

Glass Processing Line

Allbest Creative Development Ltd. (ALLBEST)

Tempered Glass Furnace (SNG Series)

Flat/Bent Glass Bending and Tempering System (SNG Series)

SNG Series glass tempering system is a new generation system that contains many patents developed. It has the distinctive advantages in glass flatness and removal of stress marks, and it's praised as the Completely-Flat Furnace, a new generation without defect.

Forced convection system (Option)

Several high-temp alloy fans are installed on top of the forced convection system and high-temp quenches are used. Convection is adjusted by frequency-inverter fans controlled by computer. High-quality insulating material and high-tem alloy steel are used for the whole heating chamber to guarantee cleanness of the chamber. The forced convection technology solved the problem of unbalanced heating between the upper and the lower caused by lower rollers and films on glass, while at the same time speeding up the heating process and reducing furnace temperature. It is specially suitable for the production of high-quality glass and low-E glass

Direct measuring system of glass temperature and intelligent control (Option)

Traditionally, furnace temperature and glass exit temperature can only be controlled by heating time. The actual temperature of glass inside the furnace is unknown to the system and there is a big temperature difference of the glass leaving the furnace that directly impair the optical property of the glass and end-product rate. The direct glass temperature measuring system directly tracks and monitors the actual temperature of the glass inside the furnace until it leaves the furnace, overcoming the shortcomings of the traditional method, guaranteeing the optimum temperature of the glass and realizing intelligent control to a certain degree regardless of glass size, thickness, color and film.

Other Patented Technology:

- Ceramic rollers for quench
- Direct temperature measuring in furnace
- Evenly-oscillating quenches



Brief introductions to the forced convection technology

1. Convection tempering furnaces are suitable for tempering flat or bent safety glass to high standards, especially low-E glass, coated glass (including temperable soft coats), and cast glass.
2. The heating speed is improved by 20% compared to radiation tempering furnaces, i.e. the heating time is reduced from 40sec/mm to 32 sec/mm. Consequently the productivity is also 20% higher than radiation tempering furnaces.
3. The heat transfer to the top and bottom surfaces of the glass is more balanced and even, which helps to reduce or eliminate white haze in the centre of the glass, as well as breakage in the furnace.
4. Lagging time in furnace chamber is shortened a lot to decrease the friction times between glass surface and rolls, thus ensuring highly optical quality.
5. Previous forced-convection furnace designs have been unable to solve the problems of dirt inside the furnace. The turbulent circulation of large volumes of air caused particles of insulation or other pollutants to affect the optical quality of the glass. Oxidization has also been a problem. In order to mitigate these problems, we have taken the following measures:

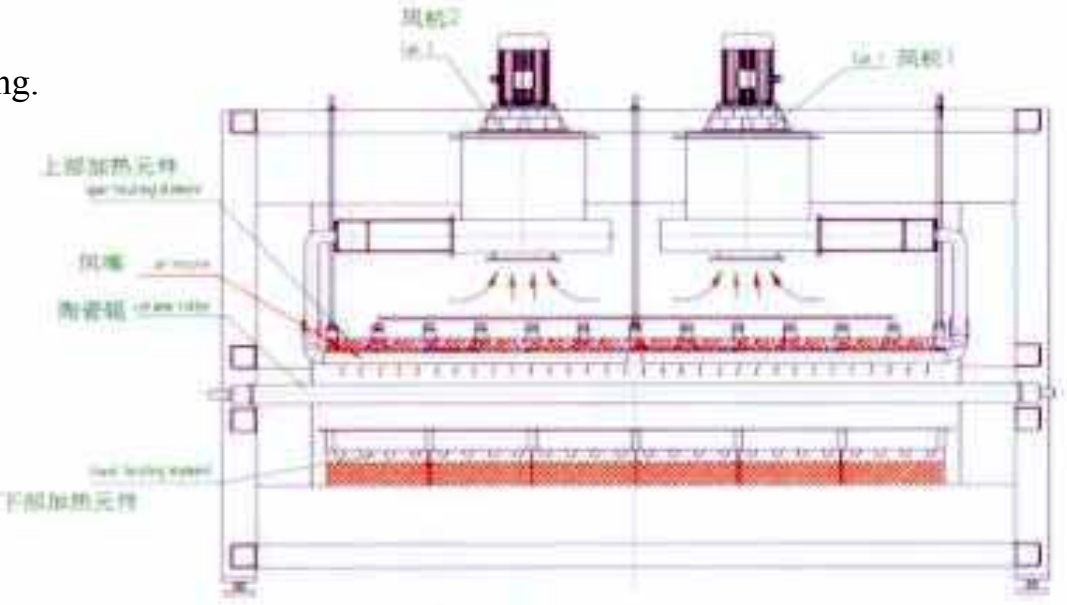
(1) we use high quality, temperature-resistant steel pipe for the air circulation system.

(2) The inner surface of the insulation material is hardened.

(3) All the metal elements in the heating section are non-oxidizing.

6. Previous forced-convection furnace designs have used convection simultaneously on both upper and lower glass surfaces, which tended to heat the glass in an unbalanced way in that, while the top surface absorbs heat from two sources, radiation and convection, the bottom surface is heated by radiation, convection conduction through the ceramic rollers.

Consequently, the heat absorbed by the top surface is less than that of the bottom. This imbalance can cause bowing of the processed glass, white hazing, irregular break-patterns and other defects. The new convection system resolves these problems and ensures balanced heating, thereby ensuring high optical quality and improved mechanical characteristics.





All-ceramic rollers with high-temp elastic Kevlar (polyisoph-thaloyl mataphenlene diamine) rope wound round them are used in the quenching section, completely solving the problem of glass distortion and guaranteeing the original optical property of the glass.



The blown air is very evenly distributed because the quenches oscillate parallel to the rollers with uniform speed as the glass gradually moves along the rollers. Thus the stress marks caused by air nozzles are removed



Glass flatness can be easily adjusted and controlled because the blowing distance is controlled by computer and the upper and lower air chambers are independently controlled.



Radiant-plate matrix heating technology and intelligent PID power modulation make the heating very even and stable.



Glass loading is easy because the rollers of the loading station are higher than the side casing. Under the loading station is an illuminating light for glass inspection. A Zebra reflective board can be installed at the unloading station for glass quality inspection according to customer's requirement.

Air-Cushion Double-Curve Glass Bending & Tempering Furnace (SNG3)

Good optical property: Softened glass moving in between air cushions is driven forward by a statistic-pressure membrane, with no hard material touching it. The optical property of the glass is very good. It's suitable for the production of glass for luxury cars.

Remarkable energy saving: During heating, with the forced convection the upper and lower air cushions as well as the statistic-pressure membrane are in closed-circuit circulation and there is no air exchange with the outside environment. Therefore the energy saving is extremely good.

Easy product change: High-temp anti-corrosion alloy steel is used for the whole forming chamber, and there is no need to change high-temp fiber cloth and mould. So there is a good flexibility. When you change glass type and specification, you only need to change the outside cold ring.

Even and stable heating: Radiant-plate matrix heating technology and intelligent PID power modulation are used.

High repeatability precision: The product repeatability is good for mechanical physical positioning is used for glass positioning without and displacement.

Stable operation program: Several servo systems are used for the operation control which are reliable and stable. It's full automatic and glass can be automatically unloaded from the cold ring.

Direct and easy monitoring: Two TV cameras are used to monitor glass inside the forming chamber and the whole process can be directly observed in the forming chamber.

