

**LandGlass**

For your next leap

**International Leader  
in Glass Processing Technology**

Version 2017



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*Brief*  
**01** Introduction

# LandGlass

## Brand Overview

- LandGlass Technology Co., Ltd. (hereinafter "LandGlass") is a high tech company specialized in the development and manufacturing of glass tempering furnaces and fully tempered vacuum insulated glass products. Since its formation, under the guidance of company values of integrity, quality, innovation, and service, LandGlass has become a leading company in the glass processing industry with distinctive characteristics.
- LandGlass is committed to providing its customers the finest innovative technology and world leading glass tempering equipment that allow companies to challenge themselves and succeed. LandGlass' R&D team, consisting of nearly one hundred dedicated engineers and scientists, devoted eight years of hard work to the success of the fully tempered vacuum insulated glass and broke the myth that vacuum glass cannot be tempered. The completion of the fully tempered vacuum insulated glass production line laid a solid foundation for the commercialization of this new product, making its contribution to environmental protection.
- Today, the global marketing network of LandGlass is providing on-site technical consultation and customized solutions to all our customers. We now invite you to experience the improved safety and quality of life that our latest innovation brings to the market.

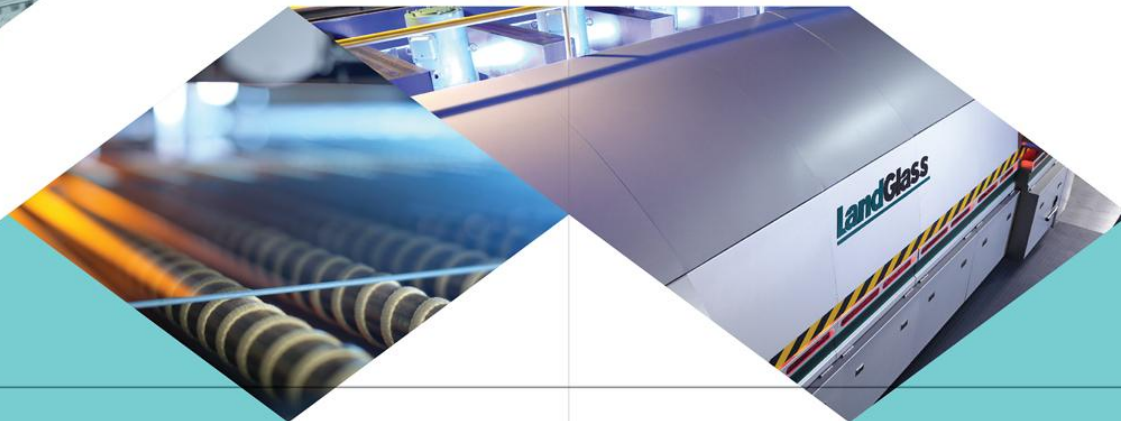
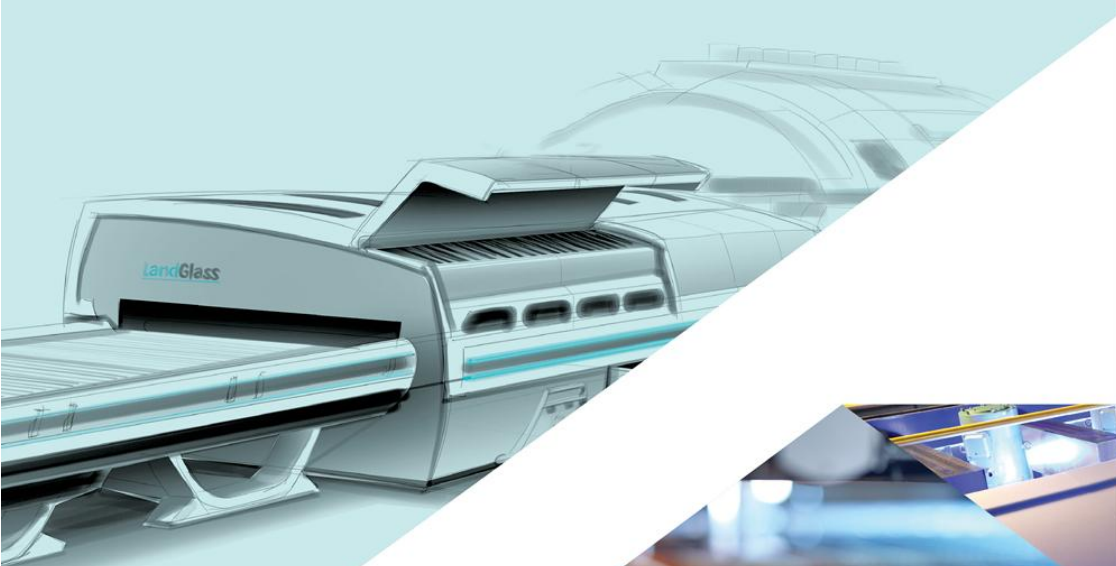




## Corporate Culture of LandGlass

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- Our Vision: Make life safer and better!
- Our Spirit: Outstanding dedication, top innovation and perfect service!
- Our Mission: Become the global leader in supplying safety glass technologies and equipments ; make each one of LandGlass enjoy the pleasure of work and life!
- Our Objective: To own the global most advanced technology of safety glass and rank among the global most competitive manufacturers of safety glass equipments!



# 02

## **CYCLONE™**

- LandGlass prioritizes the concept of innovation in its products. An example is the new glass tempering furnace LandGlass Cyclone™.
- The LandGlass Cyclone™ not only owns many kinds of world's leading technologies, also shows unparalleled competitive advantages.



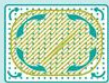
- C = Capability
- Y = Yield
- C = Cost Saving
- L = Low-E Tempering
- O = Outstanding Quality
- N = New Quench
- E = Efficiency



## Leading Technologies

### Cyclone™ convection technology

- Cyclone™ convection technology for high efficiency of heat transfer in heating furnace and for the best quality tempered glass from float glass to double-silver and triple-silver Low-E glass.



square shape

round shape

### isoTherm™ technology

- isoTherm™ technology enhances the evenness thermal field and is for the most even heating ever done in a tempering furnace.



The pictures show the difference in thermal uniformity between a standard glass tempering furnace(right) and the LandGlass Cyclone™ (left) when heating 5 mm clear float glass, 2 meters long and 1.8 meters wide.

### GeniusCool™ technology

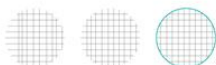
- GeniusCool™ achieves unbelievable even quenching and cooling pressure for most even stress distribution.



The pictures show the difference of the air pressure distribution inside the chillers between a standard glass tempering furnace(right) and the LandGlass Cyclone™ (left). It shows the air pressure uniformity inside the chillers of a LandGlass Cyclone™.

### StraightEdge™ technology

- StraightEdge™ technology effectively eliminates the edge kink and lifts the optical quality to highest level.



Edge Waviness  $\leq 0.25\text{mm}$

Edge Waviness  $\leq 0.15\text{mm}$

Edge Waviness  $\leq 0.1\text{mm}$  (Cyclone)

### EnergySave™ technology

- EnergySave™ dynamically adjust power output in quenching and cooling processes, and lower power consumption remarkably.

### ThermoLock™ technology

- ThermoLock™ technology increases the thermal resistance of the furnace walls, and minimizes the heat loss out during operation.

### eVision™ technology

- eVision™ scans sizes, shapes and quantities of the glass sheets and transfers datum to control system, which allows for easier operation.

### eAdapt™ System

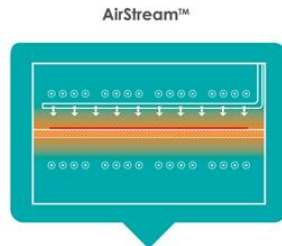
- eAdapt™ technology makes digital production come true, and largely reduce the dependence on professional skill of the operator.

