Software
Reliable processes, good quality, solid profit: LiSEC solutions provide flat glass processors around the world with security and drive in a challenging environment.

For the last 50 years, we have been working hard to enable you to sustainably boost the efficiency, the system availability and the quality output of your flat glass production process. Thanks to forward-looking thinking, continuously striving to find the best solution and a great deal of personal commitment from our employees, we have grown from a one-man company to a technology leader.

Our advanced solutions generate a great cost-to-benefit ratio throughout the entire lifecycle of your machines and systems.

Customers around the world can benefit from this: be they experienced manufacturers or newcomers to the industry; from family businesses to industrial glass processors. Three main factors are essential for long-term success:

1. Turn Key Solutions
Everything from a single source including software. Customers benefit from the only company in the flat glass machine industry that can comprehensively plan and develop large projects - also thanks to the widest product range in the industry.

2. Excellent Service
Investment security and the highest availability and productivity enable the large, global LiSEC service network. A contact person familiar with the local language and customs is available close to you.

3. Performance through software integration
Integration of the production management software and the machinery control (digitalization/Industry 4.0) allows top operation and optimization of all integrated machines or whole glass factories.

The benefits:
- Over 50 years of partnership, pioneering spirit and stability
- Investment security due to the size of our company
- Leading technology with a high resale value
- Great cost-to-benefit ratio throughout the entire system lifecycle
LiSEC Digitization & Industry 4.0

Strategy

Your benefit
- Integration with your customer
- Cost reduction
- Transparent processes in real time
- Production without surprises
- Consistent quality

Is our mission: best in glass processing

Integration with your customers
Strategic partnerships with e.g. Klaes, a leading software company for window, facade and conservatory construction, as well as other partners for transport organisation, product configuration.

Transparent workflows accessible in real time
Allowing you e.g. check the status of your production anywhere and anytime, even from your smart phone.

Consistent quality
- No manual glass handling
- Production information traceability incl. relevant production parameters

Cost reduction
- Graphical capacity planning supports additional resource optimisation
- Innovative, quick and easy order entry
- Continuous optimisation reduces material and process costs

No surprises
- Intelligent machines / lines as „smart factory“ are self-monitoring and warn about upcoming maintenance requirements and wear parts needing to be replaced
- Online services and offices worldwide offer local support

We consider LiSEC a technology partner we can rely on. The introduction of the LiSEC software packages was a real challenge, but thanks to their size and in-house experience with glass processing, LiSEC is capable of developing tailor-made solutions and offering the customer exactly what they really need.

Andrzej Godembiecki, Insulating Glass Production Director, Oknoplast

„All in all, the Dynopt investment was certainly one of our best software investments in recent years. “

Lothar Schleiner, Authorized Representative/Plant Manager at Gethke Glas Gronau

...through many proven strategies for improvement
...through many intelligent innovations
...through best practice solutions
...through a successful cooperation with us, your single-source supplier
Software for Business Management

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  ERp covering quoting, purchasing, warehouse management up to invoicing
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## Service

1. **Software**
   - Service and Installation
   - My LiSEC
   - LiSEC Supervisor
   - Project Management
   - Business-Unit Software
   - Services (Machinery)

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

2. **LiSEC Supervisor**
   - A competent project manager is the key to a successful project.

3. **LiSEC Glass Forum**
   - Competence Center for research, production and training in the field of flat glass processing.
ERP covering quoting, purchasing, warehouse management up to invoicing

The LiSEC software solution order was developed with the particular needs of flat glass production in mind. It structures and supports your day-to-day business allowing you to focus on your customer and not on administration. The order already includes all main functionalities for order processing such as: direct customer interface, quote generation considering all relevant production costs and overheads (cover contribution calculation), automatic invoicing and printing of the delivery note, integration into company software system, harmonic integration of the production management, material management, order management, reports and analysis, displaying the efficiency of your production in graphical form or export to Excel, etc.

Extensions & Additional Products:

- Window-/Structural glazing
- CAD/CAM
- Smart/Builder ERP
- Scancam
- Transport-Mgmt.

