



NorthGlass Online



NorthGlass "WeChat"

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Stock Code: 002613

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Glass Storage System  
Glass Pre-Processing System  
Glass Processing Automation System



### NorthGlass Company Profile

Luoyang North Glass Technology Co., Ltd., simply called as "North-Glass", was established by Mr. Gao Xueming, Chairman of the board, in Luoyang National High & New Technology Development Zone on 18th, May, 1995. In 2011, North-Glass created a precedent in glass deep processing machine industry, going public at Shenzhen Stock Exchange (stock code: 002613). Today, NorthGlass has developed into a high-tech industry group integrating in R&D, manufacturing, sales and service with continuous innovation capability, composed by 5 bases respectively in Luoyang, Shanghai, Tianjin, Beijing and Guangdong.

Adhering to the enterprise spirit of "Innovating forever, Striving for success", NorthGlass independently developed her main products of glass tempering furnace, coating line and upscale processed glass as the core competitiveness. Furthermore, NorthGlass has also expanded her product series with general fans and HVLS industrial fans, glass processing automation system, glass storage system, glass cutting machine, cutting-breaking-grinding-drilling automation line, screen printing machine, automotive glass pre-processing line, etc., up to now more than 300 product models in total.

NorthGlass is one of the strongest and leading manufacturers and technology R&D enterprises in the field of glass deep-processing machinery industry. The annual sales of major product, flat/bent glass tempering furnace, is ranking stable forefront of the worldwide industry within last 17 years since 2002 when the sale amount of furnaces exceeded 100 sets. Accumulatively more than 4400 NorthGlass glass tempering furnaces are running around the world. The coating line developed and produced by NorthGlass is becoming one of the global leading suppliers in glass coating industry and led to a rapid development of coated glass business in China.

Another mainstay product for North-Glass is upscale deep-processed glass, which has been widely applied in a lot of famous architectural projects all over the world, for example "Sun Valley" & "Shiliupu Pier" of EXPO 2010 Shanghai, "Bird Nest" & "Water Cube" of Olympic Games 2008 Beijing, China National Center for the performance arts, New Beijing South Railway Station, Beijing Capital International Airport (Phase III), Shanghai Tower, Abu Dhabi International Airport, Singapore Changi Airport, Vietnam APEC Exhibition Center, main venue of Xiamen BRICS summit, main venue of SCO summit, Deqing forum place of UN Global Geographic Information Management, LA Oceanwide Plaza, US Oracle Headquarters, Leadenhall Building in London, etc.

Meanwhile, NorthGlass is also one of two qualified architectural glass suppliers for the most famous electronics company in the world, for its dozens of retail stores in the world as well as new Headquarters Building in Silicon Valley of USA.

NorthGlass's products have been sold in whole China, moreover exported to more than 100 countries and regions in the world, such as USA, UK, Germany, France, Switzerland, Russia, Japan, India, Brazil, Argentina, Saudi Arabia, Egypt, Turkey, etc., covering all continents of Asia, Europe, North America, South America, Africa, Oceania, etc., via NorthGlass's complete domestic and international

sales and service network.

NorthGlass has more than 20 sets of advanced production testing lines and labs, obtaining the certifications of ISO9001, 3C, CE, UL, etc., and has applied and owned more than 100 patents. NorthGlass is awarded as "the Top Hundred Enterprises of Henan", "the Meritorious Enterprise of Henan" and "the Meritorious Enterprise of Luoyang". In July 2017, "NorthGlass" was recognized as one of China Famous Trademarks in China. The Chairman of NorthGlass Board, Mr. Gao Xueming, was also awarded as "the Representatives of the 30 years of reform and opening up of the national building materials industry".

# NorthGlass History

In 1994, NorthGlass produced the first Made-in-China "Horizontal Roller Hearth Flat/Bent Glass Tempering Furnace".

In 1999, a wholly owned subsidiary "Beijing North Glass Safety Glass Co., Ltd." was established.

In 2005, a holding subsidiary "Shanghai North Glass Technology Industrial Co., Ltd." was established.

In 2008, a wholly-owned subsidiary "Shanghai North Glass Coating Technology Industrial Co., Ltd." was established, by which North Glass took on the mission of filling the blank of domestic commercial coating lines.

In 2009, the most famous electronics company in the world decided to build their Asian flagship retail store in Shanghai, and therefore started the cooperation with NorthGlass of supplying high quality architectural glass for totally 77 stores up to now.

In 2011, NorthGlass went public at Shenzhen Stock Exchange, simply called as "NorthGlass Corp." with stock code 002613.

In 2012, a holding subsidiary "Tianjin North Glass Industrial Technical Co., Ltd." was established with a total investment of 500 million RMB, which rapidly becomes one of the worldwide high quality architectural glass suppliers.

In 2015, NorthGlass merged Shenzhen Juisun and Dongguan Byronic to a new holding joint venture subsidiary "Guangdong North Glass Juisun Glass Technology Industrial Co., Ltd.", which expands NorthGlass product scope into the fields of glass screen printing machine and cutting-breaking-grinding-drilling automation line.

In 2015, NorthGlass celebrated the 20th Anniversary and changed the new LOGO.

In 2016, NorthGlass launched the industrial fund "NorthGlass Fund" together with Lianxun Capital, established a new company "Beijing North Glass SiNest Technology Co., Ltd.", and took the first step into the field of environmentally-friendly building materials for prefabricated house.

In 2017, a holding subsidiary "Guangdong North Glass Electronic Glass Co., Ltd." was established, which expands NorthGlass product scope into the field of electronics glass industry.

In 2018, a holding subsidiary "Beijing North Glass Curtain Wall Technology Co., Ltd." was established, which focus on the R&D, sales and service of high quality architectural glass.

In 1995, "Luoyang North Glass Technology Co., Ltd." was established.

In 2004, NorthGlass developed the new generation glass tempering furnace with "Super Flat & Spotless" technology, which changed the old knowledge that tempered glass must have inherent defects of recognizable iridescence and distortion and brought a new quality concept to worldwide tempered glass industry.

In 2007, a holding subsidiary "Luoyang NorthGlass Taixin Fan Technology Ltd." was established, which expands NorthGlass product scope into fan industry.

In 2008, the first Low-E glass coating line independently developed by Shanghai North Glass Coating Technology Co., Ltd. was put into commercial production, which filled the blank of Chinese Low-E coating lines with commercial production.

In 2010, NorthGlass successfully developed the first super-large bent glass tempering furnace, which can produce the bent tempered glass with size up to 18 meters height and 3.6 meters bent edge. This furnace pushes the world's glass tempering technology to a new high level.

In 2014, as NorthGlass subsidiary, Tianjin NorthGlass Industrial Technical Co., Ltd. signed the contract with the most famous electronics company in the world, to provide the special architecture structural glass to their new headquarters office building.

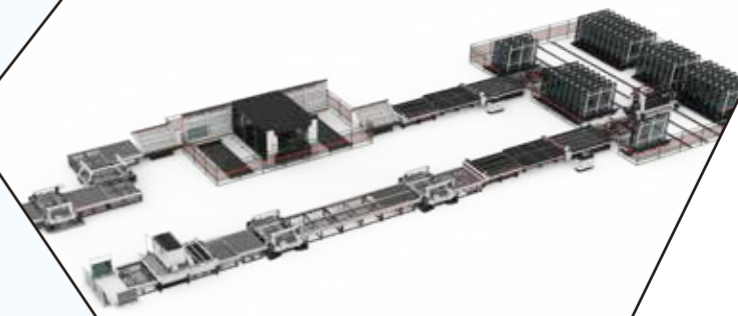
In 2015, a holding subsidiary "Shanghai North Glass Automation Technology Co., Ltd." was established, which opens a new chapter of Industry 4.0 in glass deep processing industry in China.

In 2016, Luoyang NorthGlass Fan Corporation firstly adopted the advanced Tri-Variate Movement Theory into the design of centrifugal fan, successfully completed the task of providing the transformer cooling fan to China's latest Renaissance EMU high speed trains with own national standard.

In 2017, NorthGlass successfully developed the bent glass tempering furnace to produce super-large size cylindrical tempered glass with arc length up to 8m and height up to 4m, as well as the full convection flat tempering furnace to produce flat tempered glass with glass length up to 20m, which provide broader design space to the architects.

In 2018, a holding subsidiary "Zhuhai North Glass Electronic Glass Co., Ltd." was established, which focus on the R&D and production of large-size touch screen panel glass.