## Technical Parameters

	Cyclone A2450	Cyclone A2480
Size	2440X5000	2440X8000
Capacity	150X350	150X350
Quenching	4 - 19	4 - 19
Tempering	17-18 (6mm clear glass, edge waviness $\leq 0.09$ )	17-18 (6mm clear glass, edge waviness $\leq 0.09$ )
	15-16 (6mm Low-E, E=0.04, edge waviness $\leq 0.1$ )	15-16 (6mm Low-E, E=0.04, edge waviness $\leq 0.1$ )
Power	1100kVA	1800kVA
Energy Consumption	3.7KW H/m <sup>2</sup> (6mm clear glass)	3.7KW H/m <sup>2</sup> (6mm clear glass)
	4.05KW H/m <sup>2</sup> (6mm Low-E, E=0.04)	4.05KW H/m <sup>2</sup> (6mm Low-E, E=0.04)

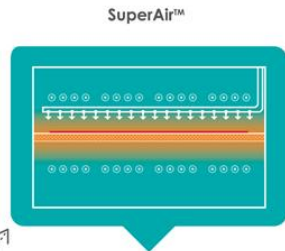
Above data is calculated on 75% loadage. The actual productivity and energy consumption may vary due to the difference of glass size and glass suppliers.

# Heating 03 Technologies



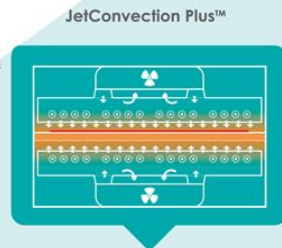
Radiation heating plays main role during glass heating process, while compressed air is injected into heating furnace through the pipelines installed on the top. It brings certain amount of heat onto glass top surfaces, ensuring a balanced heating on the top and bottom surfaces of the glass.

Heating Capability: it can evenly heat all kinds of on-line Low-E (E<sub>0.15</sub>) glass and many other glass types.



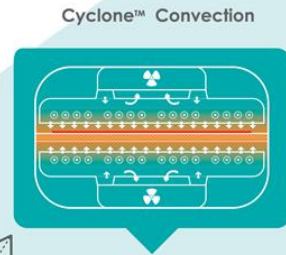
SuperAir™ is an upgraded heating technology based on AirStream™ heating. By increasing the number and diameter of convection pipelines and by equipping controllable valves, it allows for a more controllable compressed air flow, ensuring the balanced heating on the top and the bottom surfaces of the glass.

Heating Capability: it can evenly heat all kinds of on-line and off-line Low-E (E<sub>0.08</sub>) glass and many other glass types.



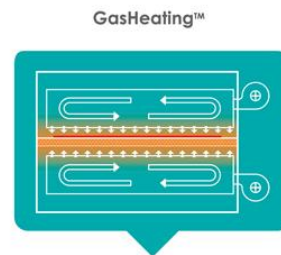
Forced convection heating plays main role during glass heating process. After being heated in jet convection chamber, the hot air inside heating furnace is blown onto glass surfaces and then goes back to hot air blowers for continuous circulation, which not only ensure even heating, low production costs, but enhance the quality of the end products as well.

Heating Capability: it can evenly heat all kinds of on-line and off-line Low-E (E<sub>0.02</sub>) glass and many other glass types.



Cyclone™ Convection is the latest generation of forced convection heating technology developed by LandGlass. Based on the world's leading JetConvection™ heating technology, it equips an elliptical shaped heating furnace which optimizes air flow, and equips the optimized convection blower and convection box, allowing for an unprecedented air flow evenness and heating uniformity.

Heating Capability: it can extremely evenly heat all kinds of on-line and off-line Low-E (E<sub>0.02</sub>) glass and many other glass types.



Using gas as the main energy supply for the heating furnace. LandGlass GasHeating™ technology makes use of the heat released by burning gas to heat the glass inside the furnace in a fast and even way through its JetConvection Plus™ heating system.

Heating Capability: it can evenly heat all kinds of on-line and off-line Low-E glass (E<sub>0.02</sub>) and many other glass types.



# 04 Products



# Flat Glass Tempering Furnace

- 1/ LD-A Flat Glass Tempering Furnace
- 2/ LD-AT Combined Flat Glass Tempering Furnace
- 3/ LD-AL Continuous Flat Glass Tempering Furnace
- 4/ LD-A Flat Glass Tempering Furnace for Thin Glass








## 1/ LD-A Flat Glass Tempering Furnace

### LD-A JetConvection Plus Series

- It adopts JetConvection Plus heating technology and it can temper glass with the best quality.
- Glass that can be tempered includes: on-line and off-line Low-E (E=0.02) glass, low-iron glass, screen printed glass, pattern glass, tinted glass, clear glass, etc.
- Suitable for tempering middle volume flat glass for architectures, furniture, household appliances and autos industries with high quality.

### Technical Parameters

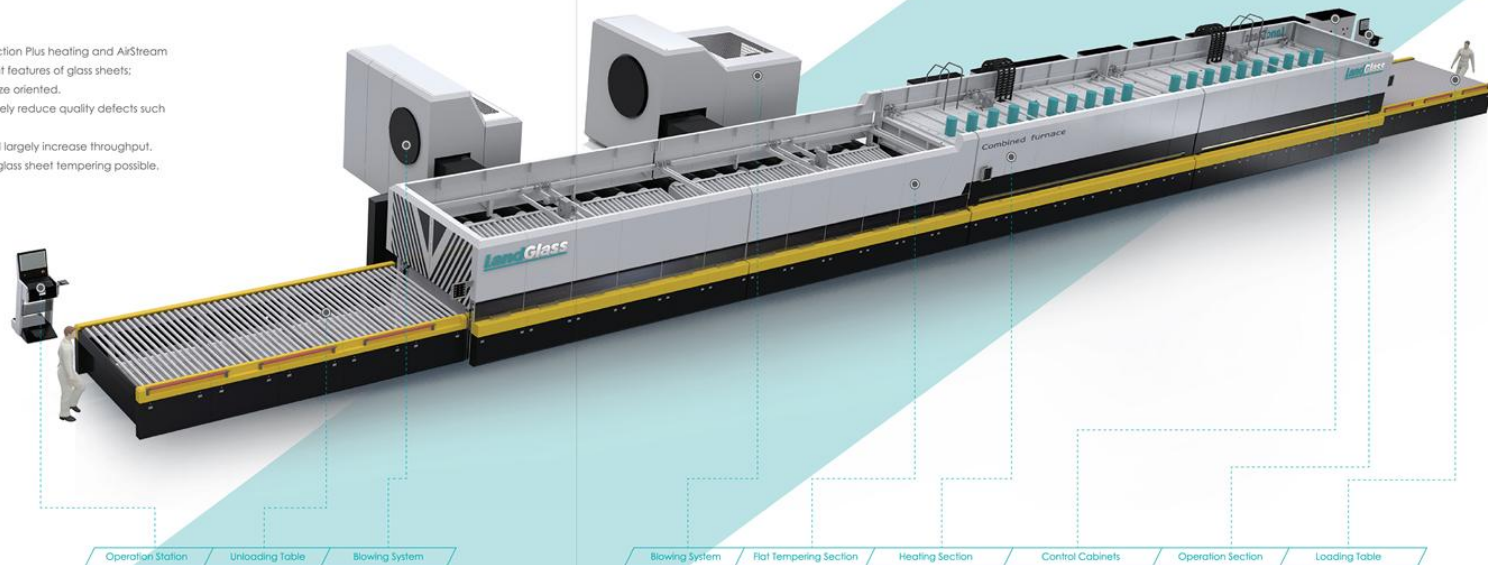
	A2442J*	A2450J*	A2480J*
	2440 x 4200	2440 x 5000	2440 x 8000
	150 x 350	150 x 350	150 x 350
	4-19	4-19	4-19
	18-20 (5mm clear glass) 15-18 (5mm 0.08Low-E)	18-20 (5mm clear glass) 15-18 (5mm 0.08Low-E)	18-20 (5mm clear glass) 15-18 (5mm 0.08Low-E)
	1000kVA	1000kVA	1600kVA

Productivity is calculated on 60% loadage.

