RIGID

Stirling Engine Green Power

RIGID HVAC CO., LTD | WWW.RIGIDHVAC.COM

# Stirling Combined Heat & Power Multi-Fuel Self-Circulating System


RIGID
Linear Free Piston
Stirling Engine Generator
自由活塞式斯特林机
CE
RoHS
MADE IN CHINA


RIGID
Linear Free Piston
Stirling Engine Generator
自由活塞式斯特林机
CE
RoHS
MADE IN CHINA

# Multi-Fuel Stirling CHP System for Power, Heating, and Clean Water

- **The Stirling Combined Heat and Power (CHP) Multi-Fuel Self-Circulating System** – a revolutionary solution for reliable, energy-efficient power, heating, and potable water. Designed for off-grid and extreme environments, this fully automated system supports a wide range of fuels, including gas (CO, $H_2$ , $CH_4$ ), liquid (diesel, gasoline, methanol), solid (coal, wood), biomass (animal waste, crop residues), and clean energy (solar, geothermal).

- Key features include easy operation with one-touch start and emergency stop, clear status indicators, and real-time data monitoring. Its modular configuration allows for scalable output, making it ideal for diverse applications like remote communities or industrial sites. The system can operate at high latitudes and in extreme temperatures, with shock and vibration resistance.

- Energy-efficient and eco-friendly, the system runs quietly (<35 dB) and burns fuels cleanly, emitting primarily water vapor and $CO_2$ . It also features a self-sustaining cycle, ensuring no waste. The system is maintenance-free for 10 years, offering a long-term, sustainable solution.

- Perfect for businesses, homes, and remote locations, the Stirling CHP system ensures continuous access to power, heating, and clean water, with a compact design and low operational cost. Embrace the future of energy with RIGID’s Stirling system.

# Key Features:

- Easy Operation
- Multi-Supply in One Unit
- Fully Modular Configuration
- Multiple Fuel Options
- Strong Weather Resistance
- Energy-Saving & Eco-Friendly

## Easy Operation:

1. Fully automatic operation after setup.
2. Multiple start modes: one-touch, remote, or scheduled.
3. Main unit is maintenance-free; other function modules can be easily replaced.

## Multi-Supply in One Unit:

1. Power supply
2. Heating supply
3. Potable water supply

## Strong Weather Resistance:

1. Off-grid operation
2. Operates in high latitudes
3. Works in extreme environments
4. Resistant to shocks and vibrations


# Stirling Power Generator Package

## Fully Modular Configuration:

1. Multiple machines can be connected in parallel to double total output
2. Single modules can also be paralleled to double a specific output

## Unlimited Fuel Options:

1. Gaseous fuels: CO, $H_2$ , $CH_4$
2. Solid fuels: coal, wood
3. Solar thermal energy
4. Liquid fuels: diesel, gasoline, methanol
5. Biomass fuels: animal waste, crop straw