◀ Processed Glass

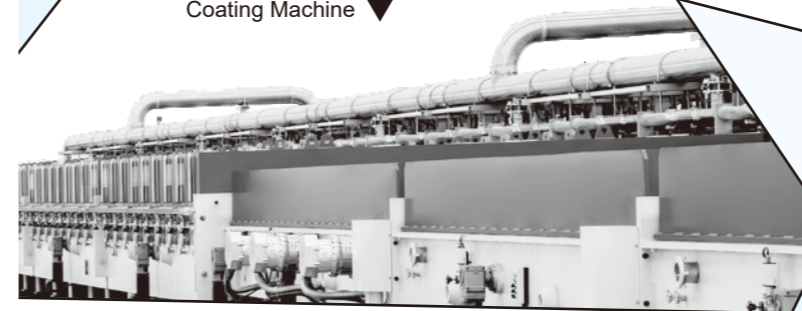


Glass Automation System ▲

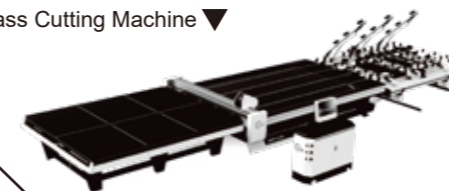
Glass Tempering Furnace ▼



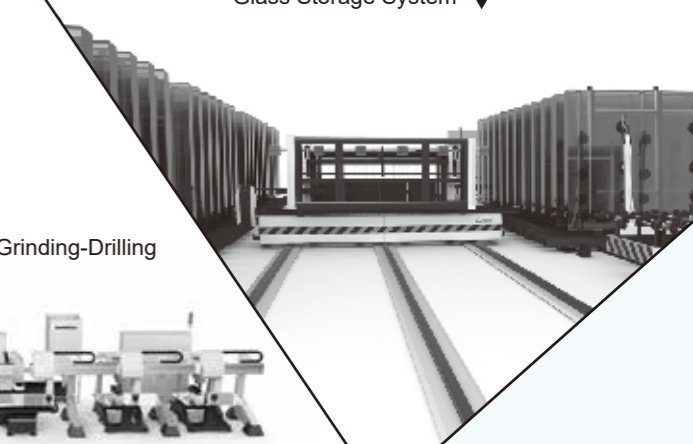
Coating Machine ▼



Glass Cutting Machine ▼



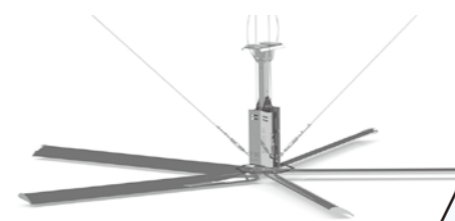
Glass Storage System ▼



▼ Cutting-Breaking-Grinding-Drilling Automation Line



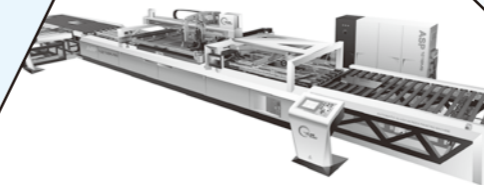
HVLS Fan ▼



General Fan ▼



▲ Glass Screen Printing Line



# Five Bases

## Luoyang NorthGlass

Full name of "Luoyang North Glass Technology Co., Ltd.", the headquarters and parent company of NorthGlass

## Tempering Furnace Business Unit

with main products of flat and bent glass tempering furnaces. Cumulatively over 4400 furnaces have been sold to more than 100 countries and regions all over the world since 1995. In 2010, a flat/bent tempering furnace was developed to produce super-oversized tempered glass with the size of 3.6 x 18 m for the headquarters of the most famous electronics company in the world. All furnaces are classified into three series to meet different customer needs: Top series, Advanced series and Basic series.

## Luoyang Glass Business Unit

Main products include Low-E coated glass, "Super Flat & Spotless" tempered glass, curved tempered glass with super-long arc length, SGP laminated glass, screen printed glass, etc. It has the most complete kit factory in Middle West regions with the strongest processing capability of high quality architectural glass. Supplying oversized curtain wall glass for well-known landmark buildings, such as Xi'an Twin Towers, China Railway Center-of Xi'an, etc..

## Luoyang North Glass Fan Technology Co., Ltd.

Main products include general fan, high-speed train cooling fan, convection hot fan, motor sweeper fan, HVLS fan, etc.. Tri-Variate Movement centrifugal fan was designed to be in line with Chinese national standard as transformer cooling fan for high-speed train.



**Shanghai NorthGlass**, full name of "Shanghai North Glass Technology Industrial Co., Ltd." **Shanghai North Glass Coating Technology Industrial Co., Ltd.**, is a specialized vacuum coating equipment manufacturer with rich experience in large surface vacuum coating technology, focus on the R&D, manufacture and service of large surface vacuum coating lines, special coating equipment for automotive glass and display panel, sputtering cathode and its core components (end block, magnet bar). **Shanghai Coated Glass Business Unit**, is a company mainly engaged in the production of oversized coated glass.

**Shanghai North Glass Automation Technology Co., Ltd.**, engaged in R&D and manufacture of glass storage, cutting, grinding, cleaning and complete automation solutions for glass processing factory. **Shanghai Glass Business Unit**, with NorthGlass' s strong support of R&D and equipment manufacturing capabilities, using NorthGlass' s new generation tempering furnaces to produce different types of special glass, such as irregular shape glass, dual curvature glass, convex curved glass, ultra-wide glass, super thick glass, etc. Its main projects includes Shanghai Tower skirt building, Shanghai Disney Tomorrowland, etc.. **Shanghai Equipment Manufacturing Business Unit**, is a comprehensive manufacturing center equipped with various types of manufacturing machines for multiple processes of riveting, welding and machining.



**Tianjin NorthGlass**, full name " Tianjin North Glass Industrial Technical Co., Ltd." With a total investment RMB 500 million and production plant area 100' 000 sqm, Tianjin NorthGlass is a new glass deep-processing enterprise owning advanced technologies and professional R&D team, who is becoming one of the world' s specialist suppliers of super oversized tempered, laminated, insulated, digital printed glass with top level quality. Their representative projects include the headquarters and dozens of stores of the most famous electronics company in the world, National Bank of Kuwait, etc.. Tianjin NorthGlass' s all production equipments, such as Low-E coating line, flat/bent glass tempering furnaces, CNC work center, laminating line, insulating line, etc., are able to produce super-oversized curtain wall glass and structural glass with the length of 18m.

**Beijing NorthGlass**, full name " Beijing North Glass Curtain Wall Technology Co., Ltd. " formerly called as " Beijing North Glass Safety Glass Co., Ltd.", is currently a company dedicated in marketing, customer service and technology development and research.



## Guangdong NorthGlass

**Guangdong NorthGlass and Juisun Technolgy Industry Co., Ltd.** with main products of glass screen printing line and automatic production line integrated with functions of cutting, breaking, grinding and drilling. Bringing together the superior resources of NorthGlass and Juisun, Guangdong North Glass is committed to building the first-class Chinese pre-processing equipment for automotive and industrial glass industries.

**Guangdong North Glass Electronic Glass Co., Ltd.** Main products include panel glass for tablet PC, laptop, automotive display, smart furniture, etc. These products have been applied in electronic products of HP, Lenovo, Huawei, Samsung, etc..

**Zhuhai North Glass Electronic Glass Co., Ltd.** a subsidiary wholly-owned by Guangdong North Glass Electronic Glass Co., Ltd., with main products of touch screen glass for educational services, interactive whiteboard, multimedia blackboard, LCD advertising player, etc.. Currently these products have been applied in electronic products of Seewo, HiteVision, Hisense, Smart, Promethean, etc..

# glas.RD Drawer Type Moving Racks Glass Storage System

Function: According to the stocks in the warehouse, dispatching the raw glass at a time, then loading one piece of glass sheet at a time automatically according to the optimized cutting task.

Application Range: It has the features of mix cutting many kinds of raw glass. The time, manpower and material cost happened during frequency changing raw glass can be saved. In general, it is used in one or two cutting lines.

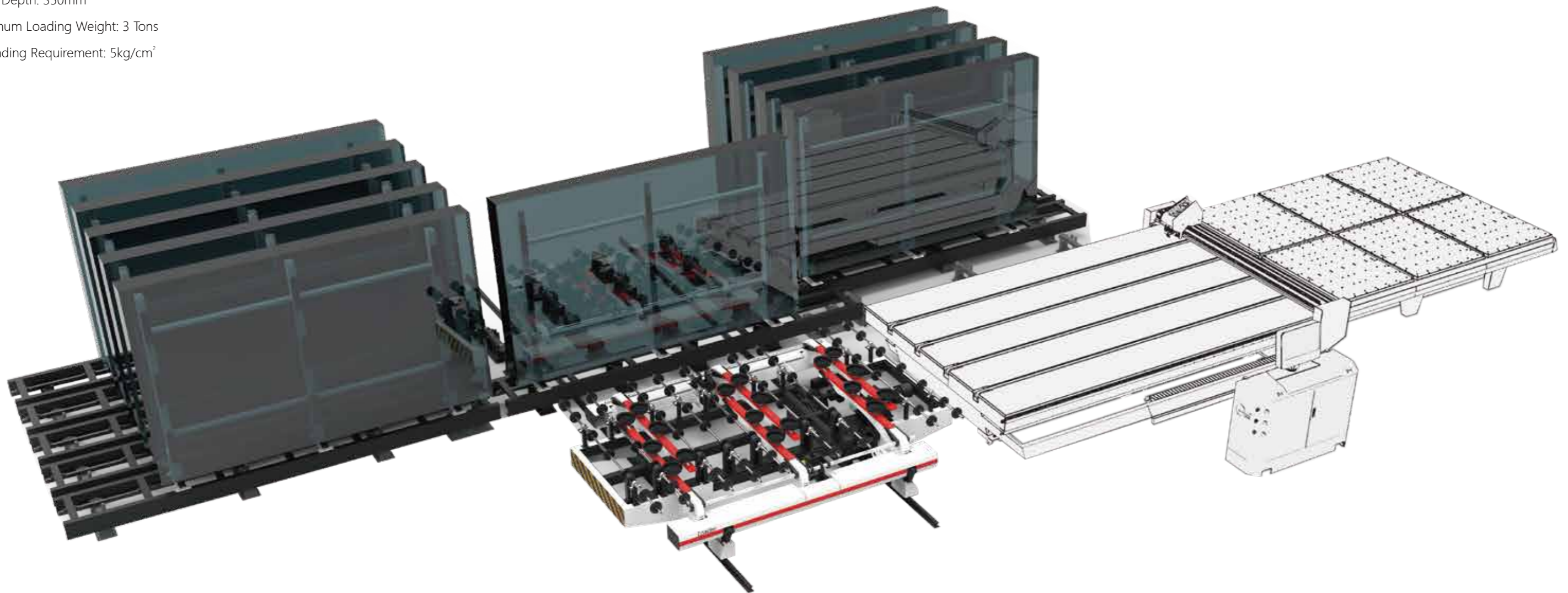
Glass size: 2850×4200mm 3300×6000mm

Conveying Tim: 20S

Racks Depth: 350mm

Maximum Loading Weight: 3 Tons

Grounding Requirement: 5kg/cm<sup>2</sup>



# glas.RS Shuttle Car Glass Storage System

Function: According to the stocks in the warehouse, dispatching the raw glass at a time. If there are 2-6 Cutting Lines, the raw glass will be dispatched by packages. It can also optimize the dispatch tasks of several cutting lines at a time.