## 2/ LD-AT Combined Flat Glass Tempering Furnace

### Technical Features

- Combined glass tempering furnace has two heating sections, in which JetConvection Plus heating and AirStream heating technology are applied for optimum heating effect according to different features of glass sheets;
- Different working modes can be set for quality oriented, productivity oriented or size oriented.
  - Better quality if first heating section works as preheating furnace, which will largely reduce quality defects such as: optical distortion, spherical bent, hot spots, white haze, etc.
  - Higher productivity if both heating sections work as heating furnaces, which will largely increase throughput.
  - Two heating sections work as one big heating section, which makes extra big glass sheet tempering possible.



## LD-AT0 JetConvection Plus Series

- LD-AT0 JetConvection Plus combined flat glass tempering furnace has two heating sections with JetConvection Plus heating technology applied on the top and bottom; it can temper glass with the best quality.
- Glass that can be tempered includes: on-line and off-line Low-E (E≥0.02) glass, low-iron glass, screen printed glass, pattern glass, tinted glass, clear glass, etc.
- Suitable for tempering flat glass sheets for architectures, furniture, autos, and household appliances industries.

### Technical Parameters

	A1636T0*	A2450T0*	A3080T0*
	1600 x 3600	2440 x 5000	3000 x 8000
	150 x 350	200 x 400	300 x 500
	2.85 -19	4-19	5-19
	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-E)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-E)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-E)
	1600kVA	1800kVA	3500kVA

\*Productivity is calculated on 63% loadage.

## LD-AT3 JetConvection Plus Series

- LD-AT3 JetConvection Plus combined flat glass tempering furnace has two heating sections with JetConvection Plus heating technology applied on the top; it can temper glass with the best quality.
- Glass that can be tempered includes: on-line and off-line Low-E (E=0.02) glass, low-iron glass, screen printed glass, pattern glass, tinted glass, clear glass, etc.
- Suitable for tempering flat glass sheets for architectures, furniture, autos, and household appliances industries.

### Technical Parameters

	A1636T3*	A2450T3*	A3080T3*
	1600 x 3600	2440 x 5000	3000 x 8000
	150 x 350	200 x 400	300 x 500
	2.85 -19	4-19	5-19
	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-E)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-E)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-E)
	1600kVA	1800kVA	3500kVA

\*Productivity is calculated on 63% loadage.

## LD-AT AirStream Series

- LD-AT combined flat glass tempering furnace has two heating sections with AirStream heating technology applied; it can temper glass with good quality.
- Glass that can be tempered includes: on-line Low-E glass, low-iron glass, screen printed glass, pattern glass, tinted glass, clear glass, etc.
- Suitable for tempering flat glass sheets for architectures, furniture, autos, and household appliances industries.

### Technical Parameters

	A1636T	A2450T	A3080T
	1600 x 3600	2440 x 5000	3000 x 8000
	150 x 350	200 x 400	300 x 500
	2.85 -19	4-19	5-19
	18-22 (5mm clear glass)	18-22 (5mm clear glass)	18-22 (5mm clear glass)
	1600kVA	1800kVA	3500kVA






\*Productivity is calculated on 63% loadage.

### 3/ LD-AL Continuous Flat Glass Tempering Furnace

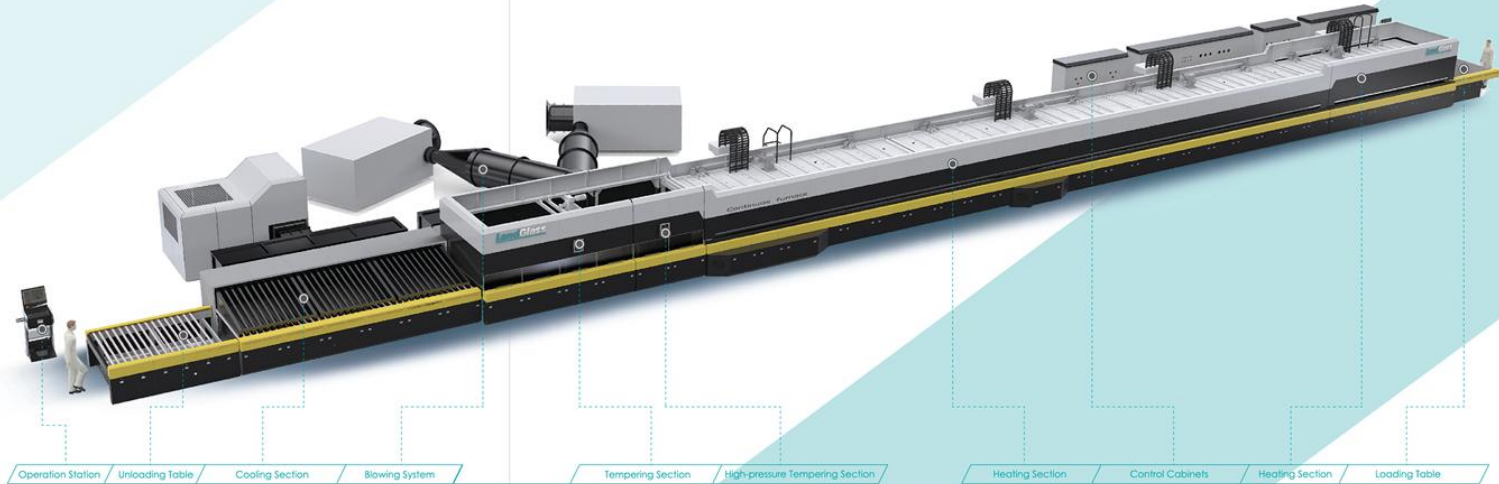
#### LD-AL JetConvection Plus Series

- LD-AL JetConvection Plus continuous flat glass tempering furnace adopts JetConvection Plus and AirStream heating technologies; it can temper glass sheets with the best quality.
- Glass that can be tempered includes: online and offline Low-E (E=0.03) glass, low-iron glass, screen printed glass, pattern glass, tinted glass, clear glass, etc.
- Suitable for tempering large volumes flat glass sheets for architectures, furniture, household appliances, autos and solar power industries.

#### Technical Parameters

	A1225L24J*	A1525L24J*	A1725L24J*
	1250 x 2500	1500 x 2500	1700 x 2500
	200 x 400	200 x 400	200 x 400
	3.2-6	3.2-6	3.2-6
	240	240	360
	2400kVA	3000kVA	3200kVA

Productivity is calculated on 1644 x 985, 3.2mm extra white glass.








## 4/ LD-A Flat Glass Tempering Furnace for Thin Glass

### LD-A Flat Thin Glass Tempering Furnace

- To realize thermal tempering without compressed air, producing high quality ultra-thin flat tempered glass by adopting energy efficient high pressure blowers.
- Stable product quality, reliable operation and low production costs.
- Ideal for the production of ultra-thin, flat tempered glass used in solar power industries.

#### Technical Parameters

	A1225L24	A1225L30	A1225L36
	1200x2500	1200x2500	1200x2500
	200x400	200x400	200x400
	2.5-6mm(Tempered) 2.0mm(Strengthened)	2.5-6mm(Tempered) 2.0mm(Strengthened)	2.5-6mm(Tempered) 2.0mm(Strengthened)
	240-260	320-340	400-420
	2400kVA	2800kVA	3200kVA

Data presented is derived from the production of the 2.5 mm tempered glass. Actual productivity may vary depending on the glass types and process requirements. When dealing with 2.5 mm glass, the glass size should not exceed 983 mmx1644 mm.



