



# TOQUARTZ

## Tech Specifications

# Quartz Tube

Integrated Engineering & Agile Production  
**for Demanded Specifications**





# QUARTZ HEATING TUBES



High-performance quartz thermal radiation tubes deliver unmatched durability and precision for industrial thermal processing. Engineered to optimize critical manufacturing parameters:

- **Extreme-environment resilience**

1,200°C sustained operation, ASTM C3 corrosion resistance



- **Instant thermal response**

- 30s temperature stabilization,  $\pm 1^\circ\text{C}$  control accuracy

- **Focused infrared spectrum**

95%+ wavelength-material compatibility for UV curing/drying



- **Collateral damage prevention**

- Zero heavy metal leaching, ISO 14001-compliant material purity

- **Shock-tolerant architecture**

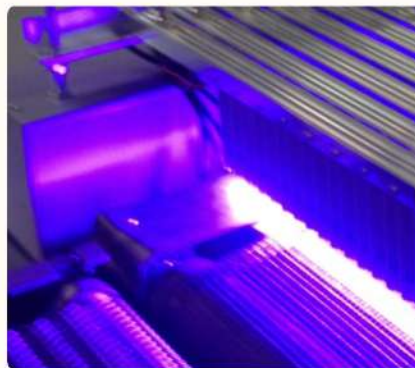
20-cycle rapid thermal fluctuation endurance



# QUARTZ HEATING TUBES

Frosted quartz tube enables mission-critical operations in technologically demanding industries through three primary implementation areas:

- **High-speed PCB curing & semiconductor sealing**
  - $\pm 1^{\circ}\text{C}$  tolerance electronics manufacturing
- **Printing UV ink polymerization**
  - 95%+ spectral alignment presses
- **Automotive paint curing**
  - 30s thermal response powder coating systems
- **Chemical reactor heating**
  - HCl-resistant thermal jackets
- **Lithium battery drying**
  - ATEX-compliant electrode processing



# TECHNICAL SPECIFICATION



Customizable quartz infrared heating tubes achieve **95% electrothermal efficiency** across **24-380V** industrial systems, engineered to meet mission-critical thermal processing parameters with TÜV-validated consistency.

## Voltage Tier Application Mapping:

- Low Voltage (24V-72V): Compact UV curing units (printing), R&D prototyping systems
- Standard Industrial (110V-240V): Textile dryers, automotive paint lines, food dehydration
- High Voltage (380V): Chemical reactor heating jackets, battery electrode drying tunnels





# TECHNICAL SPECIFICATION

| Parameter                            | Specification                                                 |
|--------------------------------------|---------------------------------------------------------------|
| Voltage Range                        | 24V, 36V, 72V, 100V, 110V, 115V, 120V, 220V, 230V, 240V, 380V |
| Power Range                          | 150W - 3500W                                                  |
| Power Tolerance                      | -5% ~ +10%                                                    |
| Electrothermal Conversion Efficiency | 95%                                                           |
| Max Operating Temperature            | 800°C                                                         |
| Thermal Radiation Efficiency         | 70%                                                           |
| Hemispherical Emissivity             | 88%                                                           |
| Infrared Wavelength                  | 1.512μm (Peak Spectral Output)                                |
| Color Temperature                    | 800K - 1500K                                                  |
| Service Life                         | 6,000 Hours (Continuous Operation)                            |



# SIZE CHART

## Quartz Tube Heating Element

### Group 1: Quartz tube heating element



- Standard **220V** variants (AT-SY-JRG001~015) feature precision sizing (**8-14mm diam.**) for confined spaces in **electronics drying (PCB curing) & compact textile dryers**.
- Multi-voltage industrial models (**380V** optimal) (AT-SY-JRG016~028) with **18-32mm diam.** suit **automotive paint curing tunnels** and **chemical reactor jackets**.