Application Range: Applying for large scale batch jobs, avoiding breaking off during cutting caused by raw glass dispatch, improving glass using ratio as many cutting lines working together.

Driven mode: double servo motor + rack & gear

Glass Size : 2850×4200mm 3300×6000mm 3300×8000mm

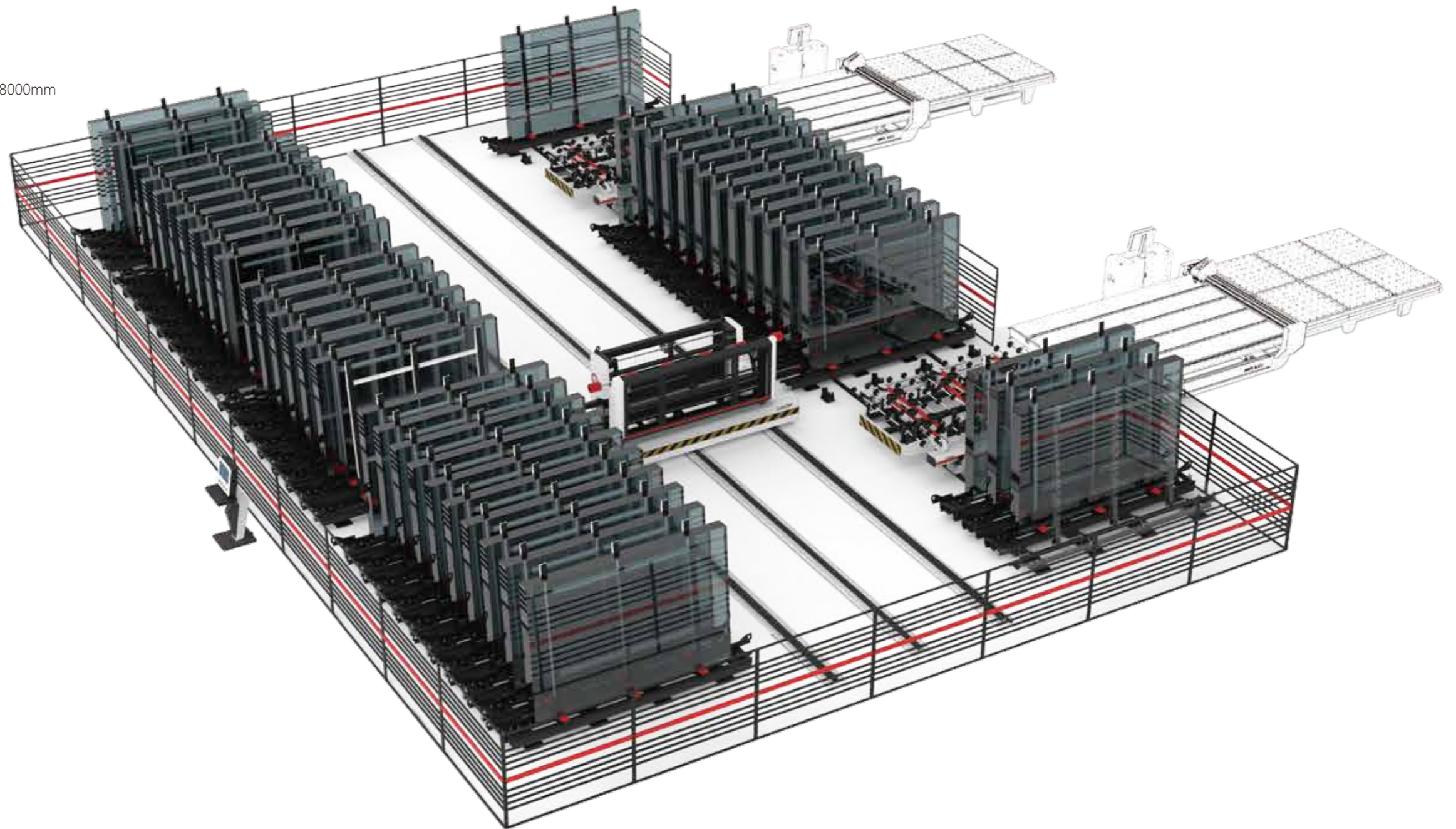
Pulling speed: 40m/min

Walking speed: 60m/min

Racks Depth: 350mm or 500mm

Maximum Loading Weight: 3 Tons / 5 Tons

Ground Requirement: 5kg/cm<sup>2</sup>



# glas.RB Multi-function Glass Storage System

Function: According to the stocks in the warehouse, dispatching the raw glass at a time, then loading one piece of glass sheet at a time automatically according to the optimized cutting task.

Application Range: Either mass production by packages, or bulk production by pieces. The time, manpower and material cost happened during frequency changing raw glass can be saved. In general, it is used in one or two cutting lines.

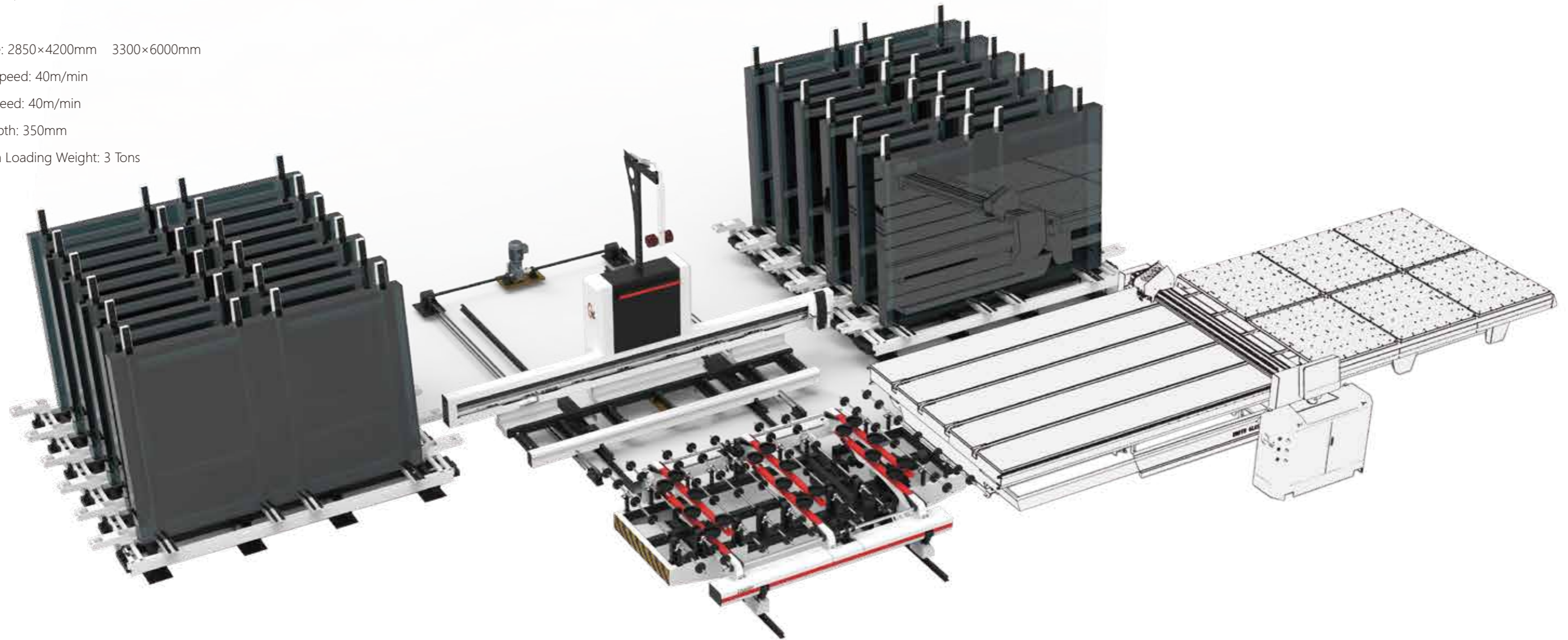
Glass Size: 2850×4200mm 3300×6000mm

Walking speed: 40m/min

Pulling speed: 40m/min

Racks Depth: 350mm

Maximum Loading Weight: 3 Tons



# glas.C Cutting Machine

Options of single machine and system:

Loading station: Loading glass according to the working station, suitable for economic mass production; Single station or multi-station is optional.

Loading machine: Loading glass from left side, right side or multi-stations; Manual loading or automatic loading is optional.

Cutting machine: Achieving a maximum-precision dynamic XYZ cutting and integrating loading & unloading.

Break-out table: Conveying glass by air-cushion (or belt) and integrating assistant or automatic unloading.

Precision assurance: servo motor + acceleration/deceleration motor + acceleration/deceleration curve control + reasonable reduction ratio selection.

Reliability assurance: heavy duty frame + light cutting bridge + independent beam + double-motor driving.

