

Fire Tube Food Processing Boiler Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented, By Fuel Type (Natural Gas, Oil, Coal, Biomass, Electricity), By Application (Steam Generation, Heating, Power Generation, Process Heating, Other), By Industry Vertical (Oil & Gas, Power Generation, Manufacturing, Food & Beverage, Chemical, Pulp & Paper, Others), By Pressure (Low Pressure (150 psi), Medium Pressure (150-600 psi), High Pressure (> 600 psi)), By Region & Competition, 2021-2031F

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Abstracts

The Global Fire Tube Food Processing Boiler Market is projected to expand from USD 3.17 billion in 2025 to USD 5.07 billion by 2031, exhibiting an 8.14% compound annual growth rate. These essential pressure vessels facilitate operations like sterilization, pasteurization, and cooking by generating steam as hot combustion gases pass through tubes surrounded by water. The market's growth is primarily fueled by the increasing global demand for processed packaged foods and the industrial need for dependable, energy-efficient thermal generation capable of adapting to varying load requirements. However, the sector faces a significant hurdle due to increasingly strict environmental regulations concerning carbon emissions, which are prompting facilities to reconsider traditional fossil-fuel-fired units. In 2024, the global trade volume for food processing and packaging machinery reached approximately €54.5 billion, according to VDMA, highlighting substantial capital investments in production infrastructure that directly influence the demand for utility equipment such as boilers.

Market Driver

The rapid expansion of the global processed food and beverage industry is the main catalyst driving the adoption of fire tube boilers, as they deliver the crucial steam loads necessary for continuous sterilization, cooking, and pasteurization lines. As manufacturers scale operations to satisfy consumer demand for packaged goods, installing robust thermal systems becomes indispensable. This growth is evidenced by substantial capital inflows into production capabilities; for instance, Daisy Brand announced a \$708 million investment to construct a new processing facility in Iowa in April 2024 (Food Industry Executive), directly creating demand for industrial-grade utility systems. Such facility enhancements require boilers capable of providing consistent high-pressure steam. Further illustrating the sector's immense scale, the EU food and drink industry alone generated a turnover of €1.2 trillion in 2024, as reported by FoodDrinkEurope in January 2025, underscoring the vast operational scope that underpins the steady procurement of processing technologies. Concurrently, the rising demand for energy-efficient steam generation solutions is influencing market dynamics, as producers aim to minimize fuel consumption and adhere to decarbonization targets. Fire tube designs are increasingly favored for their compatibility with advanced burner management systems and economizers, offering a cost-effective pathway to lower carbon footprints without compromising thermal output. This move toward sustainability is translating into tangible sales for equipment manufacturers. For example, Bosch Home Comfort Group reported that its industrial boiler segment achieved nearly 11% international sales growth in 2024 (March 2025), defying negative trends in other heating sectors. This uptick reflects how food processors are prioritizing the replacement of outdated thermal infrastructure with modern, high-efficiency units to ensure long-term operational viability and reduce operating expenses.

Market Challenge

Stringent environmental mandates regarding carbon emissions pose a significant obstacle to the expansion of the Global Fire Tube Food Processing Boiler Market. These regulations compel food and beverage manufacturers to rigorously assess the long-term viability of conventional fossil-fuel-fired vessels. As authorities enforce stricter emission caps, companies face elevated operational risks and potential financial penalties for using carbon-intensive equipment. This regulatory pressure introduces hesitation into the procurement process, causing facilities to delay replacing aging infrastructure to avoid investing in assets that could become obsolete under future compliance standards. The uncertainty surrounding carbon taxation and permissible

fuel types effectively extends the decision-making cycle for capital equipment. The impact of these mandates is amplified by the sector's historical reliance on conventional fuels; in 2024, fossil fuels continued to supply over 75 percent of the total energy used for industrial heat generation globally, according to the World Bioenergy Association. This statistic highlights the immense scale of the transition required, leading to a direct slowdown in sales of standard fire tube boilers as the industry grapples with the complexities and costs of aligning with decarbonization targets.

Market Trends

The integration of IoT-enabled remote monitoring and control systems is fundamentally transforming the Global Fire Tube Food Processing Boiler Market. Processors are increasingly seeking digitized thermal management systems that ensure precise temperature control for sterilization while minimizing downtime through predictive analytics. This transition from manual oversight to automated, data-driven operations enables facilities to identify potential faults before they disrupt critical production lines. The momentum behind this digital shift is substantial; Rockwell Automation's '10th Annual State of Smart Manufacturing Report' (June 2025) indicates that 95% of manufacturers have invested in, or plan to invest in, AI and machine learning technologies over the next five years, directly influencing modern boiler control specifications. Concurrently, there is a pronounced trend toward the utilization of biomass-compatible fire tube architectures, driven by the sector's adoption of circular economy principles. Food producers are prioritizing boilers capable of firing organic waste—such as husks, shells, and grounds—to convert disposal costs into fuel savings. This approach not only reduces reliance on fossil fuels but also insulates operations from volatile energy prices. The scale of this transition is evident; the International Renewable Energy Agency's 'Renewable Capacity Statistics 2025' report (March 2025) noted that global bioenergy capacity expanded by 4.6 gigawatts in 2024, reflecting growing industrial demand for infrastructure supporting sustainable, waste-derived thermal energy.

