

Glass Handling

Equipment for Glass Cutting Systems



Billco
Built to Work. Built to Last.

Glass Handling

Equipment for Glass Cutting Systems

Billco offers a range of handling equipment to assist in transferring glass from one process to another. Intelligent designs coupled with durable components provide a streamlined solution for handling glass lites.

Streamlined Solutions — provide a simplified recourse for transferring glass from one process to the next

Custom Layout Configurations — designed to work seamlessly with most layouts

Heavy-Duty Construction — durable components ensure long-lasting, trouble-free operation

Flexible Integration — works with any cutting line, regardless of the original manufacturer

Integrated Interface — works seamlessly with cutting line control systems

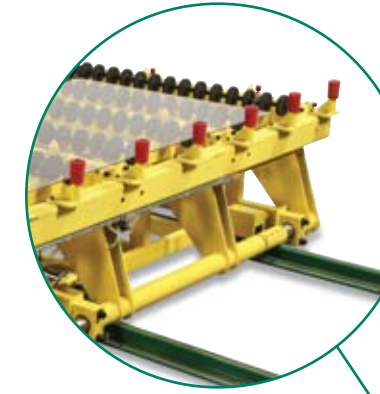
TABLES



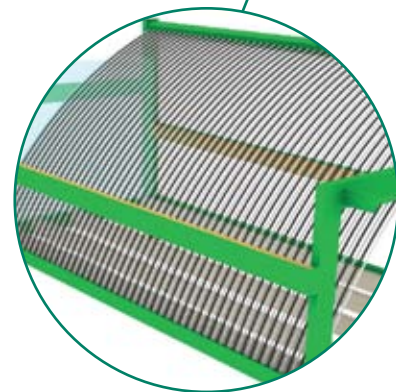
FREE-FALL SYSTEMS



TILT LOADER



UNSTACKER



RACKS



SPACESAVER™



REMNANT STORAGE SYSTEM



CRANE LOADING SYSTEM

KEY FEATURES
American Made



Customer Service



Tilt Loader

Transfers glass from crane grab to cutting system with ease

The Tilt Loader provides an automated recourse to transfer glass from a vertical position to horizontal for processing. The system is designed to work in combination with compatible crane loading systems. Durable components are utilized to ensure long-lasting, trouble-free operation and non-marking donuts minimize marking to the glass surface.

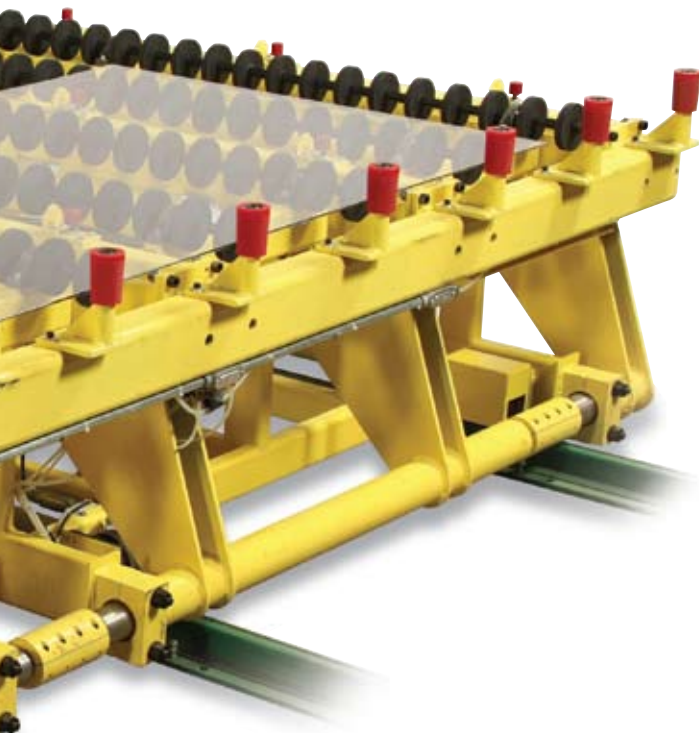
The machine can be easily integrated with the cutting line control system, making operation simple and seamless. Custom layout configurations are available and can be integrated with any cutting line, regardless of the original manufacturer. Both stationary and traversing models are offered.

