

# Kiwa Gas Technology Gas Appliances

## *Your Partner in product development*

The development of high quality, affordable gas appliances demands not only a great deal of expertise and problem solving abilities, but also research capacity and the correct measuring and testing facilities. Kiwa Gas Technology offers you support in all of these areas, in every phase and in every aspect of the development process.

Kiwa Gas Technology has considerable knowledge and experience in the area of gas appliances. Kiwa Gas Technology offers its Research and Development consultancy in the following sectors:

- Heating Industry: central heating boilers, decorative fires, space heaters, warm air heaters, heat pumps, (micro) co-generation (combined heat and power- i.e., gasengines, fuel cells) and air conditioning.
- Domestic appliances: cooking appliances, tumble driers, grills and ovens.
- Professional/industrial kitchen appliances: steam convection ovens, deep fat fryers, boiling pans, hot plates/grills, ovens, dishwashers etc.
- Leisure appliances: barbecues, grills, camping burners/stoves, refrigerators and air conditioners.
- Automotive: components for hydrogen-powered vehicles such as: (catalytic) burners, boil-off management systems, anode tail gas oxidizers, catalysts and air conditioners.

### *Analysis phase:*

- Inventory of the desires and needs of the client.
- Testing of clients' wishes and ideas against national and international standards and regulations.
- Draw up a list of requirements.
- Novelty analysis.
- Market analysis.
- Feasibility Analysis.

### *Concept phase:*

- Generation of multiple possible part solutions.
- Execution of calculations.
- Consolidation of part solutions into one or more concepts.
- Creation of sketches/diagrams for the benefit of the various concepts as needed.
- Evaluation of concepts (cost price analysis, assessment of technical and economic variables, selection of the most appropriate concept).

### *Proof of Principle/Laboratory prototype phase:*

- Construct prototype.
- Test prototype for function and specifications against the clients' list of requirements.
- Optimisation.

### *Production-ready prototype phase:*

- Client and/or Gastec implement detail-engineering (CAD).
- Client and/or Gastec construct production-ready prototype.
- Testing and validation in a laboratory to verify proper functioning and specifications as detailed in the list of requirements.

### *Durability testing/Field testing:*

- Test function of production-ready prototype under practical conditions.
- If deemed appropriate: execution of durability test (product life span, critical points).
- Analysis of data.





The support we can offer you ranges from basic consultancy up to and including full turn-key projects. Our project oriented approach begins with the creation of the product ideas in close consultation with the client, development of prototypes follows, up to and including consultancy on the implementation in the production. In addition, and essential to all of this, is our knowledge of international legislation and the international gas market and our state-of-the-art laboratory facilities complete with climate chambers.

### **Kiwa Gas Technology has supported developmental projects in the fields of:**

- Heat exchangers (gas/water, gas/air, water/water).
- General burner technology and specific (catalytic) burners for alternative fuels and hydrogen.
- Reduction of noise problems in gas appliances.
- Catalytic burners, reformers and fuel cell systems.
- Conversion of electric, oil- and wood fired devices to gas.
- Burner technology for alternative fuels, such as hydrogen.
- Natural gas and biogas engines.

### **Advantages to you:**

- Availability of experts of product developers.
- Short time period between product idea and final market ready product.
- You determine the final product.
- Close collaboration.
- Kiwa Gas Technology can be introduced at any stage in your product development process.
- We are available to act as intermediary between the supplier, manufacturer, and energy provider.
- Our vast international gas expertise and years of experience are at your disposal. We have at our disposal an international network.

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### **Profile Kiwa Gas Technology**

Kiwa Gas Technology is a service company with an (inter)national reputation in the area of gas technology, including natural gas, LPG, biogas and hydrogen. The activities comprise consultancy, engineering, training, product development, and the construction of components, equipment and systems for the extraction, distribution and utilisation of gas. The market served by Kiwa Gas Technology consists of gas production and transport companies, power companies, energy-intensive businesses, the gas and heating equipment industry, and other companies that require gas-related expertise. Kiwa Gas Technology is based in Apeldoorn.

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