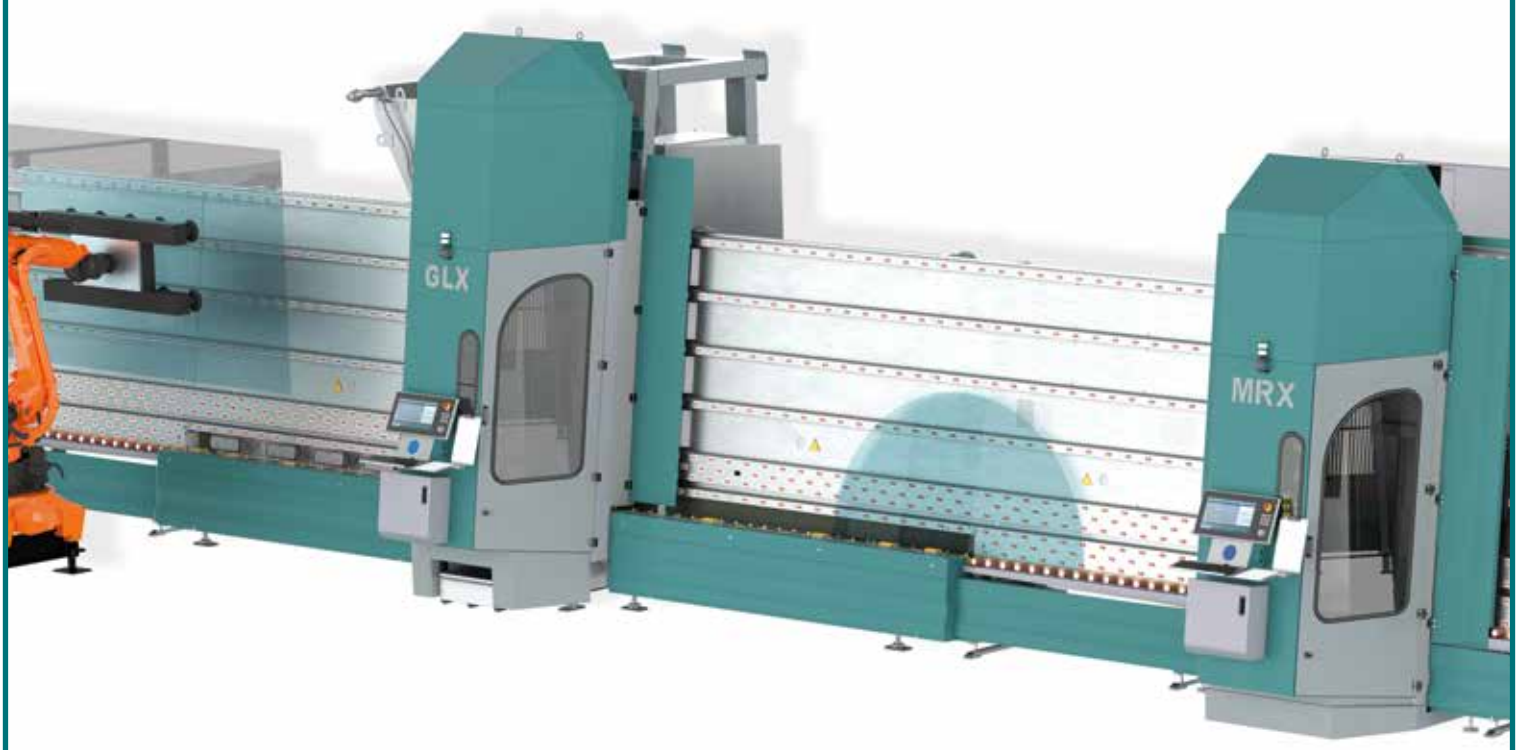


combiFIN

PROCESSING LINE FOR FLAT GLASS

combiFIN.com

Schraml Glastechnik GmbH

Schraml Glastechnik GmbH shines in new brilliance. And with it, the business unit of the LiSEC Group.

Although Schraml Glastechnik GmbH has been taken over by the LiSEC Group, it is still an independent company with the same managing director and the same employees as before.

This provides you, the customer, with high quality, security and a strong, reliable partner in the background.

In the mid-90s of the last century, we started with prototypes for a vertical glass drilling machine.

Since 1996, the machines have been manufactured in series under the brand name topDRILL and have been installed hundreds of times on all continents. To this day, this idea forms the basis for a large number of vertical processing machines. Our slogan is therefore still “first in vertical drilling”.

Over time, the machines have become more complex and further automated, and the 8th generation has now been developed and - following integration into the LiSEC Group - is also available with waterjet technology.

topDRILL in combination with the GLX for outside edge processing results in the combiFIN, our processing line for fast and economical complete processing in the medium size format.

Since model year 2024, both the combiFIN and the respective individual machines have been available with the SSP sorting storage system or with a robot solution for unmanned loading and unloading.