Highlights:

- Increasing the speed and automation of the order management
- Automatic checks of production and delivery dates at order entry
- Customer retention due to automated customer communication and electronic data exchange
- System-supported and automated entry with product configurators
- Modern, intuitive order editor including intelligent quick input and 3D viewer
- Much faster order entry

Functions:

- Central, cross-program master file management
- Quotation entry and initial optimisation
- EDI Import
- Capacity check
- Accounting interface
- Cover contribution calculation
- Purchase and inventory management
- Windows / Linux
- Terminal-Server with Thin Clients
- Online Service (SaaS)

Data bases:

- Oracle
- MS-SQL
- PostgreSQL (on request)

Quick Input:

The new quick input system integrates perfectly with the graphical editor. It adjusts to the user’s needs and allows entering all order position details quickly and easily.

Templates:

Use the latest template function to create units, processes, Georgian bars, and other details, which can be reused quickly and easily. A preview function supports the fast selection of the correct template. Created templates can be made available system-wide or for individual users.

Automatic Delivery Deadline and Production Checks at Order Entry:

Capacity planning and delivery date management are fully integrated with the production. The moment order positions are entered the system will check the available capacities and provide up-to-date information about production and delivery dates.
3D Online Product Configurator (B2C & Cloud)

B2C Configurator for your Customers

Offer your customers the advantage of personalised products which they can design anywhere and at any
time, and order directly in your system. Pick and choose which glass, processes, colours, etc. are available
to the customer, and create a safe environment where the order button can be pressed at any time!

**Highlights**
- Browser-based 3D product configuration
- 3D processing (personalised print designs, edges, and surfaces) and shapes
- Responsive design (available for all conventional mobile devices like smartphones & tablets)
- High availability in the Cloud (MS Azure)
- Integrates with your IT environment
- Direct connection to Order
- Restrictions, prices, master data from order management

**Functions**
- Configuration of single glass & LSG sheets
- Easy placement of variable cut-outs via drag & drop
- Included shape catalogue
- Easy processing selection
- Upload individual designs for printing

Browser-based 3D Product Configuration

Open up a new sales channel by giving your customers the option to configure their own glass sheets in different shapes and sizes. With the 3D product configurator customers can define processes and print labels directly on your homepage via simple drag & drop. According to the “what you see is what you get” design principle, the result is immediately visible. An attractive, modern design rounds off the functions of the configurator.

3D Processes

The configurator supports variable 3D processes via simple drag & drop. Users can position and move cut-outs with the mouse or adjust processes via parameters like radius, diameter, or size in detail. The changes are visible immediately.

Responsive Design

The sophisticated design offers the same full-functionality user experience on both PCs and mobile devices.
Toolbox for Glass Installations and Mounting

All-inclusive system for designing, quoting, scheduling and invoicing your glass installations

The Smart Toolbox will help your installation department save time and money, speed up quoting, win jobs, reduce glass errors and allow you to see exactly where you are making or losing money.

Seamless drag-and-drop scheduling coordinates your office staff, sales team and installation technicians, so everyone knows what happens when. Powerful reports help you see exactly where you are making or losing money. A world-leading suite of design modules gives you the power to create professional quotes with beautiful 3D images as well as automatically calculate pricing and produce accurate glass drawings for production in seconds.

As you design, our software generates a production-ready bill of materials with all production details, which can be fully integrated with LiSEC ERP and Production Systems.

Extensions & Additional Products:

Highlights
- Increased speed and accuracy of quoting
- Professional quotes with 3D images increase sales
- Standardised pricing, design rules and operations across your business
- Automatic glass and hardware calculation reduces errors
- Interactive drawings assist changes and provide instant feedback
- Easy to learn interfaces allow quick use by the staff

Functions
- Design showers, doors, balustrades, splash backs, mirrors and more
- Copy to/from library
- Built-in job scheduler
- Web plugin for design modules
- Integration with Order and Prod
- Desktop
- Tablet (Citrix)
- Web Solution
- SaaS or on premise
- Databases: MS SQL Server or Express Edition or higher

Intuitive Design System
The Smart-Design modules are used by thousands of businesses to design millions of structures around the world. The configurators convert your opening measurements into a quote, glass order and installation report in seconds. With custom warnings, hardware and clearances, the design modules enable your staff to design even the most complex structures with ease.