AVAILABLE OPTIONS:

- Traversing System — single- or multi-bay loading

SUPPORTING EQUIPMENT:

- Model FSB — Crane Loading System



Maximum Glass Size	Glass Thickness Range	Working Height
108" x 144"	2.2–19 mm	36"
130" x 204"		

Unstacker

Retrieves glass from vertical glass racks and transfers it to a horizontal position

The Unstacker uses a combination of hydraulics, vacuum cups and sensors to identify and retrieve glass from a vertical pack and transfer it to a horizontal position for downstream processing. When ready to receive glass, the system automatically detects the glass size and adjusts accordingly. A multi-stage vacuum ensures the glass is securely held.

The fully automated system can be used with any cutting line and can be easily interfaced with the cutting line control system. The system is compatible with most rack storage systems and is offered in both stationary and traversing models.

Maximum Glass Size	Glass Thickness Range	Maximum Pack Thickness	Working Height
72" x 84"	2.2–6.4 mm	12" — standard Up to 48" — optional	36"
108" x 144"	2.2–19 mm		
132" x 204"	2.2–19 mm		
132" x 240"	2.2–19 mm		



AVAILABLE OPTIONS:

- Traversing System — single- or multi-bay loading
- Ability to unload from glass packs up to 48" thick
- Double-Sided Retrieval

SUPPORTING EQUIPMENT:

- Rack Shuttle Systems — Single-, Double- or Multi-Rack
- Turntable Storage Rack



Free-Fall Systems

Automatically retrieves glass from packs and free falls it to the table for processing

The Automatic Free-Fall System assists with the glass loading process prior to cutting. Intelligently designed, the system mechanically retrieves the glass and free falls it to the air-float table. The table then squares and conveys the glass to the cutting table. A laser transducer measures distance to accurately position the table on the traversing models. The fully automated system can be easily integrated with any cutting line, and will work seamlessly with Billco's cutting line optimization software. Stationary and traversing models are available.

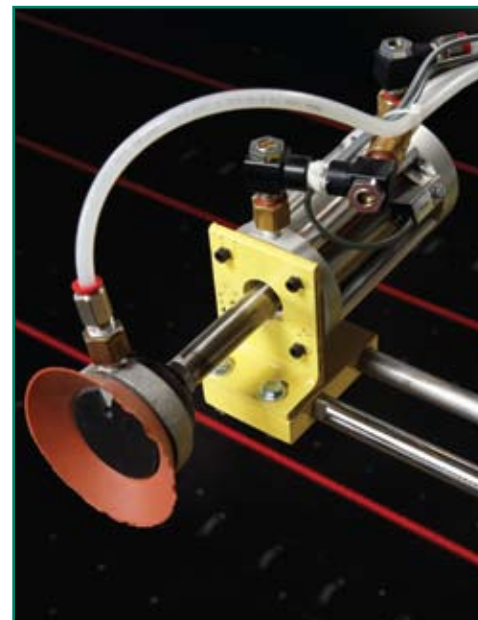
Maximum Glass Size	Glass Thickness Range	Maximum Pack Thickness	Working Height
72" x 96"	2.2-6 mm	12" — standard	36"
108" x 144"	2.2-6 mm	Up to 48" — optional	

AVAILABLE OPTIONS:

- Traversing System — single- or multi-bay loading
- Telescoping — for wide range of input size loading

SUPPORTING EQUIPMENT:

- Rack Bases — stationary or portable
- Glass Racks — stationary or portable
- Air-Float Tables — optional conveyor belt transfer (stand-alone system only)



Remnant Storage System Patent Pending

An automated offal storage and retrieval system integrated within the tilt loading system.

The process of optimizing and cutting glass often results in unused glass, commonly called remnant or offal. The leftover glass has value, but is impractical to store for future use in an efficient manner. The Remnant Storage System combines storage capacity with a tilt loader to assist the glass cutting process. After a lite is optimized, the system identifies the remnant, scores it, breaks it and transfers it to an empty slot for storage.

TILT LOADER SPECIFICATIONS:

Series	Maximum Glass Size	Minimum Glass Size	Glass Thickness Range	Conveyor Speed	Passline
Model i	108" x 144"	60" x 84"	2.2-19 mm	120 ft./min.	36"
Model ii	130" x 204"	60" x 84"	2.2-19 mm		

PROCESSING SEQUENCE:

- The tilt arms, independent from the table, traverse to the glass racks to retrieve glass lites from the crane glass grab.
- Once retrieved, the tilt arms lower the glass to a horizontal position and square the long edge of the glass.
- The conveyor then transfers the glass to the cutting station or holds the glass until needed.
- Unique to this system, the tilt arms can return to the vertical position and retrieve glass while glass waits in transit on the conveyors.