G1 | from 1996


G2 | from 1998


G3 | from 2004


G4 | from 2010


G5 | from 2012


G6 | from 2018


G7 | from 2020


G8 | from 2022

Table of Content

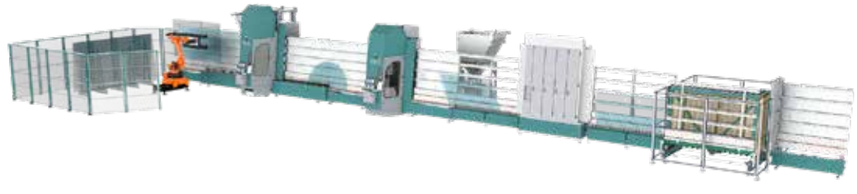
Assembly variants

GLX + M-RX G7 + topCLEAR

GLX + RX G8 + topCLEAR

GLX + M-RX G7 + topCLEAR + 2x SSP

GLX + M-RX G7 + topCLEAR + robot loading + SSP



combiFIN - possible configurations

	GLX Mw-RX (G7)	GLX M-RX WJ (G7)	GLX NC WJ (G8)	GLX RX (G8)	GLX RX WJ (G8)
Grinding and polishing outer edges	✓	✓	✓	✓	✓
Grinding and polishing outer edges for special shapes	✓	✓	✓	✓	✓
Self-measuring for automatic seaming of rectangles	○	○	○	○	○
Hole drilling and countersinking	✓	✓		✓	✓
Milling and grinding cut-outs with diamond tools	✓	✓	×	×	×
Cutting cut-outs with a water jet (without seam)	○	○	○	×	○
Seaming waterjet cuts (see detailed instructions)	✓	✓	×	×	✓
Grinding waterjet cuts with a trapezoidal tool	✓	✓	×	×	×
Polishing cut-outs (see detailed instructions)	✓	✓	×	×	×
Integrated data splitter (automatic .dxf splitting)	✓	✓	✓	✓	✓
Industry 4.0 standard	✓	✓	✓	✓	✓
Automatic control via data interface	○	○	○	○	○
Extension with topCLEAR or SSP sorting memory	○	○	○	○	○
Suitable for low-E glass	✓ ○	✓ ○	✓ ○	✓ ○	✓ ○
Minimum size (mm)**	650 x 180	650 x 180	700 x 150	700 x 150	700 x 150
Maximum size (mm)**	3300 x 2000	3300 x 2000	3300 x 2000	3300 x 2000	3300 x 2000
Glass thicknesses**	4 – 12 (19)	4 – 12 (19)	3 – 12 (19)	3 – 12 (19)	3 – 12 (19)
Length of the entire line**	from 19,8m	from 19,8m	from 22m	from 22m	from 22m
Minimum installation depth**	from 3500mm	from 4700mm	from 3500mm	from 3500mm	from 4700mm
Total installed output incl. topCLEAR Super (kW)	57	79	46	51	73

* depending on the radius

** see detailed description

✓ Standard

○ Optional

× Not Available

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Glass processing of the future

Vertical glass processing is already well established on the market and is available in various variants. Vertical processing is certainly the fastest, most uncomplicated and by far the most economical way of manufacturing standard products.

combiFIN systems impress with their sophisticated concept and now offer a wide range of variants and possible configurations. Based on the topDRILL drilling machines, the platform has been continuously developed and is now the standard for medium-sized glass formats.

combiFIN combines individual processing units that can still be used independently to form an intelligent and networked processing line. This means that the individual devices can be used completely independently of each other if required, but as a rule the devices work in direct coordination with each other as a logical unit.

Design versions

combiFIN is available in various versions and combinations. The right solution can also be configured for your specific requirements and tasks from a wide range of options:

- **GLX** grinding and polishing machine for CNC external processing, also for special shapes
- **GLX** grinding and polishing machine in specialized design for automatic seaming
- **M-RX** drilling and milling center with vacuum fixing of the glass during processing
- **M-RX** drilling and milling center with integrated water jet head
- **topDRILL G8** drilling machine, optionally with single head or with RX turret drilling head
- **topDRILL G8** series NC or RX, now also with integrated waterjet head
- **topCLEAR** glass washing machines in a configuration precisely matched to the line
- **SSP** sorting storage system can be integrated BEFORE or AFTER the combiFIN in all variants

Advantages

The combiFIN concept offers the following advantages:

- Flexible and modular configuration
- Sophisticated and low-maintenance stand-alone machines
- Fast cycle times thanks to separate processing
- Automatic and integrated data splitter
- State-of-the-art CNC technology, easy to operate
- Optionally with or without water jet system

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Variant A - GLX + G8 & topCLEAR

In the configuration with the topDRILL G8 series, the combiFIN is even faster. The glass is held on the conveyor belts by gravity only and clamped for drilling and countersinking.

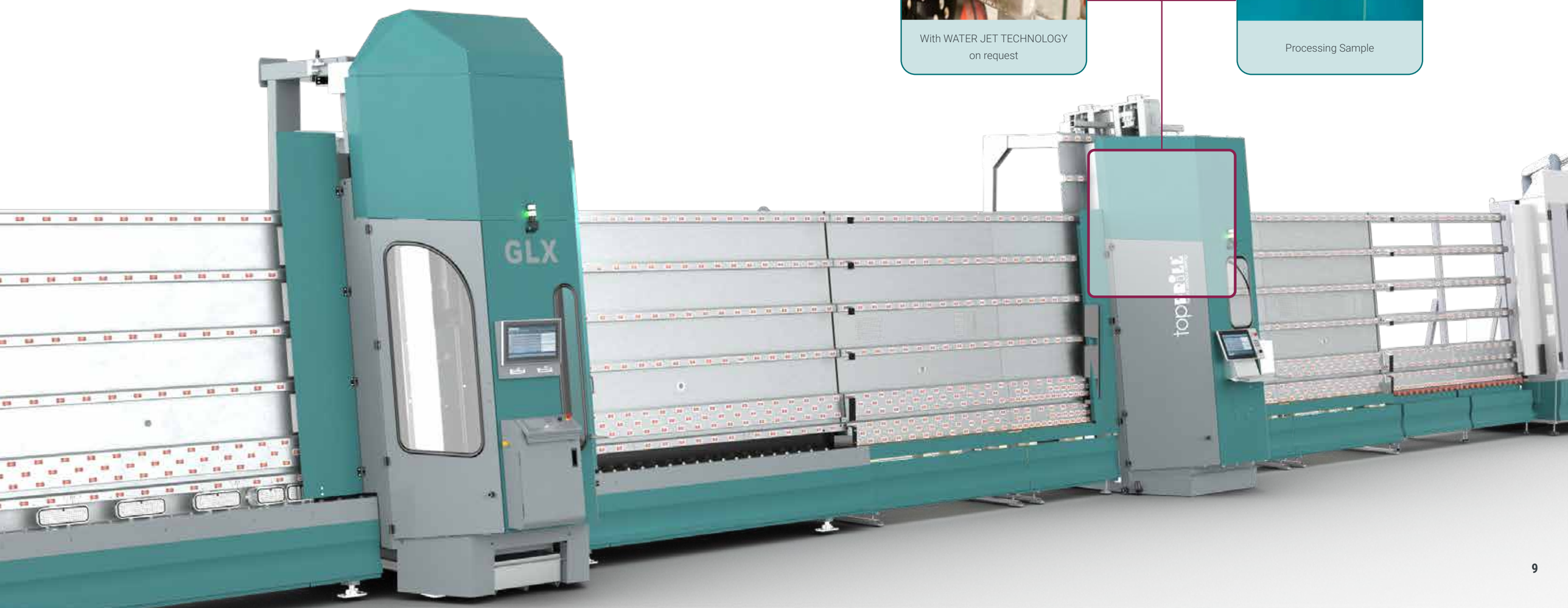
Only in combination with the water jet head the G8 series can also produce cut-outs at the edge and in the surface without restrictions. The cut-outs are finely ground by the cutting sand (abrasive material) in the water jet, but can then no longer be ground with diamond tools (45° edge) - because no side force transmission is possible.