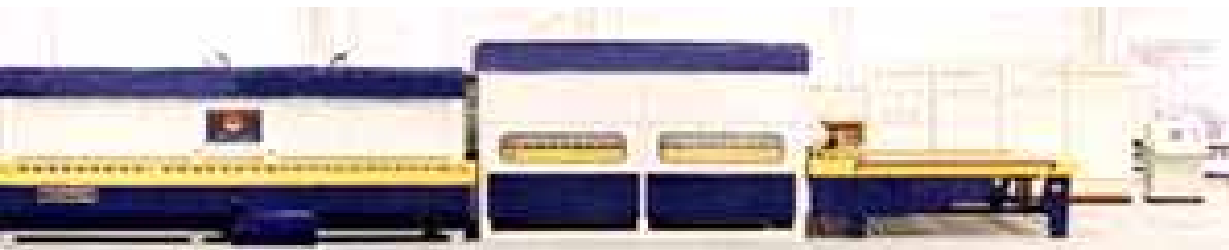




Type	SNG-3A1018	SNG-3A1121	SNG-3D1425
Max. size (mm)	1000*1800	1100*2100	1400*2500
Min. size (mm)	500*500	500*500	500*500
Min. Radius (mm)	500	500	500
Max. Arch (mm)	100	120	150
Thickness (mm)	3.2-6	3.2-6	3.5-6
Output (Load/hour)	36	36	36
Capacity (KVA)	≥800	≥1000	≥1200
Product Application	Automotive windshield and back-lite		
Remark: The output is calculated with 4 mm glass; The specification can be adjusted according to the client's requirement			

Tempered Glass Furnace Series

Horizontal Roller Hearth Flat Glass Tempering Furnaces Series



Horizontal Roller Hearth Continuous Flat Glass Tempering Furnaces



Horizontal Roller Hearth Reversible-Direction Flat/Bending Tempering Lines



Parameters of SNG Series horizontal roller-hearth flat/bent glass bending and tempering system

型号 Type	最大规格 Max. Size	最小规格 Min. Size	厚度范围 Thickness	最小半径 Min. Radius	产量(m ² /小时) Output (M ² /H)	装机容量 (KVA) Capacity (KVA)	特点用途 Features and applications
SNG-1A25	1250 × 2500	100 × 250	3-12		53	630	<p>1型系列平钢化机组采用最新的纯平无斑技术主要适用于生产建筑装饰、交通工具、民用家电、家具用平钢化玻璃。</p> <p>The up-to-date formation technology of completely flat without defects is adopted for flat glass tempering. It is mainly used for architectural decoration, traffic vehicles, household electric appliances and furniture.</p>
SNG-1D36	1500 × 3660	100 × 250	4-19		93	630	
SNG-1H36	2000 × 3660	100 × 250	4-19(4mm半板)		115	630	
SNG-1B36	2440 × 3660	100 × 250	4-19(4mm半板)		141	700	
SNG-1B50	2440 × 5000	100 × 250	4-19(4mm半板)		190	900	
SNG-1B60	2440 × 6000	100 × 250	4-25(4mm半板)		240	1000	
SNG-1E60	3000 × 6000	150 × 300	5-25		270(5mm)	1300	
SNG-2A08III	1250 × $\widehat{850}$	100 × $\widehat{300}$	3.5-10	1000(450)	45组/小时	420	<p>2型系列弯钢化机组采用辊道对压成形技术主要适用于生产交通用汽车、火车、轮船侧窗；民用家具、家电、淋浴房；建筑用玻璃。</p> <p>The formation technology of face-to-face roll-bed press is adopted for glass bending and tempering. It is mainly used for side-line of transport vehicles, railway carriages and ships; furniture, household electric appliances, bathroom and architectural glass.</p>
SNG-2H10III	2000 × $\widehat{1000}$	100 × $\widehat{300}$	3.5-10	1000(450)	45组/小时	630	
SNG-2B25	2440 × $\widehat{2500}$	300 × $\widehat{500}$	5-19	1000	15组/小时	550	
SNG-2E25	3000 × $\widehat{2500}$	300 × $\widehat{500}$	5-25	1000	15组/小时	700	
SNG-5B36	$\widehat{2440}$ × 3660	400 × $\widehat{600}$	5-19	1000	15组/小时	700	<p>5型系列弯钢化机组采用可变形辊道成形技术主要适用于生产室内外建筑用弯钢化玻璃。</p> <p>Changeable roll-bed formation technology is adopted for glass bending and tempering. It is mainly used to produce curved glass for architectural in-door and out-door decorations.</p>
SNG-5B50	$\widehat{2440}$ × 5000	400 × $\widehat{600}$	5-19	1000	15组/小时	900	
SNG-5E50	$\widehat{3000}$ × 5000	400 × $\widehat{600}$	5-19	1000	15组/小时	1100	

Parameters of SNG Series reversible flat/bent glass bending and tempering system

型号 Type	平钢化最大规格 Max. Size (flat) (MM)	弯钢化最大规格 Max. Size (bent) (MM)	平钢化最小规格 Min. Size (flat) (MM)	弯钢化最小规格 Min. Size (bent) (MM)	平钢化产量 (m ² /小时) Output (flat) (M ² /H)	弯钢化产量 (炉/小时) Output (Bent) (Loads/H)	平钢化 厚度范围 Thickness (Flat) (MM)	弯钢化 厚度范围 Thickness (Bent) (MM)	最小半径 Min. Radius (MM)	供电容量 (KVA) Capacity (KVA)
SNG-12H3610	2000 × 3600	2000 × 1000	100 × 250	100 × 300	124	45	4-19	4-12	450	630
SNG-12B5025	2440 × 5000	2440 × 2300	100 × 250	300 × 500	180	15/30	4-19	5-19	1000	900
SNG-12E6025	3000 × 6000	3000 × 2500	150 × 300	300 × 500	210	30	5-25	5-25	1000	1300
SNG-15B36	2440 × 3660	2440 × 3660	200 × 350	350 × 500	133	15	4-19	5-19	1000	700
SNG-15B50	2440 × 5000	2440 × 5000	200 × 350	350 × 500	180	15	4-19	5-19	1000	900

Parameters of SNG Series reversible double-curve glass bending and tempering system

型号 Type	小弯钢化最大规格 Max. Size (Small Curve) (MM)	大弯钢化最大规格 Max. Size (Big Curve) (MM)	小弯钢化产量 (M ² /小时) Output (Small Curve) (M ² /H)	大弯钢化产量 (M ² /小时) Output (Big Curve) (M ² /H)	小弯钢化最小半径 Min. Radius (Small Curve) (MM)	大弯钢化最小半径 Min. Radius (Big Curve) (MM)	弯钢化最小规格 Min. Size (MM)	弯钢化厚度范围 Thickness (MM)	供电容量 (KVA) Capacity (KVA)
SNG-25B2550	2440 × 2300	2440 × 5000	15/30	15	1000	1000	350 × 350	5-19	900
SNG-25E2550	3000 × 2300	3000 × 5000	15/30	15	1000	1200	400 × 500	5-25	1100
SNG-22B1025	2440 × 1000	2440 × 2500	30	15	450	1000	200 × 300	4-19	600

Parameters of SNG Series horizontal roller hearth continuous flat glass tempering system

型号 Type	最大规格 Max. Size	最小规格 Min. Size	厚度范围 Thickness	产量(M ² /小时) Output (M ² /H)	装机容量 (KVA) Capacity (KVA)	特点用途 Features And Applications
SNG-1A20LX	1250 × 2000	100 × 350	3-8	375	1700	采用最新的纯平无斑技术主要适用于优质玻璃幕墙、民用冷冻柜、微波炉、展柜、灶台、家具；交通用汽车、火车、轮船侧窗等建筑用室内隔断、门窗、淋浴房等。 High grade curtain walls, domestic refrigerates, microwave ovens, display cases, kitchen surfaces, furniture, sidelines for vehicles, dividers of architecture, doors and windows, shower booths etc.
SNG-1D25LX	1500 × 2500	100 × 350	3-8	450	2300	
SNG-1H36LX	2000 × 3660	100 × 350	3-10	660	3100	

- Remarks:**
- The output of flat glass tempering is calculated with 4 mm glass, 100% loading rate and 100% end-product rate;
 - See detailed parameters for flat/bent glass tempering with different glass thicknesses
 - The specification can be adjusted according to the requirements from the client

Flat/Bent Glass Tempering Furnace (MT-GPW Series)



Introduction:

1. The machine is composed of seven parts, including loading section, electrical heating section, forming and cooling section, unloading section, electric control system, air blower system and computer control operating system.
2. It is specially used for flat or bent glass tempering and there are 4 types of them.
3. The heating of the furnace is made by the upper and lower heating elements in an all-sealed furnace. The upper part can be lifted up for maintenance. Automatic temperature control is made inside the furnace. Snake-type wide-ribbon heating elements are arranged in longitudinal direction which is reasonable, and the temperature is homogeneous, Its service life is three years under normal condition. Heat loss is minimized by using imported high-quality insulating material, and energy is saved greatly. Patented technology has been applied for the electric heating technology for the furnace.
4. The forming methods are as following
Two forming types:
 Flat glass tempering and bent glass tempering
Three curving methods:
 - Change of roller shape (for single curve)
 - Change if soft shaft (for single curve)
 - Mold formation (for double curves)

Note: State patents have been applied for several forming technologies as hereinbefore.
5. The computer control system will be supplied with necessary multi-position multi-type control software, and automatic control is realized at all the stages of production.
6. World famous industrial control computer, PLC, frequency converter and monitoring elements are used for stability and reliability of the equipments.
7. The great-foresight design and perfect manufacturing process make the products comply with both Chinese State Standards GB9656-96 and European Standards ANSIZ97.1-1975.

