



Luoyang Juxing Kiln Co., LTD

Contact Information: +86 13271526781

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## 1000°C Tiltable Rotary Tube Furnace – Technical Specifications

**China Heat Treatment Industry Association Council Member**

ISO 45001: Occupational Health and Safety Management System Certification

ISO 14001: Environmental Management System Certification

ISO 9001: Quality Management System Certification

EU CE Product Certification

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## 1. Main Parameters

| Category                               | Parameter                              |
|----------------------------------------|----------------------------------------|
| Model                                  | GWL-1000KQGA                           |
| Power Supply                           | AC 380V / 80kW                         |
| Max. Operating Temperature             | 1100° C                                |
| Long-term Operating Temperature        | 1000° C                                |
| Control Range                          | 80° C to 1000° C                       |
| Temperature Measurement Element        | K-type thermocouple, range 0 – 1350° C |
| Furnace Chamber Dimensions (D × W × H) | Ø300 mm × 4000 mm (heating zone)       |

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#### Tube Dimensions

Ø300 mm, total length 5800 mm; an additional 500 mm length is added for material cooling

#### Furnace Body Dimensions

5800 × 1500 × 1600 mm

2.

### Feeding & Discharging

#### Category

#### Parameter

#### Feeding

80-liter feed hopper; stainless steel screw feeder

#### Discharging

Discharge end equipped with a gas protection hood; both inlet and outlet ends have cooling fans; the discharge section is additionally equipped with an air-cooling device

#### Feeding & Discharging Device

Screw feeder; feed pipe elevated at a 30° slope, made of quartz; the quartz tube at the discharge end does not contact stainless steel and flows directly into the collection tank (material collection tank to be provided by the customer)

### 3. Heating System

#### Category

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| Category                     | Parameter                                                                                           |
|------------------------------|-----------------------------------------------------------------------------------------------------|
| Heating Element Position     | High-temperature alloy resistance wires, installed in the upper and lower heating zones of the tube |
| Number of Heating Zones      | 4 independent temperature zones ( $20\text{kW} \times 4 = 80\text{kW}$ )                            |
| Tube Material                | Quartz glass tube                                                                                   |
| Rotation Speed               | 1 – 5 r/min, adjustable                                                                             |
| Tube Tilt Angle              | 0 – 15 degrees                                                                                      |
| Temperature Control Accuracy | $\pm 1^{\circ}\text{C}$ (integrated circuit control, no overshoot)                                  |
| Heating Rate                 | Freely adjustable; fastest $15^{\circ}\text{C/min}$ , slowest $1^{\circ}\text{C/h}$                 |
| Door Opening Method          | Electric opening and closing of the furnace body                                                    |

#### 4. Furnace Body & Insulation

| Category | Parameter |
|----------|-----------|
|----------|-----------|

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| Category                | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Furnace Body            | CNC-machined, polished, sanded, acid-washed, phosphated, powder-coated, and high-temperature baked. Dual-color design, novel and aesthetically pleasing appearance. Features oxidation resistance, acid/alkali resistance, corrosion resistance, high-temperature resistance, and easy cleaning.                                                                                                                            |
| Furnace Structure       | Internationally advanced air-cooled double-layer furnace body. An effective air-cooled guide baffle ensures overall cold air circulation in the furnace shell, finally cooling the heating element conductive plates before exhausting out of the furnace. This avoids high-temperature oxidation of the conductive plates and ensures a good working environment.                                                          |
| Refractory Material     | Furnace lining made of vacuum-formed high-purity alumina lightweight material. Locations prone to material contact (furnace mouth, furnace bottom) use lightweight hollow alumina balls. Features: high operating temperature, low heat storage, resistance to rapid heating/cooling, no cracking, no slagging, and good insulation performance (energy-saving effect is over 80% compared to old-style electric furnaces). |
| Insulation Material     | Three-layer insulation: aluminum silicate fiberboard, alumina fiberboard, and alumina (polycrystalline) fiberboard. Energy-saving effect is over 80% compared to old-style electric furnaces.                                                                                                                                                                                                                               |
| Outer Shell Temperature | During long-term continuous operation, the outer shell temperature is less than 45° C.                                                                                                                                                                                                                                                                                                                                      |

## 5. Protection & Control System

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| Category           | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Protection         | Integrated modular control unit with accurate control precision.<br>Designed with dual-loop control and dual-loop protection, featuring protection against overshoot, undershoot, thermocouple breakage, phase loss, overvoltage, overcurrent, overtemperature, current feedback, and soft start.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Control Cabinet    | Comes with an independent standard control cabinet. A cable schedule for on-site equipment connection is provided (cables to be purchased by the buyer).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Control Method     | Closed-loop technology with SCR module trigger control, phase-shift triggering or zero-crossing triggering. Output voltage, current, or power are continuously adjustable, with constant voltage, constant current, or constant power characteristics. The current loop is the inner loop, and the voltage loop is the outer loop. When a sudden load is applied or the load current exceeds the limit, the output current of the regulator is limited within the rated current range to ensure normal operation of the output and regulator. Meanwhile, the voltage loop also participates in regulation, maintaining constant output current and voltage under the premise of sufficient adjustment margin. This protects the heating elements from excessive current and voltage surges, achieving safe and reliable control and precision. |
| Display Parameters | Temperature, temperature segment number, segment time, remaining time, output power percentage, voltage, current, etc. Buttons are imported, with a lifespan exceeding 100,000 cycles, and come with LED indicators.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

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## Category

## Parameter

### Temperature Curve Setting

Intelligent temperature controller, equipped with standard PID, artificial intelligence APID, or MPT adjustment modes. Features self-tuning and self-learning functions, with excellent control characteristics of no overshoot and no undershoot. Equipped with 30-segment program control function, enabling heating and cooling control at any slope. Supports programmable/operable commands such as jump (loop), run, pause, and stop, and allows program modification at any time during program-controlled operation. Uses an artificial intelligence adjustment algorithm with curve fitting capability to achieve smooth and flat curve control effects. Multiple curves can be input, 30 segments.

## 6. Packing List

| Item                                    | Description                          |
|-----------------------------------------|--------------------------------------|
| Electric Furnace                        | One unit (including one quartz tube) |
| Crucible Tongs                          | One piece                            |
| High-temperature Gloves                 | One pair                             |
| High-temperature Alloy Resistance Wires | 2 pieces                             |

## 7. Warranty Scope & Period

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The electric furnace comes with a **one-year free warranty**. Heating elements and furnace tubes are **not covered under warranty** (heating elements naturally damaged within three months will be replaced free of charge).

## 8. Configuration List

| No. | Name                                | Description                                                                                                                                           | Qty   | Remarks |
|-----|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---------|
| 1   | High-temperature resistance furnace | Heating tube: high-purity quartz tube<br>Φ300×5800mm, furnace body, insulation layer, feeding device, discharging device, independent control cabinet | 1 set |         |

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**Thank you for getting in touch with us!**

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