Highlights

- The topDRILL G8 is the fastest CNC drilling and countersinking machine
- Less complexity because no vacuum system is required on the G8
- Perfectly prepared for VSG glass or equivalent products

Design variant

- Grinding and polishing of outer edges with the GLX
- Drilling and countersinking or Water blasting with the topDRILL G8. G8 available as RX or NC version - with or without water jet technology
- Optional and expandable with washing machine at any time



Drilling head technology of your choice

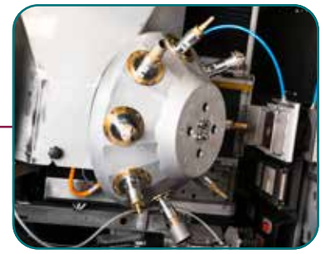
NC-single drilling head

With manual CMX quick change

NC-single drilling head

With additional water jet head

With WATER JET TECHNOLOGY on request



RX-turret drill head

8-speed changer front and rear

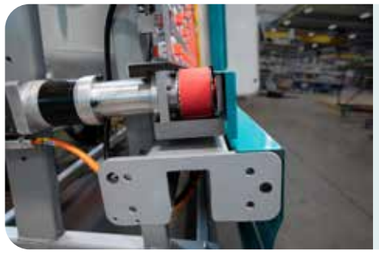
RX-turret drill head

With additional water jet head

Processing Sample

The highlights of the topDRILL G8 series

The unique topDRILL system concept enables simple and straightforward use, while also offering stability and many advantages for industrial use!



Modular construction:

The systems can be equipped with extension modules at any time. Combination with other devices is also possible.

Extensions can also be installed at a later time.

Glass transport with belt drive:

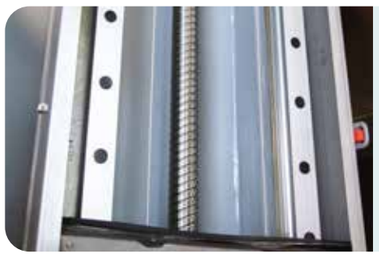
The belt drive is still the most uncomplicated and simplest way of performing glass transport, whilst also delivering very high precision.

In combination with the modular design, the belt lengths are very compact and each individual belt module - depending on the pulley size - is either commonly controlled or used as an inlet or storing station module.

Lifting axis (Y-axis) with belt:

Depending on the model, you can choose between the uncomplicated belt drive (now in an even stronger version) or the high-precision recirculating ball screw.

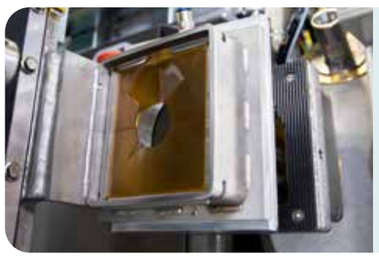
The guide rails are extremely solid and once again reinforced compared to the previous versions.



Lifting axis (Y-axis) with spindle drive (option):

In conjunction with the recirculating ball screws for the Y-axis, two separate drive motors are now also in use, and of course central lubrication is also used.

All settings and movements are thus even more dynamic and uncomplicated.



Water splash protection is significantly improved:

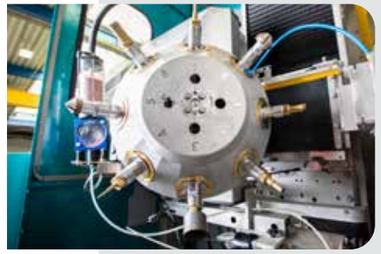
The water splash protection has been further enhanced on both the drill heads and the Z-axes. Even in continuous operation, the system and the individual technical parts are afforded maximum protection against contamination.

Turret drill head now 8-fold front and rear:

The machining capabilities have been further extended and 8 drilling and countersinking tools can be mounted at both the front and the rear according to free configuration.

The turrets are controlled by servo drive and the guide system has been significantly reinforced.

The special turret type allows changing one side while the opposite head is still working, thereby enabling an incredible cycle time for drilling and countersinking.



Water jet system now optionally available:

The patented water jet head is optionally available on both the single-head and turret machines.

With this system, the drilling machine is expanded to form a processing centre with outstanding flexibility and speed.

Glass thickness sensing integrated:

A contemporary additional feature is the automatic measurement and checking of the glass thickness, which reduces the risk of operating errors and incorrect occupancy to an absolute minimum.

Mechanical measurement of the glass sheets:

Precise and rapid measurement of the start position is fundamental to the machine function. Our system allows measurement of the glass edge during movement - also for shapes.

topDRILL devices can process all shapes with a straight cut-out edge.

Dressing and calibrating unit - integrated:

The tedious measurement and sharpening of your drilling tools is a thing of the past. topDRILL does this work automatically and always as required.

The tools are sharpened and dressed cyclically and automatically - or at the operator's request.

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Variant B - GLX + M-RX G7 & topCLEAR

When the M-RX (G7 series) is integrated into the combiFIN, all glass is dynamically fixed at the rear during processing using special vacuum belts. This means that even in the standard version (without waterjet), all cut-outs can be milled and ground or polished with diamond tools. With the optional waterjet head, the processing options are even faster and more flexible.

Highlights

- Fast cycle time
- Easy grinding of cut-outs thanks to the vacuum belts
- Gentle glass transport and easy loading and unloading thanks to vertical processing
- Processing of rectangles and special shapes possible

Design variant

- Grinding and polishing of outer edges with the GLX
- Drilling, countersinking and routing with the M-RX, with or without water jet technology
- Optional and expandable with washing machine at any time

Perfect and dynamic fixing during processing

With WATER JET TECHNOLOGY on request

Processing Sample

Also available in combination with SSP sorting buffer

The highlights of the M-RX G7

The MRX is a well-known system for the most flexible drilling, countersinking and milling operations. The new G7 series has been consistently further developed in essential details but continues to shine with unbeatable variability and extreme performant double-sided operation.

Turret drilling head with tool preselection:

The highly dynamic turret heads change the tool during the opposite machining and also during the positioning.

The intelligent tool management even recognizes whether milling and grinding tools are only equipped at the front or only at the rear and optimizes or changes according to the processing progress. Auxiliary bores are also carried out without operator intervention.

Dynamic vacuum belts with special shape recognition:

This highly flexible fastening system is still unmatched in terms of speed and variability. NEW on the G7 is the 3-sided sealing of the vacuum chambers and, on request, the version with particularly low-wear metal guides. By separating the right and left machine halves, you can start the next pane while it is being transported out.