Key Market Players

Babcock Power Inc.,

BABCOCK WANSON Group

Babcock & Wilcox Enterprises, Inc.

Bosch Thermotechnik GmbH

Clayton Industries Inc.

Cleaver-Brooks Company, Inc.

Ferrolli Heating (South Asia) Pvt. Ltd.

Hoval Group

Hurst Boiler & Welding Co, Inc.

Johnston Boiler Company

Report Scope

In this report, the Global Fire Tube Food Processing Boiler Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Fire Tube Food Processing Boiler Market, By Fuel Type

Natural Gas

Oil

Coal

Biomass

Electricity

Fire Tube Food Processing Boiler Market, By Application

Steam Generation

Heating

Power Generation

Process Heating

Other

Fire Tube Food Processing Boiler Market, By Industry Vertical

Oil & Gas

Power Generation

Manufacturing

Food & Beverage

Chemical

Pulp & Paper

Others

Fire Tube Food Processing Boiler Market, By Pressure

Low Pressure (150 psi)

Medium Pressure (150-600 psi)

High Pressure (> 600 psi)

Fire Tube Food Processing Boiler Market, By Region

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Fire Tube Food Processing Boiler Market.

Available Customizations:

Global Fire Tube Food Processing Boiler Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

Contents

1. PRODUCT OVERVIEW

- 1.1. Market Definition
- 1.2. Scope of the Market
 - 1.2.1. Markets Covered
 - 1.2.2. Years Considered for Study
 - 1.2.3. Key Market Segmentations

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Key Industry Partners
- 2.4. Major Association and Secondary Sources
- 2.5. Forecasting Methodology
- 2.6. Data Triangulation & Validation
- 2.7. Assumptions and Limitations

3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, Trends

4. VOICE OF CUSTOMER

5. GLOBAL FIRE TUBE FOOD PROCESSING BOILER MARKET OUTLOOK

- 5.1. Market Size & Forecast
 - 5.1.1. By Value
- 5.2. Market Share & Forecast
 - 5.2.1. By Fuel Type (Natural Gas, Oil, Coal, Biomass, Electricity)
 - 5.2.2. By Application (Steam Generation, Heating, Power Generation, Process Heating, Other)
 - 5.2.3. By Industry Vertical (Oil & Gas, Power Generation, Manufacturing, Food &

Beverage, Chemical, Pulp & Paper, Others)

5.2.4. By Pressure (Low Pressure (150 psi), Medium Pressure (150-600 psi), High Pressure (> 600 psi))

5.2.5. By Region

5.2.6. By Company (2025)

5.3. Market Map

6. NORTH AMERICA FIRE TUBE FOOD PROCESSING BOILER MARKET OUTLOOK

6.1. Market Size & Forecast

6.1.1. By Value

6.2. Market Share & Forecast

6.2.1. By Fuel Type

6.2.2. By Application

6.2.3. By Industry Vertical

6.2.4. By Pressure

6.2.5. By Country

6.3. North America: Country Analysis

6.3.1. United States Fire Tube Food Processing Boiler Market Outlook

6.3.1.1. Market Size & Forecast

6.3.1.1.1. By Value

6.3.1.2. Market Share & Forecast

6.3.1.2.1. By Fuel Type

6.3.1.2.2. By Application

6.3.1.2.3. By Industry Vertical

6.3.1.2.4. By Pressure

6.3.2. Canada Fire Tube Food Processing Boiler Market Outlook

6.3.2.1. Market Size & Forecast

6.3.2.1.1. By Value

6.3.2.2. Market Share & Forecast

6.3.2.2.1. By Fuel Type

6.3.2.2.2. By Application

6.3.2.2.3. By Industry Vertical

6.3.2.2.4. By Pressure

6.3.3. Mexico Fire Tube Food Processing Boiler Market Outlook

6.3.3.1. Market Size & Forecast

6.3.3.1.1. By Value

6.3.3.2. Market Share & Forecast

- 6.3.3.2.1. By Fuel Type
- 6.3.3.2.2. By Application
- 6.3.3.2.3. By Industry Vertical
- 6.3.3.2.4. By Pressure

