Glass Processing Machines

CREST TECHNOLOGIES

Product lineup

GLASS CONTINUOUS BENDING MACHINE

Bending of small diameter R is possible by putting the glass on the mold and bending it.
We have a good track record in automotive applications, which is a recent trend.

CHEMICAL STRENGTHENING MACHINE

Cover glass for smartphones and other thin and small-sized glass that cannot be used with air-cooled reinforcement can be strengthened.
No softening deformation or warpage due to reinforcement.

GLASS HORIZONTAL BENDING & TEMPERING MACHINE

The air-cooled reinforcement unit enables reinforcement after bending, so it can be used for a wide range of applications such as building applications.

GLASS HORIZONAL TEMPERING MACHINE

Air-cooled tempering equipment capable of producing tempered glass about three to five times that of ordinary flat glass.
Can also be used for large sizes.

Bend Glass

Glass Bending machine

Thermal bending glass molding machine that can handle various sizes and curvatures

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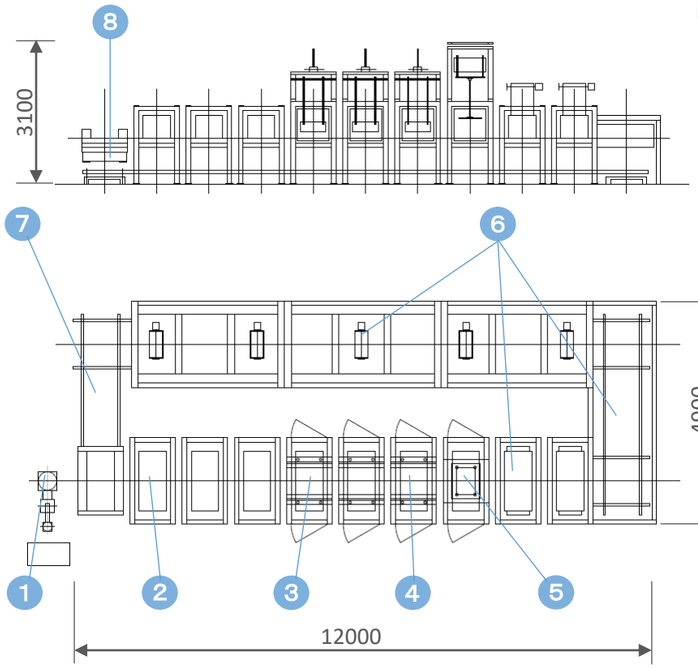
Example of layout