Super-compact design allows space-saving assembly:

The multiply optimized compact design allows it to be used even in confined spaces. If necessary, the machine can be placed directly on the wall, the system components are integrated and the maintenance access is from the side. Of course, the MRX is also lubricated automatically, the accessibility is exemplary and the maintenance intervals are calculated automatically.

Flexible in all directions:

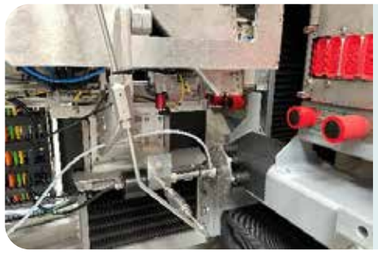
Forget the annoying measuring and sharpening of your drilling tools. The topDRILL performs this work automatically and always as required.

The tools are sharpened and dressed cyclically and automatically - or at the operator‘s request.

The highlights of our water jet system

The optionally available waterjet system on the M-RX and also on the topDRILL G8 series differs significantly from conventional and familiar solutions.

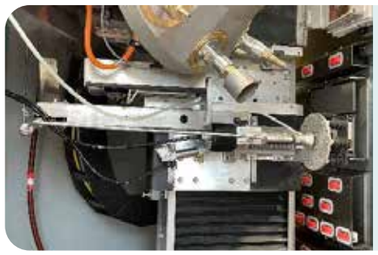
The complete integration into the processing head and the system-related advantages of our vertical solution offer massive benefits in terms of ease of maintenance and cost efficiency.



Water jet head directly below the processing head

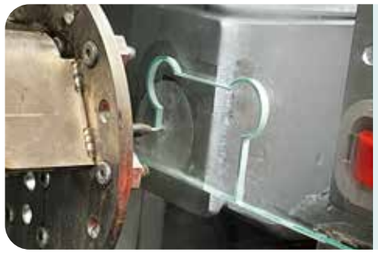
The interaction and task sharing between the processing head and the water jet system is seamless and practically without cycle time loss.

All openings in the surface are made fully automatically using diamond drills, so there is NO rebound of abrasive material during drilling!



Cycle time optimization in the machine's running direction

Thanks to the constant availability of diamond tools (front and rear without restriction) and the water jet head, drill holes, countersinks and complex cut-outs are automatically optimized along the throughput direction of your machine.



Fully automatic, parameter-controlled waterjet cutting

Our aim is to make the system as user-friendly as possible. All parameter and feed data are calculated and set fully automatically depending on the glass thickness and radius. With our quality system, you can also respond to your customers' special requirements.

No cutting sand (abrasive material) in the machine

Thanks to the patented and moving jet shredder at the rear of the water jet head, 100% of the abrasive material is captured and transported away in a controlled manner.

At no time does the abrasive material enter the machine room and no guides or other complex systems of the machine are damaged.

State-of-the-art pump technology without hydraulic systems

We use modern and economical high-pressure systems with outstanding operational advantages.

A directly driven motor controlled by a frequency inverter only requires power when cutting. The absence of hydraulic components saves many maintenance intervals and the pump works practically without pulsation.

The highlights of the GLX

Grinding and polishing outer edges is a central and very important work step in glass processing. We made a clear decision to optimize this process in a separate machine and not to attempt it together with the drilling and milling process. The result is optimal, the GLX offers many advantages in besides the much faster cycle time. In addition to the grinding of special shapes, the fully automatic and fast seaming of glass is now also possible, in the case of rectangles even with self-measurement!

Comprehensive water splash protection:

Sufficient cooling of the tools is important for the quality of the edge and for the feed rate. The amount of water is encapsulated and drained off on the GLX directly in the area of the grinding wheels.

All important drive and control components are located outside in the dry area. This is an unbeatable advantage in terms of maintenance and longevity.

Water cushion for surface tracking:

The LiSEC water cushion for perfect tracking of the grinding and polishing wheels along the glass surface is installed as standard on the GLX.

Unmatched precision and quality - necessary for a perfect result and unique in this machine category. Can now also be used for special shapes.

Equipment for small glass processing as standard:

The practical use of the GLX is unbeatable. In addition to processing special shapes with a straight edge, small glasses and, if desired, thin glasses can also be ground and polished.

With the optional 12-fold tool change, even changing the glass thickness within the production flow is no problem. The minimum dimension in case of stand-alone installation is just 470x180mm.

Unmatched ease of maintenance access:

In addition to the compact footprint, a particular focus of development was the very simple operation and uncomplicated maintenance in your day-to-day business. The system therefore supports the operator with predictive and interval-controlled maintenance messages, but mechanical access is also optimized and very easy to do.

combiFIN – the perfect choice for your task

The combiFIN concept is basically available in two versions, which are visually and technically very similar. The main difference lies in the internal processing machines and the type of glass transport.

Variant A: GLX + topDRILL RX G8 + topCLEAR

Advantages of the conveyor belt

- Very fast and uncomplicated
- Automatic accumulation distance function
- Very low maintenance

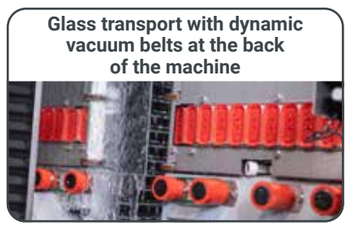
Advantages of the RX G8 (with water jet option)

- Tool change already during opposite machining
- Magnetic holder for quick tool change

Possible processing with the RX G8

- Drilling and countersinking as well as deep countersinking in extreme cycle times, own multiple VSG mode
- All edge and internal cut-outs with the waterjet head option, no absolute size limit
- Seaming of waterjet cuts (depending on the radius or with restrictions)

Variant B: GLX + M-RX G7 + topCLEAR



Advantages of the vacuum belt

- Very compact machine design
- Extremely high holding force during ongoing movement
- Dynamic fixing for drill holes or moulds

Advantages of the M-RX G7 (with water jet option)

- Grinding and polishing of cut-outs with diamond tools even without a water jet
- Even faster and more flexible with waterjet

