Service & Technology

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Serving Global Customers for More Than 40 Years

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2018E v1.0

COOLTEMPER®

Safety Glass Systems

- Horizontal Tempering Furnaces
- Chemical Tempering Furnaces
- Glass Bending Furnaces
- Print Drying Furnaces
- PVB Lamenting Lines
- Heat Soaking Ovens
- Glass Washing Machines

Who We Are

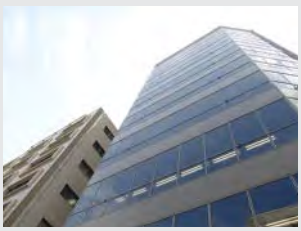
We Care and We Deliver

As one of the world's leading glass processing machinery manufacturers, Cooltemper is synonymous for the supply of energy efficient, cutting-edge technology equipment, built to the highest quality standards. As a trusted partner by the world's leading glass companies, Cooltemper is recognized, not only for its standard equipment but also for its bespoke custom fit designs and innovations built around its customers' requirements.

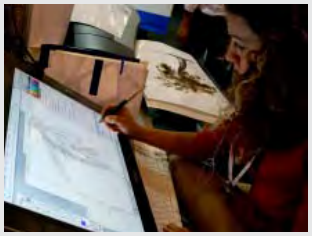
Manufacturing from three modern factories, the company has a total of 24,000 M2 (258,333 Sq/Ft) of capacity, 200 highly skilled engineers / employees serving global customers from its European and Asian offices. As an ISO 9001-2000 certified manufacturer and supplying to over 34 different countries, Cooltemper also complies with world-wide CE, UL, ASME & CSA standards.

With a company policy of constant re-investment in products and new technology, Cooltemper aims to keep four to five years ahead of its competitors. For this reason we are internationally renowned for supplying reliable, energy efficient, quality products. Using the best & most reliable purchased components on the machines is also a very important aspect to our business as no company can manufacture all the parts required on such complex machinery.

The company has a number of established sales agents based around the globe which offer, not only sales support but crucially, after sales service. This is important to us and our customers. To guarantee that the customers, Cooltemper will consistently manufacture its product above industry standard. We have the duty to offer personnel re-training, spare parts and after sales service.








We are a quality provider of solutions and services to the global glass processing industry. With offices and agents around the world, we can help your business move toward a brighter future. We manufacture glass processing equipment for:

What We Do

Growing with Our Customers

- **Architectural Glass**
- **Residential Glass**
- **Interior Glass**
- **Insulated Unit Glass**

- **Furniture Glass**
- **Home Appliance Glass**

- **Small Size Glass**
- **Ultra Thin Glass**
- **Heat Treated Glass**

- **Curved Glass**
- **Solar Panel Glass**

- **Monitor Display Glass**
- **Mobile Device Glass**
- **Optical Device Glass**
- **Touch Screen Panel Glass**

- **Automotive Glass**
- **Transportation Wind Shield**

Thin Glass for Heat Strengthened 2.0mm & Full Tempered 2.5mm to EN 12150 standard

- RazorJet DC (Double chambers furnace with advanced thin glass tempering technology)
- RazorJet CT (Continuous furnace with advanced thin glass tempering technology)

Re-Circulated Convection Tempering Technology

- FireJet + (Single chamber top & bottom re-circulated convection blowers)
- FireJet (Single chamber top re-circulated & bottom high speed convection blowers)
- FireJet DC (Double chambers top re-circulated & bottom high speed convection blower)
- FireJet TC (Triple chambers top re-circulated & bottom high speed convection blowers)
- FireJet CT (Continuous top re-circulated & bottom high speed convection blowers)

Compressor Convection Tempering Technology

- Jetstream RT (Single chamber with block matrix heating & convection systems)
- Jetstream DC (Double chambers with block matrix heating & convection systems)
- Jetstream DS (Double-single chamber with block matrix heating & convection systems)
- Jetstream CT (Continuous with block matrix heating & convection systems)
- Jetstream + (Features include advanced line heating & convection systems)
- Jetstream (Features include basic line heating & convection systems)

Specialized Mini Horizontal Tempering Furnace

- MiniJet (Small glass size tempering furnace)

Chemical Tempering Furnace

- Lumina M (Multiple chambers or continuous design for high volume production)
- Lumina S (Single chamber for low volume production)