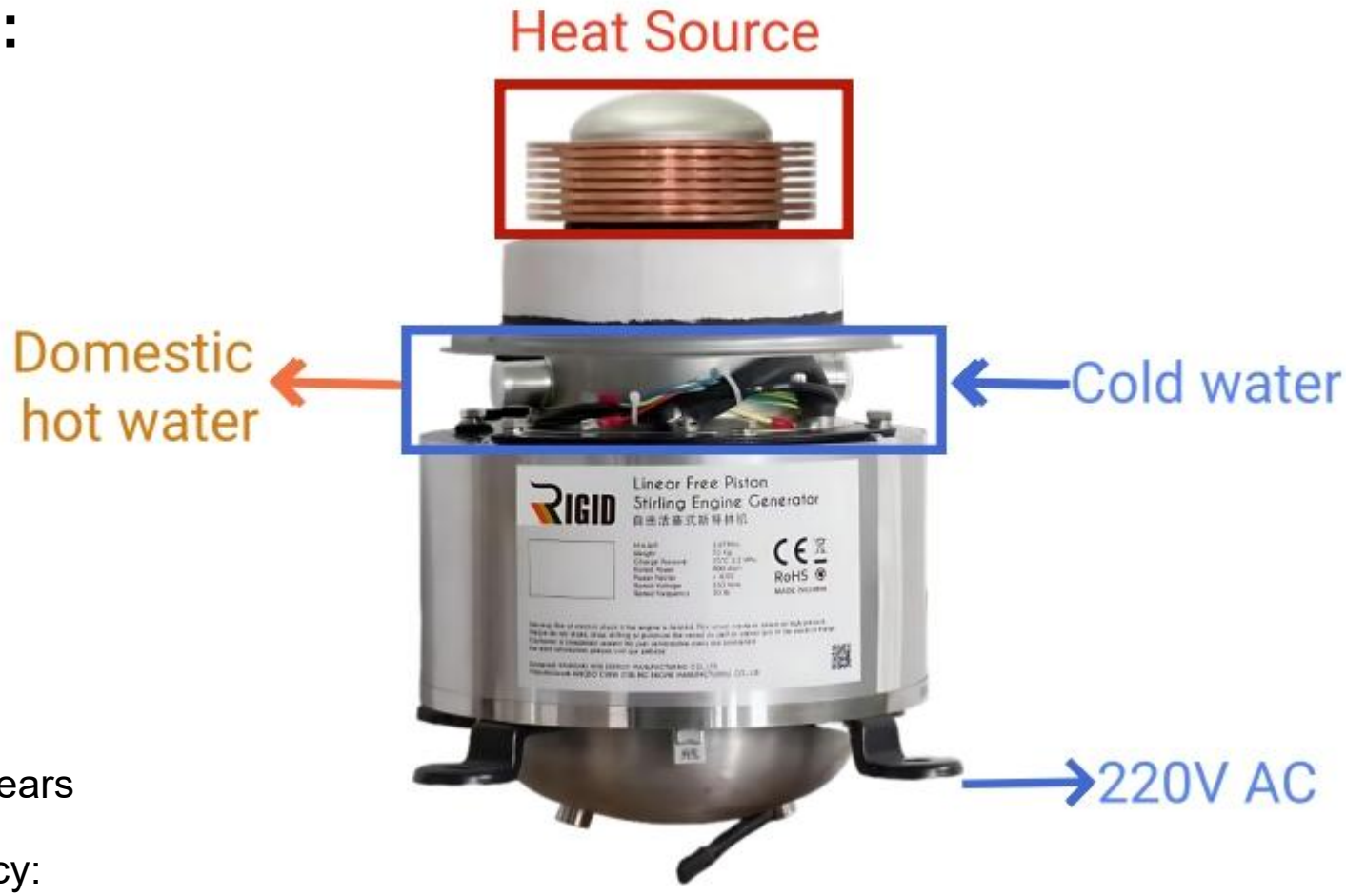
## Energy-Saving & Eco-Friendly:

1. Low noise operation (<35 dB)
2. Full combustion, exhaust mainly consists of water vapor and $CO_2$

RIGID

# Technical Specifications:

- Weight: 55 kg
- Frequency: 50 Hz
- Rated Voltage: 230 V
- Rated Power: 1000 W
- Power Factor: > 0.95
- Inflation pressure (25℃): 3.0 MPa
- Max working pressure: 3.67 MPa
- Operating range: -45 ℃ ~ +60 ℃
- Maintenance-free operating for 10 years
- Thermal-electric conversion efficiency: ≈23%–25%



# User Interface

UI Interface / Logo


Machine's status is clearly visible.