7. EUROPE FIRE TUBE FOOD PROCESSING BOILER MARKET OUTLOOK

7.1. Market Size & Forecast

7.1.1. By Value

7.2. Market Share & Forecast

7.2.1. By Fuel Type

7.2.2. By Application

7.2.3. By Industry Vertical

7.2.4. By Pressure

7.2.5. By Country

7.3. Europe: Country Analysis

7.3.1. Germany Fire Tube Food Processing Boiler Market Outlook

7.3.1.1. Market Size & Forecast

7.3.1.1.1. By Value

7.3.1.2. Market Share & Forecast

7.3.1.2.1. By Fuel Type

7.3.1.2.2. By Application

7.3.1.2.3. By Industry Vertical

7.3.1.2.4. By Pressure

7.3.2. France Fire Tube Food Processing Boiler Market Outlook

7.3.2.1. Market Size & Forecast

7.3.2.1.1. By Value

7.3.2.2. Market Share & Forecast

7.3.2.2.1. By Fuel Type

7.3.2.2.2. By Application

7.3.2.2.3. By Industry Vertical

7.3.2.2.4. By Pressure

7.3.3. United Kingdom Fire Tube Food Processing Boiler Market Outlook

7.3.3.1. Market Size & Forecast

7.3.3.1.1. By Value

7.3.3.2. Market Share & Forecast

7.3.3.2.1. By Fuel Type

7.3.3.2.2. By Application

7.3.3.2.3. By Industry Vertical

- 7.3.3.2.4. By Pressure
- 7.3.4. Italy Fire Tube Food Processing Boiler Market Outlook
 - 7.3.4.1. Market Size & Forecast
 - 7.3.4.1.1. By Value
 - 7.3.4.2. Market Share & Forecast
 - 7.3.4.2.1. By Fuel Type
 - 7.3.4.2.2. By Application
 - 7.3.4.2.3. By Industry Vertical
 - 7.3.4.2.4. By Pressure
- 7.3.5. Spain Fire Tube Food Processing Boiler Market Outlook
 - 7.3.5.1. Market Size & Forecast
 - 7.3.5.1.1. By Value
 - 7.3.5.2. Market Share & Forecast
 - 7.3.5.2.1. By Fuel Type
 - 7.3.5.2.2. By Application
 - 7.3.5.2.3. By Industry Vertical
 - 7.3.5.2.4. By Pressure

8. ASIA PACIFIC FIRE TUBE FOOD PROCESSING BOILER MARKET OUTLOOK

- 8.1. Market Size & Forecast
 - 8.1.1. By Value
- 8.2. Market Share & Forecast
 - 8.2.1. By Fuel Type
 - 8.2.2. By Application
 - 8.2.3. By Industry Vertical
 - 8.2.4. By Pressure
 - 8.2.5. By Country
- 8.3. Asia Pacific: Country Analysis
 - 8.3.1. China Fire Tube Food Processing Boiler Market Outlook
 - 8.3.1.1. Market Size & Forecast
 - 8.3.1.1.1. By Value
 - 8.3.1.2. Market Share & Forecast
 - 8.3.1.2.1. By Fuel Type
 - 8.3.1.2.2. By Application
 - 8.3.1.2.3. By Industry Vertical
 - 8.3.1.2.4. By Pressure
 - 8.3.2. India Fire Tube Food Processing Boiler Market Outlook
 - 8.3.2.1. Market Size & Forecast

- 8.3.2.1.1. By Value
- 8.3.2.2. Market Share & Forecast
 - 8.3.2.2.1. By Fuel Type
 - 8.3.2.2.2. By Application
 - 8.3.2.2.3. By Industry Vertical
 - 8.3.2.2.4. By Pressure
- 8.3.3. Japan Fire Tube Food Processing Boiler Market Outlook
 - 8.3.3.1. Market Size & Forecast
 - 8.3.3.1.1. By Value
 - 8.3.3.2. Market Share & Forecast
 - 8.3.3.2.1. By Fuel Type
 - 8.3.3.2.2. By Application
 - 8.3.3.2.3. By Industry Vertical
 - 8.3.3.2.4. By Pressure
- 8.3.4. South Korea Fire Tube Food Processing Boiler Market Outlook
 - 8.3.4.1. Market Size & Forecast
 - 8.3.4.1.1. By Value
 - 8.3.4.2. Market Share & Forecast
 - 8.3.4.2.1. By Fuel Type
 - 8.3.4.2.2. By Application
 - 8.3.4.2.3. By Industry Vertical
 - 8.3.4.2.4. By Pressure
- 8.3.5. Australia Fire Tube Food Processing Boiler Market Outlook
 - 8.3.5.1. Market Size & Forecast
 - 8.3.5.1.1. By Value
 - 8.3.5.2. Market Share & Forecast
 - 8.3.5.2.1. By Fuel Type
 - 8.3.5.2.2. By Application
 - 8.3.5.2.3. By Industry Vertical
 - 8.3.5.2.4. By Pressure