MT- GPW-A series Flat/Bent Glass Tempering Furnace

Product: Flat, single-curve or small-curvature glass tempering furnace

Usages: Flat and bent tempered glass for car sidelight, household appliances, furniture and small architecture glass

Features:

- Full-automatic dislocating roller-pressing forming technology.
- Flat and bent glass can be alternately tempered at will and the operation is easy and flexible,
- The radius of curvature can be controlled automatically by computer when bent glass is tempered,
- Software of multi-position production is supplied.



MT- GPW-B series Flat/Bent Glass Tempering Furnace

Product: Flat and large-size single-curve glass tempering furnace

Usages: Flat and bent tempered glass for big bus sidelight, single-curve backlite, sightseeing elevator, furniture, integral bathroom and large architecture glass.

Features:

- Synchronized roller-quench changing forming technology.
- The radius of curvature can be controlled automatically by computer when bent glass is tempered,
- Compensation adjusting technology for curvature radius by hand is supplied.



MT- GPW-C series Flat/Bent Glass Tempering Furnace

Product: Flat and single-curve equal-curvature glass tempering furnace

Usages: Flat and bent tempered glass for car sidelite, household appliances, furniture and small architecture glass

Features:

- Soft shaft changing forming technology,
- The radius of curvature can be controlled automatically by computer when bent glass is tempered.
- Software for multi-position production is supplied according to customers' requirement.



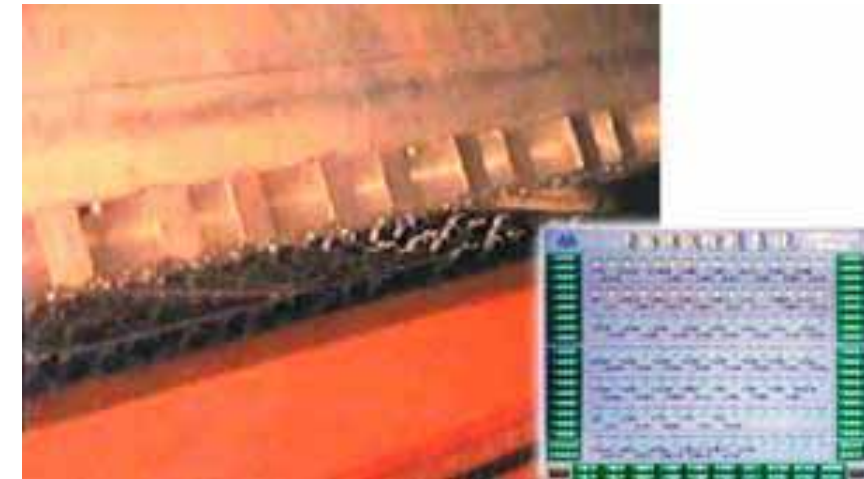
MT- GPW-D series Flat/Bent Glass Tempering Furnace

Product: Flat and single-curve equal curvature/unequal curvature/multi-curvature glass tempering furnace

Usages: Flat and bent tempered glass for big bus sidelite, single-curve backlite, sightseeing elevator, integral bathroom and large architecture glass

Features:

- Soft shaft changing forming technology.
- The radius of curvature of equal curvature, unequal curvature and multi-curvature can be controlled, which is accurate and easy.



Technical Parameters of MT-GPW-A and MT-GPW-B series Horizontal Roller-hearth Flat/Bent Glass Tempering Furnaces

Type	Max Size of Flat Glass (mm)	Max Size of Bent Glass (mm)	Output of Flat Glass (loads/h)	Output of Bent Glass (m ² /h)	Min Size of Flat Glass (mm)	Min Size of Bent Glass (mm)	Min Radius (mm)	Thickness (mm)	Power Capacity (KVA)
MT-GPW-0812	1250 × 850	1250 × 850	15	20	150 × 250	200 × 350	450	3.2-19	> 150
MT-GPW-1225	1250 × 2500	1250 × 2500	45	20	150 × 250	200 × 350	450	3.2-19	> 375
MT-GPW-1525	1500 × 2500	1500 × 2500	54	20	150 × 250	200 × 350	450	3.2-19	> 450
MT-GPW-1536	1500 × 3600	1500 × 3600	85	20	150 × 250	200 × 350	450	3.2-19	> 658
MT-GPW-2025	2000 × 2500	2000 × 2500	80	20	150 × 250	200 × 350	850	4-19	> 600
MT-GPW-2036	2000 × 3600	2000 × 3600	115	20	150 × 250	200 × 350	850	4-19	> 864
MT-GPW-2425	2440 × 2500	2440 × 2500	96	20	150 × 250	200 × 350	850	4-19	> 718
MT-GPW-2436	2440 × 3600	2440 × 3600	135	20	150 × 250	200 × 350	850	4-19	> 1050
MT-GPW-2440	2440 × 3600	2440 × 2500	150	45	150 × 250	200 × 350	850	4-19	> 955
MT-GPW-2450	2440 × 5000	2440 × 2500	190	45	150 × 250	200 × 350	850	4-19	> 1200

Note: Millimeter is used for all the measurements. The output is calculated based on 40 seconds of heating time for each millimeter of glass thickness and 80 percent of loading rate for 5 mm clear glass.

Outer Dimensions of MT-GPW-A and MT-GPW-B series Horizontal Roller-hearth Flat/Bent Glass Tempering Furnaces

Type	Loading Section (L ₁ × B ₁ × H ₁)	Heating Section (L ₂ × B ₂ × H ₂)	Forming Section (L ₃ × B ₃ × H ₃)	Unloading Section (L ₄ × B ₄ × H ₄)	Total Dimensions (L × B × H)	Notes
MT-GPW-0812	1823 × 1132 × 950	3180 × 1688 × 2180	2600 × 1980 × 2300	1823 × 1132 × 950	9880 × 2030 × 2780	Automatic Curvature Adjustment
MT-GPW-1225	3023 × 1532 × 950	4380 × 2088 × 2180	3625 × 2380 × 2780	3023 × 1532 × 950	14800 × 2430 × 2780	Automatic Curvature Adjustment
MT-GPW-1525	3023 × 1832 × 950	4380 × 2388 × 2180	3625 × 2580 × 2780	3023 × 1832 × 950	14800 × 2630 × 2780	Automatic Curvature Adjustment
MT-GPW-1536	4103 × 1832 × 950	5560 × 2388 × 2180	5120 × 2580 × 2780	4103 × 1832 × 950	19380 × 2630 × 2780	Automatic Curvature Adjustment
MT-GPW-2025	3023 × 2332 × 950	4380 × 2888 × 2180	3625 × 3280 × 4050	3023 × 2332 × 950	14800 × 3280 × 4050	Automatic Curvature Adjustment
MT-GPW-2036	4103 × 2332 × 950	5560 × 2888 × 2180	5120 × 3280 × 4050	4103 × 2332 × 950	19380 × 3280 × 4050	Automatic Curvature Adjustment
MT-GPW-2425	3023 × 2732 × 950	4380 × 3280 × 2180	3625 × 3680 × 4050	3023 × 2732 × 950	14800 × 3800 × 4050	Automatic Curvature Adjustment
MT-GPW-2436	4103 × 2732 × 950	5560 × 3280 × 2180	5120 × 3680 × 4050	4103 × 2732 × 950	19380 × 3800 × 4050	Automatic Curvature Adjustment
MT-GPW-2440	4343 × 2732 × 950	5800 × 3280 × 2180	5120 × 3680 × 4050	4343 × 2732 × 950	20880 × 3800 × 4050	Automatic Curvature Adjustment
MT-GPW-2450	5523 × 2732 × 950	7000 × 3280 × 2180	6583 × 3680 × 4050	5523 × 2732 × 950	25200 × 3800 × 4050	Automatic Curvature Adjustment

(note: dimensions (L × B × H) (round pipes for air blowers not included)

Technical Parameters of MT-GPW-C and MT_GPW-D series Horizontal Roller-hearth Flat/Bent Glass Tempering Furnaces

Type	Max Size of Flat Glass (mm)	Max Size of Bent Glass (mm)	Output of Flat Glass (m ² /h)	Output of Bent Glass (load/h)	Min Size of Flat Glass (mm)	Min Size of Bent Glass (mm)	Min Radius (mm)	Thickness (mm)	Power Capacity (KVA)
MT-GPW-0812	850 × 1250	850 × 1250	15	30	150 × 250	200 × 350	500	3.5-19	≥ 480
MT-GPW-1225	1250 × 2500	1250 × 2500	45	30	150 × 250	200 × 350	500	3.5-19	≥ 400
MT-GPW-1525	1500 × 2500	1500 × 2500	54	30	150 × 250	200 × 350	700	4-19	≥ 650
MT-GPW-1536	1500 × 3660	1500 × 3660	77	45	150 × 250	200 × 350	700	5-19	≥ 658
MT-GPW-2025	2000 × 2500	2000 × 2500	72	30	150 × 250	200 × 350	850	5-19	≥ 800
MT-GPW-2036	2000 × 3660	2000 × 3660	103	45	150 × 250	200 × 350	850	5-19	≥ 850
MT-GPW-2425	2440 × 2500	2440 × 2500	86	30	150 × 250	200 × 350	950	5-19	≥ 550
MT-GPW-2436	2440 × 3660	2440 × 3660	125	45	150 × 250	200 × 350	950	5-19	≥ 850
MT-GPW-2440	2440 × 4000	2440 × 4000	135	45	150 × 250	200 × 350	950	5-19	≥ 950
MT-GPW-2450	2440 × 5000		173	45	150 × 250	200 × 350	950	5-19	≥ 1200

Note: Millimeter is used for all the measurements. The output is calculated based on 40 seconds of heating time for each millimeter of glass thickness and 80 percent of loading rate for 5 mm clear glass.