Max cutting size: 2850×4200mm 3300×6000mm

Min. cutting size: 1000×1500mm

Cutting thickness: 3-25mm

Cutting precision: linear  $\pm 0.25\text{mm}/2000\text{mm}$

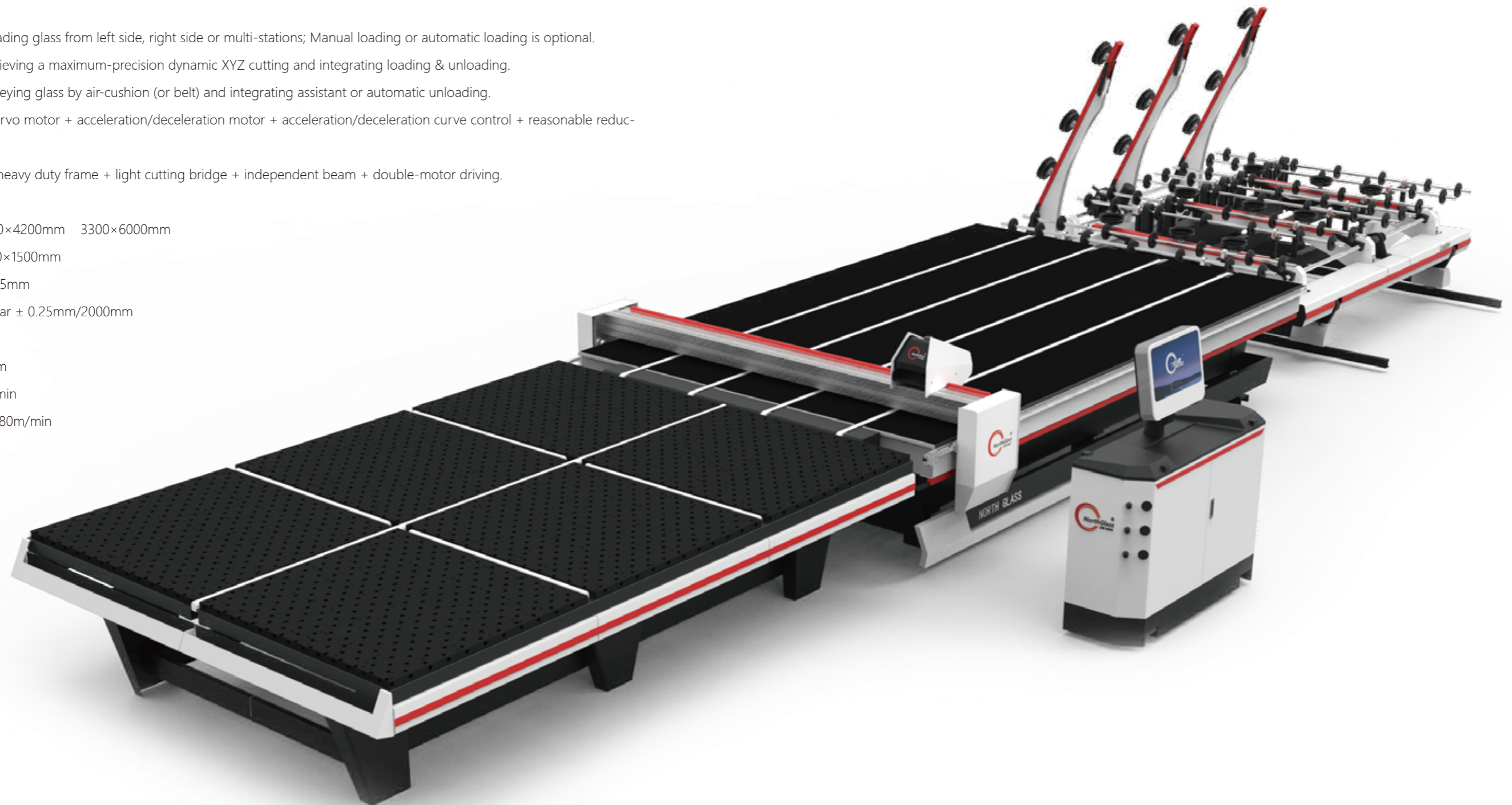
diagonal  $< 0.25\text{mm}$

shape outline  $< 0.20\text{mm}$

Convey speed: 40m/min

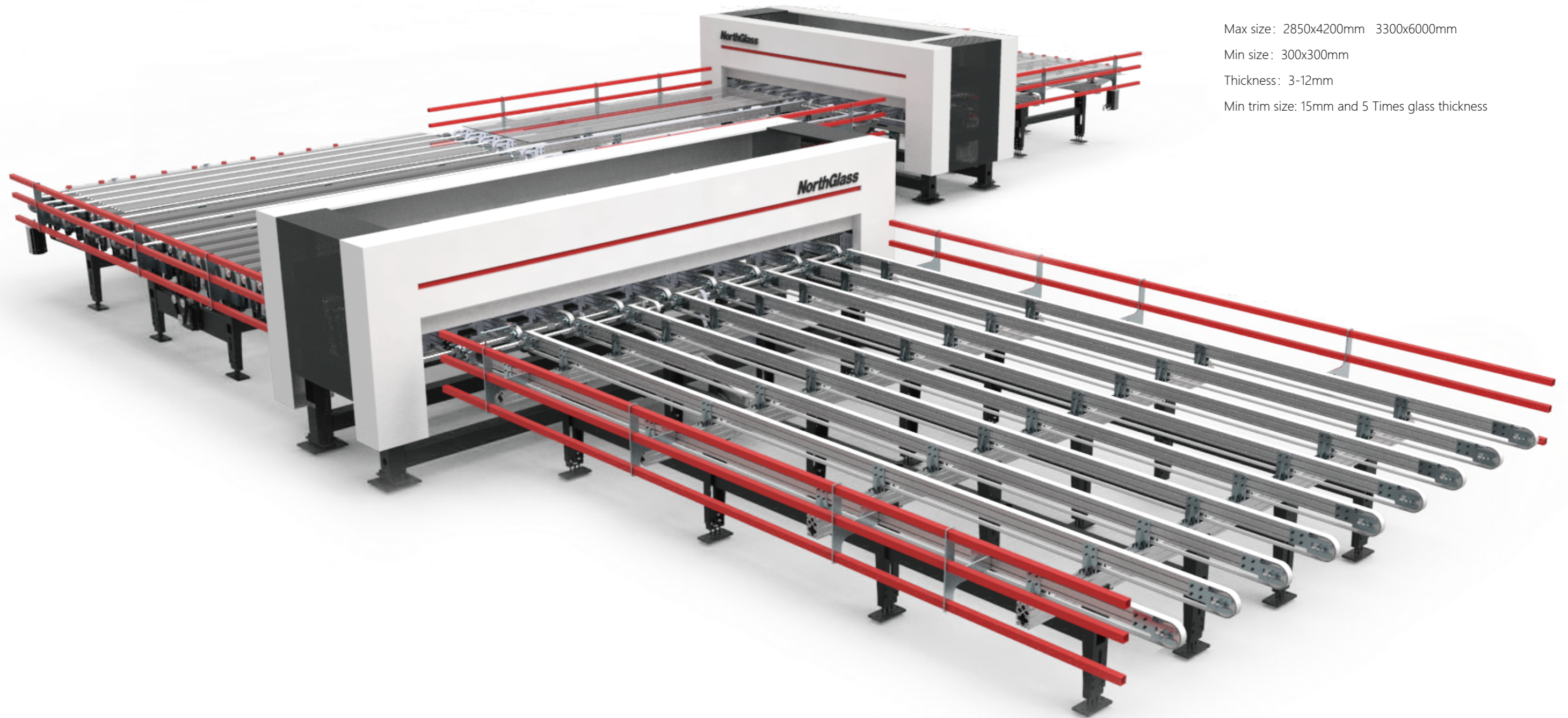
Cutting speed: max. 180m/min

Working beat: 40-65s





# Automatic Breaking Machine



Feature: high efficiency, safe production process, high quality breaking, neat rupture.

Application: This system can replace manual operation to avoid dangers, low efficiency and high labor intensity.