## Bent Glass Tempering Furnace

1/ LD-B Bent Glass Tempering Furnace

2/ LD-BL Continuous Bent Glass Tempering Furnace

3/ LD-C\* ConeBend™ Glass Tempering Furnace

4/ LD-D Variable Curvature Glass Tempering Furnace

5/ LD-BL Continuous Bent Glass Tempering Furnace for Thin Glass

6/ LD-E Double Curvature Thin Glass Tempering Furnace

## 1/ LD-B Bent Glass Tempering Furnace







### Technical Features

- Hard shaft bending rollers which bend the glass lengthwise.
- The bending mechanism consists of many bending devices, and each bending device not only can camber by itself, also can be slightly adjusted separately, therefore high accuracy radian can be reached.
- Bending system is controlled by German servo control system, which ensures good repeatability and consistency.

### LD-B JetConvection Plus Series

- It adopts JetConvection Plus heating technology; it can temper single curvature glass with the best quality.
- Glass that can be tempered includes: on-line and off-line Low-E (E≥0.02) glass, low-iron glass, screen printed glass, pattern glass, tinted glass, clear glass, etc.
- Suitable for tempering small batch single curvature bent glass for autos and household appliances with high accuracy.

### Technical Parameters

	809075/4J*	B1208/3J*	B1510/2J*
	900 x ARC750	1200 x ARC800	1500 x ARC1000
	150 x ARC300	150 x ARC300	200 x ARC350
	3.2 - 6	3 - 6	3.2 - 12
	450	450	500
	73-94 (3.5mm clear glass)	40-43 (5mm clear glass)	27-31 (5mm clear glass)
	630kVA	800kVA	1000kVA

Productivity is calculated on 40% loadage.

## 2/ LD-BL Continuous Bent Glass Tempering Furnace







### Technical Features

- Perfect combination of B bending technology and continuous tempering technology.
- Bending tempering section keeps accurate radian; no need to camber repeatedly.

### LD-BL JetConvection Plus Series

- It adopts JetConvection Plus heating technology and can temper the best quality single curvature glass.
- Glass that can be tempered includes: on-line and off-line Low-E (E≥0.03) glass, low-iron glass, silk-printed glass, pattern glass, tinted glass, clear glass, etc.
- Suitable for tempering large batch single curvature bent glass for autos and household appliances with high accuracy.

### Technical Parameters

	B1208L24J*	B1608L24J*
	1250 x ARC800	1600 x ARC800
	150 x ARC300	150 x ARC300
	3.2 - 4	3.2 - 4
	1000 / 1200	1000 / 1200
	300 / 400 (3.2mm clear glass)	300 / 400 (3.2mm clear glass)
	2500kVA	3000kVA

Productivity is calculated on 45% loadage.

### 3/ LD-C<sup>+</sup> ConeBend™ Glass Tempering Furnace






#### Technical Features

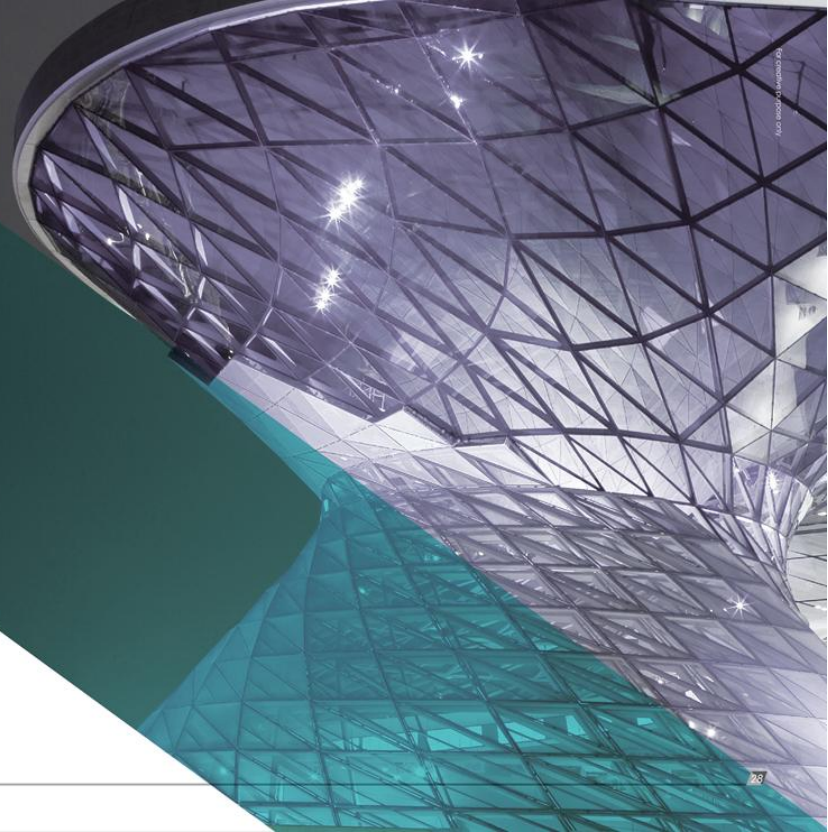
- The patented LandGlass ConeBend™ technology allows for the bending and tempering of glass with different radii on the top and on the bottom of the glass piece. This technology creates new possibilities for architectural designs, specially as this technology can bend and temper glass up to 15 meters in length.
- The finished product can be either symmetric or asymmetric, being both shapes compatible with a cone shaped glass construction.
- The core of the LandGlass ConeBend™ technology resides on the patented arching mechanism, accurately synchronized with the driving system allowing the smooth bending, tempering and cooling of cone shaped glass.

#### LD-C<sup>+</sup> JetConvection Plus Series

- Glass that can be tempered includes: on-line and off-line coated glass, low-iron glass, silk-printed glass, pattern glass, tinted glass, clear glass etc.
- Suitable for bending and tempering jumbo-sized glass products for cone shaped glass construction.

#### Technical Parameters

	C'24120J*	C'24150J*
	ARC2400X12000	ARC2400X15000
	8-19	8-19
	1800 (8mm)	1800 (8mm)
	2000 (10-12mm)	2000 (10-12mm)
	3000 (15-19mm)	3000 (15-19mm)





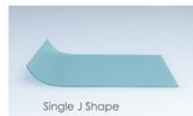
## 4/ LD-D Variable Curvature Glass Tempering Furnace



Bending Tempering Section   Heating Section   Operation Station   Blowing System   Loading Table   Control Cabinets



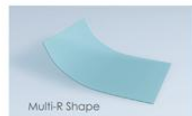
V Shape



Single J Shape



Double J Shape



Multi-R Shape







### Technical Features

- New arc forming technique and flexible bending mechanism ensure the flexibility of arc forming and the convenience of arc adjusting; meanwhile, high precision bending mechanism also ensures the accuracy and stability of arc forming.
- There is no movement in bending mechanism during bending process, which not only ensures the accuracy and repeatability, also reduces in glass bending the daily maintenance.

### LD-D AirStream Series

- LD-D variable curvature glass tempering furnace adopts AirStream heating technology and it can temper glass sheets with good quality.
- Glass that can be tempered includes: online Low-E glass, low-iron glass, screen printed glass, pattern glass, tinted glass, clear glass, etc. The product can be used for commercial refrigerator, food display cabinet, bus side window, etc.

### Technical Parameters

	LD-D1209/2	LD-D1812/2	LD-D2120/2
	1200 x ARC900	1800 x ARC1200	2100 x ARC2000
	300 x ARC300	400 x ARC400	400 x ARC400
	4-8	(4)5-8	(5)6-12
	250	(300)400	(400)600
	25-29	25-29	23-25
	500 kVA	(800)630 kVA	(1250)1000 kVA

Min. Radius is attainable for Min. thickness clear glass.  
Dimensions in bracket are options.  
Productivity is calculated on processing Min. thickness clear glass per hour.