KEY FEATURES:

- Automatic Long Edge Squaring
- Independent Traversing Tilt Arms

REMNANT STORAGE CAPACITY SPECIFICATIONS:

Series	Slot Capacity Maximum Glass Size	Slot Capacity Minimum Glass Size	Glass Thickness Range	Above Ground Slot Options	Pit Slot Options
Model i	108" x 144"	60" x 36"	2.2-6 mm	9 Shelves	18 Shelves
Model ii	130" x 204"	60" x 36"	2.2-6 mm		

PROCESSING SEQUENCE:

- The system receives a signal from the cutter that remnant is available.
- The glass is conveyed to the storage rack and the score is positioned over the breaker bar.
- The system breaks the glass along the score and conveys the remnant to a shelf.
- The "good" glass is then conveyed back to the cutter for further processing.

KEY FEATURES:

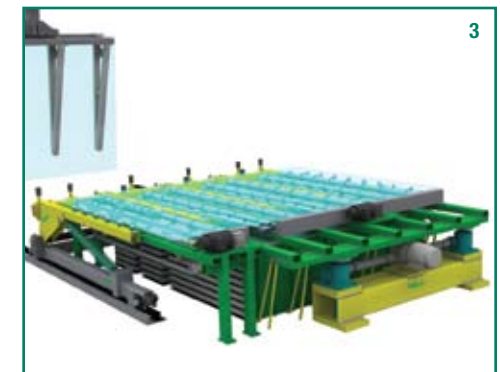
- Integrated with Cutting Optimization Software
- Short Edge Automatic Breaker System



Tilt Arms traversing to retrieve glass from the crane glass grab



Storage Rack raised to receive remnant from the cutter



Storage Rack lowered as the Tilt Loader loads the conveyors with glass

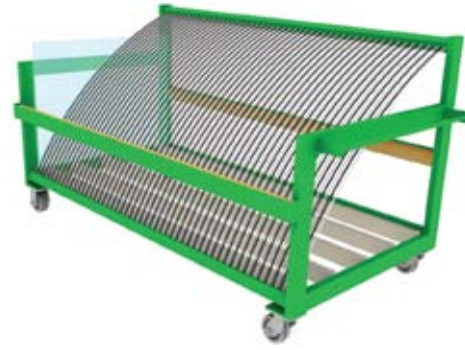
Racks

Versatile racks for transporting, organizing and storing glass packs, boxes and processed glass

A vast selection of racks is offered to meet the diverse handling needs of glass processing. Each rack provides a safe alternative for either transporting, organizing or storing glass. Durable components are used to ensure trouble-free handling and minimal maintenance. Both standard and custom racks are offered to meet most processing requirements.



Fixed Rack — with portable base



Harp Rack

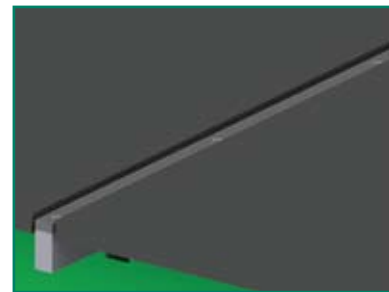
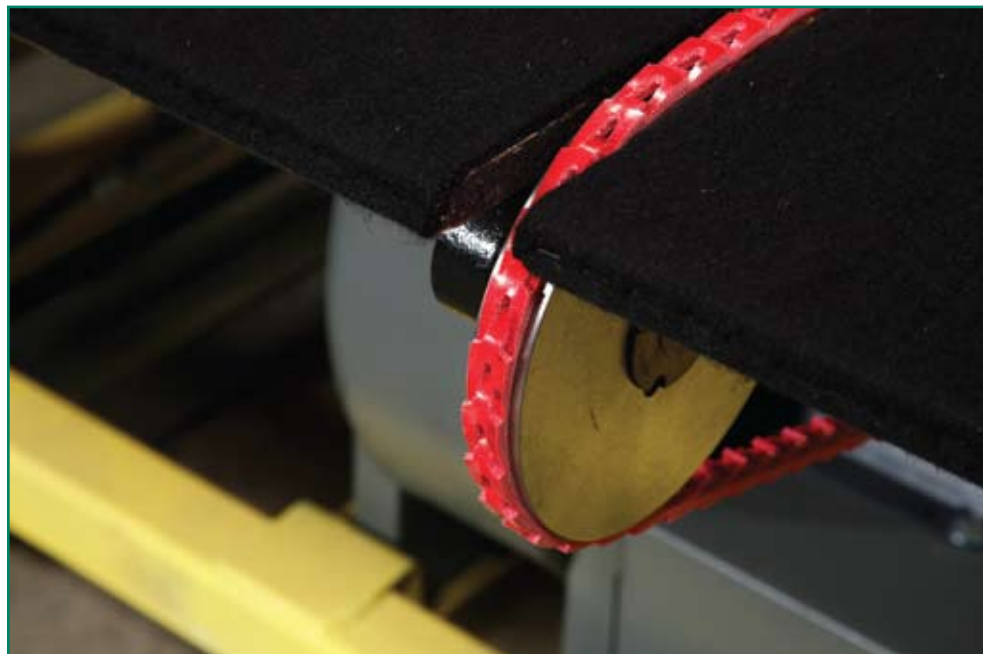
TYPES OF RACKS:

- ❖ Fixed
 - Rack only
 - Rack and base
- ❖ Bases — for returnable racks
 - Stationary
 - Portable
 - Pivoting
- ❖ Air Floatation
 - Single
 - Multi-Rack
- ❖ Harp Rack
- ❖ Custom

Tables

Heavy-duty tables for handling, transferring or processing glass lites

A variety of air-float tables are available to safely and efficiently handle large glass lites. Regulated airflow provides a balanced cushion for securely handling the glass. Durable dense woven fabric is used to ensure long-lasting operation. The open frame design provides easy access to under the machine for simplified cleaning and maintenance. Custom designs are available.



Breaker Bar



Caster Design

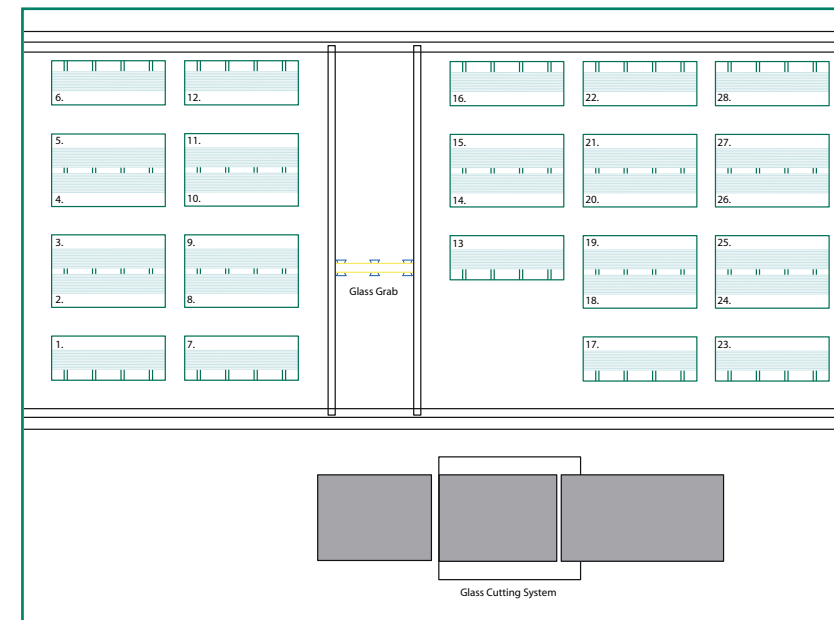
SpaceSaver™

Compressed multi-rack storage system reduces floor space requirements

The SpaceSaver™ storage system is designed to optimize glass storage capacity. The system can reduce the amount of space usage of current glass or increase storage space for varying types of low volume glass. The glass racks are mounted on a rail system that expands and compresses in order to facilitate the retrieval of different glass types. Compared to standard multi-rack systems, the SpaceSaver saves 30% or more in floor space.