What We Offer

Best Products & Services

Convection Heat Soaking Oven

- SoakJet + (Combination heat soak testing & EVA laminating oven)
- SoakJet (Heat soak testing oven)

PVB Glass Laminating System

- LaminJet (High or low volume laminating solutions)

Horizontal Glass Washing Machine

- WashJet (Supplied integrated into PVB lines & tempering furnaces)

Glass Print Drying Oven

- DryJet + (High temperature firing and annealing system)
- DryJet (Low temperature drying system)

Glass Bending Oven

- CurvJet (Horizontal glass bending/slumping ovens)

Production Reporting System

- CIC (Cooltemper Information Center - on line production reporting system)

RazorJet

Ultra Thin Glass Tempering Furnaces

RazorJet is supplied to manufacture fully tempered 2.5mm to EN 12150 standards and heat strengthened 2.0mm glass products for the photo-voltaic and white goods industry.

Glass stress levels of 120 mpa can be achieved. FireJet convection technology is used in the oven section and Cooltemper's unique quenching system guarantee industry leading glass surface and optical quality.

Key features:

- Special quench design for thin glass tempering
- Re-circulated, block zonal, forced air delivery system
- Energy efficient insulation, heaters, quenching systems, drives and controls
- Block matrix heaters using energy saving, pulse power input modules
- Windows based interphase controls
- Internet modem connection

Extended models:

RazorJet DC

Maximum glass sheet size:	1000 x 2000mm (40” x 78”)
Glass thickness:	2.0~6mm
Production speed:	Clear float glass 2~2.5mm (5/64”): 45 sec/load, 80 loads/hr.

RazorJet CT

Maximum glass sheet size:	1000 x 2000mm (40” x 78”)
Glass thickness:	2.0~6mm
Production speed:	Clear float glass 2~2.5mm (5/64”): 36 sec/load, 100 loads/hr.

FireJet Series

Tempering Furnaces with Re-circulated Convection Blower Systems

The new FireJet tempering furnaces incorporate re-circulated zonal convection fans on the top of the oven and a turbo blower fan feeding the bottom convection system. Along with other unique advanced technology features this enables the furnace to temper float glass at a faster production rate than all its competitors whilst maintaining the absolute best glass quality.

Advanced features include:

- **CycleGUARD** mixed furnace bed loading system with inCycle technology enabling no loss of production when changing glass types and maintaining ultimate glass quality.
- **ScanGUARD** advanced production monitoring & reporting system.
- **LoadGUARD** automatic product recognition and recipe loading system.
- **StressGUARD** on line anisotropy measuring & recording system.

Extended models:

FireJet+

Glass width:	1.2M~2.8M (47” - 110”) (Standard and Customized Sizes Available)
Glass length:	Maximum 8M (315”)

FireJet

FireJet DC

Glass thickness: 2.8mm~19mm (1/8” - ¾”) (with 25mm 1” option)

FireJet

Glass width: 1.2M~3.2M (47” - 130”) (Standard and Customized Sizes Available)
Glass length: Maximum 8M (315”)
Glass thickness: 2.8mm~19mm (1/8” – ¾”) (with 25mm 1” option)

FireJet DC/DS

Glass width: 1.2 - 3.2 Meters (48” - 126”)
Glass length: Maximum 8 Meters (315”)
Glass thicknesses: 2.8 - 19mm (1/8” - ¾”) (with 25mm 1” option)

FireJet CT

Glass width: 0.8M~2.2M (31” - 86”) (Standard and Customized Sizes Available)
Glass thickness: 2.8mm~10mm (1/8” – 3/8”)
Production speed: Depends on production quality: 100~300mm/sec (4” – 12” per sec)

PowerJet Series

Tempering Furnaces with Compressed Convection & Matrix Heating Systems

The latest PowerJet tempering furnaces incorporate updated Matrix heating and compressed convection systems with Window based touch screen control system. It allows speedy production with high tempering quality for wide ranges of glass types. It also requires minimum effort in terms of maintenance and low running cost.