## 5/ LD-BL Continuous Bent Glass Tempering Furnace for Thin Glass

### Technical Features

- To produce high quality single curvature ultra-thin tempered glass by adopting energy efficient ultra-high pressure blowers, precise B bending adjustment, and continuous bent glass tempering technologies.
- Superior product quality with high repeatability, reliable operations and low production costs.
- Ideal for mass production of single curvature ultra-thin bent tempered glass for household appliances and automobile industries.

### Technical Parameters

	B1006L16	B1208L24	B1508L36
	1000x600	1200x800	1500x800
	200x250	200x250	200x250
	2.5-5	2.5-5	2.5-5
	1000	1200	1200
	320-350	450-480	680-750
	2000kVA	2900kVA	4600kVA







Note: Data presented is derived from the production of the 3.2 mm tempered glass. Actual productivity may vary depending on the glass types and process requirements.

## 6/ LD-E Double Curvature Thin Glass Tempering Furnace

### Technical Features

- To realize thermal tempering without compressed air and produce high quality double curvature thin tempered glass by adopting energy efficient ultra-high pressure blowers and vacuum suction molding technology.
- Superior product quality with high repeatability, reliable operations and low production costs.
- Ideal for production of double curvature ultra-thin bent tempered glass for household appliances and automobile industries.

### Technical Parameters

	E1610/3	E1610L14
	ARC1600 * ARC 1000	ARC1600 * ARC 1000
	ARC300 * ARC400	ARC300 * ARC400
	3.2-6mm[Tempered] 2-3 mm[Strengthened]	3.2-6mm[Tempered] 2-3 mm[Strengthened]
	120	120
	48-52	140-160
	1600kVA	2300kVA

Note: Data presented is derived from the production of the 3.2 mm tempered glass. Actual productivity may vary depending on the glass types and process requirements.

## Bi-direction Glass Tempering Furnace

1/ LD-AB Flat&Bent Bi-direction Glass Tempering furnace

2/ LD-AC Flat&Bent Bi-direction Glass Tempering furnace

3/ LD-BE Double Bent Bi-direction Glass Tempering Furnace











## 1/ LD-AB Flat&Bent Bi-direction Glass Tempering Furnace

LD-AB JetConvection Plus Series 

- There are flat tempering section and B bending tempering section on both sides of the heating section; by loading the glass in different direction, the furnace can temper flat and bent glass.
- It adopts JetConvection Plus heating technology; it can temper on-line and off-line Low-E (E<sub>2</sub>O<sub>2</sub>) glass, low-iron glass, screen printed glass, pattern glass, tinted glass, clear glass, etc.
- It can temper the best quality flat and bent glass for architectures and furniture, etc.

### Technical Parameters

	A2030808/2J <sup>+</sup>	A2450825J <sup>+</sup>	A3080830J <sup>+</sup>
	2000 x 3000	2440 x 5000	3000 x 8000
	2000 x ARC800	2440 x ARC2500	3000 x ARC3000
	150 x 350	150 x 350	300 x 500
	300 x ARC350	300 x ARC6500	500 x ARC600
	4-19	4-19	5-19
	450	1000 (5-19mm) 3000 (4mm)	1500
	27-31 ( 5mm clear glass ) 25-29 (5mm 0.08Low-E)	14-16 ( 5mm clear glass ) 12-14 (5mm 0.08Low-E)	14-16 ( 5mm clear glass ) 12-14 (5mm 0.08Low-E)
	800kVA	1250kVA	1800kVA

Productivity is calculated on 65% loadage for bent glass.

## 2/LD-AC Flat&Bent Bi-direction Glass Tempering Furnace

### LD-AC JetConvection Plus Series

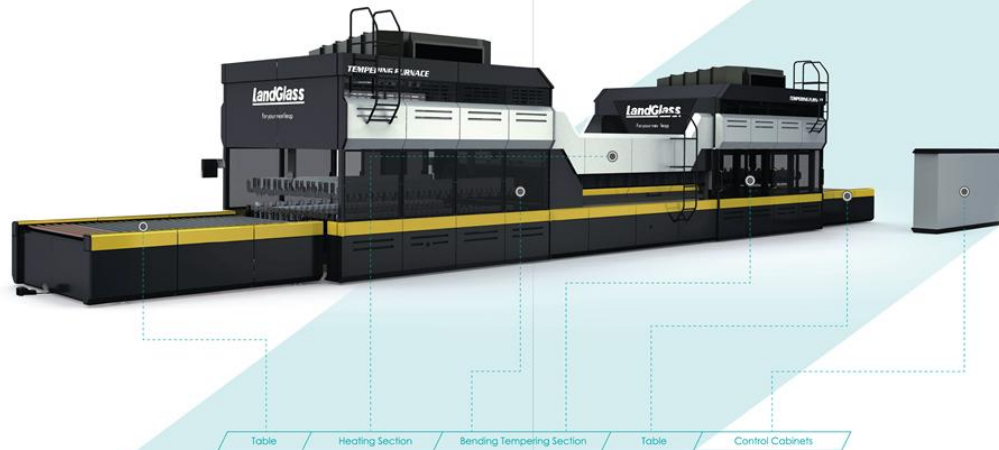
- There are flat tempering section and C bending tempering section on both sides of the heating section; by loading the glass in different direction, the furnace can temper flat and bent glass.
- It adopts JetConvection Plus heating technology; it can temper on-line and off-line Low-E (E $\geq$ 0.02) glass, low-iron glass, screen printed glass, pattern glass, tinted glass, clear glass, etc.
- It can temper the best quality flat and bent glass for architectures.

#### Technical Parameters

	A2450C36J*	A2460C50J*
Size	2440 x 5000	2440 x 6000
Capacity	ARC2440 x 3600	ARC2440 x 5000
Table	150 x 350	150 x 350
Capacity	ARC600 x 400	ARC600 x 400
Tempering	flat 4-19 bent 5-19	flat 4-19 bent 5-19
Height	1000	1000
Tempering	14-16 [ 5mm clear glass ] 12-14 [ 5mm 0.08Low-E ]	14-16 [ 5mm clear glass ] 12-14 [ 5mm 0.08Low-E ]
Power	1000kVA	1250kVA

\*Productivity is calculated on 65% loadage for bent glass.

## 3/LD-BE Double Bent Bi-direction Glass Tempering Furnace



### LD-BE AirStream Series

- There are one B bending tempering section and one E bending tempering section on both sides of the heating section; by loading the glass in different direction, the furnace can temper single curvature bent glass and double curvature bent glass.
- It adopts AirStream heating technology; it can temper on-line Low-E glass, low-iron glass, screen printed glass, pattern glass, tinted glass, clear glass, etc.
- It can temper good quality single curvature bent glass and double curvature bent glass for autos.

#### Technical Parameters

	B1608E10/2	B2310E12/2
Capacity	1600 x ARC800	2300 x ARC1000
Table	200 x ARC350	300 x ARC400
Capacity	ARC1600 x ARC1000	ARC2300 x ARC1200
Capacity	ARC500 x ARC400	ARC600 x ARC500
Tempering	3.5-6	4-6
Height	120	150
Tempering	30-34 [ 4mm clear glass ]	30-34 [ 4mm clear glass ]
Power	800kVA	1000kVA

\*Productivity is calculated on 65% loadage for B bent glass.

## Gas Heating Glass Tempering Furnace - FireTemp Series

- LD-AF gas heating flat glass tempering furnace is quite similar to common electric heating tempering furnace, and it has loading table, heating section, tempering section, unloading table, blowing system and control system; it features that heating the glass sheets evenly and quickly by hot air, which is heated by isolated combustion system and blown and circulated by mature Jet Heating convection system.