1 Substrate transfer robot

2 Heating furnace (Preheating)

3 Heating furnace (Bending)

4 Heating furnace (Partial heating & Vacuumize)

5 Heating furnace (pressurized)

6 Annealing furnace (slow cooling)

7 Return unit

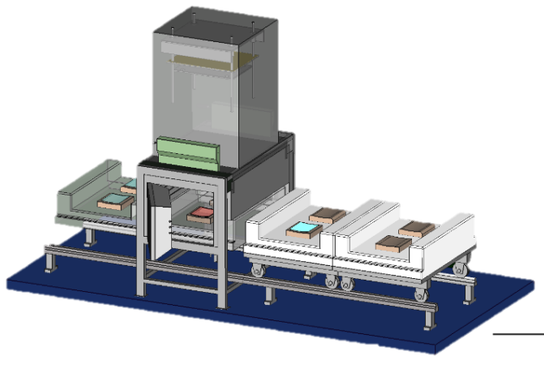
8 Transport trolley

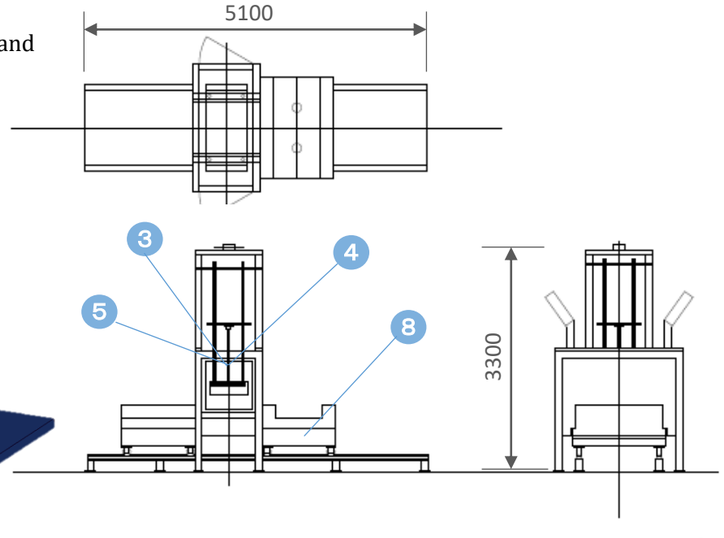
Manufacturing

This is a continuous furnace for mass production.
High throughput by preheating, bending, and annealing in multiple furnaces.
High-quality bending is possible by taking enough time for annealing.

R&D

This is a small machine that performs preheating, bending, and annealing in a single furnace or a small number of furnaces.
We propose it for experiment and evaluation and for small-lot production.





GLASS CONTINUOUS BENDING MACHINE

This is a heated glass bending device capable of producing bent glass continuously, enabling excellent quality bending through temperature control through the know-how accumulated over many years.
We have a proven track record in deliveries for automotive instrument panels, which are a recent trend, and are equipped with devices that can accommodate various sizes and curvatures to meet customer demands.

＜Features＞

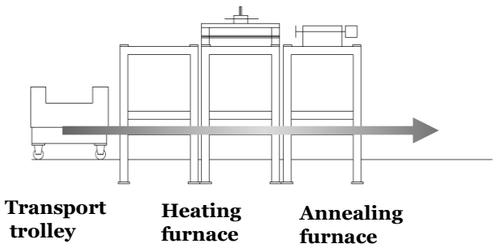
- Equipped with three process functions in addition to self- weight bending, Production of various bent glass is possible.
- Capable of producing glass products for a wide range of applications, including automotive, architectural, and furniture applications.
- High throughput is possible by adopting a continuous furnace.
- We will design the equipment according to the customer's request.

＜Delivery record＞

- In addition to domestic and overseas glass processing manufacturers, Delivered to major LCD manufacturers overseas.

Equipment Composition

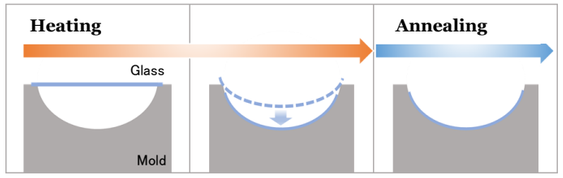
Our bending equipment consists of a heating furnace, a slow-cooling furnace, and a Transport trolley.
The heating furnace can be equipped with a partial heating system, suction system, and pressurization system, and can be molded into various shapes.



Molding method

1. Place glass on the mold on the Transport trolley and gradually heat the glass to near the softening temperature in the heating furnace.
2. The glass reaching the softening temperature bends along the mold.
3. Curved glass is cooled slowly in a slow-cooling furnace to prevent distortion and warping.

* Temperature control in the furnace for heating and slow cooling is an important know-how and features.



●Equipment Specifications

Glass size	Custom-made
Glass thickness	Custom-made
Bending process	Bending at heating furnace
Furnace	Heating furnace and Annealing furnace
Production volume	Custom-made

Strengthening Glass
Chemical strengthening machine

The possibility of complex shape, ultra-thin, small size tempered glass processing