Max size: 2850x4200mm 3300x6000mm

Min size: 300x300mm

Thickness: 3-12mm

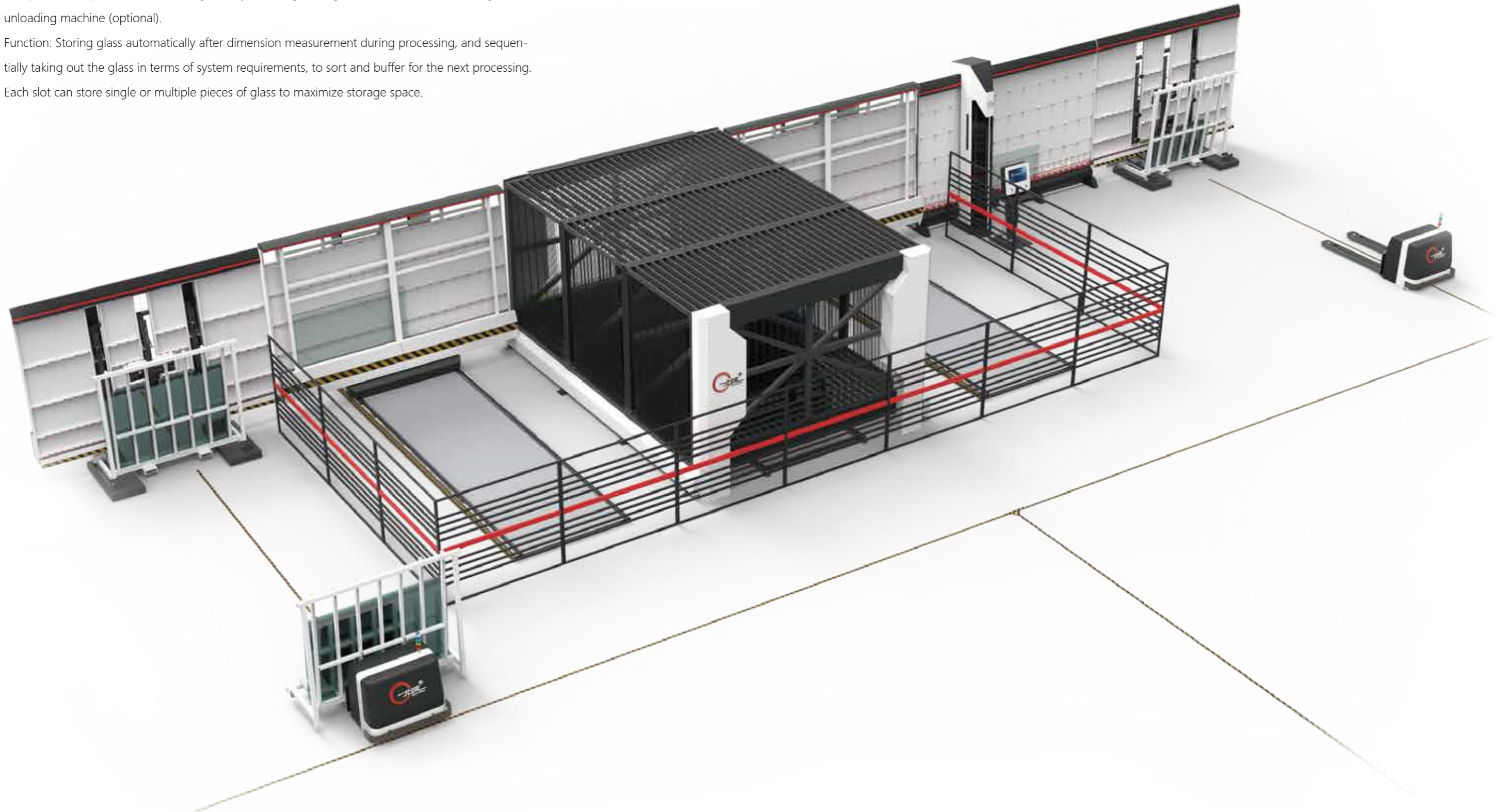
Min trim size: 15mm and 5 Times glass thickness

# glas. BV Integrated Vertical Buffer System

Save Labor! Efficient and Accurate!

Composition: inspection table, loading convey shuttle, glass cages, automatic vertical loading and unloading machine (optional).

Function: Storing glass automatically after dimension measurement during processing, and sequentially taking out the glass in terms of system requirements, to sort and buffer for the next processing. Each slot can store single or multiple pieces of glass to maximize storage space.



## glas. WV Vertical Washer

Space is what you care about, quality is what you absolutely concern.  
Productivity is your forever pursuit, cost is what you keep lowering.

Max. Glass size: 500×3500mm 2500×5000mm

Min. Glass size: 350×450mm

Glass thickness: 3-15mm

Washing speed: 0-8m/min

Brush quantity: 3 pairs

Air Knife quantity: 1 pair

## glas. EV Vertical Seaming Machine

### Advantages

- Recognizing the glass size and adapt to different glass sizes automatically.
- Grinding four edges of glass simultaneously with high efficiency.
- Grinding bottom-edge and chamfering with good grinding effect.
- Using resin diamond grinding wheels with long work life.
- Using vertical closed structure to realize space saving, good waterproof performance and no water splash, clean working environment.

Max. Glass size: 2500×3500mm 2500×5000mm

Min. Glass size: 350×450mm

Glass thickness: 5-8mm

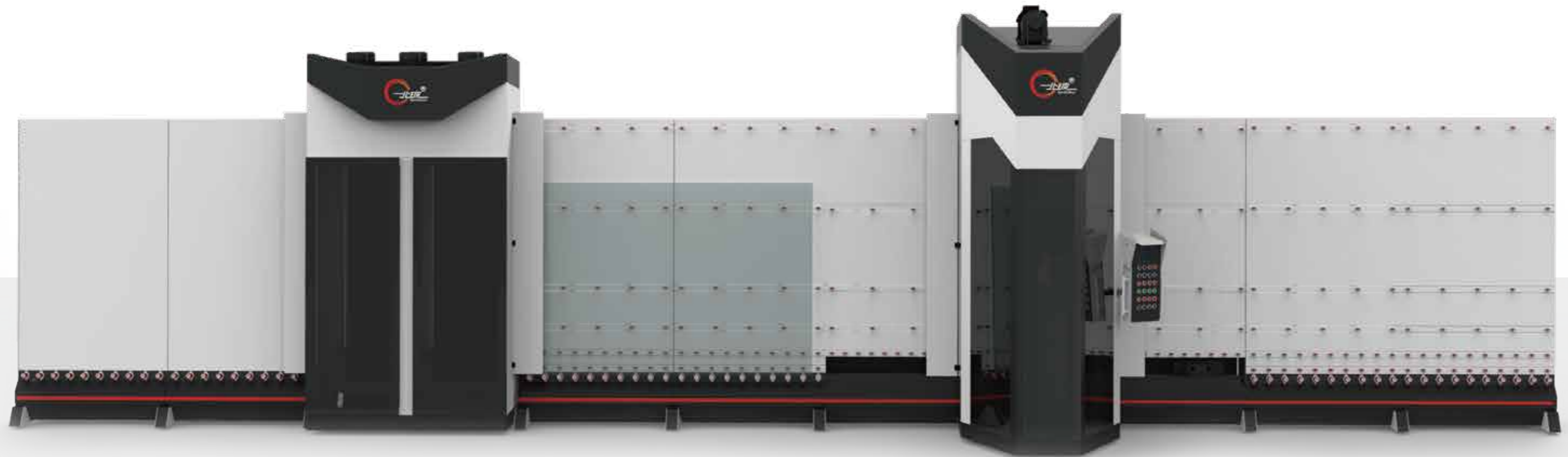
Customized thickness: 3-12mm

Grinding speed: 0-25m/min

Installation power: 15KW

Grinding head quantity: 4 No.

Air pressure: 0.6 Mpa



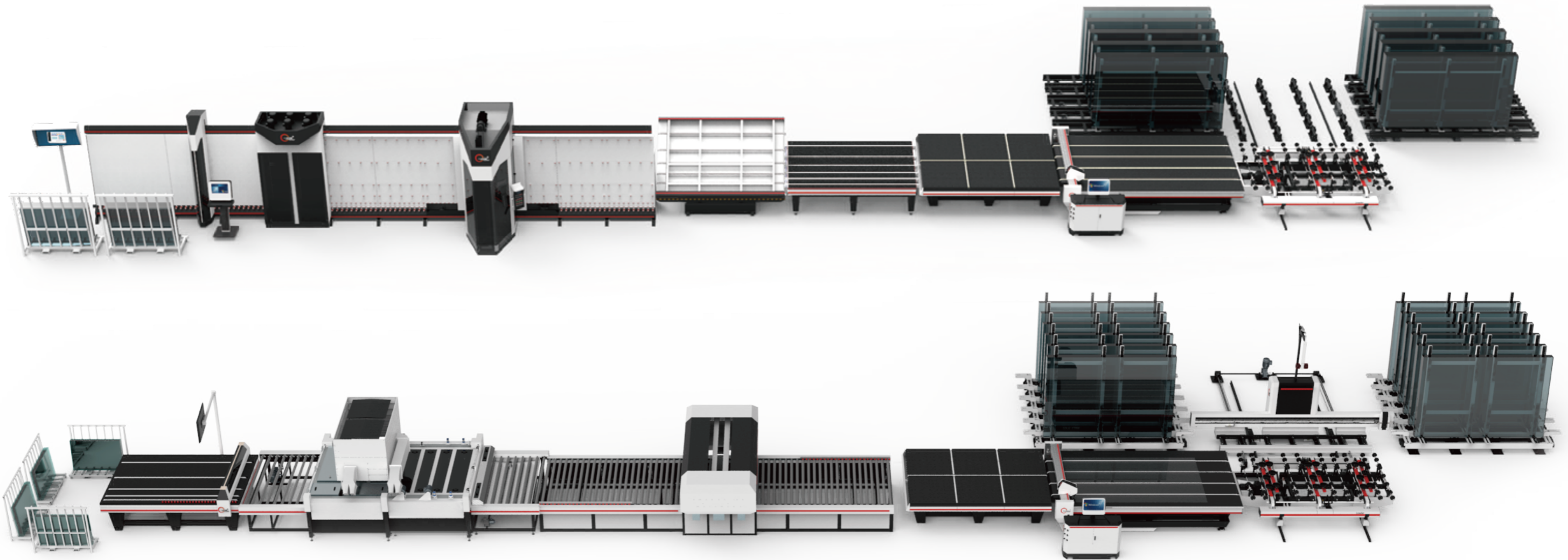
\* This machine will not be sold to Austria, Germany, Spain, France, Great Britain, Italy until 2th Dec, 2018, and not to USA until 15th May, 2021.