Unloading Table | Flat Tempering Section | Gas Heating Section | Preheating Section | Loading Table

### Technical Features

- Heating the glass sheet by burning gas, which largely lower the installed capacity.
- Combining the efficient combustion technology and jet heating convection technology; Self-produced burner ensures efficient combustion at high speed; Mature Jet Heating convection system ensures even and fast heating.
- Clean heating environment inside furnace is assured by isolating combustion system.
- Glass that can be tempered includes: on-line and off-line Low-E (E±0.02) glass, screen printed glass, pattern glass, low-iron glass, tinted glass, etc. Interlock and ignition safety control system ensure safety use of gas.

### Technical Parameters

	A1525F	A2436F	A2450F
Max	1500 x 2500	2440 x 3600	2440 x 5000
Min	100 x 350	200 x 400	200 x 400
Temp	4-19	4-19	4-19
Capacity	16 ( 5mm clear glass ) 13 ( 5mm 0.08Low-E )	16 ( 5mm clear glass ) 13 ( 5mm 0.08Low-E )	16 ( 5mm clear glass ) 13 ( 5mm 0.08Low-E )
Flame	10	12	16
Power	300kVA	300kVA	300kVA
Productivity	0.7m <sup>3</sup> /m <sup>2</sup> ( 5mm clear glass )	0.7m <sup>3</sup> /m <sup>2</sup> ( 5mm clear glass )	0.7m <sup>3</sup> /m <sup>2</sup> ( 5mm clear glass )

Productivity is calculated on 85% loadage while burning 8500 kilocalorie CH<sub>4</sub>. Gas consumption refers to gas volume needed for heating each square meter 5mm clear glass.



*05 Automotive Glass  
Bending and Tempering  
Furnace Series*

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## Curved Automotive Glass Products – Car

*Automotive Windshield Glass Bending and Tempering Furnace*

*Automotive Sidelite, Fixed Vent Glass Bending and Tempering Furnace*

*Automobile Backlite Glass Bending and Tempering Furnace*

*Automobile Roof Panel Bending and Tempering Furnace*

## Automotive Windshield Glass Bending and Tempering Furnace

1/LD-EV Double Curvature Glass Bending and Tempering Furnace







### Technical Features

Adopting the latest vacuum thermoforming technology, ideal for mass production of windshield.

### Technical Advantages

- Servo driving – fully adopting servo driving system in bending section for high location accuracy;
- Mold heating – compensating heat loss in thin glass bending;
- Vacuum suction – creating close contact between mold and glass for precision shaping with vacuum suction;
- Custom chiller – customized chiller in conformity with the shape of the glass to ensure the uniformity of tempering stress;
- Air cushioned unloading – avoiding damage to glass, improving glass surface quality;
- Dual-mold trolley – less processing time for higher output;
- Lowered roller table – allowing steady running of bending roller.

### Technical Parameters

	E1610/3V	E1610L14V
	ARC1600 x ARC1000	ARC1600 x ARC 1000
	ARC400 x ARC500	ARC400 x ARC500
	2.0-2.5 hot bending/2-3 semi-tempered/3.2-6 fully tempered	2.0-2.5 hot bending/2-3 semi-tempered/3.2-6 fully tempered
	120	120
	68-72	140-150
	1500kVA	2200kVA

Note: Actual productivity may vary depending on the glass types and process requirements.





## Automotive Sidelite, Fixed Vent Glass Bending and Tempering Furnace

### 1/LD-BV Glass Bending and Tempering Furnace

#### Technical Features

Adopting continuous pass-through tempering process, ideal for mass production and processing of automotive sidelite, fixed vent;

#### Technical Advantages

- Pass-through tempering process – high quality and high output;
- Asymmetric chiller design – precise shaping and smoother curvature;
- Easy roller installation – for more convenient rapid replacement;
- Computer-aided curvature adjuster – easy operation and accurate curvature;
- Pressure display and alarm – quenching pressure monitoring to ensure tempering quality;
- Scalable transition device – offering great convenience in furnace operation
- Open type chiller – easy access for service work;

#### Technical Parameters

	B1208/4V	B1508/4V	B1208L24V	B1508L14V
	1200 x ARC800	1500 x ARC800	1200 x ARC800	1500 x ARC800
	100 x ARC300	100 x ARC300	100 x ARC300	100 x ARC300
	3.2-5	3.2-5	3.2-5	3.2-5
	1150	1150	1150	1150
	75-80	75-80	450-460	270-280
	900kVA	1100kVA	2200kVA	1200kVA

Note: Data presented is derived from the production of the thinnest glass. Actual productivity may vary depending on the glass types and process requirements.  
Optional temperature surveillance device ensures product yield by monitoring glass cell temperature and giving warning when exceptional temperature is detected.

## Automobile Backlite Glass Bending and Tempering Furnace

### 1/LD-EV Double Curvature Glass Bending and Tempering Furnace

#### Technical Features

Adopting the latest vacuum suction molding technology, ideal for mass production of backlite.

#### Technical Advantages

- Servo driving – fully adopting servo driving system in bending section for high location accuracy;
- Vacuum suction – creating close contact between mold and glass for precision shaping with vacuum suction;
- Custom chiller – customized chiller in conformity with the shape of the glass to ensure the uniformity of tempering stress;
- Air cushioned unloading – avoiding damage to glass, improving glass surface quality;
- Dual-mold trolley – less processing time for higher output;
- Lowered roller table – allowing steady running of bending roller.

#### Technical Parameters

	E1610/3V
	ARC1600 x ARC1000
	ARC300 x ARC400
	3.2 - 6
	120
	60-65
	1500kVA

Note: Data presented is derived from the production of the thinnest glass. Actual productivity may vary depending on the glass types and process requirements.



## Automobile Roof Panel Bending and Tempering Furnace

### 1/LD-EV Double Curvature Glass Bending and Tempering Furnace







#### Technical Features

Adopting the latest vacuum suction molding technology, ideal for mass production of roof panel.

#### Technical Advantages

- Servo driving – fully adopting servo driving system in bending section for high location accuracy;
- Vacuum suction – creating close contact between mold and glass for precision shaping with vacuum suction;
- Custom chiller – customized chiller in conformity with the shape of the glass to ensure the uniformity of tempering stress;
- Air cushioned unloading – avoiding damage to glass, improving glass surface quality;
- Dual-mold trolley – less processing time for higher output;
- Lowered roller table – allowing steady running of bending roller.

#### Technical Parameters

E1610/3 V	
	ARC1600 x ARC1000
	ARC400 x ARC500
	3.2-6
	120
	40-45
	1500kVA

Note: Data presented is derived from the production of the thinned glass. Actual productivity may vary depending on the glass types and process requirements.



## Bus Sidelite Glass Bending and Tempering Furnace – Bus

Bus Sidelite Glass Bending and Tempering Furnace

Bus Backlite Glass Bending and Tempering Furnace



## Bus Sidelite Glass Bending and Tempering Furnace

1/LD-DV Variable Curvature Glass Bending and Tempering Furnace

### Technical Features

Bending section with hard shafts and quenching section in vertical direction against bending section, so "T" shape layout comes into being, ideal for deep curved bus sidelite processing.

### Technical Advantages

- "T" shaped layout – "T" shaped layout to connect bending and tempering sections, 2-stage processing;
- Bending with hard shafts – high precision bending and ensuring the straightness of side edge;
- Vertical quenching section – wide oscillation range, less air mark, excellent glass quality;
- Precise shaping – precisely positioned bending rollers for high shaping accuracy;
- Separate chiller design – easy service accessibility and curvature adjustment;
- Adopting tubular air nozzles – with these nozzles, distance between chiller and glass sheets has less effect on tempering and uniformity of stress in glass is improved.