Outer Dimensions of MT-GPW-C and MT-GPW-D series Horizontal Roller-hearth Flat/Bent Glass Tempering Furnaces

Type	Loading Section (L ₁ × B ₁ × H ₁)	Heating Section (L ₂ × B ₂ × H ₂)	Forming Section (L ₃ × B ₃ × H ₃)	Unloading Section (L ₄ × B ₄ × H ₄)	Total Dimensions (L × B × H)	Notes
MT-GPW-0812	1823 × 1132 × 950	3160 × 1688 × 2180	3054 × 1830 × 1800	1823 × 1132 × 950	9450 × 1740 × 2170	Automatic Curvature Adjustment
MT-GPW-1225	3023 × 1532 × 950	4360 × 2088 × 2180	4254 × 2030 × 1800	3023 × 1532 × 950	14250 × 2140 × 2170	Automatic Curvature Adjustment
MT-GPW-1525	3023 × 1832 × 950	4800 × 2388 × 2180	4254 × 2330 × 2000	3023 × 1832 × 950	14250 × 2440 × 2370	Automatic Curvature Adjustment
MT-GPW-1536	4103 × 1832 × 950	5560 × 2388 × 2180	5454 × 2330 × 2160	4103 × 1832 × 950	18570 × 2440 × 2470	Automatic Curvature Adjustment
MT-GPW-2025	3023 × 2332 × 950	4800 × 2688 × 2180	4254 × 2830 × 2160	3023 × 2332 × 950	14250 × 2940 × 2470	Automatic Curvature Adjustment
MT-GPW-2036	4103 × 2332 × 950	5560 × 2688 × 2180	5454 × 2830 × 2160	4103 × 2332 × 950	18570 × 2940 × 2470	Automatic Curvature Adjustment
MT-GPW-2425	3023 × 2732 × 950	4800 × 3280 × 2180	4254 × 3230 × 2160	3023 × 2732 × 950	14250 × 3340 × 2470	Automatic Curvature Adjustment
MT-GPW-2436	4103 × 2732 × 950	5560 × 3280 × 2180	5454 × 3230 × 2160	4103 × 2732 × 950	18570 × 3340 × 2470	Automatic Curvature Adjustment
MT-GPW-2440	4343 × 2732 × 950	5800 × 3280 × 2180	5454 × 3230 × 2160	4343 × 2732 × 950	19290 × 3340 × 2470	Automatic Curvature Adjustment
MT-GPW-2450	5523 × 2732 × 950	7000 × 3280 × 2180	6774 × 3230 × 2160	5523 × 2732 × 950	24090 × 3340 × 2470	Automatic Curvature Adjustment

outer dimensions (L × B × H) (return pipes for air blowers not included)

Flat Glass Tempering Furnace (MT-GP series)

Main technical features:

1. Industrial control computer and PLC are used for the production line. The main drive is equipped with imported control system. The world famous products are used for the frequency-changes stepless transmission and main measuring elements for high accuracy and better stability. The production line has the features of full automation, easy operation and high production efficiency.
2. There is an automatic temperature homogenizing system in the furnace, which can make the temperature adjustment automatically according to the types and specifications of the glass to be tempered to ensure a homogeneous temperature. The furnace is well sealed with high-quality insulating material to get a high heating efficiency. Specially designed heating elements are reasonably arranged and have a long service life. State patent has been applied for this technology.
3. The heating section is divided into the upper part and the bottom part. The upper can be lifted up for easy maintenance. The driving rollers of this section are high-quality ceramic rollers which surface is very smooth and with a long service life.
4. The loading section is composed of high-quality rubber-coated rollers, lifting device, positioning device and the AC driving system with electromagnetic brake and electromagnetic clutch.
5. The quench section is composed of fans, quenches and conveying system. This section is sealed and the noise is very low.
6. Complete-functioning software is supplied for easy operation, maintenance and adjustment.
7. The great-foresight design and perfect manufacturing process make the products comply with both Chinese state Standards GB9656-96 and European Standards ANSIZ97.1-1975.



MT-GP series

MT-GP series Flat Glass Tempering Furnaces

Technical parameters of MT-GP series horizontal roller-hearth flat glass tempering furnaces

Type	Max Size (mm)	Min Size (mm)	Thickness (mm)	Output (M ² /h)	Power Capacity (KVA)
MT-GP-0812	850 × 1250	150 × 250	3.2-19	15	> 400
MT-GP-1225	1250 × 2500	150 × 250	3.2-19	45	> 450
MT-GP-1525	1500 × 2500	150 × 250	4-19	54	> 450
MT-GP-1536	1500 × 3600	150 × 250	4-19	77	> 600
MT-GP-2025	2000 × 2500	150 × 250	4-19	72	> 500
MT-GP-2036	2000 × 3600	150 × 250	4-19	103	> 650
MT-GP-2425	2440 × 2500	150 × 250	4-19	86	> 550
MT-GP-2436	2440 × 3600	150 × 250	4-19	125	> 850
MT-GP-2439	2440 × 3900	150 × 250	4-19	135	> 950
MT-GP-2450	2440 × 5000	150 × 250	4-19	173	> 1200
MT-GP-3060	3000 × 6000	150 × 250	4-19	285	> 1980

Note: Millimeter is used for all the measurements. The output is calculated based on 40 seconds of heating time for each millimeter of glass thickness and 80 percent of loading rate for 5 mm clear glass.

Outer dimensions of MT-GP series horizontal roller-hearth flat glass tempering furnaces

Type	Loading Section	Loading Section	Forming Section	Unloading Section	Total Dimensions
MT-GP-0812	1823 × 1132 × 950	3160 × 1688 × 2180	3054 × 1630 × 1800	1823 × 1132 × 950	9450 × 1740 × 2170
MT-GP-1225	3023 × 1532 × 950	4360 × 2088 × 2180	4254 × 2030 × 1800	3023 × 1532 × 950	14250 × 2140 × 2170
MT-GP-1525	3023 × 1832 × 950	4600 × 2388 × 2180	4254 × 2330 × 2000	3023 × 1832 × 950	14250 × 2440 × 2370
MT-GP-1536	4103 × 1832 × 950	5560 × 2388 × 2180	5454 × 2330 × 2160	4103 × 1832 × 950	18570 × 2440 × 2470
MT-GP-2025	3023 × 2332 × 950	4600 × 2888 × 2180	4254 × 2830 × 2160	3023 × 2332 × 950	14250 × 2940 × 2470
MT-GP-2036	4103 × 2332 × 950	5560 × 2888 × 2180	5454 × 2830 × 2180	4103 × 2332 × 950	18570 × 2940 × 2470
MT-GP-2425	3023 × 2732 × 950	4600 × 3280 × 2180	4254 × 3230 × 2160	3023 × 2732 × 950	14250 × 3340 × 2470
MT-GP-2436	4103 × 2732 × 950	5560 × 3280 × 2180	5454 × 3230 × 2160	4103 × 2732 × 950	18570 × 3340 × 2470
MT-GP-2439	4343 × 2732 × 950	5800 × 3280 × 2180	5454 × 3230 × 2160	4343 × 2732 × 950	19290 × 3340 × 2470
MT-GP-2450	5523 × 2732 × 950	7000 × 3280 × 2180	6774 × 3230 × 2160	5523 × 2732 × 950	24090 × 3340 × 2470
MT-GP-3060	6523 × 3332 × 950	8000 × 3880 × 2180	7774 × 3830 × 2160	6523 × 3332 × 950	28090 × 3940 × 2470

Double-direction Glass Tempering Furnace (MT-GSX Series)



Usage: Furniture glass, shower-room glass, automobile glass, ship glass, architectural, decorative glass, etc.

Main Features:

Innovative Process Flow: Revised traditional process realizes perfect combination of multi-process technology, which can fully meet the clients' requirement

High-Grade class bending and formation: Full automatic rollers interlaced opposite-press forming technology is taken with automatic arc control but no mould if necessary, which can be of exact formation and roundness without ball-shape surface.