# Glass Pre-Processing System

Configuration: glass storage system + cutting+four-edge grinding + measuring + labeling + unloading indicator

Advantages:

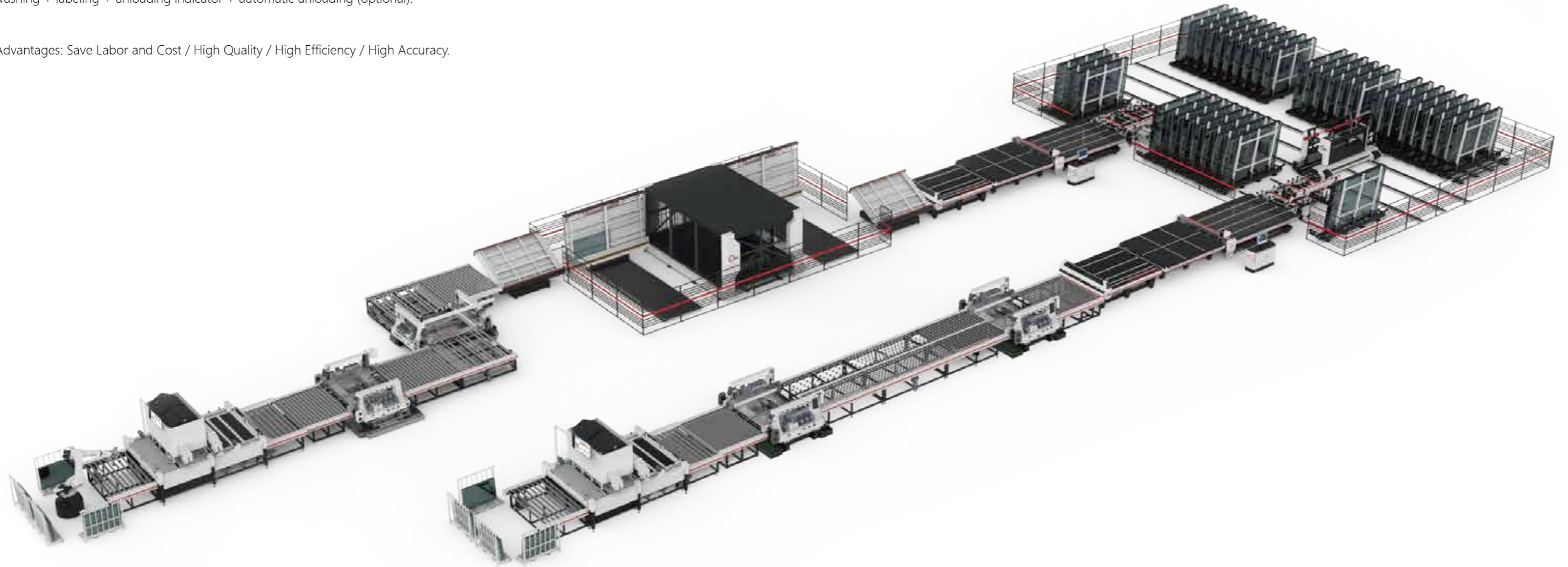
- Warehousing optimization can improve 1-2 points of optimization rate.
- Measurement can intelligently identify glass information.
- Automatic labeling reduces error rate.
- Unloading indicator reduces manual requirements.
- Each line can save labor.
- Reduce handling, damage, and manpower.



# Glass Pre-Processing System

Configuration: glass storage system + cutting + measuring + buffer (optional) + double edge grinding + washing + labeling + unloading indicator + automatic unloading (optional).

Advantages: Save Labor and Cost / High Quality / High Efficiency / High Accuracy.



Software Interface



Supplying Interface



Task Interface



Loading Interface



Storage Interface



Measuring Interface



Buffering Interface



Unloading Interface

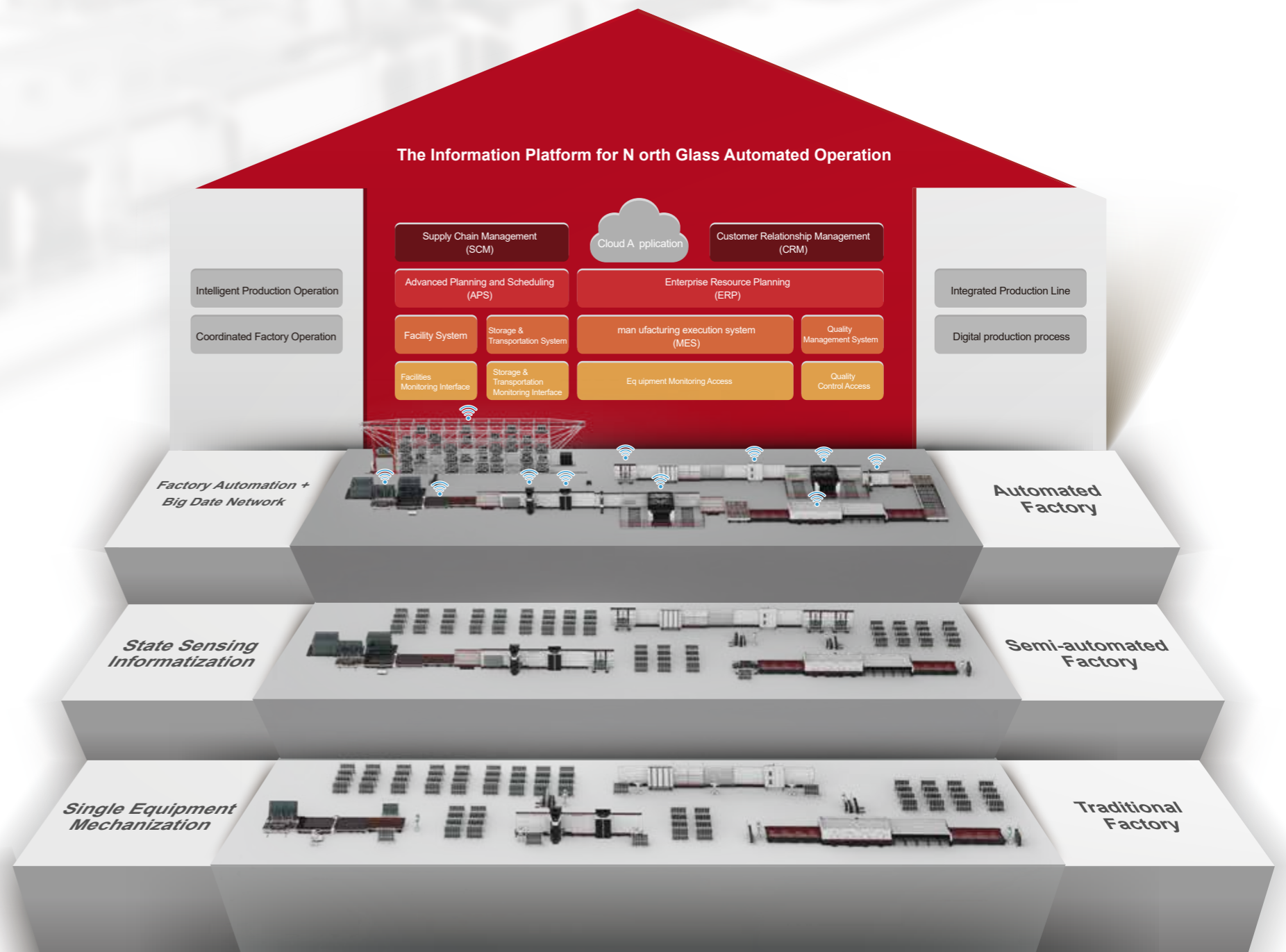


# The Information Platform

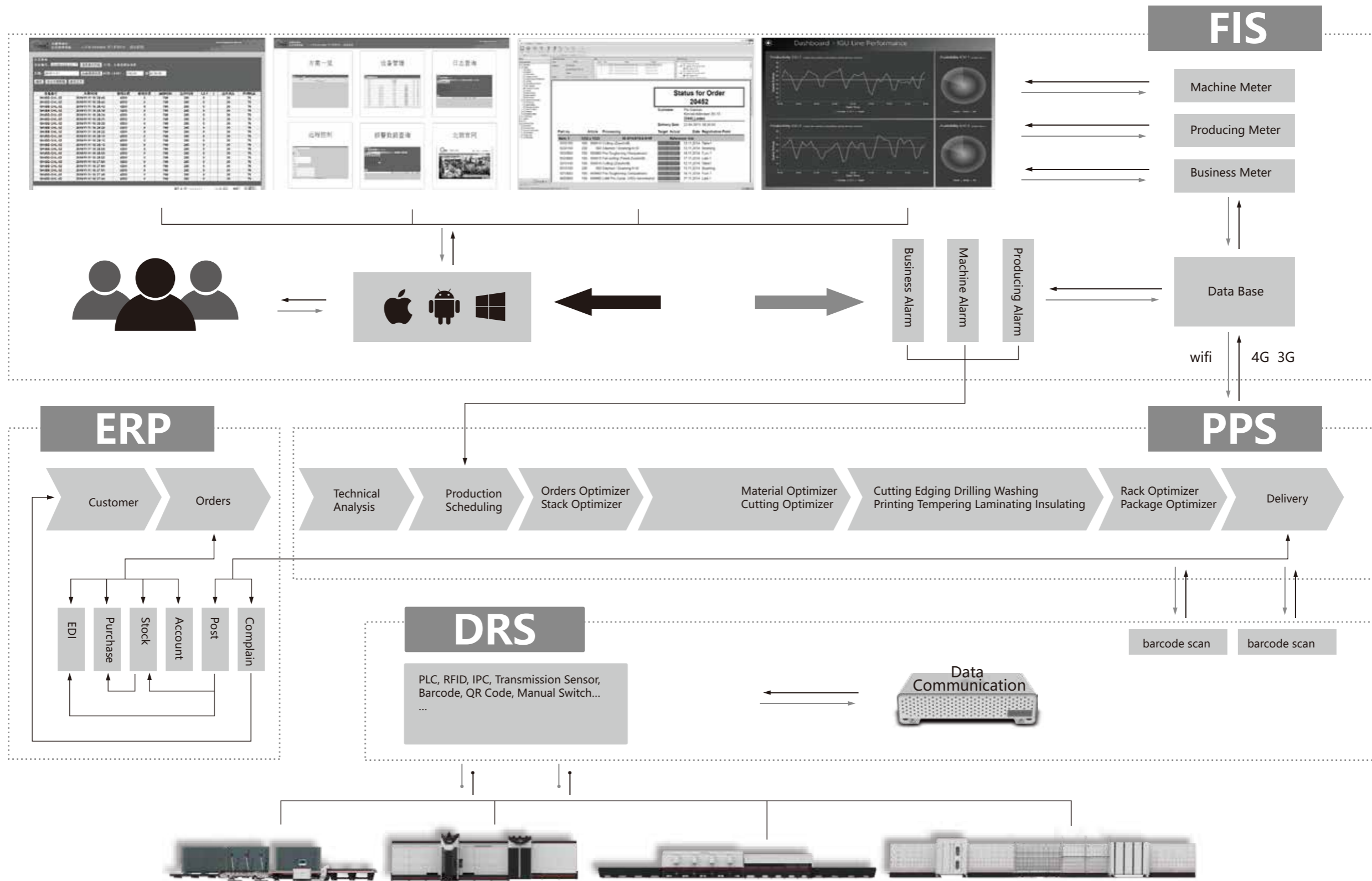
## NorthGlass creates data-centric glass processing automation system

The hardware configuration of various processing equipment is just the body and form of glass processing enterprises, automatic connection based on data is the soul and the content of glass processing. Only when the body and soul is combined, the form and content can be uniform, then glass processing has life and vigor. General solution is always better than the simple summation of each equipment, that's why we will integrate all the independent equipment.