Possible processing with the M-RX G7

- Drilling and countersinking as well as deep countersinking on one or both sides, dedicated multiple VSG mode
- All edge and interior cut-outs, milled, ground and polished (even in the standard version)
- Edge and internal cut-outs with greater flexibility and speed with the waterjet head option

combiFIN offers all glass processing options - fully automatically

	Edge arrising	GLX	■ With self-measurement option also possible in fully automatic mode (for rectangles, without data input)
	Edge grinding	GLX	■ Special shapes with a straight installation edge are also possible ■ Round or bevelled corners up to 15 mm without loss of cycle time
	Edge polishing	GLX	■ Special shapes with a straight installation edge are also possible ■ Round or bevelled corners up to 15 mm without loss of cycle time ■ Quality system optional
	Hole drilling	M-RX G7 NC G8 RX G8	■ Maximum drilling diameter 80mm ■ Separate LSG mode for multiple LSG or for multiple foils
	Hole counter sinking	M-RX G7 RX G8	■ Countersinking up to 1mm depth also fully automatic with combi countersink ■ Countersinks with automatic torque control
	Cut-out ground	M-RX G7 RX G8 WJ	■ Cut-out size theoretically not limited by the use of fixing tabs (automatic process for diamond or waterjet machining)
	Water jet cut*	M-RX G7 NC G8 RX G8	■ Waterjet cutting without post-processing on the NC G8 or on the RX G8 ■ Waterjet cut with additional trapezoidal cut on the M-RX G7

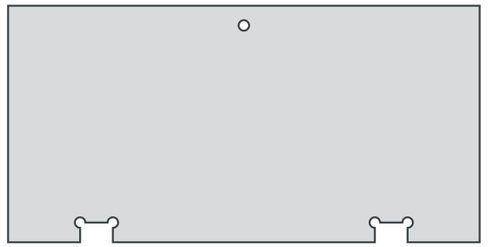
*Cycle times for examples shown with simultaneous use of GLX and MRX, times include infeed and outfeed but do not include waterjet option | Subject to change

Cycle times in the top league

In practise, our system of separate processing heads brings almost nothing but advantages. The only disadvantage is the slightly longer line length compared to all-in-one machines. The example of the cycle time in particular shows that the combiFIN represents a major economic advantage for your business. We have tried to compare and illustrate different processing options:

Shower door

Floatglas 8mm, polished, 800 x 1,900 mm
2 Mickey-Mouse, 1 handle hole 10mm



GLX + MR-X G7	GLX + RX G8
240 sec milled + ground with diamond tool 220 sec Water jet cut and trapezoidal grinder	220 sec Water jet cut with “WJ” option

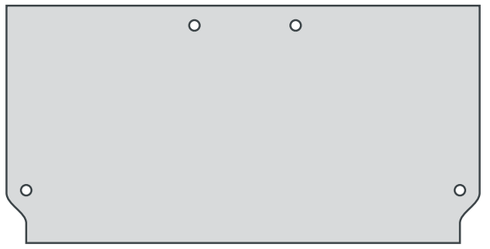
Parallelogram

Floatglas 6 mm, polished, 600 x 1,200 mm
4 cylindrical holes or countersunk holes 20/28mm

180 sec drilled cylindrical 210 sec drilled cylindrical + Countersinking	160 sec drilled cylindrical 190 sec drilled cylindrical + Countersinking

Swing door

Floatglas 10mm, polished, 900 x 2,100 mm
2 corner fittings PT10, 2 drill holes 12 mm



320 sec milled + ground with diamond tool 280 sec Water jet cut and trapezoidal grinder	260 sec Water jet cut with “WJ” option

Overview washing machines

Schraml topCLEAR machines

	ECO	SPECIAL	SUPER
Glass thickness 3-12 mm	✓	✓	✗
Glass thickness 3-20 mm	○	✗	✓
Transport height	600 mm	600 mm	600 mm
Angle of inclination	7°	7°	7°
Increase working height	○	○	○
Distance between rollers only 120 mm	✓	✓	✓
All transport rollers individually driven, ball bearing mounted	✓	✓	✓
Rollers with slip clutch on input and output module	○	○	○
Basic frame, machine body and water tank in stainless steel	✓	✓	✓
Doors front- and rear side, guards in polycarbonate	✗	✓	✓
Spraying tubes for brushes and rinsing section plastic	✓	✗	✗
Spraying tubes for brushes and rinsing section stainless steel	✗	✓	✓
Glass support frame for drying section in stainless steel	✗	✓	✓
Water heating with adjustable thermostat	✓	✓	✓
Sensor for water level and protection resistance	✗	✗	✓
Submersible pump with stainless rotor	✓	✓	✗
High-pressure centrifugal pump with filter	✗	✗	✓
Noise reduction box for ventilator, with air filter	✓	✓	✓
Additional driving motors with bottleneck function	○	○	○
Light panels on outlet side	✓	○	○
AutoStart System with inverter for soft-start of brushes	✗	○	○
Pre-washing area with high pressure pump,separate tank	✗	○	○
Soft brushes frontside for soft coated glass	○	○	○

✓ Standard, ○ Optional , ✗ Not Available

topCLEAR

Vertical flat glass washing machines for all requirements

We have been supplying and installing the glass washing machines of the topCLEAR series for about 20 years. With the gathered experience of over 600 installations, the washing machines have been constantly optimized and adapted to the changing customer requirements. topCLEAR washing machines are currently available in 3 different models. All of them can be expanded with a variety of useful equipment options. We are sure we can provide the right solution for your requirements.

Many advantages included in the standard:

- Stainless design of base frame and machine body as well as all built-in components in the washing zone
- Narrow roller spacing inside and outside the machine for safe, problem free processing of short glasses
- Sound absorption box for fan perfectly insulates against operational noise
- Clear, easy to use operating units
- Partially or fully automatic water circulation system saves energy and resources
- Extensive and clear documentation for operation and maintenance tasks

Extensions and additional modules

Depending on the customer's requirements, the topCLEAR washing machines can be equipped with additional inlet and outlet modules. Those modules can of course be adapted to your needs in working height and equipment.

Combination with other devices

The topCLEAR series is ideal for combination with other devices. Both vertical grinding and drilling machines, as well as feeding systems, film applicators or tilting tables – even from non-LiSEC manufacturers – can be easily connected.

topCLEAR Super

Professional series for thick-glass processing up to 20 mm

topCLEAR Super is what we call our extremely robust series for thick glass processing, especially grinding. Any glass thickness up to 20 mm can be processed without further adjustment.