设备型号 Type	加工平钢化玻璃规格 Produced Flat Glass (mm)			加工弯钢化玻璃规格 Produced Bent Glass (mm)			曲率半径 Radius	产量 (吨/时) Productivity (Tons/Hour)	供电容量 Power Capacity KVA
	最大规格 Max. Size	最小规格 Min. Size	厚度 Thickness	最大规格 Max. Size	最小规格 Min. Size	厚度 Thickness			
MT-GSX2425-08	2440 × 2500	150 × 250	4-19	2440 × 800	200 × 350	5-19	> 450	18	> 540
MT-GSX2425-16	2440 × 2500	150 × 250	4-19	2440 × 1600	200 × 350	4-19	> 950	18	> 540
MT-GSX2425-25	2440 × 2500	150 × 250	4-19	2440 × 2500	200 × 350	5-19	> 950	18	> 540
MT-GSX2436-08	2440 × 3660	150 × 250	4-19★	2440 × 800	200 × 350	5-19	> 450	18	> 620
MT-GSX2436-16	2440 × 3660	150 × 250	4-19★	2440 × 1600	200 × 350	4-19	> 950	18	> 620
MT-GSX2436-25	2440 × 3660	150 × 250	4-19★	2440 × 2500	200 × 350	5-19	> 950	18	> 620
MT-GSX2442-08	2440 × 4200	150 × 250	4-19★	2440 × 800	200 × 350	5-19	> 450	18	> 700
MT-GSX2442-16	2440 × 4200	150 × 250	4-19★	2440 × 1600	200 × 350	4-19	> 950	18	> 700
MT-GSX2442-25	2440 × 4200	150 × 250	4-19★	2440 × 2500	200 × 350	5-19	> 950	18	> 700
MT-GSX2450-08	2400 × 5000	150 × 250	4-19★	2440 × 800	200 × 350	5-19	> 450	18	> 840
MT-GSX2450-16	2400 × 5000	150 × 250	4-19★	2440 × 1600	200 × 350	4-19	> 950	18	> 840
MT-GSX2450-25	2400 × 5000	150 × 250	4-19★	2440 × 2500	200 × 350	5-19	> 950	18	> 840
MT-GSX2460-08	2400 × 6000	150 × 250	4-19★	2440 × 800	200 × 350	5-19	> 450	18	> 1050
MT-GSX2460-16	2400 × 6000	150 × 250	4-19★	2440 × 1600	200 × 350	4-19	> 950	18	> 1050
MT-GSX2460-25	2400 × 6000	150 × 250	4-19★	2440 × 2500	200 × 350	5-19	> 950	18	> 1050
MT-GSX2436-25C	2440 × 3600	150 × 250	4-19★	2440 × 2500	400 × 400	5-19	> 950	18	> 600
MT-GSX2442-42C	2440 × 4200	150 × 250	4-19★	2440 × 4200	400 × 400	5-19	> 950	18	> 680
MT-GSX2450-36C	2440 × 5000	150 × 250	4-19★	2440 × 3600	400 × 400	5-19	> 950	18	> 800
MT-GSX2450-42C	2440 × 5000	150 × 250	4-19★	2440 × 4200	400 × 400	5-19	> 950	18	> 890
MT-GSX2450-45C	2440 × 5000	150 × 250	4-19★	2440 × 4500	400 × 400	5-19	> 950	18	> 800
MT-GSX2460-36C	2440 × 6000	150 × 250	4-19★	2440 × 3600	400 × 400	5-19	> 950	18	> 950
MT-GSX2460-42C	2440 × 6000	150 × 250	4-19★	2440 × 4200	400 × 400	5-19	> 950	18	> 950
MT-GSX2460-45C	2440 × 6000	150 × 250	4-19★	2440 × 4500	400 × 400	5-19	> 950	18	> 950
MT-GSX2460-42C	2440 × 6000	150 × 250	4-19★	2440 × 4200	400 × 400	5-19	> 950	18	> 950
MT-GSX2460-45C	2440 × 6000	150 × 250	4-19★	2440 × 4500	400 × 400	5-19	> 950	18	> 950

Note:

1. “ * ” shows half-load producing for 5 mm flat glass. The remaining without “*” means full load for producing;
2. The yield in form is calculated for 5 mm thickness glass product;
3. The machine can be designed and manufactured to multi-position produce line as per detailed bent glass, therefore, the productivity is quite different.

Double-curvature Glass Tempering Furnace (MT-GSW series)

INTRODUCTION

MT-GSW Series Double -curvature Glass Tempering Furnace elaborately developed and researched by us is the most advanced, most practical, most economical patent technology product for the time being. It is used to produce back screen shield for high grade automobiles.

Main technical characteristic:

- Advanced shaping method and reasonable techniques suitable to produce all kinds of deep-curve double-curvature glass.
- Easy-make and cheap molds.
- Easy & quick molds change and only 2-4 hours needed to change one type.
- Stable & reliable equipment performance with high automation, easy operation and high efficiency.
- Powerful & reliable control software. Man-machine dialogue comfortable and convenient for the operator to handle.





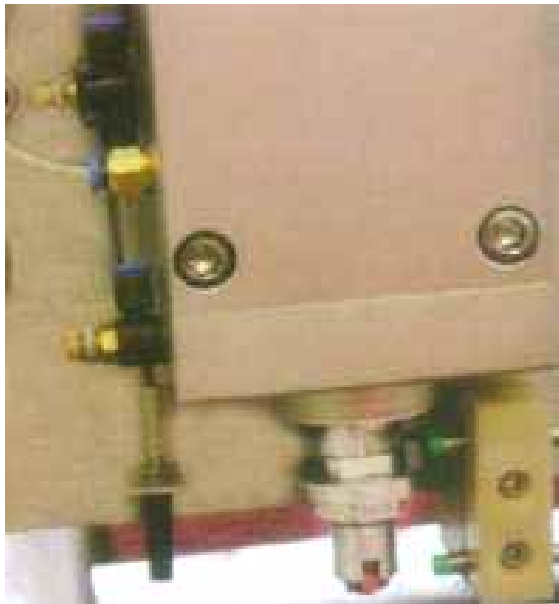
L型双曲面钢化炉机组
L-Type Double-curvature Tempering Furnace

冷却风栅
Cooling Quench

Type	Glass Thickness	Max. Glass Size	Min. Curvature Radius	Max. Curvature Depth	Coincidence	Annual Output
MT-GSW-A	3.5—6mm	1600 × 700mm	100mm	80mm	≤ 2mm	150,000 —300,000pcs.
MT-GSW-B	3.5—6mm	1800 × 850mm	120mm	120mm		
MT-GSW-C	5—6mm	2200 × 1100mm	150mm	150mm		

Full Automatic Glass Cutting System (QGC Series)

The cutting system includes the servo driver of high-precision X,Y θ -axle synchronous transmission robot, the most-advanced integrated cutting head set and arc synchronous gears and guide rail with the advantages of high precision, high efficiency, easy operation, easy maintenance and attractive appearance. Loading, type setting cutting and breaking can be finished with full automation.



Type	Max. Size (MM)	Thickness (MM)	Max. Speed (MM/S)	Accuracy (MM)	Area Occupied (MM)	Air Pressure (MPA)	Capacity (KW)	Weight (KG)
QGC3624	3600*2440	2-19	1500	±0.3	14200*3600	0.5	17	5200
QGC4530	4500*3000	2-19	1500	±0.3	18500*4200	0.5	17.5	5600
QGC6233	6200*3300	2-19	1500	±0.3	21000*4500	0.5	18.5	6100

Remark: The specification can be adjusted according to the client's requirement



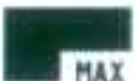
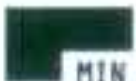






Horizontal Single-Side Grinding System (ME Series)

Vertical and double-side grinding machines are widely used but no straight-line grinding machine can satisfy the continuous grinding of suit-cut glass, only the horizontal single-side grinding machine can. You can put 4 single-side grinders into a continuous line for various specification and there is no need to make adjustment for different specifications. Besides, the grinding of super-large size glass or straight-line shape cutting can be made because the opposite side is the free end.