Advanced features include:

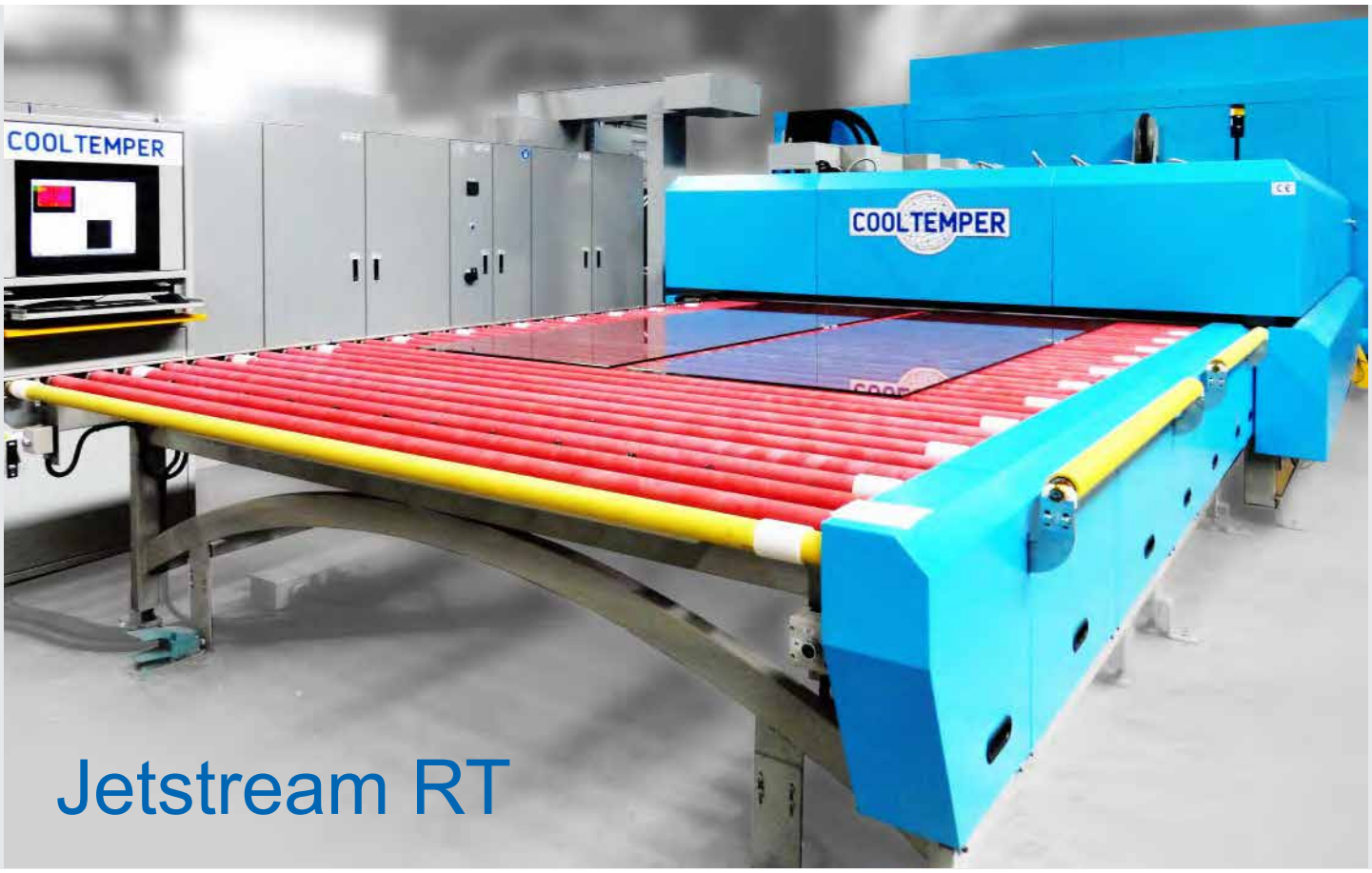
- Top and bottom, Matrix compressed convection and heating systems
- Energy efficient insulation, heaters, quenching systems, drives and controls
- Space saving single quench/cooling fan design
- Inverter driven quench/cooling fan
- Automatic quench air balance adjustment system
- Independent top & bottom quench area nozzle adjustment
- Automatic, multi position, self-tracking glass load system
- Windows based, touch panel control station
- Internet modem connection

Range of models:

4896	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm
48120	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm
6096	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm
60120	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm
60144	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm

7296	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm
72120	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm
72144	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm
84120	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm
84144	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm

84160	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm
96144	PJ4	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm
96160	PJ4	4~19mm
	PJ4S	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm
96190	PJ4S	4~19mm
	PJ5	5~19mm
	PJ6	6~19mm