| Model        | Tube Diameter (mm) | Tube Length (mm) | Operating Voltage (V) | Power (W) |
|--------------|--------------------|------------------|-----------------------|-----------|
| AT-SY-JRG001 | 8                  | 120              | 220                   | 300       |
| AT-SY-JRG002 | 10                 | 120              | 220                   | 300       |
| AT-SY-JRG003 | 11                 | 220              | 220                   | 700       |
| AT-SY-JRG004 | 12                 | 120              | 220                   | 300       |
| AT-SY-JRG005 | 12                 | 160              | 220                   | 300       |



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| Model        | Tube Diameter (mm) | Tube Length (mm) | Operating Voltage (V) | Power (W) |
|--------------|--------------------|------------------|-----------------------|-----------|
| AT-SY-JRG006 | 12                 | 180              | 220                   | 300       |
| AT-SY-JRG007 | 12                 | 205              | 220                   | 300       |
| AT-SY-JRG008 | 12                 | 220              | 220                   | 300       |
| AT-SY-JRG009 | 12                 | 230              | 220                   | 300       |
| AT-SY-JRG010 | 12                 | 250              | 220                   | 300       |



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| Model        | Tube Diameter (mm) | Tube Length (mm) | Operating Voltage (V) | Power (W) |
|--------------|--------------------|------------------|-----------------------|-----------|
| AT-SY-JRG011 | 12                 | 260              | 220                   | 300       |
| AT-SY-JRG012 | 12                 | 280              | 220                   | 300       |
| AT-SY-JRG013 | 12                 | 300              | 220                   | 300       |
| AT-SY-JRG014 | 12                 | 330              | 220                   | 300       |
| AT-SY-JRG015 | 14                 | 330              | 220                   | 300       |





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| Model        | Tube Diameter (mm) | Tube Length (mm) | Operating Voltage (V) | Power (W) |
|--------------|--------------------|------------------|-----------------------|-----------|
| AT-SY-JRG016 | 18                 | 400              | 110/220/380           | 100-5000  |
| AT-SY-JRG017 | 18                 | 500              | 110/220/380           | 100-5000  |
| AT-SY-JRG018 | 18                 | 600              | 110/220/380           | 100-5000  |
| AT-SY-JRG019 | 18                 | 700              | 110/220/380           | 100-5000  |
| AT-SY-JRG020 | 18                 | 800              | 110/220/380           | 100-5000  |



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| Model        | Tube Diameter (mm) | Tube Length (mm) | Operating Voltage (V) | Power (W) |
|--------------|--------------------|------------------|-----------------------|-----------|
| AT-SY-JRG021 | 18                 | 900              | 110/220/380           | 100-5000  |
| AT-SY-JRG022 | 18                 | 1000             | 110/220/380           | 100-5000  |
| AT-SY-JRG023 | 18                 | 1500             | 110/220/380           | 100-5000  |
| AT-SY-JRG024 | 18                 | 1800             | 110/220/380           | 100-5000  |
| AT-SY-JRG025 | 22                 | 180-1800         | 110/220/380           | 100-5000  |



# SIZE CHART

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- Multi-voltage industrial models (**380V** optimal) (AT-SY-JRG016~028) with **18-32mm diam.** suit **automotive paint curing tunnels** and **chemical reactor jackets.**

| Model        | Tube Diameter (mm) | Tube Length (mm) | Operating Voltage (V) | Power (W) |
|--------------|--------------------|------------------|-----------------------|-----------|
| AT-SY-JRG026 | 25                 | 180-1800         | 110/220/380           | 100-5000  |
| AT-SY-JRG027 | 28                 | 180-1800         | 110/220/380           | 100-5000  |
| AT-SY-JRG028 | 32                 | 180-1800         | 110/220/380           | 100-5000  |