Real-time data acquisition

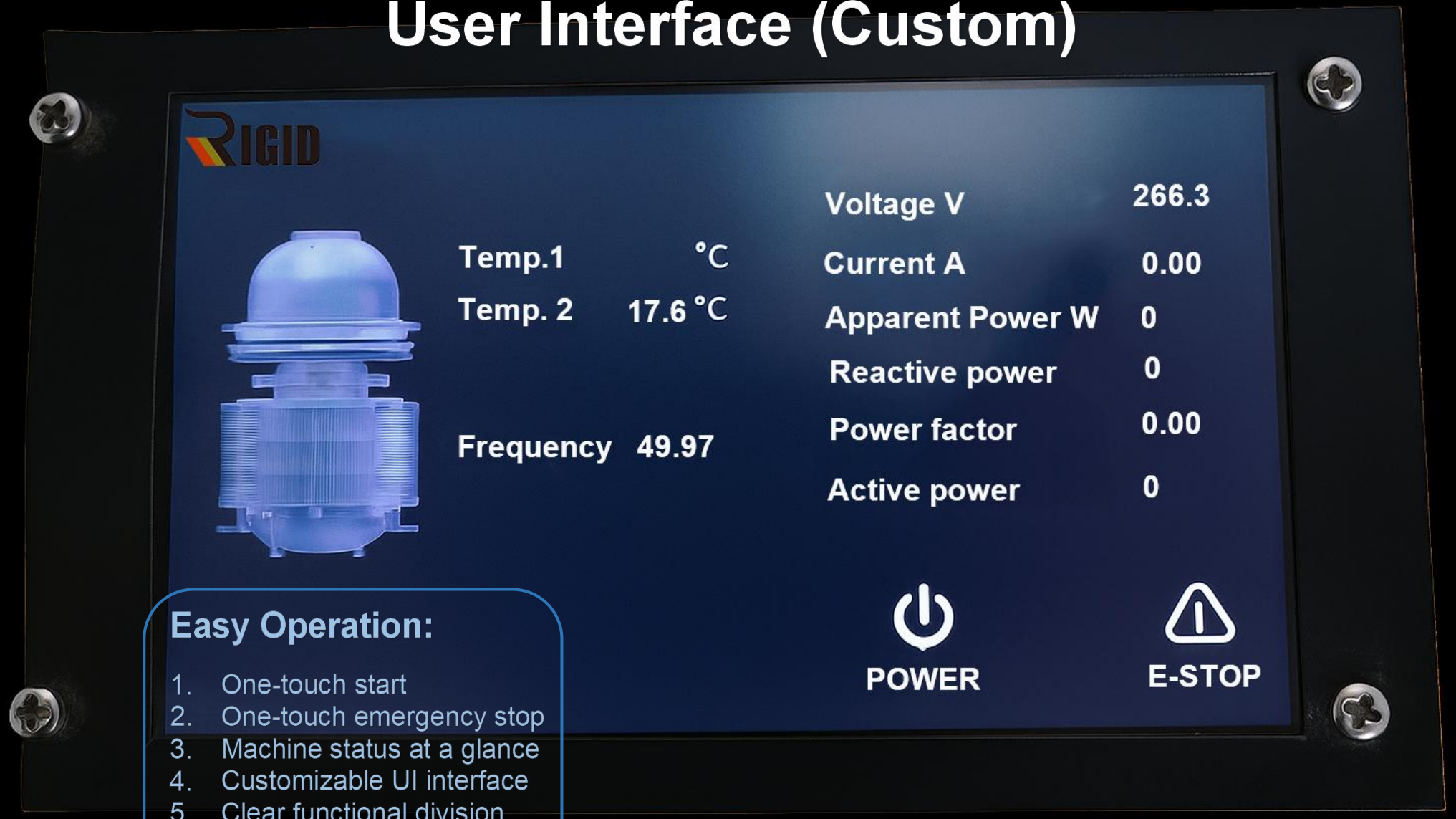
On & Off

Emergency stop

Clear functional distinction

RIGID

# User Interface (Custom)




## Easy Operation:

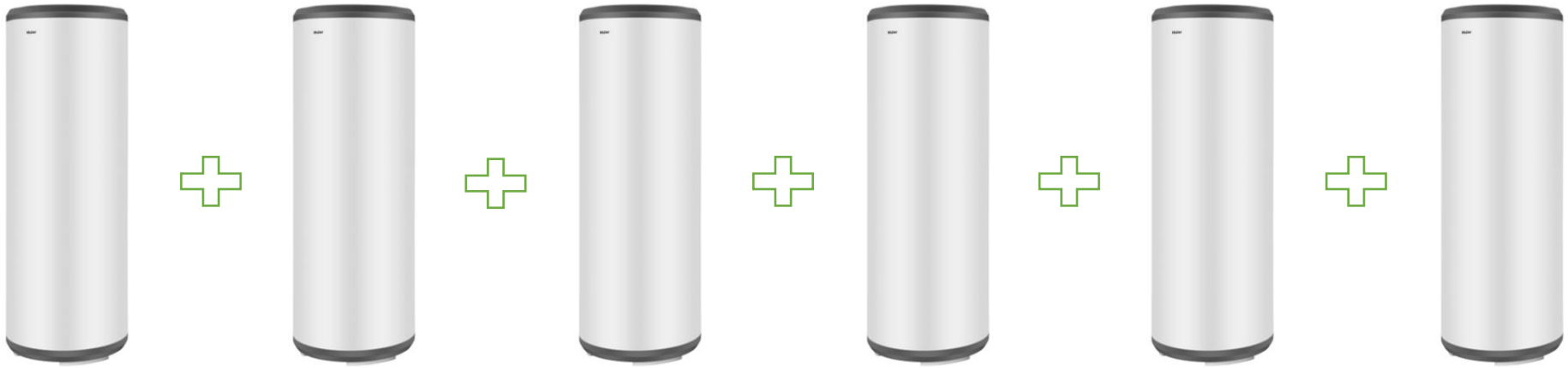
1. One-touch start
2. One-touch emergency stop
3. Machine status at a glance
4. Customizable UI interface
5. Clear functional division
6. Real-time data acquisition

RIGID

# Multi-Supply

- 200L hot water tank, constant 60℃ domestic hot water.
- Fan system: heating, dehumidifying, temperature control.
- Entire system occupies only 8㎡,
- easy to deploy.
- Each unit is an independent small-scale power station + hot water + heating base.
- With natural gas: 420 kWh of electricity per month (24/7 operation).
- Simultaneously meets domestic hot water and daily heating needs.

# Modular Configuration Example



- Hot water: 200L tank, constant 60℃, single modules can be paralleled for geometric growth of hot water output;