NorthGlass will let your glass processing to be much better, more efficient and more economical!



# Glass Processing 4.0 System Framework FIS



## Alarm System

- |          |  |          |  |          |  |
|----------|--|----------|--|----------|--|
| <b>1</b> | Machine faults        | <b>2</b> | Machine capacity    | <b>3</b> | Breakage    |
| <b>4</b> | Processing capacity  | <b>5</b> | Deferred delivery  | <b>6</b> | Overstock  |



## Functions:

- Remote Data Acceptance
- Remote Monitoring
- Record & Query
- Electronic Report Form
- Abnormal Data Analysis
- Initiative Warning Service
- Connection with Management Software

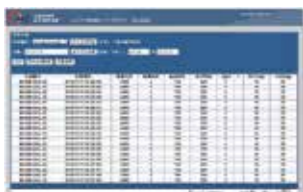
## Analysis Abilities:

- Unify Format: Before uploading, the different data of different equipments are unified.
- Many Protocol : Supporting Protocols like RTU/Modbus TCP and Free Protocols etc.
- Many Kinds of PLC : The PLCs like SIEMENS, OMRON, MITSUBISHI, AB are compatible.

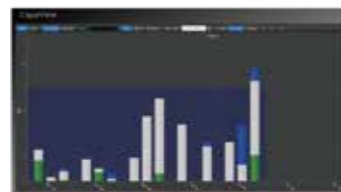


## Data Navigation

Equipment original data



Production capacity view



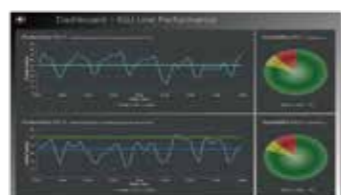
Advanced custom statistics



Hardware analysis report



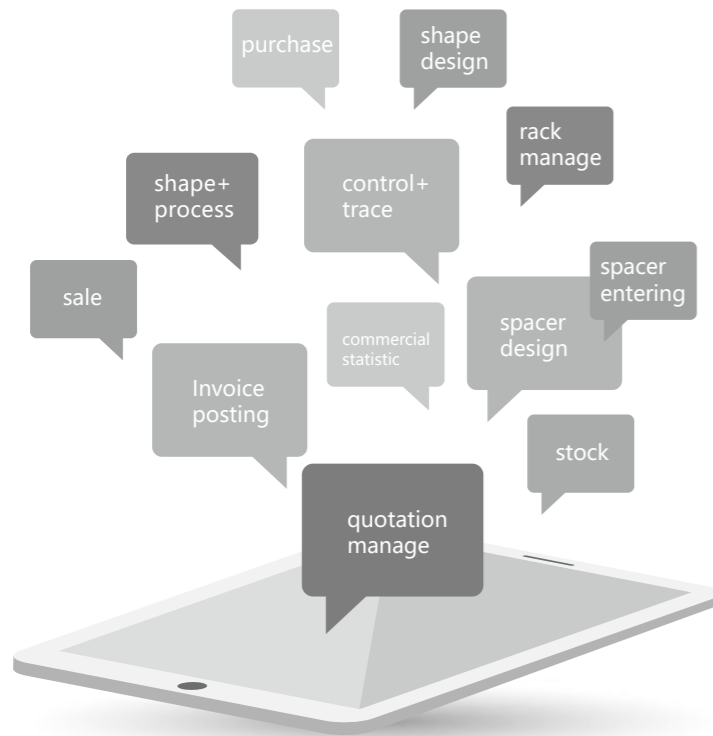
Order production status



E-commerce orders

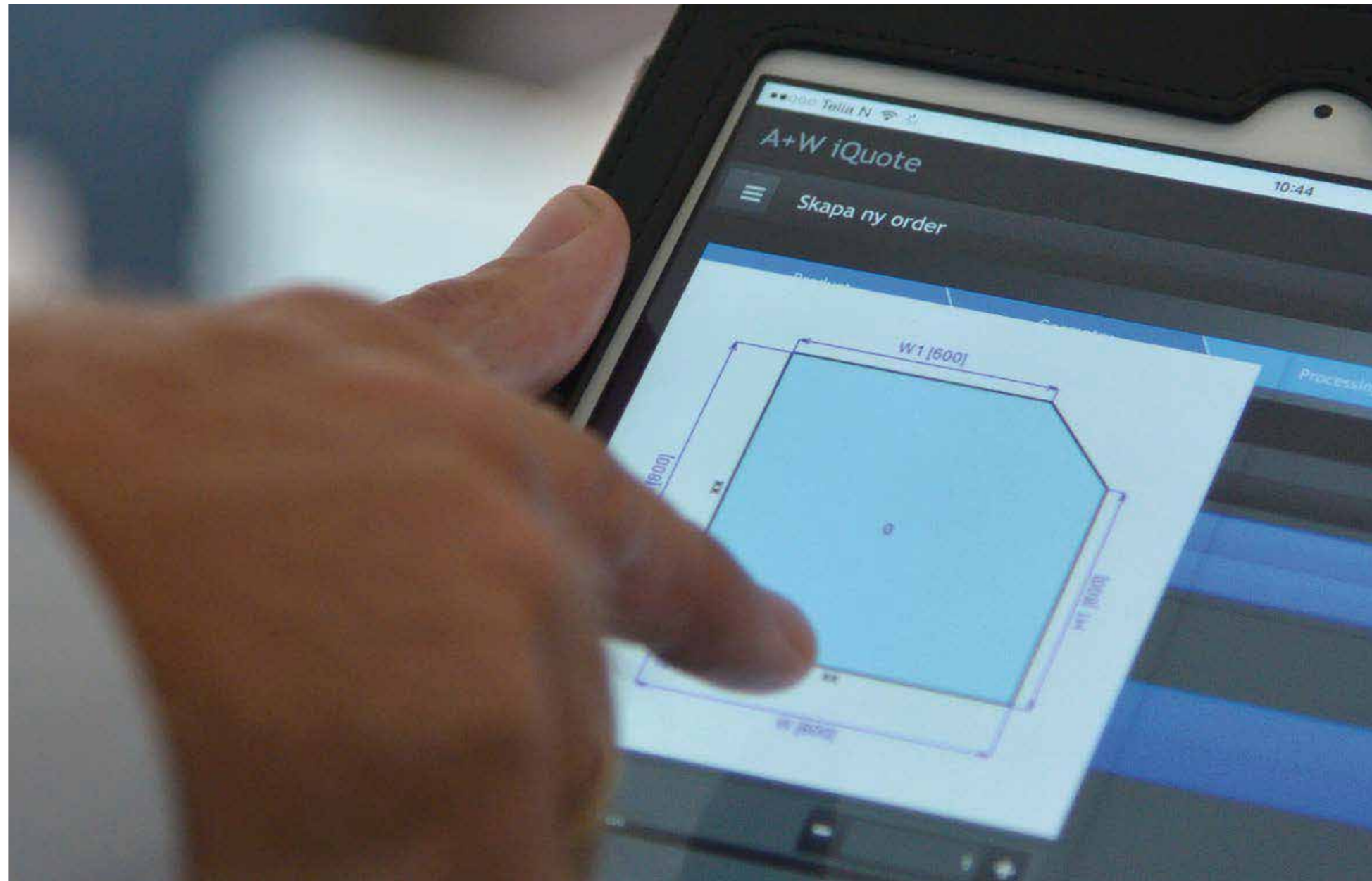




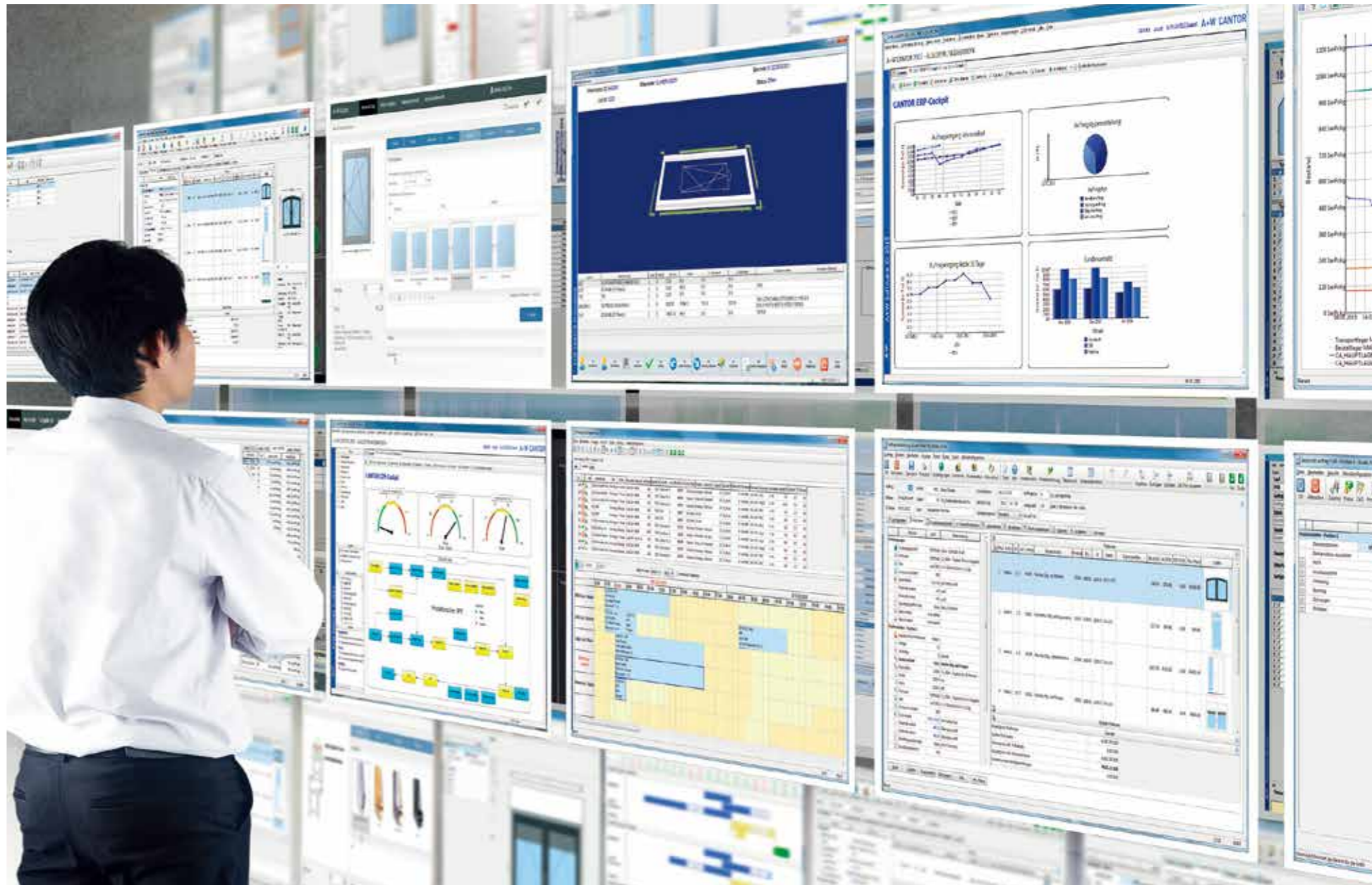


### Functions & Benefits

- Modern interface: multi-task, multi-dialog, easy operation, graphical.
- Products multi-level BOM (processing =production code).
- Easy orders handling: copy files, automatic purchasing.
- Manual or automatic orders or purchasing handling: define workflow and user permission.
- Production system interconnection: transfer orders and purchasing status and feedback information.
- Integrate CAD designer (shape & bar): easy technique entering (TOE).
- Integrate standard shapes & production list.
- Technical drawings support all necessary commercial documents (orders, production documents, invoice, etc.) and control equipments.



Note: Only for market in China


































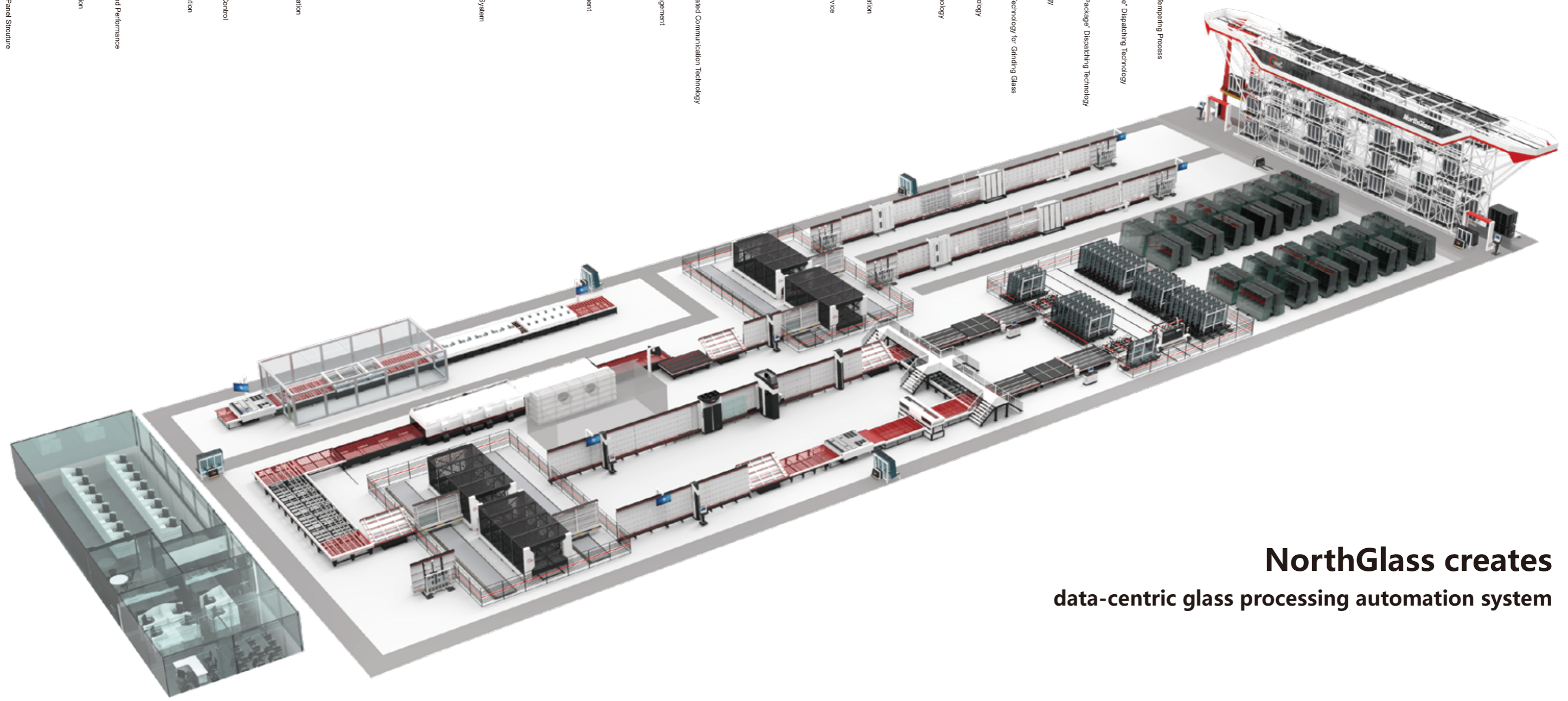
### Functions & Benefits:

- Control production plans (equipments and sequence) by variables.
- Open data base and views help custom job management.
- Advanced optimization arithmetic improves cutting rate, cutting layout is visible.
- Order optimizer, rack and stack optimizer.
- Optimize the materials by products package.
- Easy equipments control and direct drive .
- Efficient & graphical capacity planner (optional).
