- Mechanical, Electrical, Civil Installation
- CCTV Monitoring Systems
- Debris Management
- Area Lighting
- Weight-Based Feed Rate
- Tippers, Hoppers, Separators
- Material Inspection and Rejection
- Airlock Valves for Preheaters
- Suspension Burners for Calciners
- Mid Kiln Valves & Accessories for Long Kilns
- Complete Line of Belt & Roller Conveyors
- Buildings and Canopies



AFS - COMMITTED TO YOUR ALTERNATIVE ENERGY NEEDS...

AFS Technology is an organization of engineers, designers, project managers, construction supervisors, and support staff providing unique services to an expanding list of industrial customers.

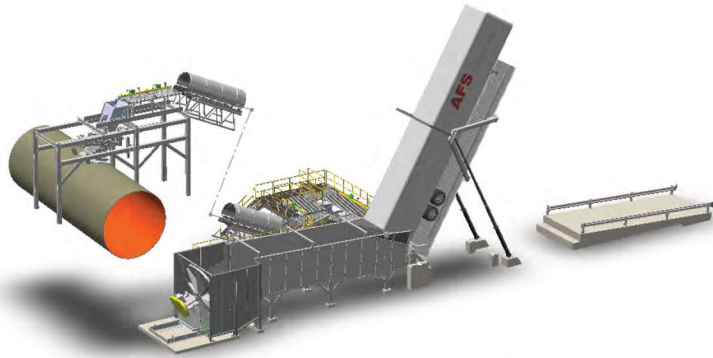
AFS - CONSISTENTLY ON TIME AND ON BUDGET...

AFS utilizes state-of-the-art design and project management software to execute projects on schedule and on budget. Extensive use of 3-D modeling allows customers to take virtual tours and envision their projects in the conception phase.

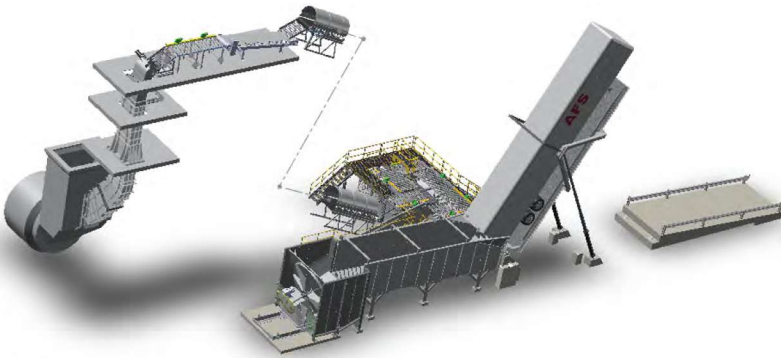
AFS Technology's team of professionals has extensive experience in the development of alternate energy resources for industrial clients. Our expertise in engineering, design, procurement, installation, construction management, start-up and commissioning enables us to handle projects of all sizes. We pride ourselves on providing an unparalleled level of commitment and enthusiasm on every project.

AFS - ALTERNATIVE FUEL SYSTEMS FOR THE CEMENT INDUSTRY:

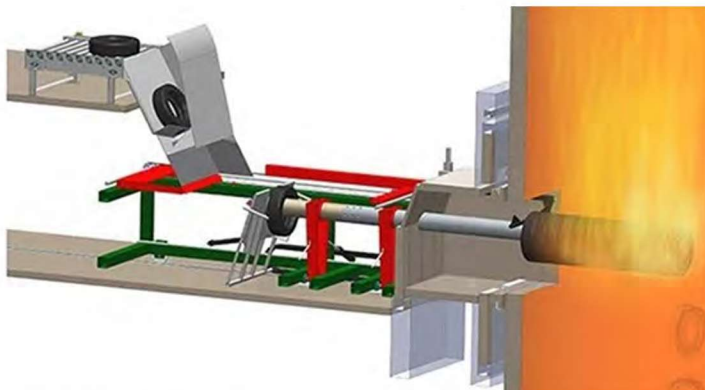
● Preheater Kilns ● Precalciner Kilns ● Long Dry or Wet Kilns ● Multi-fuel Systems ● Test Burn Systems



LONG WET OR DRY KILN SYSTEMS The mid-kiln valve is mounted on the kiln, at a location typically 50% to 60% the length of the kiln from the feed end. At this point, temperatures are high enough and residence times long enough to ensure complete combustion of the tire. Tire injection cycles are determined by kiln rotation. An AFS cam opens the valve smoothly, with minimum mechanical forces. The open dwell period is precise, and the closing is smooth and quiet, regardless of kiln diameter or speed.