单边磨技术参数表 Technical parameters of single-side grinding machine

参数 Parameter								
型号 Type	m-min	mm	mm	mm	mm	Kw	mm	Kg
ME10R45	0.5-5	5	4500	800	4~19	28	5700×5450 ×1860	4900
ME10R60	0.5-5	5	6000	800	4~19	28	5700×7050 ×1860	5260
ME10R80	0.5-5	3	8000	800	4~19	28	5700×8550 ×1860	5880

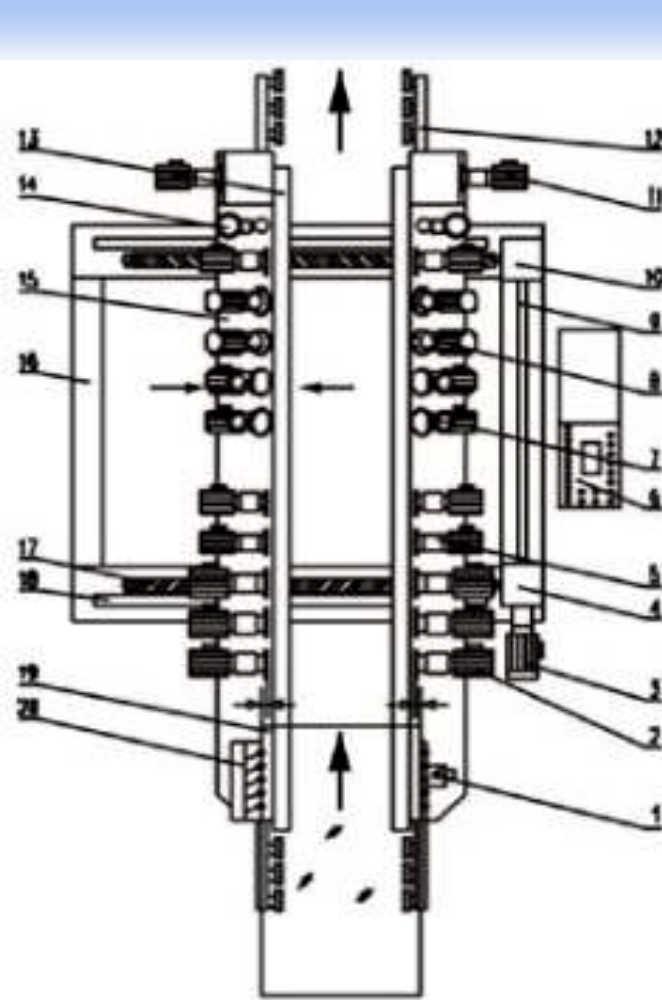
Remark: The specification can be adjusted according to the client's requirement











Multi-function Double Edge Grinder (MA Series)

This machine, based on pneumatic grinding process, is equipped with 22 wheels which grind and polish two parallel sides and their corner edges synchronously, and is characterized by high precision, high speed, etc. Using a first-class computer automation system, it can offer multi-function choices, i.e. keep constant size, light grinding, etc, and its ingenious self-adapting, self-diagnosis ability can realize convenient and flexible operation. The glass sheets are moved by a high quality seamless synchronous driving belt. The driving unit propels the ball screw. Straight bearing ensures flat and stable running of the system, it works with high accuracy and reliability.





双边磨技术参数表 Double Edger Parameter Table

Parameter 参数	 m-min	 mm	 MAX mm	 MIN mm	 mm	 Kw	 mm	 Kg
	型号 Model	Processing Speed	Max. Arris Width	Max. Glass Size	Min. Glass Size	Glass Thickness	Max. Power	Dimension
MA10L26	0.5-5m/min	5	2585	230	4~25	56	5700×4150 ×1500	8200
MA10L36	0.5-5m/min	5	3660	230	4~25	62	5700×5850 ×1500	9100
MA10L06	0.5-5m/min	3	600	110	4~25	25	4100×2200 ×1500	4100

Remark: The specification can be adjusted according to the client's requirement



Double Edger Working Principle

1. Side fixed wheel striker
2. Diamond spindles for flat edge
3. The motor of changing bridge position.
4. Left worm gear decelerator
5. Polishing spindles for flat edge
6. Operator/NC interface
7. Spindles of upper arris
8. Spindles of lower arris
9. Line-shaft
10. Right worm gear decelerator
11. Motor operating sheet conveyance
12. Fixed bridge

Full-Automatic CNC Glass Cutting Machine

The MT series Full-Automatic CNC Shaped glass cutting machines are the technical achievements of the company in innovation. Its advantage is for you to cut glass into any shape.

- 1.The 3-coordinate moving system of the cutting head is composed of high-accuracy rack guide rail. Siemens AC servo system and high-resolution encoders. The performance is reliable with the low tolerance and high efficiency.
- 2.It is automatically controlled by industrial control computer and PLC from glass loading to glass cutting.
- 3.The cutting pressure can be automatically adjusted according to the cutting speed.
- 4.Type MT-QA cutting machine is equipped with 36 standard-shape cutting programs and any standard shape of glass can be cut by using the shape or their combination.
- 5.Besides all the performances of Type MT-QA cutting machine. Type MT-QB cutting machine has the function of copying cutting and any shape of glass can be cut.

Models:

Type MT-QA CNC rectangular cutting machine

Type MT-QB CNC shape cutting machine

Main technical data:

Max glass size: 2000x3000 mm; 2500x3600 mm; 3600x5000 mm

Glass thickness:2-19mm

Cutting accuracy:±0.2 mm

Cutting speed: 1200 mm



Laminating Technology

Automatic Continuous Glass Bending Machines (MT-LW series)

MT-LW series continuous glass bending machines are equipments to manufacture laminated glass of luxury car side shield. The production is computer controlled and glass formation can be seen on the monitor screen .The machine runs stable and reliable, the operation is easy and the efficiency very high. The advanced control system and the perfect manufacture technology make is performance more perfect.



Main technical parameters and outer dimensions of MT-LW series automatic continuous glass thermal bending machines

Type	Specification	Output	Installed Capacity	Outer Dimensions
MT-LW-13	1000 × 800mm	15 pairs/h	298KW	13320 × 3860 × 3420mm
MT-LW-13	1800 × 1000mm	15 pairs/h	336KW	14920 × 4066 × 3550mm
MT-LW-13	2200 × 1200mm	13 pairs/h	360KW	18120 × 4466 × 3550mm
MT-LW-15	1680 × 800mm	17 pairs/h	348KW	14730 × 3860 × 3420mm
MT-LW-15	1800 × 1000mm	17 pairs/h	386KW	16630 × 4066 × 3550mm
MT-LW-15	2200 × 1200mm	15 pairs/h	420KW	19930 × 4466 × 3550mm
MT-LW-17	1600 × 800mm	19 pairs/h	400KW	16140 × 3860 × 3550mm
MT-LW-17	1800 × 1000mm	19 pairs/h	448KW	18140 × 4066 × 3550mm
MT-LW-17	2200 × 1200mm	17 pairs/h	502KW	22140 × 4466 × 3550mm
MT-LW-19	2200 × 1000mm	22 pairs/h	484KW	17550 × 3860 × 3420mm
MT-LW-19	2200 × 1000mm	22 pairs/h	532KW	19750 × 4066 × 3550mm
MT-LW-19	2200 × 1000mm	20 pairs/h	580KW	24150 × 4466 × 3550mm

MT series Single-Chamber Double-Position Thermal Bending Machine



MT series Glass Washing and Drying Machines

The machines are equipped with automatic water circulation and water compensation system, and the water level is controlled automatically. The running speed is controlled by AC frequency converter. The machines run reliably, and the operation is easy. The washing section is equipped with 3 sets of hair brushes and 4 sets of water curtains, and the drying section equipped with 2 set of air knives, which can achieve the optimum washing and drying result. Main parts of the washing section and the water container are of high quality stainless steel, which makes the service life much longer.



Main technical parameters:

Type	Washing Width	Washing Length	Washing Thickness	Producing Speed	Power Supply
MT-BX-15	1500mm	300mm	2mm	3m/min	380v 50Hz
MT-BX-20	2000mm	—	—	—	
MT-BX-24	2400mm	2000mm	19mm	5m/min	

MT-JH series Automatic Bent-Glass Combining Machines

MT-JH series combining machines are special continuous production lines for laminated glass for car assembly. The production line includes powder cleaning section, combining section and silicon rubber strip installation section. The production line is controlled by PLC and the technology of frequency converter is adopted for speed adjustment. The automation and production efficiency are both high.



MT-JY series Bent/Laminated Glass Vacuum Pre-heating Machines

MT-JY series bent/laminated glass vacuum pre-heating machines are the main equipments for the manufacture of automobile laminated glass. The features are continuous production ,high production efficiency , low energy cost and low labor intensity .The max productivity is 80 pieces of glass per hour.