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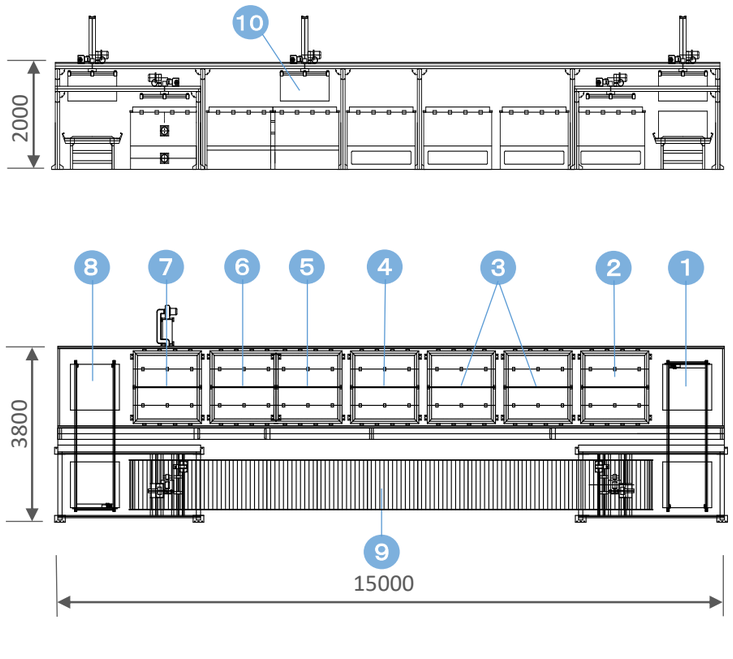
Example of layout



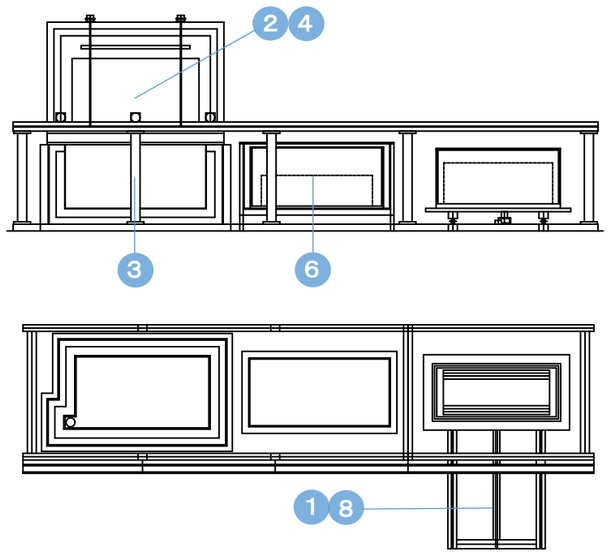
Production Line

We can propose not only reinforced treatment but also post-process cleaning equipment.
Since it is automatically conveyed, it can be used for mass production.

1. **Loading C/V**
2. **Preheating furnace**
3. **Chemical treatment tank**
4. **Annealing furnace**
5. **Hot water cleaning tank**
6. **Warm water cleaning tank**
7. **Drying furnace**
8. **Unloading C/V**
9. **Return C/V**
10. **Transport rack**

Limited Space

Space-saving layout design is also possible
We propose a compact layout by performing preheating and slow cooling in the same furnace.



GLASS CHEMICAL STRENGTHENING MACHINE

Chemical tempering equipment replaces ions on the glass surface and strengthens the glass. Compared with air-cooled tempering, this equipment does not generate softening deformation, warpage, etc.
The temperature distribution in the chamber, which is important for strengthening, is made uniform by our proprietary technology, and variations in stress values are reduced to a very small extent.

＜Features＞

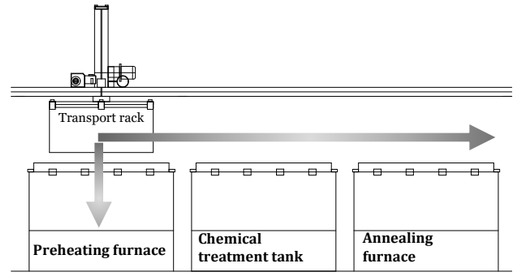
- Equipment design that can accommodate various sizes and lots according to customer requirements.
- Structure with minimal temperature difference in the chamber and very little unevenness in reinforcement.
- All processes are automated and can be managed by one worker.

＜Delivery record＞

- Japan's domestic and foreign glass processing manufacturers, electronic equipment manufacturers, Major smartphone manufacturers, etc

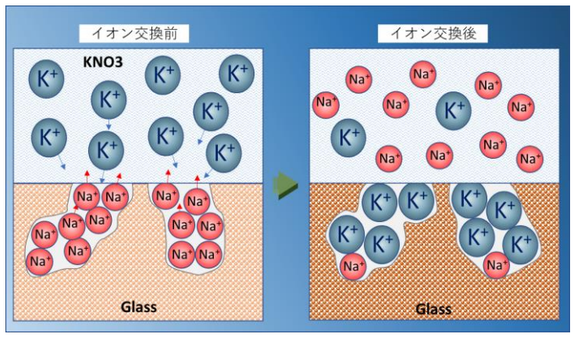
Equipment Composition

Our reinforcement equipment consists of a preheating furnace, a treatment tank, a slow-cooling furnace, a hot water tank, and a hot water tank.
Since automatic conveyance is used between each process, labor is saved.



