

# Global 100% Hydrogen Firing Boiler Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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## Abstracts

According to our (Global Info Research) latest study, the global 100% Hydrogen Firing Boiler market size was valued at US\$ 25.85 million in 2025 and is forecast to a readjusted size of US\$ 226 million by 2032 with a CAGR of 34.2% during review period.

A 100% hydrogen firing boiler is a boiler unit or packaged system designed to use hydrogen as the sole fuel and to deliver thermal energy—such as steam or hot water—through stable full-load combustion within its rated operating conditions and defined safety limits. Its defining features include combustion and safety control architectures specifically engineered and validated for pure hydrogen service (e.g., hydrogen fuel train, ignition and purge sequences, leak detection, and safety interlocks), enabling sustained operation while complying with applicable local regulations and emissions requirements (e.g., NO<sub>x</sub> limits). In 2025, global production of 100% hydrogen firing boilers reached 24 units, with an average selling price of USD 1.04 million per unit.

A 100% hydrogen firing boiler (100% Hydrogen Firing Boiler) refers to a boiler unit or packaged system that uses hydrogen as the actual operating fuel, achieves 100% hydrogen ignition and stable combustion during project acceptance or demonstration operation, and continuously delivers steam or hot water. The sector is in a transition from “demonstration” to “small-scale commercialization.” Demand is primarily driven by industrial decarbonization (process steam/process heat), district heating and heat-network pilots, and low-carbon retrofits for large public buildings, while the residential segment contributes close to zero due to constraints in hydrogen supply infrastructure and compliance frameworks. From a regional perspective, Europe is the leading market, supported by the combined effects of hydrogen valleys/heat-network pilots, public-sector demonstration procurement, and stringent emissions compliance. North America

is characterized mainly by a small number of industrial users and project-based retrofits. The Middle East and North Africa see large projects in hydrogen-rich settings such as refining and chemicals. Asia-Pacific remains largely in validation and small-scale demonstration stages. In terms of product mix, hot-water and high-temperature hot-water units are better suited to heat networks and building heating, whereas steam boilers align more closely with industrial process applications. By capacity, the market forms a three-tier structure: 100 kW–1 MW modular condensing units, 1–10 MW cascaded boiler plants, and >10 MW large water-tube boilers or main-boiler fuel-conversion projects. Based on projects that actually operate on pure hydrogen, the application split is 55% industrial process steam and process heat, 30% district heating/heat networks, and 15% large public buildings and campus/industrial park heating. Pricing is distinctly project-based. For small- to mid-capacity packaged units, quotations typically bundle “equipment + hydrogen fuel train + interlocks + NOx control + commissioning and acceptance,” with average prices fluctuating with compliance requirements, hydrogen supply conditions, and on-site engineering scope. For large water-tube boilers and main-boiler conversion projects, the overall engineering scope dominates, lifting single-project values and amplifying year-to-year volatility. On the cost side, the core components include pressure parts and heat-transfer surfaces (steel, welding, and NDT), hydrogen burners and fuel trains (valve trains/pressure regulation/metering/double block-and-bleed/venting), combustion control and safety interlocks (BMS/purge and ignition/flame supervision/leak detection/ESD), NOx control (FGR/staged combustion/post-treatment), as well as on-site engineering and certification testing. The share of “safety and compliance systems + commissioning/acceptance” is materially higher than for natural-gas boilers, pushing up both average selling prices and delivery lead times. Gross margins vary significantly by project type: more standardized packaged units typically achieve 25%–30%, while EPC/turnkey projects are constrained by subcontracting and execution risk, resulting in margins of 15%–18%. On the manufacturing side, “single-line capacity” can be used to describe scale-up potential. For 100 kW–1 MW packaged condensing boilers, the single-line capacity of a final assembly and test line is 5–10 units per year. For medium-to-large water-tube boilers and deep conversion projects, the single-line capacity of an assembly and test line is 10–20 units per year, with bottlenecks more closely tied to pressure-part fabrication, end-to-end testing capability, and project delivery resources. Upstream supply includes steel and hydrogen-resistant materials, valves and instrumentation, control systems and sensors, and NOx-abatement components. The midstream consists of boiler OEMs and combustion-system suppliers. Downstream demand comes from industrial users, heat-network operators, and public-building owners, with projects often orchestrated by EPC contractors and system integrators. The competitive landscape is led by a limited number of boiler OEMs with proven and

certified pure-hydrogen firing capability, alongside a small group of system providers that master hydrogen combustion control and safety-interlock architectures. Key technical and compliance barriers center on pure-hydrogen combustion stability (flashback/explosion-risk control), achieving low-NOx compliance, plant-level safety logic, and third-party certification testing. Looking ahead, the market is expected to accelerate its shift from “ready” to “firing,” with business models evolving from single-unit sales toward packaged boiler islands and modular boiler plants. On the product side, stronger adoption of FGR and lower-NOx pathways, plus digital remote monitoring and predictive maintenance, will become more prominent; regionally, declining hydrogen costs and replication of hydrogen-valley projects are likely to enable a more sustainable scaling trajectory after 2027.

This report is a detailed and comprehensive analysis for global 100% Hydrogen Firing Boiler market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

### **Key Features:**

Global 100% Hydrogen Firing Boiler market size and forecasts, in consumption value (\$ Million), sales quantity (Units), and average selling prices (K US\$/Unit), 2021-2032

Global 100% Hydrogen Firing Boiler market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (Units), and average selling prices (K US\$/Unit), 2021-2032

Global 100% Hydrogen Firing Boiler market size and forecasts, by Type and by Application, in consumption value (\$ Million), sales quantity (Units), and average selling prices (K US\$/Unit), 2021-2032

Global 100% Hydrogen Firing Boiler market shares of main players, shipments in revenue (\$ Million), sales quantity (Units), and ASP (K US\$/Unit), 2021-2026

### **The Primary Objectives in This Report Are:**

To determine the size of the total market opportunity of global and key countries  
To assess the growth potential for 100% Hydrogen Firing Boiler

To forecast future growth in each product and end-use market  
To assess competitive factors affecting the marketplace

This report profiles key players in the global 100% Hydrogen Firing Boiler market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Bosch, Viessmann Climate Solutions (Carrier), Babcock & Wilcox, Kawasaki Thermal Engineering, Miura Co Ltd, Hydrogen Technologies, LLC, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

### **Market Segmentation**

100% Hydrogen Firing Boiler market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

#### Market segment by Type

Steam Boilers

Hot Water Boilers

#### Market segment by Project Type

New-build

Retrofit

#### Market segment by Sales Channel

Direct Sales

Distribution

## Market segment by Application

Commercial

Industrial

Residential

## Major players covered

Bosch

Viessmann Climate Solutions (Carrier)

Babcock & Wilcox

Kawasaki Thermal Engineering

Miura Co Ltd

Hydrogen Technologies, LLC

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

## **The content of the study subjects, includes a total of 15 chapters:**

Chapter 1, to describe 100% Hydrogen Firing Boiler product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of 100% Hydrogen Firing Boiler, with price, sales quantity, revenue, and global market share of 100% Hydrogen Firing Boiler from 2021 to 2026.

Chapter 3, the 100% Hydrogen Firing Boiler competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the 100% Hydrogen Firing Boiler breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026. and 100% Hydrogen Firing Boiler market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of 100% Hydrogen Firing Boiler.

Chapter 14 and 15, to describe 100% Hydrogen Firing Boiler sales channel, distributors, customers, research findings and conclusion.

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