Vertical Type



Horizontal Type

MT-JPY series Flat Laminated Glass Pre-heating Pre-pressing Machines

MT-JPY series flat laminated glass pre-heating pre-pressing machines include loading section, pre-pressing roll, pre-heating chamber, press roll and unloading section. The conveying rollers in the loading section are chromium-plated steel rollers covered with rubber rings. And the rollers in the unloading section are chromium-plated steel rollers covered with heat-resistant rubber wheels. The pre-pressing roll and the press roll consist of 4 large-diameter heat-resistant rubber rolls. The rollers in the heating chamber are asbestos rollers



Major technical features:

1. The conveying rollers and the press roll use the same one drive system, thus obtaining a good synchronization.
2. The speed control is stepless.
3. The pre-heating temperature can be automatically adjusted and displayed.
4. The pressure of the press roll can be adjusted and made constant automatically.
5. The rollers in the pre-heating chamber are asbestos rollers which can resist high temperature without ageing.
6. The press roll is of high-quality heat-resistant rubber and the hardness is designed reasonable.

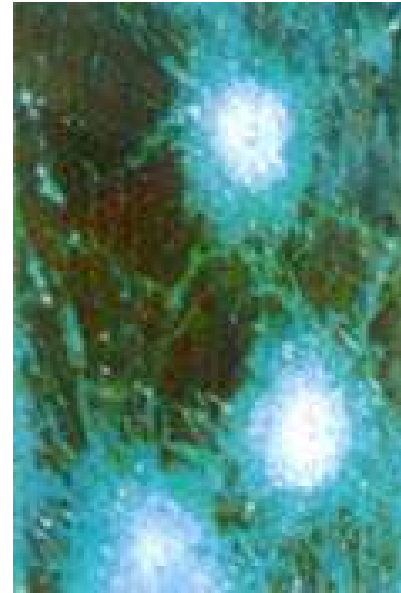
Technical data:

Max glass size: 3000×5000mm

Min glass size: 300×300mm

Max processing thickness: 40mm

Max power capacity: 72Kw



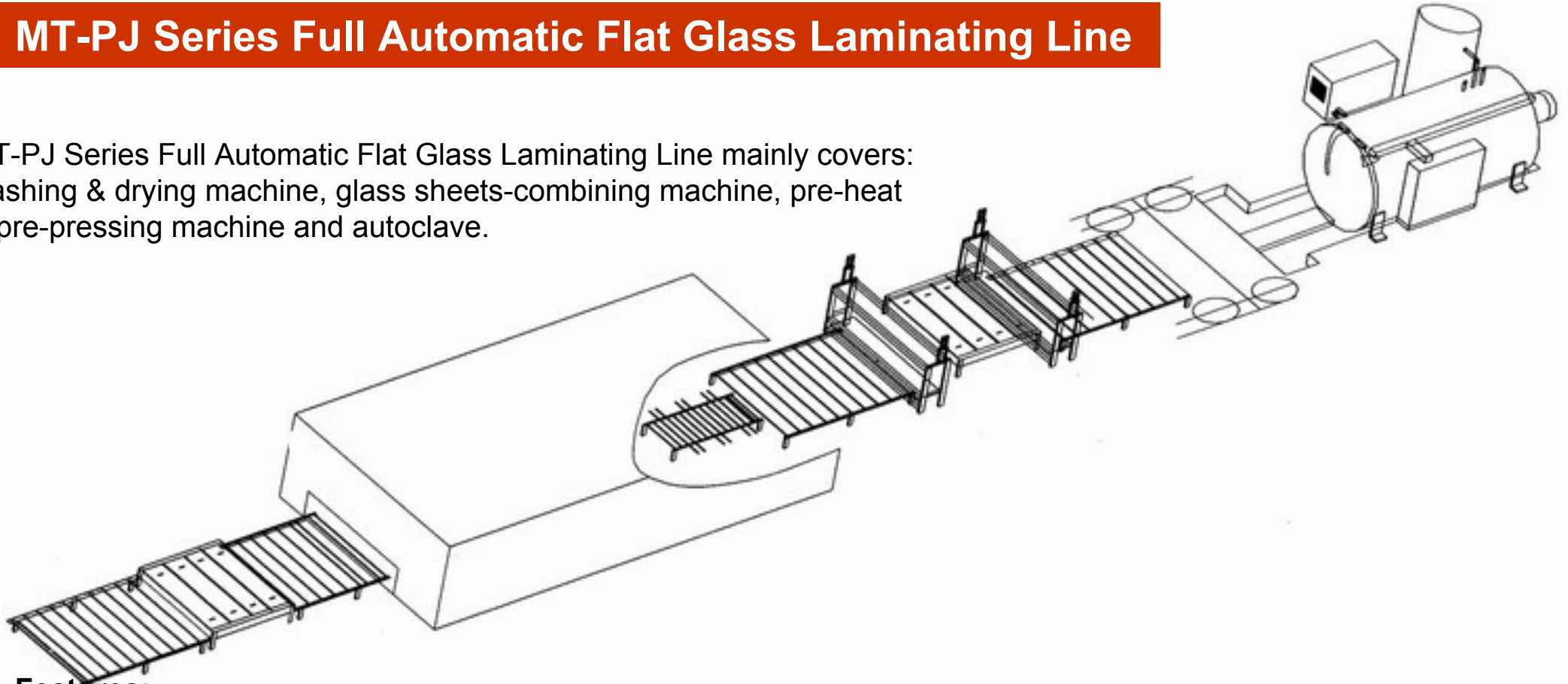
The photo shows our bulletproof glass result in actual bullet shooting examination

Main technical parameters and outer dimensions of MT-GY series bent/laminated glass vacuum pre-heating pre-pressing machines

Type	Specification	Output	Installed Capacity	Outer Dimensions
MT-JY1	1800 × 800mm	25 pairs/h	62kW	8600 × 2000 × 2400mm
MT-JY1	1800 × 800mm	40 pairs/h	78kW	9600 × 2000 × 2400mm
MT-JY1	2200 × 1000mm	25 pairs/h	72kW	8600 × 2400 × 2500mm
MT-JY1	2200 × 1000mm	40 pairs/h	85kW	10000 × 2400 × 2500mm
MT-JY2	2400 × 1500mm	15 pairs/h	90kW	9800 × 2500 × 1600mm
MT-JY2	2400 × 1500mm	20 pairs/h	108kW	10800 × 2500 × 1600mm
MT-JY2	2600 × 1600mm	20 pairs/h	118kW	10800 × 2800 × 1600mm

MT-PJ Series Full Automatic Flat Glass Laminating Line

MT-PJ Series Full Automatic Flat Glass Laminating Line mainly covers: washing & drying machine, glass sheets-combining machine, pre-heat & pre-pressing machine and autoclave.



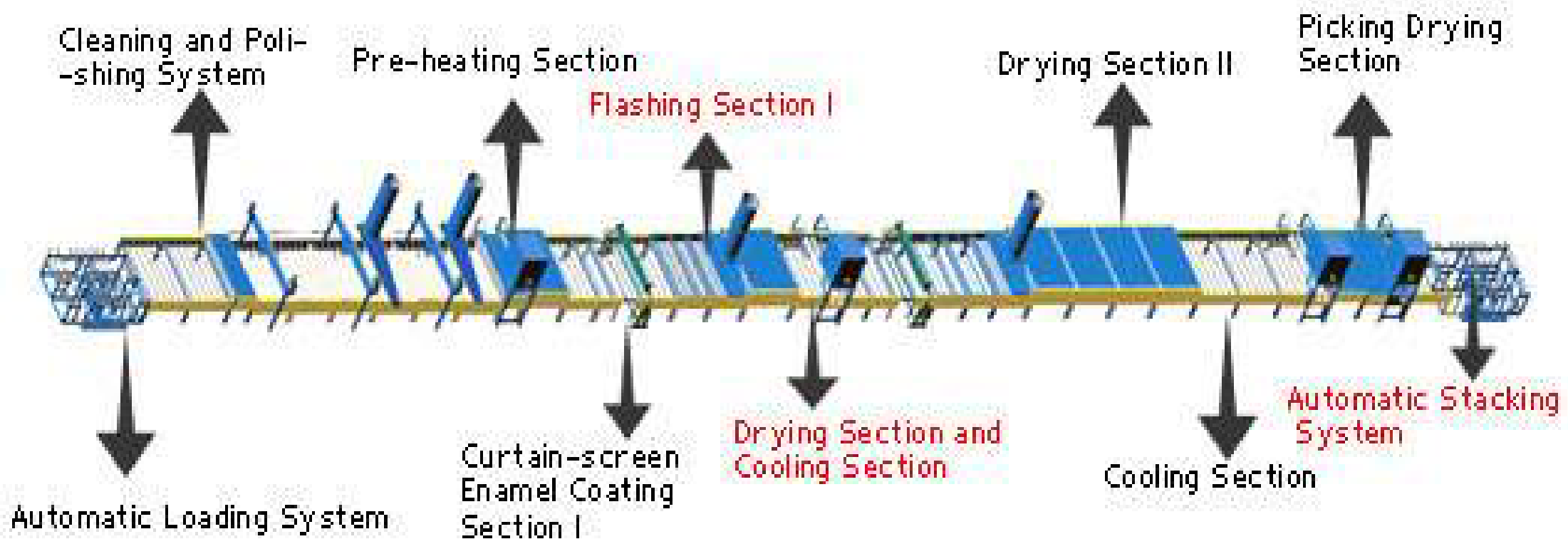
Features:

1. Full automatic control for detailed produce course, powerful self-diagnosis function, easier and convenient operation
2. Full automatic PVB cutting and laying
3. Adjustable press-rollers' pressure according to needs, automatic pressure balance
4. High-grade heat preservation material with better performance
5. Well-proportioned temperature by related equilibrium system in autoclave, stable and reliable product quality
6. Reasonable design for equipment unites structure, safety and reliant machine running
7. Savable product parameters, adjustable process data on line
8. Optional machine species according to clients' needs to meet detailed requirement

Full-automatic Mirror Silvering Line

The Full-automatic mirror silvering line designed and manufactured by our company are equipped with the automatic loading, unloading and stacking system, central computer-controlled automatic conveying system and the system of three-layer metal chemical coating and two-enamel-film protection on the mirror back, matching with the international first-rate mirror silvering process. Better product quality and first-class after-sale service are our aim and developing basis.