Processing Method

1. Transfer the metal cassette containing the glass to the rack.
2. After preheating the rack in the preheating furnace, immerse the rack in a potassium nitrate-filled treatment tank (the immersion time depends on the required stress value and the depth of the compression layer).
3. Sodium on the glass surface and potassium in the liquid are replaced, and a compressive stress layer is formed due to the difference in diameter.
4. After completion of immersion, move to the slow cooling furnace to prevent warping and slowly cool down to room temperature.
5. After completion of cooling, move from the hot water washing tank to the warm water washing tank and wash off the potassium nitrate.



In the glass surface, Na+ is replaced by K+.
According to the ion diameter, the compressive stress layer is formed.

●Equipment Specifications

	Case.1	Case.2	Case.3	Case.4
size	Φ50.8mm	9.1inch	1,000×2,400mm	1,000×3,000mm
Production Quantity	500000 pieces / month	900000 pieces / month	According to the stress value	According to the stress value
Power Consumption(kw)	127	245	320	350

CREST TECHNOLOGIES

Laminate glass
Tempered glass
Glass Processing Machines

Roller type thermo-bending machine that can be molded into V-shapes

CREST TECHNOLOGIES

GLASS HORIZONTAL BENDING & TEMPERING MACHINE

This is a roller-type glass bending device employing a unique press method and is suitable for glass bending with a thickness of 4 mm or more.
They are mainly used in a wide range of applications, including construction (curved glass doors, windows, showcases, etc.), furniture, home appliances, and instrument covers.
Combined with a cold air reinforcement unit, it can be bent and then processed into tempered glass.

＜Features＞

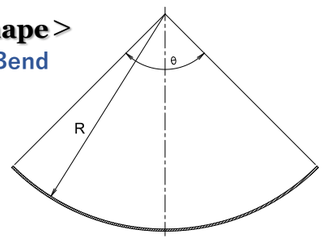
・Supports glass thickness of 4 mm to 12 mm.
・Can be formed into V-shaped or ⌣ by using a special press in addition to a simple arc.
・Optional installation of air-cooled reinforcement unit

＜Example of bent glass＞

・It is possible to produce bent glass of various shapes by a unique press method and a roller type heating furnace. By using the optional air-cooled tempering unit, it is possible to process the glass into tempered glass, which is about 3 to 5 times stronger than ordinary float glass.

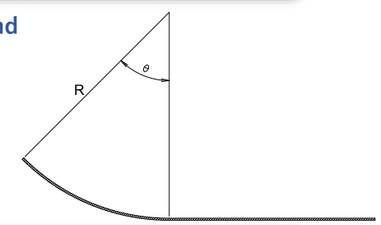
＜Bending Shape＞

●Cylindrical Bend



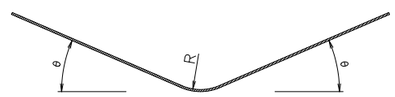
Glass thickness	4mm～6mm	8mm～12mm
Maximum R	400R	500R
Maximum θ	90°	90°

●Side Bend



Glass thickness	4mm～6mm	8mm～12mm
Maximum R	400R	500R
Maximum θ	45°	45°

●V Shape Bend ※Use special press



Glass thickness	4mm～6mm	8mm～12mm
Maximum R	90R	150R
Maximum θ	30°	30°

● ⌣ Shape Bend ※Use special press

Glass thickness	4mm～6mm	8mm～12mm
Maximum R	90R	150R
Maximum θ	30°	30°

＜Tempering unit＞

・Glass heated in the heating furnace is quickly conveyed to the press bending, strengthening, and cooling unit sections.
In the reinforcing unit section, the glass is bent to the specified shape, and then rapidly cooled by air blown from the pipe to form a compression layer on the surface to strengthen it.
After being strengthened in the unit, glass conveyed by the conveyor is slowly cooled by the vertical cooling fan on the conveyor before being transported.

