



# TYSON FOODS EAGLE MOUNTAIN CASE STUDY

## WATER & ENERGY SOLUTIONS

redefining efficiency since 1969

### Project Overview

Tyson Foods is a recognized leader in the protein industry and is the second-largest meat processor in the world. After years of intensive research and planning, Tyson Fresh Meats, the beef and pork subsidiary of Tyson Foods, expanded its case ready production facilities to Eagle Mountain Utah, investing approximately \$300 million in the construction of a 600,000-square-foot production site. Tyson Eagle Mountain produces case ready beef and pork with operations of meat cutting and packaging, converting large cuts of protein into retail-ready trays of steaks, chops, ground meat and more that will then be weighed, packaged and labeled ready to be sold in grocery stores.

Through facility expansions, Tyson is meeting the challenge of growing demand for high-quality, fresh case ready meats. Tyson's mission is to excel in sustainability and transparency efforts as a company with the goal to enrich the environment,

agriculture practices and communities globally. When selecting equipment for the Eagle Mountain production system, Tyson Foods chose Kemco Systems for the installation of a hot water system for their sanitation process over competitors due to Kemco products higher energy savings and efficient designs.

An industry leader since 1969, Kemco Systems designs custom water systems built to the highest standards of excellence offering exceptional reliability and top value regaining energy dollars saved. To create an accurate installation blueprint, Kemco's field engineers begin by performing an on-site plant and process evaluation. Each site evaluation includes determining the best-suited equipment to improve overall system efficiency and factors aspects such as sizing and technical specifications to ensure operational success as well as what equipment will meet the environmental goals of the company.



# Scenario

Tyson Foods was seeking to install an innovative and efficient hot water system to be used for plant sanitation processes while also meeting economical demands. In order to achieve these goals for Tyson's new Utah location, Kemco installed a direct contact water heating system consisting of two 25 mil BTU direct contact water heaters with low NOx burners as well as with two large water softeners. Kemco's water softeners will greatly improve the effectiveness of downstream processes which will allow the direct contact water heaters to operate with ease.



## Solution Overview

Kemco's direct contact water heaters, non-pressurized vessels generate hot water with a 99.7% fuel efficiency rate, are utilized for plant sanitation in wash stations. Installing two direct contact water heaters will allow Eagle Mountain facility the capability of heating 527GPM of water from 60°F to 140°F at 5,000 feet elevation. Stack temperature from the heater will not reach over 10°F in excess of inlet water temperature when the heater is operated at design conditions and in accordance with operating procedures. This Kemco low NOx heater is guaranteed to produce less than 15ppm of NOx when operating.

Kemco's water softener system is designed as a triplex water softening system and can soften 30,000 gallons of water per hour or 360,000 gallons a day. Scale forming minerals such as calcium and magnesium often build up on water heaters and other steam related equipment. By passing hard water over ion exchange resin in the pressure vessel, hardness minerals are exchanged for more benign ions resulting in softened water which does not build up on surfaces as scale deposits. Softened water requires less cleaning detergents for process and reduces or eliminates scale build-up in piping and equipment.

## Results

Kemco's direct contact water heating system reduces water heating costs by \$118,048 per year compared to conventional gas-fired boilers operating at 65% efficiency. The cost reduction is based on operating 40 hours per week, 52 weeks per year heating 527GPM of water from 60°F to 140°F with a natural gas cost of \$5.00 per 1000 cubic feet.