Automatic Loading System

The full-automatic hydraulic loading system has a fine mechanical performance and running stability, improving the production efficiency greatly.

Cleaning and polishing system

Adequate cleaning and polishing on all the parts will lay a good physical and chemical foundation for the sticking of metal coatings.

Copper Coating

A copper layer is put on the silver layer as a sacrifice to further protect the chemical stability of the silver layer in the atmosphere.

Tin Coating

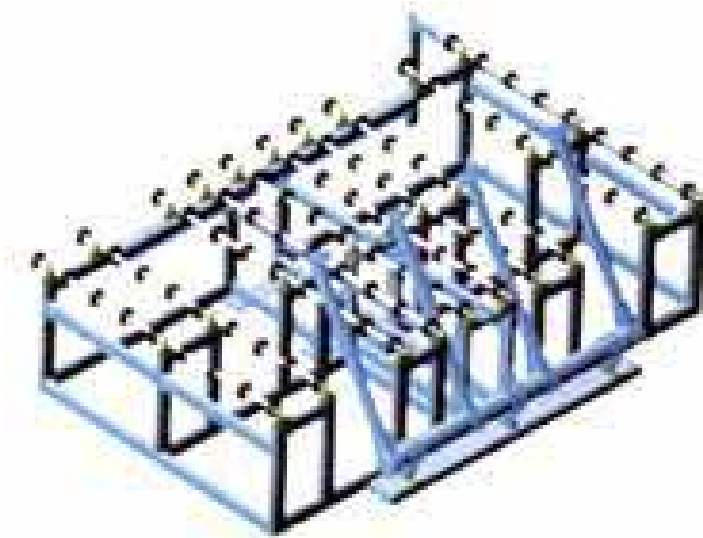
The tin coating is the transition layer for the combination of the reflective layer (silver layer), forming a strong net-type structure between the tin layer and the glass surface.

Silvering Section

Silvering section is the most important part of the production line. The machine designed by our company has a good mechanical performance and an electric control system, fully guarantee the specific technical requirement of this section.

Pre-heating Section

The metal coating will be preheated after it is dried by air, reducing the negative effect of the water between the metal layers. The electric inter lock of the rollers and the heating system can prevent glass breakage in the furnace.



Curtain-screen Enamel Coating Section I

Enamel coating on the metal layer can further improve the stability of the silver coating and the product quality. Such curtain-screen enamel coating will not only minimize the pollution to the environment but also improve the homogeneity of the enamel layer on the back of the mirror.

Flashing Section

The flashing is to evaporate the great amount of organic diluent in the enamel for the safety and reliability of further heating.

Drying Section and Cooling Section

Adequate radiant heating by infrared rays of mid-wave is used for the glass. Better mechanical sealing guarantees the efficiency of the thermal energy. The excellent computer control system for conveying makes the running speed more accurate and the enamel layer more homogeneous.

Cooling Section

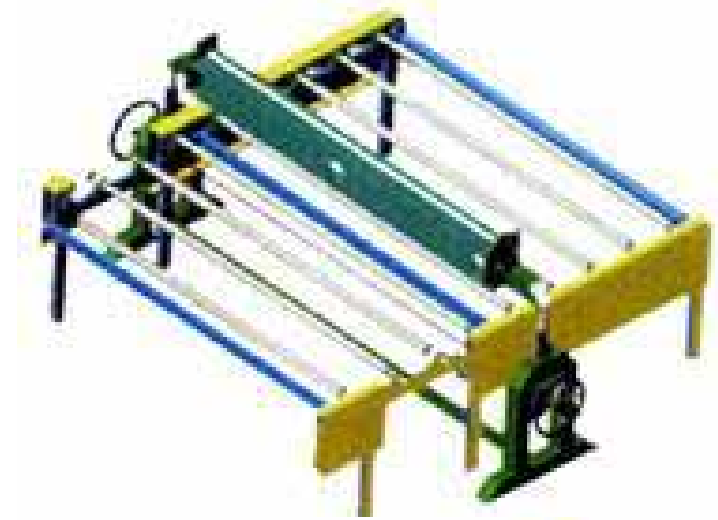
Natural cooling and forced cooling guarantee the homogeneous cooling of the mirror, thus increasing the end-product rate.

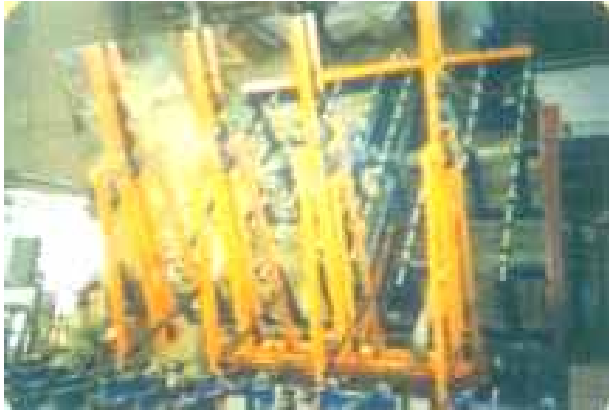
Pickling Drying Section

The cleaning and drying of both sides of the mirror will lay an all around foundation for the better quality of the product.

Automatic Stacking System

Like the loading system, the full-automatic unloading and stacking system can sufficiently improve the production efficiency and labor efficiency.





Automatic loading



Washing



Silvering



Coppering



Pre-heating



Paint Curtain



Cooling



Automatic unloading & stacking

Technical Data of MT-series Mirror Silvering Lines

Type	Length of Production Line (loading and unloading sections not included)							
	Type MT-DY-A (including 1 curtain-screen enamel coating)	45m	54m	65m	78m	94m	110m	123m
Type MT-DY-B (including 2 curtain-screen enamel coatings)	58m	70m	84m	100m	121m	141m	157m	175m
Production Speed (m/min)	1	2	3	4	5	6	7	8

Output of MT-series Mirror Silvering Lines (M²)

Production Speed (m/min)	Glass Width (mm)									
	1600		2000		2200		2600		3300	
	Day	Year	Day	Year	Day	Year	Day	Year	Day	Year
1	615	147600	768	184320	845	202800	998	239520	1230	295200
2	1230	295200	1536	368640	1690	405600	1996	479040	2460	590400
3	1845	442800	2304	552960	2535	608500	2994	718560	3690	885600
4			3072	737280	3380	811200	3992	958080	4920	1180800
5							4990	1197600	6150	1476000
6							5988	1437120	7380	1771200
7									8610	2064000
8									9840	2361600

Note: The total end-product rate is calculated as 80% based on 8 hours production each day, 240 days per year.

Export Record of Tempered Glass Production Line

(By the end of 2004)

UNITED KINGDOM

SPAIN

GREECE

NORWAY

TURKEY

POLAND

RUSSIA

UKRAINE

U. A. E.

SAUDI ARABIA

OMAN

EGYPT

LYBIA

NYGERIA

LEBANON

IRAN

INDIA

SINGAPORE

INDONESIA

KOREA

AUSTRALIA

HONGKONG

BULGARIA

TAIWAN

MEXICO

SYRIA

ITALY

KUWEIT

BURMA

SOUTH AFRICA

Service

- **Advanced and reliable technology & engineering**
- **Procurement, manufacture and delivery of the goods**
- **Project management**
- **Construction, installation and commissioning**
- **Technical service**
- **Training program**
- **Service after completion of the project**
- **Financing assistance and export credit**
- **Other services and functions upon request**

CREATE THE FUTURE



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