- Same principle applies to other modules for geometric scaling of different outputs.

# Fuel Diversity

- Gaseous fuels: CO, $H_2$ , $CH_4$ .
- Liquid fuels: diesel, gasoline, methanol.
- Solid fuels: coal, wood.
- Biomass fuels: animal waste, crop straw.
- Clean energy: solar thermal, geothermal.



# Strong Weather Resistance

- Off-grid operation: suitable for uninhabited areas.
- Shock & vibration resistance: unrestricted transport mode.
- High latitude operation: not affected by altitude or air pressure.
- Extreme environment operation: unaffected by high or low temperatures.

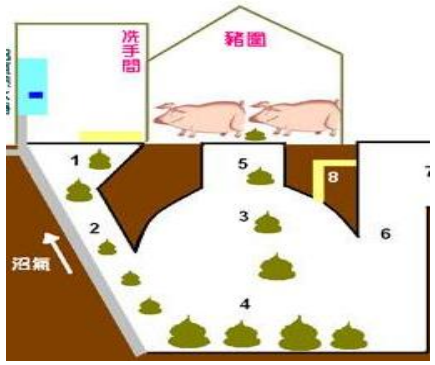
# Energy-Saving & Eco-Friendly

- Ultra-low noise operation (<35 dB).
- Complete combustion, exhaust mainly water vapor and $CO_2$ .
- Condensed steam supplements self-circulation, no waste.


# Complete Self-Circulating System:

**Biological waste → Fuel → Power generation → Domestic hot water**

**People ← Animals & plants ← Heating ← Potable water**




RIGID


# THANK YOU.