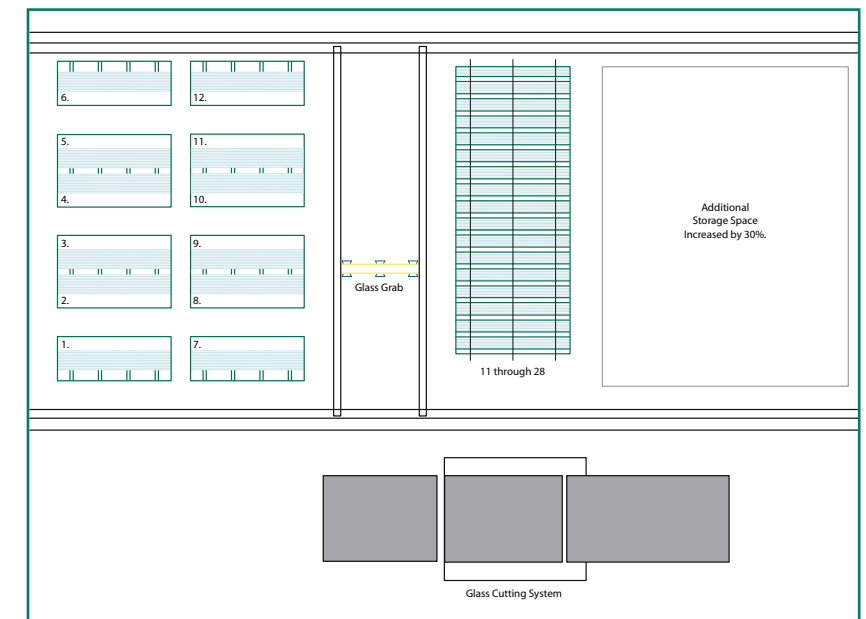
The extended shelves accommodate multi-pack storage. Heavy-duty components are used to ensure continuous trouble-free operation. The control system can be seamlessly integrated with Billco's Multi-Rack Crane Loading System. Each system is custom-fit to a customer's unique plant layout, including rack count and rack volume.

BEFORE: Standard Multi-Rack System



A standard multi-rack layout, consisting of 28 racks

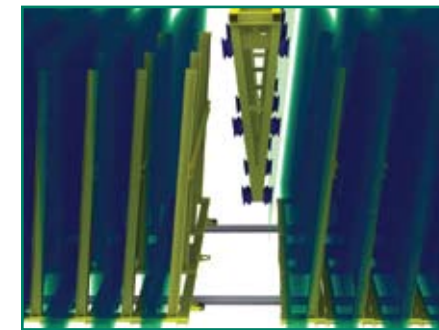
AFTER: SpaceSaver Multi-Rack System



A SpaceSaver rack system reduced the space utilized by racks 11 through 28. Additional storage space increased by 30%

AVAILABLE OPTIONS:

- ❖ Conveyor Transfer Belts
- ❖ Squaring Stops
- ❖ Caster Design
- ❖ Breaker Bar(s)



Compressed, low-volume rack system

Model FSB

Multiple Rack, Glass Storage and Crane Loading System

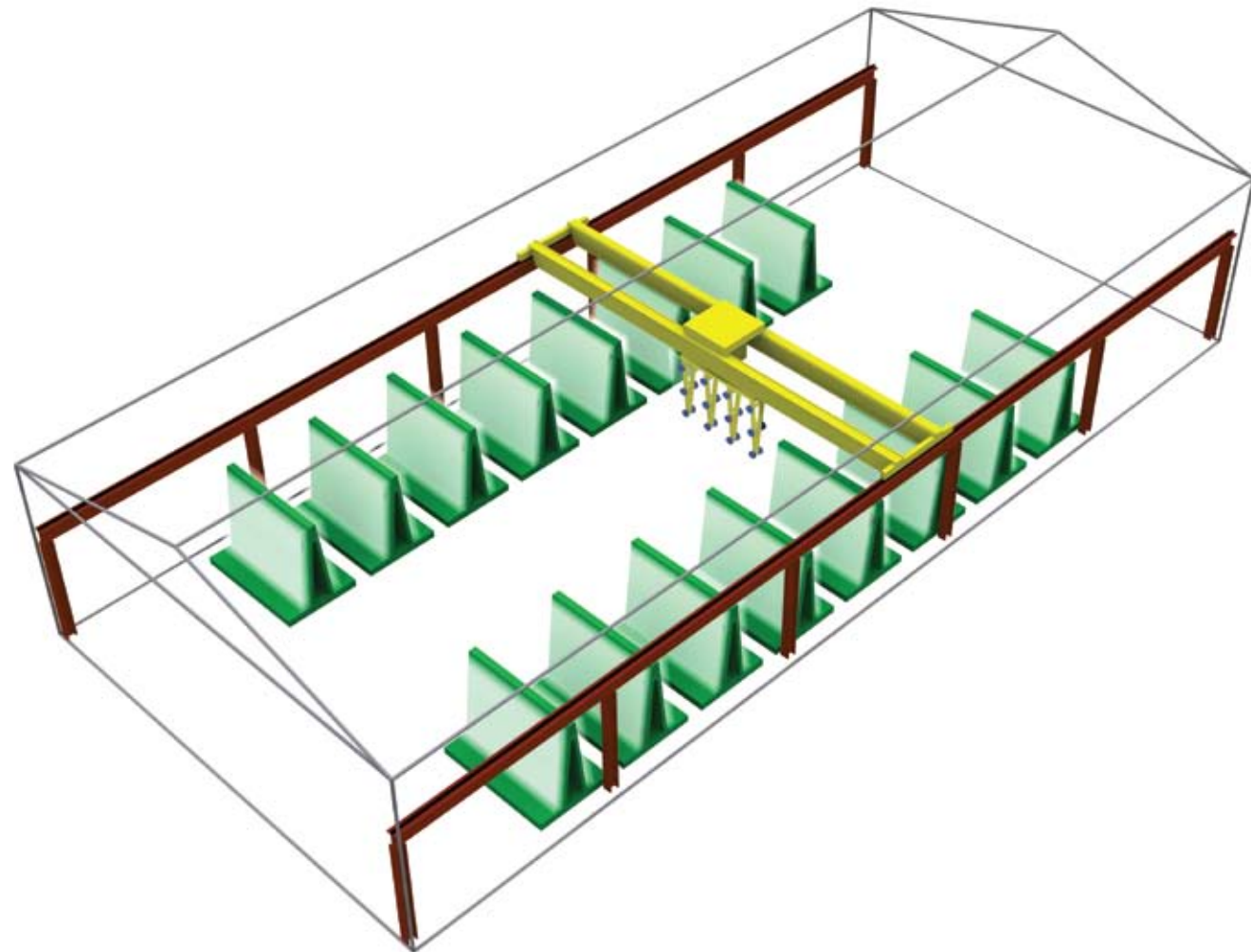
Complete solution for storing, organizing and loading glass prior to cutting