● Equipment Specifications

	Case.1	Case.2	Case.3	Case.4
Max size(mm)	915×2,135	1,220×2,440	1,500×2,500	2,000×3,000
Thickness(mm)	3.2～12	3.2～12	3.2～12	3.2～12
Production quantity(㎡)	200/5mm/8H	300/6mm/8H	280/8mm/8H	290/12mm/8H
Power Consumption(kw)	380	480	520	600

GLASS HORIZONAL TEMPERING MACHINE

This is an oscillation type roller conveyor type air-cooled glass tempering device.
Since flat glass can be strengthened from small to large dimensions, tempered glass for a wide range of applications can be manufactured.

＜Features＞

・Short heat-up time.
・Less scratches occur due to ceramic rollers.
・Easy operation.
・Equipment size can be selected upon request.

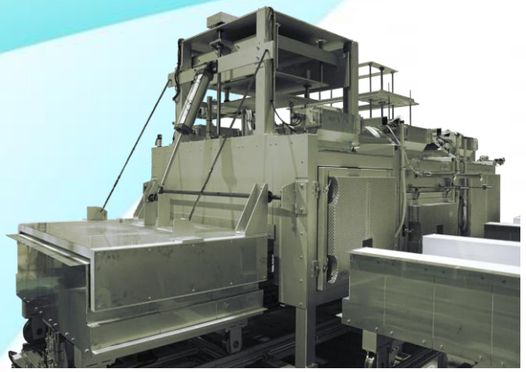
●Equipment Specifications

	Case.1	Case.2	Case.3	Case.4
Max size(mm)	610×915	1,220×2,440	1,525×3,660	2,440×4,757
Thickness(mm)	4～19	4～19	4～19	4～19
Production quantity(㎡)	100/4mm/8H	550/4mm/8H	1035/4mm/8H	2070/4mm/8H
Power Consumption(kw)	310	527	719	1,086

Delivery record

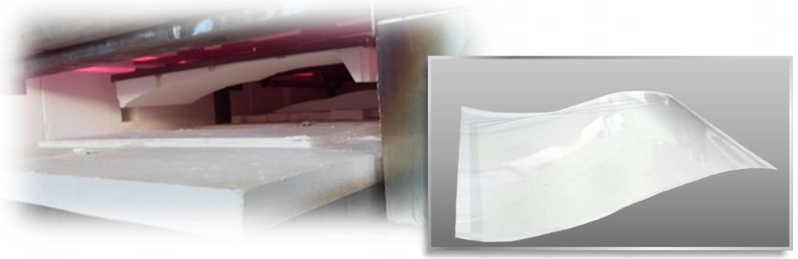
Production of Automotive Instrument Panel

Instrument Panel Production Line



As the glass bending devicet for automotive instrument panel, it being applied by European automobile manufacturers.

According to customer needs, we propose different schemes for experiment small-lot production and mass production.

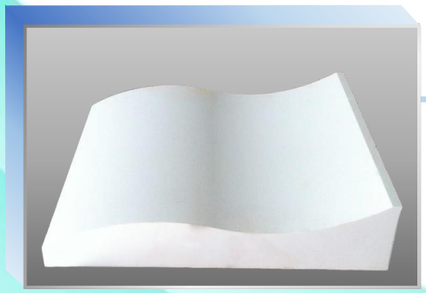


Production of Automotive Side Mirror

Side Mirror Production Line

Integrated with pallet injection machine, cutting machine, washing machine, glass bending machine, special-shaped glass cutting machine, chamfering machine etc.

It can be applied by global automobile manufacturers.



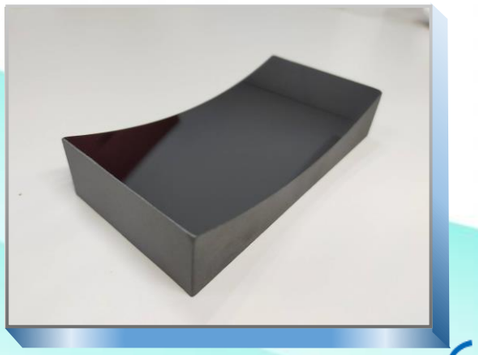
GLASS MOLD

For accommodating various sizes and textures to meet customer demands, the mold is an important part of glass bending device.

