

### **1.1 Applications for Glass Tempering Furnace**

PG2415 horizontal glass tempering furnace is used to produce tempered glass, used in construction, decoration, home appliances.

### **1.2 Technical Specifications**

1.2.1 Max. loading sizes: 2440mm x 1500mm

1.2.2 Min. glass size: 300mm x 100mm

1.2.3 Glass thickness: 4mm ~ 19mm

1.2.4 Theoretical capacity: 17 batches/ hour (based on glass thickness of 5mm)

1.2.5 Installed Power: 250KW (Heating furnace)

+250KW(Quenching)+20KW(Driving)=520KW

1.2.6 Quality and standards: GB/T 9963-1998, Japanese national standard JISR 3206-89, USA national standard ANSI 97.1-98 and European Community standards.

1.2.7 Comprehensive rate of finished products  $\geq 95\%$

1.2.8 Glass category

PG2415 can temper:

a) Clear and tinted float glass;

b) Single-sided screen-printing float glass.

### **1.3 List of Parts to be supplied by the Seller:**

Loading Table (with pneumatic lateral loading device)	1 unit
Heating Furnace	1 unit
Chiller Table (with lifting system)	1 unit
Unloading Table (with pneumatic lateral loading device)	1 unit
Quenching Air and Valve System	1 unit
Silencing System (without blower room)	1 unit
Blower (N=250KW) (with blower inverter)	1 unit
Pneumatic Control System (without air compressor)	1 unit
Electrical Control System	1 unit
Strip Plate	1 unit
Normal Production of Spare Parts for One Year	1 set
Blower Motor Lubricating Oil	1 set

### **1.4 Scope of technical documentation**

Mechanical drawings (English)

Electrical drawings (English)

General layout+ Power supply system drawing

### **1.5 Technical service scope**

Technical guidance for unit installation;

Technical training to buyer's operators and maintenance personnel;

Commissioning of system;

Non-human damage parts supply and free technical service during the warranty period.

### **1.6 Main configuration**

1.6.1 Loading and unloading table

The diameter of roller: 38mm (loading roller: rubber coated; unloading roller: high temperature resistant fiber rope winded)

Roller core: 32mm

Roller pitch: 120mm

Driving system: Motor+ Reduction gear box+ Inverter (Loading)+ Emergency DC system (Unloading); Motor power N=1.1KW

Speed Range: 100mm/s~550mm/s

Driving mode: PU belt driving

Lateral loading: Pneumatic pop-up castor table droved by air cylinder

Roller installation: Deep groove bearing

Side-in rubber coated roller (no drive): one pc a section

#### 1.6.2 Heating Furnace

Ceramic roller specification (France):  $\Phi 65 \times 3596 \times \Phi 25$  (Roller diameter x Length x Roller core diameter)

Roller pitch: 120mm

Quantity: 32 pcs

Heating control zones: 42 zones

Driving system: Motor+ Reduction gear box+ Emergency DC system+ Inverter; Motor power N=3KW

Speed Range: 100mm/s~550mm/s

Driving mode: PU belt driving

Heating wires: Cr20Ni80

Furnace door: Pneumatic opening

Furnace lifting: Droved by motor;  $V_{max}=80\text{mm}/\text{min}$

Isolation wool: Aluminum silicate; Thickness: 250mm; Heat resistance: 1000°C and 1200°C

Radiation plate: Chromium casting

Radiation cover (lower furnace): Heat resistance steel

Spatial display point: 9

Top of the furnace: Rapid cooling hole; Pneumatic controlling and protecting cover

Sulfur dioxide injection system: 1 set

Heat balance pipe: 10 sets

#### 1.6.3 Quenching:

##### 1.6.3.1 Roller specification

The diameter of roller:  $\Phi 38\text{mm}$  (high temperature resistant fiber rope winded)

Roller core:  $\Phi 32\text{mm}$  Precision cold-drawn tube (To ensure the flatness of the glass)

Roller pitch: 120mm

Quantity: 26 pcs (Effective number)

Driving system: Motor+ Reduction gear box+ Emergency DC system+ Inverter; Motor power N=3KW

Speed Range: 100mm/s~550mm/s

Driving mode: PU belt driving

Roller installation: Deep groove bearing

##### 1.6.3.2 Chiller and lifting driving system

Pieces of chiller: 25 pcs X 2 (upper & lower) =50pcs

Driving mode: Lifting controlled by electric cylinder

Speed adjustable range: 5~30mm/s

Positional accuracy: ±1mm

### **1.7 Quenching Air and Valve System:**

Pipe pneumatic shut-off valve: 1pc (pneumatic controlling)

Balance adjusting valve: 1pc (electric controlling)

Air distribution box: 1pc

Blower (N=250KW) (with inverter): 1 set

### **1.8 Pneumatic Control System**

Pneumatic reversing valve: 6pcs

Air handling unit: 4pcs

All kinds of cylinder: 5 pcs

Joints; pipes; nylon, etc.

### **1.9 Silencing cover**

Silencing cover: 1pc

Panel construction: Steel plate+ Sound-absorbing cotton 50mm+ Screen cloth

Silencing plate

The buyer shall construct a blower room based on the information provided by the seller.

### **1.10 Electrical Control System**

HMI operating and controlling system (HITECH): 1 set

Programmable Logic Controller (Mitsubishi): 1 set

Inverter (Fuji-GE): 4 sets

Pressure sensor: 2 pcs

Electric actuator: 1 pc

Encoder: 4 pcs

Temperature parameter communication module: 7 pcs

Optic sensor: 2 sets

Relay (Japanese OMRON)

UPS power

Push button

Pneumatic part

Normal Production of Spare Parts for One Year

### **1.11 WARRANTY**

The Warranty should be 1 year from the date of Acceptance Certificate.

### **1.12 Design confirmation**

The Buyer	The Seller
Stage 1. Within 3 working days after the Contract comes into forced, provide to the Seller through fax, email or other means, the map of the workshop and indicate where the tempering line is to be installed.	Stage 2. Within 5 working days after receiving the Buyer's map of workshop, send to the Buyer the dimension drawings of the equipment to be confirmed by the Buyer.

<p>Stage 3. Within 3 working days after receiving the dimension drawings from the Seller, stamp, sign and scan the drawings and send back to the Seller. Scanned copy has binding force.</p>	<p>Stage 4. Start manufacturing according to the confirmed drawings.</p>
<p>In case of any delay in the above-mentioned stages, the faulty party that caused such delay should be assume its responsibilities caused therefore.</p> <p>Once the drawings are confirmed by the Buyer, the Seller shall keep the right to, delay the shipment, and/or charge additional costs to the Buyer for any further changes that are required by the Buyer.</p> <p>The Seller shall, even after the drawings are confirmed by the Buyer, have the right to make minor changes unless such changes affect the Buyers' factory construction.</p>	

### **1.13 Working conditions of the glass tempering furnace**

1.13.1 Environment temperature: -20°C~40°C

1.13.2 Air quality: Humidity: medium or low

#### **1.14 Restrict**

1.14.1 The buyer provides the cable to the electric control cabinet inlet, the fan control cabinet and the fan motor input provided by the seller.

1.14.2 The seller shall provide the cables and wires of the equipment (all cables and wires must comply with CE standards).

1.14.3 Air compressor (provided by buyer) provide pressure 0.6~0.8MPa, no water, no oil, clean dry air 3m<sup>2</sup>/min; The buyer should buy the gas pipeline.

1.14.4 The buyer shall construct a blower room based on the information provided by the seller.

1.14.5 Equipment color is determined by the buyer.