### Technical Parameters

D2115/3V	
	2100 x ARC1500
	300 x ARC400
	5-6
	300
	300
	35-38
	1000kVA

Note: Data presented is derived from the production of the thinnest glass. Actual productivity may vary depending on the glass types and process requirements.

2/LD-DV Variable Curvature Glass Bending and Tempering Furnace\*

### Technical Features

Bending section with hard shafts and quenching with small oscillation make a simple structure and easy operation; "—" shape layout ensures less footprint, ideal for processing bus sidelite with small curvature height.

### Technical Advantages

- External curvature adjuster – for easy curvature adjustment;
- Conventional layout – low cost, less footprint;
- Duo servo for independent bending – excellent product repeatability

### Technical Parameters

D2418/2V	
	2400 x ARC1800
	300 x ARC400
	4-6
	350
	50
	32-34
	1000kVA

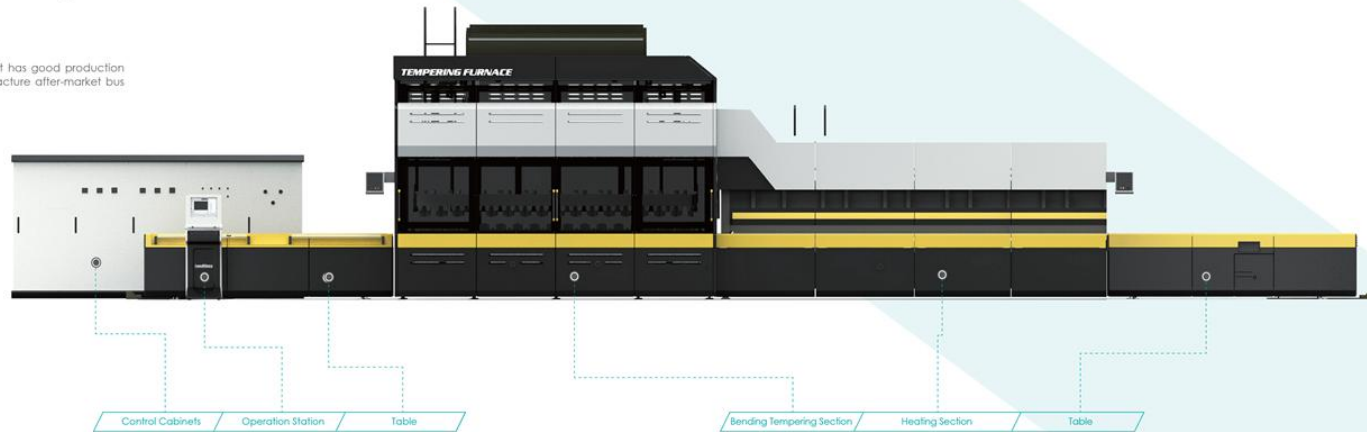
Note: Data presented is derived from the production of the thinnest glass. Actual productivity may vary depending on the glass types and process requirements. The model is suitable for the production of small curvature height, variable curvature side window glass for bus.

## Bus Backlite Glass Bending and Tempering Furnace

### 1/LD-EV Double Curvature Glass Bending and Tempering Furnace

#### Technical Features

Bending with mold, tempering with versatile chiller; it has good production flexibility and low operation cost. Suitable to manufacture after-market bus backlite.



#### Technical Advantages

- Bending with mold – guaranteed curvature accuracy;
- Rapid mold mounting – easy to change for production flexibility;
- Versatile chiller – for tempering glass of different shapes to minimize production cost;
- Motorized curvature adjuster – for easy chiller adjustment;
- Lowered roller table – allowing steady running of bending roller.
- Adopting tubular air nozzles – with these nozzles, distance between chiller and glass sheets has less effect on tempering and uniformity of stress distribution in glass is improved.

#### Technical Parameters

E2312/2V	
	ARC2300 x ARC1200
	ARC400 x ARC500
	4-6
	150
	30-34
	900kVA

Note: Data presented is derived from the production of the thinnest glass. Actual productivity may vary depending on the glass types and process requirements.



# 06 Marketing and Service



## For Your Next Leap

## Marketing

- The products of LandGlass family have found a good sale in dozens of countries and regions; and the leading glass processing enterprises from all over the world are working together with LandGlass to optimize the quality of safety glass with advanced tempering technology.
- LandGlass' marketing networks around the globe can promptly respond to your demand for technological solutions by offering opportunity for visiting the workshop nearest to you or operating the equipment to gain first-hand and authentic information about the performance of the product. Please contact LandGlass International Sales Center for more detailed information about glass tempering technology and solutions.



Tel: 0086-379-6529 8882 / 6529 8883 Fax: 0086-379-6529 8878 E-mail: marketing@landglass.com

## Customer Service

- LandGlass' service networks provide services including troubleshooting, maintenance and spare parts supply. The service engineers trained and certified by LandGlass can help you not only with troubleshooting, but also regular maintenance and service of your equipment according to your requirements.
- In addition, the unique remote diagnosis system of LandGlass can perform remote diagnosis and treatment of your equipment to reduce the time for shutdown; furthermore, with the remote video monitoring system, the technicians at the headquarters of LandGlass can conduct real-time monitoring and guidance for the customers' operation through clear on-site video pictures and realize zero-distance services.
- Search for the service agent closest to you to provide prompt response to your need:

U.S.A: mspellman@igesolutions.com      Australia: david.ryall@bigpond.com.au      mulglas\_nz@bigpond.com  
Germany: freyhermann@t-online.de      Southeast Asia: seekksin@singnet.com.sg  
Turkey: emred@penko.com.tr      Korea: ykc@ykc.co.kr      Iran: hassan\_malekfazali@yahoo.com

- Please contact the International Customer Service Center for detailed information about operation and troubleshooting of the equipment:



Tel: 0086-379-6529 8873 Fax: 0086-379-6529 8869  
MP: 0086 13592083663 E-mail: land\_service@landglass.com

## Lists For More Products

### Flat Glass Tempering Furnace

#### LD-A JetConvection Plus Flat Glass Tempering Furnace

	A2436J*	A2460J*	A2850J*	A3050J*	A3080J*
	2440x3600	2440x6000	2800x5000	3000x5000	3000x8000
	150x300	150x300	150x300	300x300	300x500
	4-19	4-19	4-19	5-19	5-19
	18-20 (5mm clear glass) 15-18 (5mm 0.08Low-e glass)	18-20 (5mm clear glass) 15-18 (5mm 0.08Low-e glass)	18-20 (5mm clear glass) 15-18 (5mm 0.08Low-e glass)	18-20 (5mm clear glass) 15-18 (5mm 0.08Low-e glass)	18-20 (5mm clear glass) 15-18 (5mm 0.08Low-e glass)
	800kVA	1250kVA	1250kVA	1250kVA	2000kVA

Productivity is calculated on 65% loadage.

#### LD-A Flat Glass Tempering Furnace

	A2436	A2460	A2850	A3050	A3080
	2440x3600	2440x6000	2800x5000	3000x5000	3000x8000
	150x300	150x300	150x300	300x300	300x500
	4-19	4-19	4-19	5-19	5-19
	15(5mm clear glass)	15(5mm clear glass)	15(5mm clear glass)	15(5mm clear glass)	15(5mm clear glass)
	800kVA	1250kVA	1250kVA	1250kVA	2000kVA

Productivity is calculated on 65% loadage.