Highlights

- Stronger machine frame in stainless steel
- Doors front- and rear side, polycarbonate guards
- Individual water pump for each pair of brushes
- Sensor for water level and shutdown
- High pressure centrifugal pumps made of stainless steel

Options

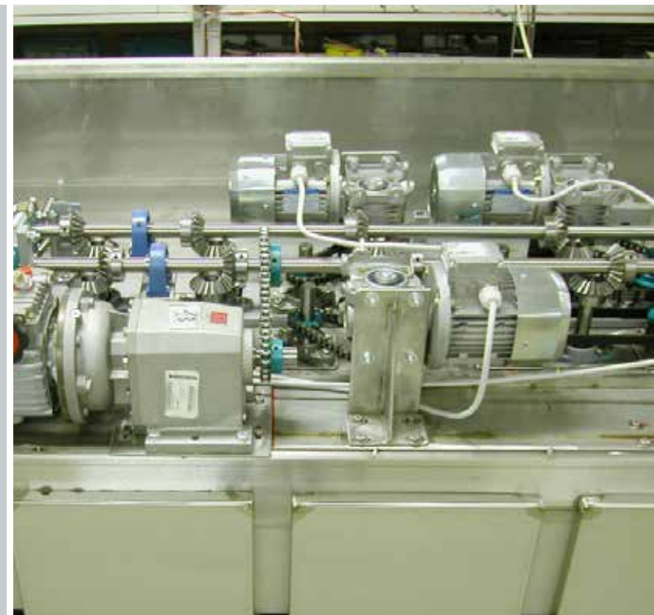
- Rollers with slip clutch
- AutoStart system for power saving
- Light panels on outlet side
- Pre-washing area with high pressure pump, separate tank
- Soft brushes frontside for soft coated glass

Optimized water management

- Stainless steel centrifugal pump below washing area
- Water tank with heating
- Sensor for water level with indicator lamp

Well thought-out drive concept

- Overhead drive for brushes and glass transport
- Individual motor per brush or per pair of brushes (if closed construction)



Technical Data				
	topCLEAR 13 Super 4/20	topCLEAR 16 Super 4/20	topCLEAR 20 Super 4/20	topCLEAR 25 Super 4/20
Max. processing height	1,300 mm	1,600 mm	2,000 mm	2,500 mm
Construction	Open at the top	Open at the top	Closed at the top	Closed at the top
Glass thickness	4 - 20 mm			
Minimum size	320 x 50 mm			
Length of the inlet table	2,000 mm (optional 2,800 mm) – modularly expandable		2,800 mm – modularly expandable	
Length of the outlet table	2,800 mm – modularly expandable			
Angle of inclination	7° (+/- 1°)			
Transport height	600 mm (+/- 20 mm)			
Number of brushes	4 brushes			
Transport speed	1-5 m/min	1-5 m/min	1-5 m/min	1-6 m /min

Intended use

topDRILL machines are optimised for the extremely quick, simple and straightforward drilling and countersinking of individual glass lites sheets. With the water jet cutting option, edge and surface cut-outs of any shape can also be cut.

Tools

We recommend the INNODIA diamond tools

- Perfectly suited for vertical glass processing
- Drills and countersinks are slotted as standard
- Enhanced diamond quantity - fast feed
- Tools pre-ground, ready for immediate use
- Reasonable price and quickly available from stock

INNODIA.COM
INNOVATIVE DIAMOND TOOLS

combiFIN - ready for the future

A specific advantage of the modular and scalable combiFIN systems is that they can be adapted to the respective production process at any time, even retrospectively. You therefore have absolute investment security, even if you only start with one or a few pieces of the system puzzle.

In principle, our processing line consists of a processing machine and a washing machine, with the GLX grinding and polishing machine being the logical and typical addition.

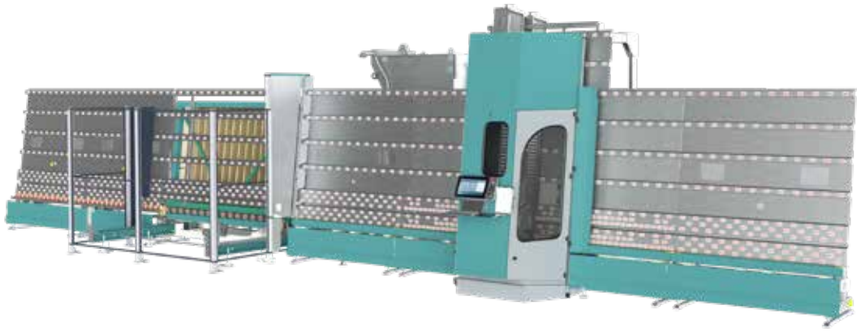
Our SSP sorting storage system is available for increased ease of use or for fully automatic and unmanned production over a certain period of time. The SSP is available in two sizes and can dynamically buffer the jars on 30 compartments.

The integration of the SSP into the downstream processing machine is already planned and provided for. The glass is sorted automatically, but can still be changed by the operator if required.

Depending on the space available, the glasses can be loaded or unloaded into the SSP via a separate loading station; if there are space problems, operation is also possible via the infeed of the processing machine.

It is not even necessary to use a whole processing line to have the advantage of unmanned production with SSP or robots. Even with a single processing machine, probably in combination with a washing machine, you can integrate the SSP at any time.

With our production systems, you are already taking a big step into the future!