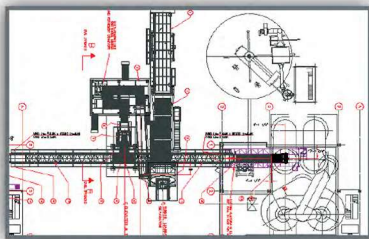


PREHEATER KILN SYSTEMS The airlock valve is designed to feed whole car and truck tires onto the feed-shelf of a 4 or 5 stage preheater/precalciner kiln. The airlock valve, along with a refractory lined tire chute, is attached to the riser duct of the kiln. The airlock valve has two gates which create an airlock during each tire injection cycle. The top gate is a knife-style gate made of mild steel, which rides on V-roller guided tracks. The bottom gate is a pivot-type gate made of high temperature alloy and supported by two high temperature graphite pillow block bearings. A high temperature maintenance gate is also provided to isolate the upper airlock valve during maintenance and system shut down periods.



PRECALCINER KILN SYSTEMS The suspension burner is designed to burn whole tires in the calciner of the kiln. The burner includes a two gate airlock chamber, suspension fork assembly, automatic ram, weighing system, controls, and automatic fork cleaner. The burner is designed to mount to an AFS-supplied refractory lined nozzle welded to the sidewall of the calciner.

COMPLETE TURN-KEY SOLUTIONS



ENGINEERING

AFS has a staff of engineers and designers experienced in finding solutions to your unique needs. Using SolidWorks and AutoCAD, we offer complete design packages, including 3-D modeling, tailored to your exact specifications.



PROJECT MANAGEMENT

AFS project managers provide for the successful execution of each project. They are responsible for all planning and communications, maintaining a close relationship with the customer, ensuring strict compliance with contractual requirements, scheduling, monitoring quality assurance, directing accounting and project cost management, and responding to all execution issues.



FABRICATION

AFS prides itself on each piece of equipment we make. Experience and talent are combined to form a team of quality-oriented individuals. In addition to producing our own fabrications, AFS draws on the excellent manufacturing relationships we have formed throughout the years. High quality materials, schedule adherence and competitive pricing, all add up to superior value to our customers.



INSTALLATION

AFS provides turnkey solutions including all mechanical, electrical and civil installation requirements. Allowing AFS to manage all aspects of your project, from beginning to end, ensures your system will be installed for optimal performance and on time. AFS personnel have over 20 years of experience building and installing alternative fuel systems for the cement industry. Safety is at the forefront during installation with strict adherence to MSHA rules and regulations.



COMMISSIONING

AFS project managers and engineers remain on site during the start-up and commissioning process. During this time, we train your personnel to operate and maintain the equipment and fine-tune the system for optimum performance and efficiency.



SAFETY

AFS Technology's Professional Services Team values safety and health. All of our project managers are MSHA Certified, and all of our employees are committed to a drug free environment and workplace safety.

7 "GREEN" REASONS TO USE TIRE-DERIVED FUEL (TDF)

1. There are at least 275 million scrap tires in stockpiles in the U.S. *Environmental Protection Agency, "Management of Scrap Tires," Last Updated April, 2005 (Accessed 8/05)*
2. Scrap tires pose three environmental threats:
 - They are an extremely difficult to extinguish fire hazard;
 - They trap rainwater which can breed mosquitoes that spread diseases;
 - They are bulky, virtually indestructible hazards that often work their way back up to the surface of landfills after burial.

Environmental Protection Agency, "Profile of the Rubber and Plastic Industry, 2nd edition," EPA/310-R-05-003, February 2005

3. Tires burn cleaner than coal. Using tires as fuel can reduce nitrogen oxide emissions by as much as 40% without adversely affecting other kiln emissions.
4. The complete combustion of TDF in cement kilns — due to extremely high temperatures, a positive oxygen atmosphere and a long gas residence time — eliminates products of incomplete combustion.
5. Substituting TDF for coal results in the reduction of methane emissions and dust emissions from coal mining.
6. New residues are not generated from TDF because the ash produced is directly incorporated into the clinker.
7. When using TDF, nonrenewable fuel (coal, oil) consumption is lower, thus contributing to natural resource preservation.



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