#### LD-AT0 Combined Flat Glass Tempering Furnace

	A2436T0*	A2442T0*	A2460T0*	A2480T0*	A3050T0*
	2440x3600	2440x4200	2440x6000	2440x8000	3000x5000
	200x400	200x400	200x400	200x400	300x500
	4-19	4-19	4-19	4-19	5-19
	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-e glass)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-e glass)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-e glass)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-e glass)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-e glass)
	1600kVA	1600kVA	2200kVA	2800kVA	2300kVA

Productivity is calculated on 65% loadage.

#### LD-AT3 Combined Flat Glass Tempering Furnace

	A2436T3*	A2442T3*	A2460T3*	A2480T3*	A3050T3*
	2440x3600	2440x4200	2440x6000	2440x8000	3000x5000
	200x400	200x400	200x400	200x400	300x500
	4-19	4-19	4-19	4-19	5-19
	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-e glass)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-e glass)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-e glass)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-e glass)	24-28 (5mm clear glass) 20-24 (6mm 0.08Low-e glass)
	1600kVA	1600kVA	2200kVA	2800kVA	2300kVA

Productivity is calculated on 65% loadage.

#### LD-AT Combined Flat Glass Tempering Furnace

	A2436T	A2442T	A2460T	A2480T	A3050T
	2440x3600	2440x4200	2440x6000	2440x8000	3000x5000
	200x400	200x400	200x400	200x400	300x500
	4-19	4-19	4-19	4-19	5-19
	18-22(5mm clear glass)	18-22(5mm clear glass)	18-22(5mm clear glass)	18-22(5mm clear glass)	18-22(5mm clear glass)
	1600kVA	1600kVA	2200kVA	2800kVA	2300kVA

Productivity is calculated on 65% loadage.

## Lists For More Products

### Flat Glass Tempering Furnace

#### LD-AL JetConvection Plus Continuous Flat Tempering Furnace

	A1230L24J*	A1530L24J*	A1625L24J*	A1630L24J*	A1730L24J*
	1200x3000	1500x3000	1600x2500	1600x3000	1700x3000
	300x500	300x500	300x500	300x500	300x500
	3.2-6	3.2-6	3.2-6	3.2-6	3.2-6
	270	270	270	270	350
	2400kVA	3000kVA	3000kVA	3000kVA	3200kVA

Productivity is calculated on 1844 X 985, 3.2mm low-iron glass.

#### LD-AL Continuous Flat Tempering Furnace

	A1230L24	A1530L24	A1625L24	A1630L24	A1730L24
	1200x3000	1500x3000	1600x2500	1600x3000	1700x3000
	300x500	300x500	300x500	300x500	300x500
	3.2-6	3.2-6	3.2-6	3.2-6	3.2-6
	270	270	270	270	350
	2400kVA	3000kVA	3000kVA	3000kVA	3200kVA

Productivity is calculated on 1844 X 985, 3.2mm low-iron glass.

#### LD-AB JetConvection Plus Flat & Bent Bi-direction Glass Tempering Furnace

	A2030B10/2J*	A2436B15/2J*	A2442B18/2J*	A2440B25J*	A2850B25J*
	2000x3000	2440x3600	2440x4200	2440x6000	2800x5000
	2000xARC1000	2440xARC1500	2000xARC1800	2440xARC2500	2800xARC2500
	150x350	150x350	150x350	150x350	200x400
	200xARC350	300xARC400	300xARC400	300xARC500	500xARC600
	4-19	4-19	4-19	4-19	4-19
	27-31(5mm clear glass) 25-29(5mm 0.08Low-e glass)	27-31(5mm clear glass) 25-29(5mm 0.08Low-e glass)	27-31(5mm clear glass) 25-29(5mm 0.08Low-e glass)	14-16(5mm clear glass) 12-14(5mm 0.08Low-e glass)	14-16(5mm clear glass) 12-14(5mm 0.08Low-e glass)
	800kVA	800kVA	1000kVA	1250kVA	1250kVA

Productivity is calculated on 68% loadage for bent glass.

#### LD-AC JetConvection Plus Flat & Bent Bi-direction Glass Tempering Furnace

	A2030C30J*	A2436C36J*	A2442C42J*	A2450C50J*	A2850C42J*	A2860C50J*
	2000x3000	2440x3600	2440x4200	2440x5000	2800x5000	2800x6000
	3000xARC2000	3600xARC2440	4200xARC2440	5000xARC2440	4200xARC2800	5000xARC2800
	150x350	150x350	150x350	150x350	200x400	200x400
	400xARC600	400xARC600	400xARC600	400xARC600	400xARC600	400xARC600
	4-19	4-19	4-19	4-19	4-19	4-19
	14-16(5mm clear glass) 12-14(5mm 0.08Low-e glass)	14-16(5mm clear glass) 12-14(5mm 0.08Low-e glass)	14-16(5mm clear glass) 12-14(5mm 0.08Low-e glass)	14-16(5mm clear glass) 12-14(5mm 0.08Low-e glass)	14-16(5mm clear glass) 12-14(5mm 0.08Low-e glass)	14-16(5mm clear glass) 12-14(5mm 0.08Low-e glass)
	650kVA	800kVA	1000kVA	1000kVA	1250kVA	1350kVA

Productivity is calculated on 68% loadage for bent glass.

# Introduction to the Product Models and Icons

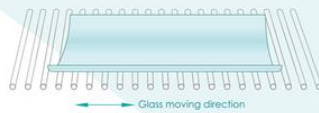
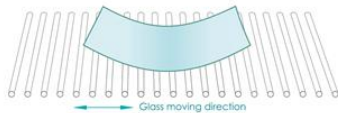
- 1/ The models of LandGlass tempering furnaces, such as LD-A2450B25J', consist of letters, numbers and words which indicate the functions of the furnaces, Max. loading area and heating technologies applied, etc.

The meanings of more letters and words are explained as follows:

A - Flat tempering section

B - Lengthwise bending tempering section

C - Crosswise bending tempering section



- A\*\*\*\*B\*\*** Bi-direction furnace with flat tempering section and lengthwise bending tempering section
- A\*\*\*\*C\*\*** Bi-direction furnace with flat tempering section and crosswise bending tempering section
- B\*\*\*\*E\*\*** Bi-direction furnace with lengthwise bending tempering section and double curvature bending tempering section

- L** — Continuous heating section
- T** — Combined heating sections, including:
  - T** — Combination of two AirStream heating sections
  - T0** — Combination of two JetConvection Plus heating sections
  - T3** — Combination of two heating sections with JetConvection Plus only on the top
- V** — Especially designed for automotive glass tempering

- 2/ In the catalogue, icons are used to indicate different heating technologies applied in heating furnace for easier identification.



Radiation + Assistant Convection



Forced Convection on Top and Bottom



Forced Convection on Top

- 3/ Take LD-A2450B25J' for example:

**LD - A 24 50 B 25 J'**

- LD — JetConvection Plus heating technology is applied
- A — Max. length of loading area(dm.)
- 24 — Lengthwise bending tempering section
- 50 — Max. length of loading area(dm.)
- B — Max. width of loading area(dm.)
- 25 — Flat tempering section
- J' — Abbreviation of LandGlass

- 4/ Take "Cyclone A2450" for example:

**Cyclone A 24 50**

- Cyclone — Cyclone™ Series Glass Tempering Furnace, equipped with the latest Cyclone™ convection heating technology.
- A — Max. length of loading area(dm.)
- 24 — Max. width of loading area(dm.)
- 50 — Flat Tempering Section

## Meaning Of Icons In Table

	Min. Radius
	Max. High of Curvature
	Curvature Accuracy
	Double Curvature Max. Loading Dimension
	Double Curvature Min. Loading Dimension
	Single Curvature Max. Loading Dimension
	Single Curvature Min. Loading Dimension

	Flat Max. Loading Dimension
	Flat Min. Loading Dimension
	Thickness
	Productivity
	Number of Burners
	Installed Capacity
	Gas Consumption
	Edge Waviness
	Power Consumption