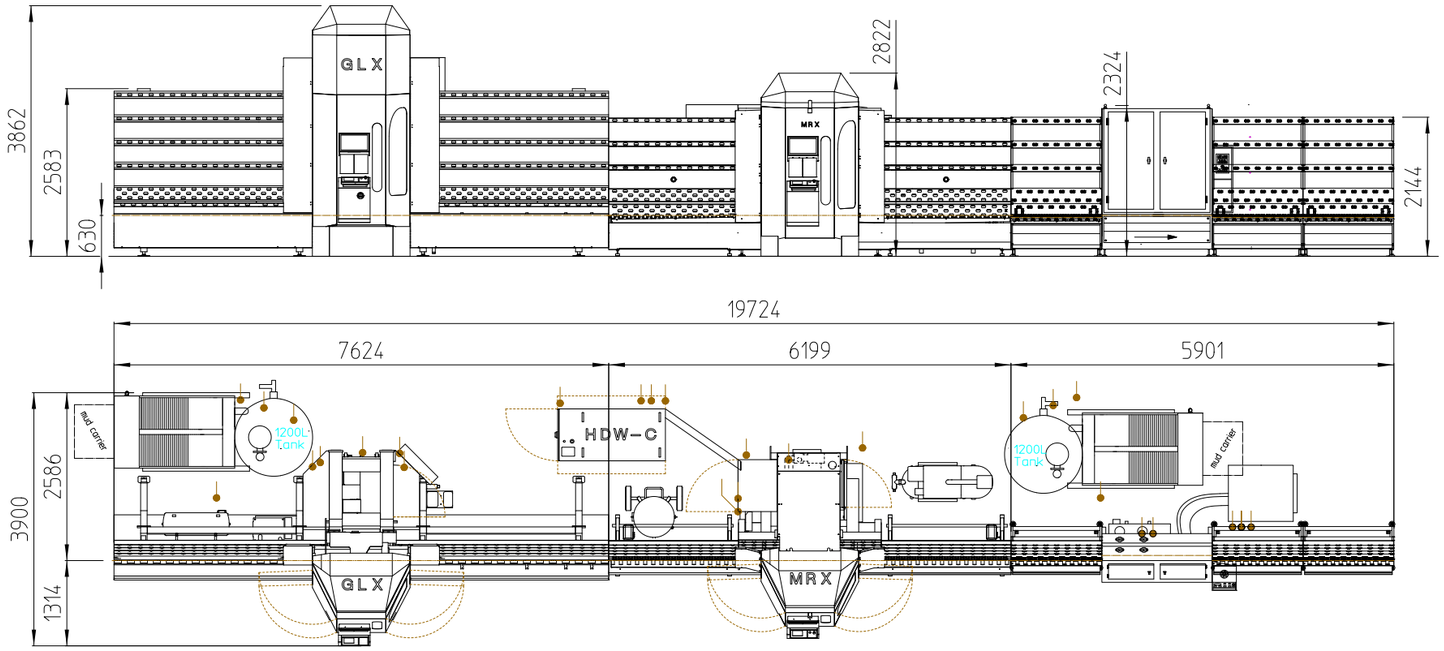


combiFIN with robots - anything is possible

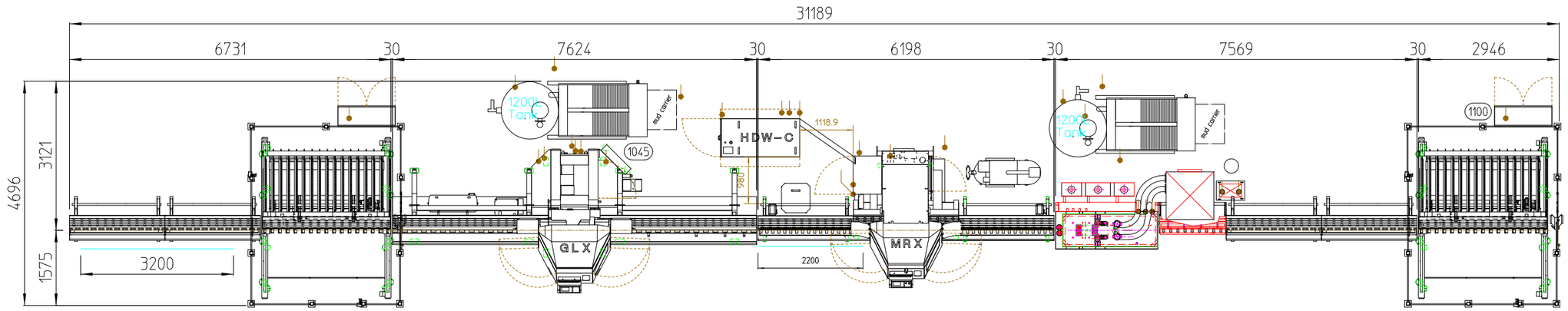
Instead of the SSP sorting and storage buffer, the combiFIN can also be loaded and unloaded by robot. This variant enables even greater flexibility and can be combined with carousel or loading systems for uninterrupted production. Robot systems are available in various weight classes and can of course also be combined with upstream or downstream production cells.

combiFIN - Convenient layout configurations

Compact system for manual loading and unloading:



Extended version with M-RX G7 and with SSP buffer:



*Layout and running direction only exemplary, many configurations possible | Subject to change without notice

Industry 4.0

The future is now - right from the start

Industry 4.0

The term Industry 4.0 refers to projects for the comprehensive digitalization and intelligent networking of industrial production. The description 4.0 refers, among other things, to the version numbering commonly used for software products.

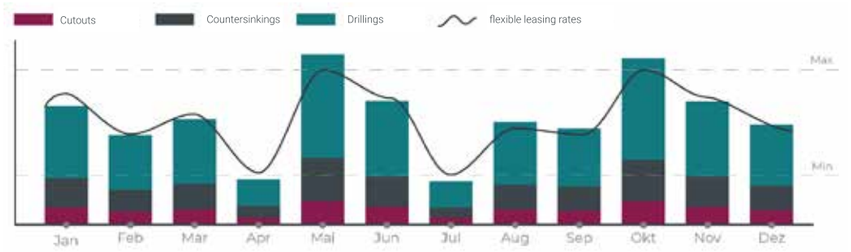
All of our systems and the combiFIN line (with the exception of the standard version of the topCLEAR washing machine) have been developed and are compatible with this new principle. The systems are largely fully automatic, dynamically networked, completely transparent and compatible with other systems (interface-compatible). Assistance systems are available online on the devices or remotely via remote maintenance.

Any funding or support for Industry 4.0 is achieved and supported.

Pay-per-use:

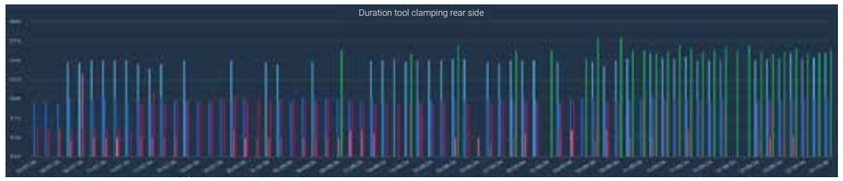
Pay-per-use is a new type of billing model in which the rate is calculated dynamically depending on actual usage. Together with our partners, we offer the option of financing the devices over shorter or longer periods of time depending on their actual utilization.

The advantage for you as a customer is that you pay less when utilization is low, but can finance the equipment more quickly when utilization is very high. Known from the pay-per-use models for office machines, there is an agreed minimum usage, but also a maximum amount per agreed usage unit.



Predictive maintenance:

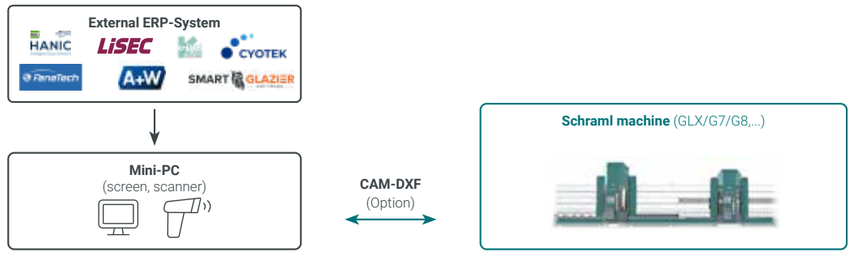
The term predictive maintenance refers to the ongoing monitoring and evaluation of meaningful maintenance components of the system. Maintenance is therefore not carried out at fixed intervals but dynamically and only when necessary, thanks to clever advance calculations and based on empirical values. The result for the customer is the best possible uptime with reduced maintenance costs and downtimes. Depending on your company's IT architecture, our predictive maintenance systems can communicate with the systems via IoT (Internet of Things) or the mobile network.