We can propose the mold with special material, which for processing of large-size panel cover glass and ensuring high precision.

Since the mold has wear resistance and thermal shock resistance, it is free maintenance and saving costs.

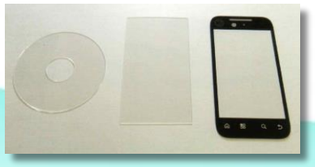
For information about mold products, please contact us.



Chemical Strengthening of Smartphone Cover Glass

Chemical Strengthening Machine

As the glass strengthening devicet for cover glass of smartphones, it can be applied by American mobile manufacturers.



In addition to the cover glass of smart phones, it can also be used to strengthen disks and CDs.

CREST
TECHNOLOGIES

Corporate Profile

Company Information

Company Name	CREST TECHNOLOGIES co., Ltd
President and CEO	Yuya Fujikawa
Establishment	June 9, 1999
Employees(total group)	285
Capital	JPY 100,000,000
Head Office Location	NAGOYA PRIME CENTRAL TOWER 8F, 2-27-8 Meieki, Nishi-ku, Nagoya, Aichi, JAPAN 451-0045 TEL. +81-52-566-4555(main line) FAX. +81-52-566-4556

Offices Network

【Japan】
- Nagoya Service Satellite
- Yokkaichi Office

【China】
- SOLEX CHINA
- SOLEX CHINA(Shanghai Office)

【Korea】
- CREST TECHNOLOGIES KOREA
- CREST TECHNOLOGIES KOREA (Hwaseong Office)

【Taiwan】
- CREST TECHNOLOGIES TAIWAN
- CREST TECHNOLOGIES TAIWAN (Tainan Office)

Corporate History

June. 1999	SOLEX co., Ltd was established in Nagoya, Aichi
April. 2004	Nagoya Service Satellite was established in Nagoya Aichi
December. 2007	Head Office was moved to Meieki Minami 1, Nagoya, Aichi
March. 2008	K.T.S.C co., Ltd was established in Korea
August. 2009	SOLEX co., Ltd was established in Seoul, Korea
October. 2009	SOLEX co., Ltd was established in Taichung, Taiwan
March. 2011	SOLEX China co., Ltd was established in Beijing, China
June. 2014	SOLEX Korea was moved to Cheonan, Korea
April. 2015	SOLEX Taiwan was established in Tainan, Taiwan
July. 2015	SOLEX China was established in Shanghai, China
October. 2015	Kusatsu Office was established
May. 2016	SOLEX Taiwan was established in Hsinchu, Taiwan
August. 2016	Increased capital of SOLEX co., Ltd to 100 million yen
March. 2017	Head office was moved to Meieki 2, Nishi-ku, Nagoya, Aichi
	The name of SOLEX co., Ltd was changed to CREST TECHNOLOGIES co., Ltd
November. 2019	Nagoya Service Satellite was moved to Nakagawa-ku, Nagoya

Business fields

＜Product Services＞

We install and maintain semiconductor production facilities including silicon wafer washers and carrier robots to support stable operation of production sites.
We meet demands in overseas production factories as well.

＜Engineering Business＞

It is possible to bend glass of various sizes and shapes by vacuum drawing and pressing machine not only the glass bending by its own weight.
Custom-made design is also possible according to the customer's specifications. In addition, we provide various engineering services from hardware to software development, such as investigation and repair of parts / units for which production has been discontinued or manufacturer support has ended.

＜Field Services＞

We provide after-sales services for control panels of buildings and office and shopping complexes and for home appliances and equipment.
For shopping complexes, we mainly modify and maintain control panels.
The transfer equipment for automobile manufacturing, logistics and transportation industries, we also provide maintenance service and after-sales service.

＜Technical Communication＞

We create and translate various documents including instruction manuals of industrial machinery.
Our translation services are available in 30 languages.
We also create and translate video materials extensively.
We offer language lessons and interpretation services as well.

CREST
TECHNOLOGIES

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