Jetstream Series

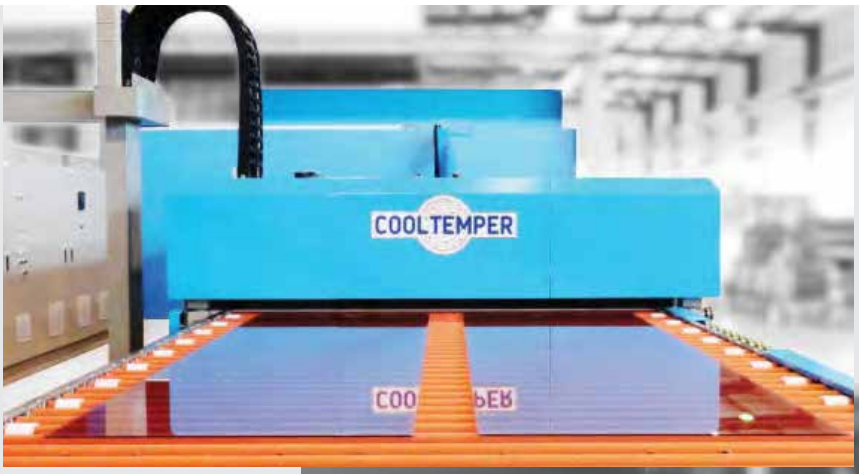
Tempering Furnaces with Compressed Convection Systems

Jetstream furnaces are designed with volume and versatile production in mind. They offer superior glass quality, fast cycle times, extremely low running costs and little maintenance. It is the perfect all-rounder for both large and small glass production facilities. Technically advanced in design but simple to use & operate.

Key features:

- Top and bottom, aspirated block convection system with program specific pressure profiling enabling convection area profiling across and down the length of the oven area
- Energy efficient insulation, heaters, quenching systems, drives and controls
- Block matrix heaters using energy saving, pulse power input modules
- Space saving single quench/cooling fan design
- Inverter driven quench/cooling fan
- Automatic quench air balance adjustment system
- Independent top & bottom quench area nozzle adjustment
- Automatic, multi position, self-tracking glass load system
- Windows based interphase controls
- Internet modem connection
- Heat strength program 3-12mm thick glass

Furnace sizes/details:



Jetstream+

Jetstream CT

Jetstream+

Glass width:	1.2M~3.2M (47” - 130”) (Standard and Customized Sizes Available)
Glass length:	Maximum 8M (315”)
Glass thickness:	2.8mm~19mm (1/8” – ¾”) (with 25mm 1” option)

Jetstream RT

Glass width:	1.2M~3.2M (47” - 130”) (Standard and Customized Sizes Available)
Glass length:	Maximum 8M (315”)
Glass thickness:	2.8mm~19mm (1/8” – ¾”) (with 25mm 1” option)

Jetstream DC (Double Chambers) / DS (Double-Single) (Triple Chambers Available)

Glass width:	1.2 - 3.2 Meters (48” - 126”)
Glass length:	Maximum 8 Meters (315”)
Glass thicknesses:	2.8 - 19mm (1/8” - ¾”) (with 25mm 1” option)

Jetstream CT (Continuous)

Glass width:	0.8M~2.2M (31” - 86”) (Standard and Customized Sizes Available)
Glass thickness:	2.8mm~10mm (1/8” – 3/8”)
Production speed:	Depends on production quality: 100~300mm/sec (4” – 12” per sec)

MiniJet

Specialized Mini Horizontal Tempering Furnace

MiniJet was designed specifically for tempering tight tolerance/specification, small glass sizes requiring an extremely good optical surface quality. It is typically used in test labs and coating line testing facilities as well as pilot production lines. Products to be tempered would include pressure gauges, viewing glasses and touch screens.

Key features:

- Top and bottom, aspirated convection system with program specific pressure profiling
- Tight roller pitch enabling small glass sizes to be tempered
- Energy efficient insulation, heaters, quenching systems, drives and controls
- Space saving single quench/cooling fan design
- Automatic quench air balance adjustment system with inverter driven quench/cooling fan
- Independent top & bottom quench area nozzle adjustment
- Automatic, multi position, self-tracking glass load system

Furnace sizes/details:

Glass width:	0.6M~0.8M (23” - 32”) (Standard and Customized Sizes Available)
Glass length:	Maximum 1~1.2M (40” - 47”)
Glass thickness:	2.8mm~19mm (1/8” – ¾”) (with 25mm 1” option)
Minimum glass size:	50 x 50mm (2” x 2”)