Possibilities for integration into production lines

Variant 1 - Remote-Read VISU

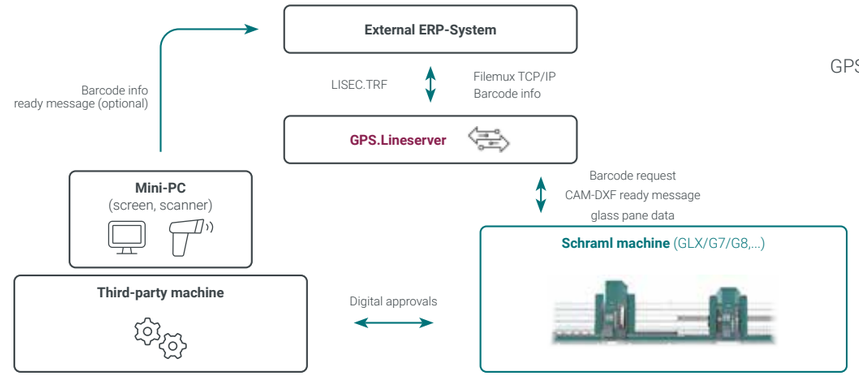
Article:
CAM-dxf (P-022738)



Fast, simple and very stable solution for automatic programming, no direct integration of third-party machines, manual loading and manual scanning. Direct transfer of CAM dxf data (operator loads machine and scans the glass sheet).

Variant 2 - with LiSEC software and direct communication to a third-party machine

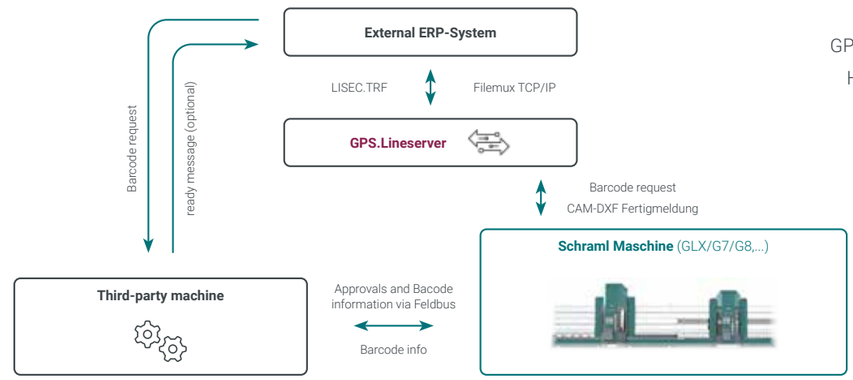
Article:
CAM-dxf (P-022738)
GPS Lineserver (P-024894)



Automated interface with integrated lineserver (data management between the devices). Only digital approvals required between machine manufacturers. Data exchange is automated (breakage and completion reports are optional)

Variant 3 - with LiSEC software, third-party machines Integration via ERP system (e.g. A+W ToolTV)

Article:
CAM-dxf (P-022738)
GPS Lineserver (P-024894)
HW-Interface (P-024761)

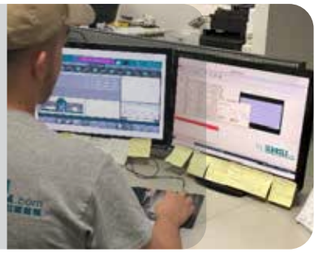


Complete integration of third-party machine and third-party ERP based on the lineserver function. Fully automatic and synchronized sheet transport between the individual devices. Data exchange directly between the external devices and the Schraml machines via Feldbus (e.g. EtherCat or Profinet)

Options for operating your processing machine

Programming your Schraml processing machine is simple and flexible. All the detailed programs you require are integrated in a single interface. The concept is modular and open to the outside. Various options are available for importing data or for interfaces with other systems.

Data entry takes place directly on the device or on an office workstation, and it is easy to make subsequent changes.



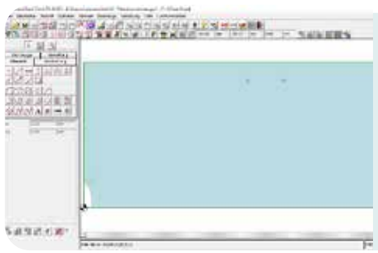
Programming directly on the machine

All desired machining operations for rectangles and shapes can be entered directly at the machine via user-friendly menu guidance as standard. It is possible to import .dxf drawings if they comply with the specifications.

Programming in the office with PC-Link software

A small step in operation, a big step for the operational process:

Using the optional PC-Link software, you can create the necessary programs in the office. The operator's workload is eased and they are able to concentrate on loading the system. Errors are avoided and speed is increased.



CAD program with glass-specific interface

A comprehensive CAD solution is available as an advanced option. The interface and the operating buttons are already prepared for processing, importing and defining processed glass lites sheets and cut-outs. Numerous macros are available for countersunk holes or edge qualities.

The CAD program can be used directly on the machine or in the office on the PC-Link platform.

CAM data interface to external ERP programm

If you already use an ERP system, you can take full advantage of digitalisation: Control the processing machine via interface and a simple scan of your product label.

All the operator has to do is position the glass correctly, the „Scan-and-Go" functionality takes care of the rest!

Our interface is bi-directional, the systems also send status messages back to your system.

Service

We offer you worldwide service and the fastest possible supply of spare parts

We understand that straightforward operation and the long-term reliability of your system are your top priorities. Our service and our company philosophy are precisely aligned with this focus. We support and assist you right from the outset and throughout the entire life cycle of your system.

Supported by the global network of LiSEC support points, we offer start-up, training, online support, on-site service and the rapid dispatch of spare parts!

Facts and figures:

- More than 140 service technicians worldwide
- Global network with local partners around the world
- Spare parts deliveries around the world within the shortest possible time
- Rapid problem solving via remote maintenance
- Competent technical advice

Service products

- Online Support
- Hotline
- Inspection& maintenance
- Training
- LONGLiFE
- Spare parts
- Installation
- Repairs

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