



The Top Runner in Boiler Technology

Kawasaki Thermal Engineering Co., Ltd. (KTE) handles the manufacturing and sales of package boilers for the Kawasaki Group.

Since developing the first Japanese-made once-through boiler, the company has produced various world-firsts and industry-firsts, leading technological innovation as the top runner in the industry.

KTE, which was established in 1978, has its origins in three organizations: the General Purpose Boiler Division of Kawasaki, Yokoyama Kogyo (which merged with Kawasaki in 1966), and Kisha Seizo Co., Ltd. (which merged with Kawasaki in 1972). Yokoyama Kogyo introduced the technology of the Benson boiler, a forced once-through boiler developed in Germany, and Kisha Seizo produced Japan's first steam generator for heating Japanese National Railways trains in 1951. As a result of the merger, KTE strengthened its position as a specialist in boiler production, equipped with all functions, from

development to design, manufacturing, sales, and service.

Since the new company was formed through a merger of three top companies, its development capabilities surpassed those of the competition. In 1996, KTE developed a finned tube with a large heat transfer area by layering a large number of fins (enlarged heat transfer surfaces) onto a water tube on the boiler body. The KF type boiler realized about 2.6 times the steam output of the initial SG boiler with the same heat transfer area.

In 2000, the company developed the IF (Ifrit) type, which adopted automatic control of boiler combustion capacity (combustion

PID) and automatic control of feed water volume (feed water PID). This was the world's first large (6,000 kg/hour steam output) multi-tube once-through boiler, which was also highly durable. Based on this durability performance, KTE started offering 15-year product warranties from the time the IF-F type (Ifrit Fuerza) launched in 2015.

Then in 2016, KTE released its state-of-the-art WF type small once-through boiler that brought together the technology of once-through boilers and large boilers. Compared to the KF type, power consumption has been reduced by 44%, weight by 30%, and footprint by 10%.



1951

SG type

A single-tube once-through boiler developed for heating Japanese National Railways trains. Designed for trains, this is the first once-through boiler in Japan to meet various challenges, including being compact, highly vibration resistant, fully automated, highly efficient, and very safe. Due to its ease of operation, the model was expanded to general industrial use, and it has served as an auxiliary boiler at power plants, particularly because of its high reliability.



1977

SH type

A multi-tube boiler that realizes size reductions and higher efficiency with the same control technology as the SG type. A newly developed feed water deaerator (a device that removes dissolved oxygen from water) and steam-water separator ensure durability comparable to a large boiler. In addition, KTE has developed a system that controls multiple units at once, thereby making it possible to handle large volumes of steam.



1996

KF type

KTE has succeeded in further miniaturization by developing a finned tube while maintaining the SH type structure. The KF type can generate about 2.6 times the steam output (2,000 kg/hour) with the same heat transfer area as the SG boiler. Rated boiler efficiency (thermal efficiency) is also improved by 8 points to 98%.



2000

IF type

This type adopts automatic feed water control while improving the performance of the automatic combustion control adopted in the SG and SH types. Furthermore, by improving the heat transfer performance while maintaining the structure of the SH/KF type, KTE succeeded in developing, the world's first high-performance, large multi-tube once-through boiler. Despite having the same function and performance as a larger boiler, it is also a user-friendly product that does not necessitate a boiler engineer's license. (The photo shows the 2015 IF-F type.)

2016

WF type

The WF type is a state-of-the-art small once-through boiler that brings together all the technologies of KTE. The boiler demonstrates staggering performance, with an efficiency of over 100% and steam dryness in excess of 99.5%. In addition, a reengineering of the power source control, etc. has drastically reduced power consumption, and realized weight savings and size reductions. This is Japan's first small once-through boiler with a 15-year warranty.