CIC

COOLTEMPER Information Center Production Reporting System

Glass Temperature Online Monitor > Fast and simple recipe optimization
- Full area glass temperature monitor
- Automatic process, no manual interaction
- Temperature adjustment of scanner for low-E

Production Reporting > Improvement of productivity and production efficiency
- Per each batch:
- Analysis: shift, operator, glass thickness & type and selected time
- Automatic creation per day, week, month and year

Quality Reporting > for certification and complaint management
- Full production documentation
- Heat-up-, convection-, quench & cooling monitor
- Fast and easy interpretation of numbers and diagrams

Energy Reporting > for cost calculation, pricing and energy saving
- Energy consumption per m², batch, shift, operator
- Energy efficiency and 15min peak
- Compressor run time monitoring

Lumina Series

Multiple & Single Chambers Chemical Tempering Furnaces

Lumina M is a high volume multiple chambers chemical tempering furnace used for mass production of thin glass products requiring zero optical distortion via the process of iron exchange. By immersing the glass into a Potassium Nitrate chemical bath, the sodium irons close to the glass surface are replaced by larger potassium ion atoms. As a result of this chemical exchange the glass has a stronger surface layer. Products using chemically tempered glasses include mobile phones, digital cameras, copy machines & aircraft windscreens.

Key features:

- Pre heating glass tanks.
- Reaction time of between 3 – 8 hours (dependent upon stress level required).
- 9 point temperature measurement ±5°C (41°F)
- Heating time: 90~120 minutes.
- Cooling time 90~120 minutes.

Oven sizes/details:

Max glass size (Metric): 08x20 / 12x12 / 15x20 / 18x20 / 18x30 / 20x25 / 20x30
Max glass size (Imperial): 31x78 / 47x47 / 60x78 / 70x78 / 70x120 / 78x98 / 78x120
Post tempering washer tank available upon request.

Lumina S is a low production volume chemical tempering furnace suitable for specialty products or product R&D.

Key features:
Preheater:
- Heating: Room temperature~400℃/450℃ in 90min
- Cooling: 450℃/400℃~100℃ in 90min
- 9 points temperature measurements: +-5℃

Reaction tank:
- Max temperature: 450℃/500℃
- 9 points temperature measurements: +-2℃
- Post tempering washer tank available.

Oven sizes/details:

Max glass size (Metric):	05x05 / 07x07 / 08x10
Max glass size (Imperial):	20x20 / 27x27 / 31x40

DryJet Series

Glass Drying & Firing Furnaces

DryJet+ is used for hight temperature drying, firing glass paint onto the glass surface in the first stage and annealing the glass in the second stage for post processing. Typically a common process for automotive windows.

Key features:

- Energy efficient heating & cooling systems.
- Space saving designs.

Oven sizes/details:

Max glass width (Metric):	0.9M / 2.1M / 2.5M / 3.0M
Max glass width (Imperial):	35” / 82” / 98” / 118”
Heating:	200~600°C (392 - 1112°F)
Speed:	0.4~5M/min (16” - 197” Min)

DryJet

DryJet is used low temperature drying of the ceramic paint onto the glass surface prior to the tempering process. Typically a common process for architectural and interior glass production.

Key features:

- Energy efficient heating & cooling systems.
- Space saving designs.

Oven sizes/details:

Max glass width (Metric):	0.9M / 2.1M / 2.5M / 3.0M
Max glass width (Imperial):	35” / 82” / 98” / 118”
Heating:	200℃ (392°F)
Speed:	0.4~4M/min (16” – 157” Min)

SoakJet Series

Convection Heat Soaking Oven

SoakJet+ is used by architectural glass manufacturers to test and record glass tempering quality in the post tempered glass for nickel sulfide intrusions in compliance to EN 14179-1:2005 (Glass in building Heat-soaked thermally-toughened soda lime silicate safety glass). The SoakJet+ is also equipped with EVA laminating system for low volume production of laminated glasses.

Key features:

- Energy efficient heating & cooling systems.
- Supplied with two loading systems, one for each process.
- Space saving designs to suit customer layout requirements.