- Integrate barcode and trace (add A+W barcode manager).
- Print production documents, bending machine documents and barcode labels.
- Modules such as Capacity Planner, Barcode, Production Terminal. etc. are extendible.

Note: Only for market in China

# Glass Automation System

-   
 CAD Establishment of Shaped & Panel Structure
-   
 Production Capacity Plan
-   
 (SFD) Shop Floor Data Collection
-   
 Dashboard of Production State and Performance
-   
 Production Display and Control
-   
 Defect Identification & Reoptimization
-   
 Online Cutting Optimization and Control
-   
 Shaped Cutting Optimization
-   
 Dynamic Optimization and Automation
-   
 Package Optimization
-   
 Stacking & Distribution
-   
 Logistic
-   
 Business Intelligence
-   
 (DMS) Document Management System
-   
 Quotation and Order Processing
-   
 Flat Glass Software
-   
 Purchasing & Materials Management
-   
 Service & Facility Plan
-   
 MES-Production Execution Management
-   
 NorthGlass Box -Intelligent Integrated Communication Technology
-   
 Mechatronics Technology
-   
 Processing Information Cloud Service
-   
 Single Glass Information Identification
-   
 Size Identification Technology
-   
 Glass Loading & Unloading Technology
-   
 Glass Cutting Optimization Technology
-   
 Opening & Closing Optimization Technology for Grinding Glass
-   
 Insulated Glass Pairing Technology
-   
 Raw Glass Storage Technology- 'Package' Dispatching Technology
-   
 Raw Glass Storage System- 'Piece' Dispatching Technology
-   
 Glass Automatic Arrangement in Tempering Process



**NorthGlass creates data-centric glass processing automation system**



We satisfy diversified glass processing requests by virtue of NorthGlass experience and technology.

We supply outstanding and functional equipments by virtue of NorthGlass manufacture capacity.

NorthGlass service & maintenance principle is "simple and convenient". And NorthGlass products put this principle into practice. It achieves ideal maintenance schedule and lower cost.

NorthGlass provides partnership-based services  
NorthGlass full-range services include:



Maintenance Service



Spare parts support



Product update



Technical training



Machine moving



# SERVICE

R&D, sales, production, engineering, after-sales, cloud data, one-stop service experience

All the products listed in this catalogue are subject to the technical parameters of the final models, and the personalized products which are overlength, overwidth, overspeed or super beat can be customized.