9. MIDDLE EAST & AFRICA FIRE TUBE FOOD PROCESSING BOILER MARKET OUTLOOK

- 9.1. Market Size & Forecast
 - 9.1.1. By Value
- 9.2. Market Share & Forecast
 - 9.2.1. By Fuel Type
 - 9.2.2. By Application

9.2.3. By Industry Vertical

9.2.4. By Pressure

9.2.5. By Country

9.3. Middle East & Africa: Country Analysis

9.3.1. Saudi Arabia Fire Tube Food Processing Boiler Market Outlook

9.3.1.1. Market Size & Forecast

9.3.1.1.1. By Value

9.3.1.2. Market Share & Forecast

9.3.1.2.1. By Fuel Type

9.3.1.2.2. By Application

9.3.1.2.3. By Industry Vertical

9.3.1.2.4. By Pressure

9.3.2. UAE Fire Tube Food Processing Boiler Market Outlook

9.3.2.1. Market Size & Forecast

9.3.2.1.1. By Value

9.3.2.2. Market Share & Forecast

9.3.2.2.1. By Fuel Type

9.3.2.2.2. By Application

9.3.2.2.3. By Industry Vertical

9.3.2.2.4. By Pressure

9.3.3. South Africa Fire Tube Food Processing Boiler Market Outlook

9.3.3.1. Market Size & Forecast

9.3.3.1.1. By Value

9.3.3.2. Market Share & Forecast

9.3.3.2.1. By Fuel Type

9.3.3.2.2. By Application

9.3.3.2.3. By Industry Vertical

9.3.3.2.4. By Pressure

10. SOUTH AMERICA FIRE TUBE FOOD PROCESSING BOILER MARKET OUTLOOK

10.1. Market Size & Forecast

10.1.1. By Value

10.2. Market Share & Forecast

10.2.1. By Fuel Type

10.2.2. By Application

10.2.3. By Industry Vertical

10.2.4. By Pressure

- 10.2.5. By Country
- 10.3. South America: Country Analysis
 - 10.3.1. Brazil Fire Tube Food Processing Boiler Market Outlook
 - 10.3.1.1. Market Size & Forecast
 - 10.3.1.1.1. By Value
 - 10.3.1.2. Market Share & Forecast
 - 10.3.1.2.1. By Fuel Type
 - 10.3.1.2.2. By Application
 - 10.3.1.2.3. By Industry Vertical
 - 10.3.1.2.4. By Pressure
 - 10.3.2. Colombia Fire Tube Food Processing Boiler Market Outlook
 - 10.3.2.1. Market Size & Forecast
 - 10.3.2.1.1. By Value
 - 10.3.2.2. Market Share & Forecast
 - 10.3.2.2.1. By Fuel Type
 - 10.3.2.2.2. By Application
 - 10.3.2.2.3. By Industry Vertical
 - 10.3.2.2.4. By Pressure
 - 10.3.3. Argentina Fire Tube Food Processing Boiler Market Outlook
 - 10.3.3.1. Market Size & Forecast
 - 10.3.3.1.1. By Value
 - 10.3.3.2. Market Share & Forecast
 - 10.3.3.2.1. By Fuel Type
 - 10.3.3.2.2. By Application
 - 10.3.3.2.3. By Industry Vertical
 - 10.3.3.2.4. By Pressure

11. MARKET DYNAMICS

- 11.1. Drivers
- 11.2. Challenges

12. MARKET TRENDS & DEVELOPMENTS

- 12.1. Merger & Acquisition (If Any)
- 12.2. Product Launches (If Any)
- 12.3. Recent Developments

13. GLOBAL FIRE TUBE FOOD PROCESSING BOILER MARKET: SWOT

ANALYSIS

14. PORTER'S FIVE FORCES ANALYSIS

- 14.1. Competition in the Industry
- 14.2. Potential of New Entrants
- 14.3. Power of Suppliers
- 14.4. Power of Customers
- 14.5. Threat of Substitute Products

15. COMPETITIVE LANDSCAPE

- 15.1. Babcock Power Inc.,
 - 15.1.1. Business Overview
 - 15.1.2. Products & Services
 - 15.1.3. Recent Developments
 - 15.1.4. Key Personnel
 - 15.1.5. SWOT Analysis
- 15.2. BABCOCK WANSON Group
- 15.3. Babcock & Wilcox Enterprises, Inc.
- 15.4. Bosch Thermotechnik GmbH
- 15.5. Clayton Industries Inc.
- 15.6. Cleaver-Brooks Company, Inc.
- 15.7. Ferroli Heating (South Asia) Pvt. Ltd.
- 15.8. Hoval Group
- 15.9. Hurst Boiler & Welding Co, Inc.
- 15.10. Johnston Boiler Company

16. STRATEGIC RECOMMENDATIONS

17. ABOUT US & DISCLAIMER

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