Oven sizes/details:

Max glass size (Metric):	21x36 / 21x40 / 25x40 / 25x30 / 25x45 / 30x60 / 33x80
Max glass size (Imperial):	84x144 / 84x157 / 98x120 / 98x177 / 118x236 / 130x315
Heating:	Room temperature ~290℃ in 120 min (554°F in 120 min)
Cooling:	290℃~60℃ in 120 min (554°F - 140°F in 120 min)
Temperature evenness:	+- 3~5℃ (± 37.4 - 41°F)

SoakJet is used by architectural glass manufacturers to test and record glass tempering quality in the post tempered glass for nickel sulfide intrusions in compliance to EN 14179-1:2005 (Glass in building. Heat-soaked thermally-toughened soda lime silicate safety glass)

Key features:

- Energy efficient heating & cooling systems.
- Space saving designs to suit customer layout requirements.

Oven sizes/details:

Max glass size (Metric):	21x36 / 21x40 / 25x40 / 25x30 / 25x45 / 30x60 / 33x80
Max glass size (Imperial):	84x144 / 84x157 / 98x120 / 98x177 / 118x236 / 130x315
Heating:	Room temperature~290°C in 120min (554°F in 120 min)
Cooling:	290°C~60°C in 120 min (554°F - 140°F in 120 min)
Temperature evenness:	+- 3~5°C (± 37.4 - 41°F)

WashJet

Horizontal Glass Washing Machine

WashJet is designed with high volume continuous trouble free production in mind using the very best component parts. Washjet is designed so it can also be integrated into a production line situation and controlled through an IPC system, whether it is a laminating line or tempering furnace, eliminating double handling and increasing productivity.

Key features:

- Pre wash system with motorized loading table
- Six adjustable, anti-cut, long life nylon brushes
- Three, removable, stainless steel hot water tanks with filters
- Stainless steel and aluminum components inside the system
- Energy efficient drives, drying fans and control systems
- Variable speed from 1 to 3.5M/min (138” min)
- PLC control system

Sizes/details:

Speed:	1M~3.5M/min (40”-138” min)
Max glass width (Metric):	1.2M / 1.8M / 2.2M
Max glass width (Imperial):	47” / 70” / 86”

LaminJet

Horizontal PVB Laminating System

LaminJet is designed to suit the specific customer's volumes, product type, location and budget constraints. The systems can be used for both EVA and PVB interlayers. Designed and capable of manufacturing, high volume, stock sheets or bespoke shaped, multi-layer products for, lower volume, tempered and annealed glasses.

Key features:

- Automatic stock sheet loading/unloading.
- Incorporated glass washing & drying machine.
- Energy efficient ovens, drives & autoclave systems.
- Automatic film cutting system.
- Clean room and film storage systems.

Sizes/details:

Max glass size (Metric):	15x30 / 25x40 / 25x50 / 25x60 / 30x60
Max glass size (Imperial):	60x120 / 96x160 / 96x200 / 96x240 / 120x240
Heating:	100~300°C (212 - 572°F)
Speed:	0.5~4M/min (20" – 157" min)
Min glass thickness:	3mm+3mm (1/8"+1/8")
Max glass thickness:	60mm (2 1/3")

CurvJet

Horizontal Glass Bending Oven

CurvJet is a glass bending oven designed to manufacture annealed glass bends for a variety of applications. The system is used to bend architectural facade glass, curved glass display case, interior partition, glass furniture and automotive windshield. The bent glass can be laminated to make a safety glass post bending.

Key features:

- Single, double or triple loading ovens to suit customer volumes.
- Automatic cycle change over between ovens.
- Maximum temperature of 650°C (1200°F)
- Fixed and/or flexible bending modules for volume or bespoke products.
- Energy efficient heating system.
- Variable/adjustable heater positioning.
- Easy loading/unloading design of the glass products.

Oven sizes/details:

Max glass size:	3.3M x 6M (130” X 236”)
Heating temperature:	650℃ (1200°F)
Glass thickness:	2~15mm (5/64” – 5/8”)

Bespoke Solutions

Customized Projects for Various Heat Treatment Applications

Cooltemper is able to offer customers bespoke solution for unique projects. Our engineering capacity allows us to custom design, manufacture, install & commission specialized industrial furnaces for various heat treatment applications for glass and metal.

Based on your technical requirements, exacting product demands and required capacities, we can provide technical advantages for your company's future.

Key features:

- Glass heat treatment line
- Glass coating line
- Glass super tempering furnace (Fire Glass)
- Continuous chemical tempering line
- Super alloy heat treatment line
- Metal heat treatment furnace
- Porcelain enameling furnace

Sales & Support

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