# SIZE CHART

## Quartz Glass Tube Heating Element

### Group 2: U-Bend Quartz Heating Tubes



- Custom-length **220V** U-tubes for retrofit upgrades in **printing UV curing systems** & **textile conveyor ovens**
- **380V**-capable models enable modular configurations for **large-scale battery electrode drying**

| Model        | Tube Diameter (mm) | Tube Length (mm) | Operating Voltage (V) | Power (W) |
|--------------|--------------------|------------------|-----------------------|-----------|
| AT-SY-JRG029 | 10                 | Custom           | 220                   | 300       |
| AT-SY-JRG030 | 12                 | Custom           | 220                   | 300       |
| AT-SY-JRG031 | 14                 | Custom           | 220                   | 300       |
| AT-SY-JRG032 | 18                 | Custom           | 110/220/380           | 100-5000  |

Voltage Tier Application Guidance:

- **110V**: Compact UV ink curing units (printing) & laboratory R&D systems
- **220V**: Standard industrial equipment (textile dryers, food dehydrators)
- **380V**: Heavy-duty chemical reactors & battery production drying tunnels





# CUSTOM ENGINEERING

## Machining Tolerances

Precision-engineered fused silica IR heating tubes guarantee **+5%/-10% power variance**,  **$\pm 2\text{mm}$  length control**, and  **$\pm 0.05\text{mm}$  diameter accuracy** for critical industrial thermal processes.

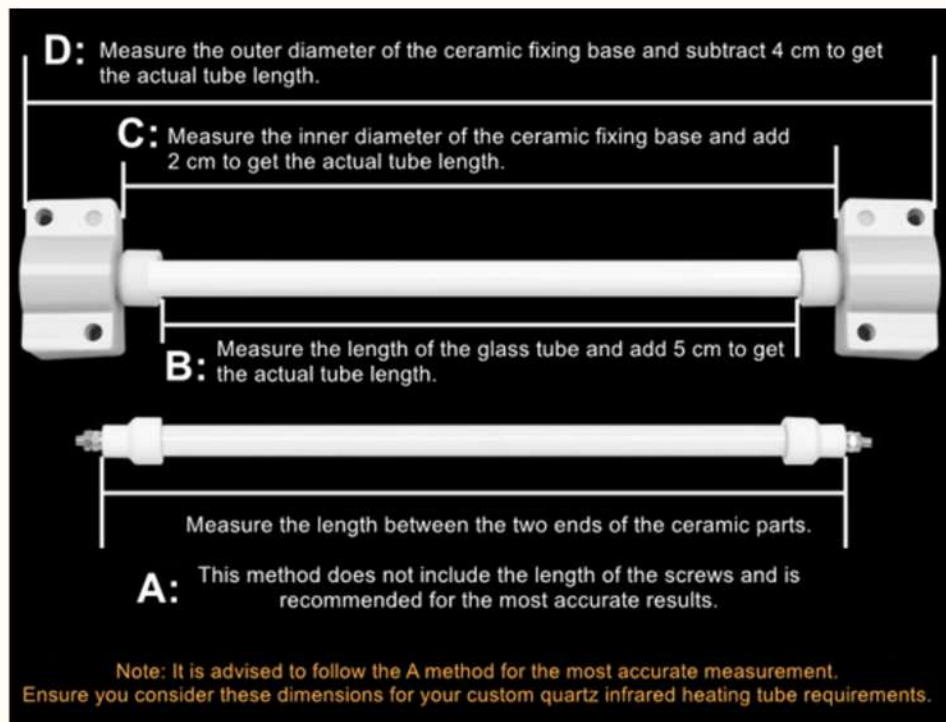


Industrial quartz infrared heating tubes require exact outer diameter specifications, power/voltage configurations, surface temperature thresholds ( $\geq 900^{\circ}\text{C}$ ), and specialized coating requests for precision integration into thermal processing chambers.



# CUSTOM ENGINEERING

## Custom Measurement



| Step | Method                                                      | SchematicReference |
|------|-------------------------------------------------------------|--------------------|
| A    | Distance between ceramic mounts (excluding terminal screws) | Schematic 1        |
| B    | Glass tube length +5cm adjustment                           | Schematic 2        |
| C    | Inner span of ceramic mounts +2cm                           | Schematic 3        |
| D    | Outer span of ceramic mounts -4cm                           | Schematic 4        |