Billco's Model FSB is composed of a multi-rack storage system, bridge crane and trolley system and vacuum glass grab. Together, the system provides an organized, space saving method for storing different types of glass on vertical racks. The automated system retrieves single lites of glass from the racks and loads the cutting system.

The customizable layout can be tailored to fit any plant arrangement and can be easily modified when necessary without complex programming. The control system can be easily interfaced with most cutting systems. A laser transducer feature provides real-time crane positioning. The stand-alone control panel provides the flexibility to operate the crane, independent from the cutting line if needed.

When utilized with Billco's Butler cutting software, the system can diagnose and troubleshoot problem areas. A special "Dump Routine" feature permits broken glass in packs to be retrieved and dumped at a safe location, protecting operators from unsafe handling.

Maximum Glass Size	Glass Thickness Range	Bridge Span	Capacity
108" x 144"	2.2–19.05 mm	50' — standard	1 Ton (2,000 lbs).
130" x 204"		Up to 70' — optional	



SUPPORTING EQUIPMENT:

- ✦ Fixed Glass Racks
- ✦ SpaceSaver Storage System
- ✦ Tilt Load Conveyor

BRIDGE CRANE AND TROLLEY:

The Bridge Crane and Trolley are flexibly designed to permit glass retrieval from either the same or adjacent bay as the cutting table. An advanced laser control system and heavy-duty drive components enables the crane to maneuver at high speeds on a top running, double girder design. Special pack thickness sensors are designed to pre-calculate the volume of glass on a specified rack, prior to traversing into the rack, to reduce cycle time.



BRIDGE STYLES:

- ✦ Single Leg Gantry Crane
- ✦ Overhead Crane

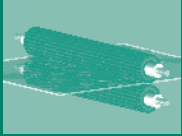
VACUUM GLASS GRAB:

The vacuum glass grab is uniquely designed to safely and efficiently move large glass lites from the packs to the cutting station. Large non-marking vacuum cups protect the glass surface and any soft coatings. The dual-sided design enables glass to be retrieved from single- or double-sided racks. Glass with varying sizes, angles and alignment can be automatically detected and lifted with ease. For instances when manual operation is necessary, the wireless pendant keeps the operator a safe distance from the moving glass.

AVAILABLE OPTIONS:

- ✦ Rotating Glass Grab
- ✦ Single-Sided Grab





Washing



Cutting



Laminating



Handling



Insulating



Software

High-Quality Glass Processing Equipment

Billco Manufacturing has been designing and manufacturing high-quality processing equipment for the flat glass and fenestration industries for more than half a century. From a competitive research and development program to an extensive engineering department, Billco has the capabilities to meet both custom and standard equipment needs. Billco's equipment is built rugged and durable with the utmost focus on details and precision. Each machine is warranted with 24/7/365 service and parts support.