Detailed Installation Documents
Helpful installation reports are generated automatically for every shower, door or balustrade that you design. These include a complete list of parts required, as well as detailed drawings showing clearances and panel orientation, making installation easy and efficient.

Integrated Scheduling
The built-in scheduler allows you to manage staff and vehicles across one or multiple schedules. Select lead and back-up installation technicians for a job to instantly allocate resources. Set estimated visit times to help you to manage your team efficiently, and with visit confirmed or completed statuses you can see who is available at a glance.
**cadcam**

**CAD solution for flat glass processing**

Its full integration into the order processing and production planning solutions makes cadcam the best construction program for the glass processing sector. Specifically developed functions support the construction of all imaginable product variants. cadcam can also be integrated as a stand-alone construction program within your existing software landscape.

### Functions
- Full range of functions of a CAD/CAM system
- LiSEC shape catalogue
- Variable graphics
- Supporting digitizing tables
- Automatic calculation of grinding additions
- Automatic calculation of decoating contour for edges and cutouts
- Administration of cutouts/fittings
- Supported formats: DXF & LiSEC formats (.ZEI & .GPS)

### Highlights
- Simple placement of complex cutouts/fittings from the catalogue
- Optimisation and smoothing of contours are crucial for continuous cutting
- Low training effort due to intuitive and user-friendly graphical interface
- Integration depth up to the processing machine (CNC code converter)
- Extension of your shape catalogue with own drawings

---

**scancam**

**Digitalisation of templates**

LiSEC offers an easy to use system for creating a contour from a digital photo of the template. The contour can then be processed further with a CAD software. scancam automatically corrects photos taken with a digital camera for perspective distortions and generates a DXF file which can be imported by cutting and processing machines. scancam can also be integrated as a stand-alone version within your existing software landscape, as the generated DXF-format is compatible with all common CAD programs.

### Functions
- Automatic detection of reference points
- Correction of perspective distortions
- Continuous zoom for accurate contour detection
- Numerous software tools like „Close Corner“ to process the contour further

### Highlights
- Portable – Contours can be created at the construction site
- Easy to use – Intuitive graphical user interface
- Compatible – Data output in DXF format
- Automatic contour detection on a black background

---

Sample view of data display, offline test and declaration of performance
Delivery Tracking
Delivery Tracking and Inspection

Using the Order add-on delivery tracking, real-time information helps you save time and costs. The direct shipping feedback allows speedy reactions.

Highlights
- Online delivery tracking
- App on mobile devices
- Real-time delivery status
- Delivery process logging
- Proof of delivery
- GPS tracking

Functions
- Direct delivery data transfer
- Delivery process logging including proof of delivery
- Direct recording of broken sheets and quality defects, as well as synchronisation
- User actions (deliveries, pick-ups, quality defects) are synchronised
SOFTWARE FOR PRODUCTION MANAGEMENT
prod organizes your production processes from the jumbo plate stock to the laminating process, the insulating glass production or any other kind of production process to the packaging of your products. The prod basic package already covers all main production planning functions relevant for the flat glass industry: production planning, scheduling, glass cutting optimization, sequencing and remake management.

Extensions and additional products:

- Production planning and control system
- Material- und Maschinenoptimierung
- Dynamic optimisation
- Rack optimisation
- Label printing (grafical generator)
- Capacity planning
- Flexible reporting and analyses
- Delivery-/route planning
- Order management
- Process overview via asset check
- Integrated quality management
- Production status
- Control of LISEC and foreign machines

Interfaces:
Bottero, Hegla, Intermac, Bavelloni, Bystronic, etc.

**Highlights**
- Overview of the running production
- Machine load and bottleneck warning
- Packing optimization
- Stock location management
- Avoiding manual sorting
- Flexible reporting
- Simultaneous optimization of multiple variants
- Remake management and integration

**Functions**
- Production planning and control system
- Material- und Maschinenoptimierung
- Dynamic optimisation
- Rack optimisation
- Label printing (grafical generator)
- Capacity planning
- Flexible reporting and analyses
- Delivery-/route planning
- Order management
- Process overview via asset check
- Integrated quality management
- Production status
- Control of LISEC and foreign machines

**Overview of the Running Production**
The sales department benefits from the capacity planning due to real-time information about achievable delivery dates. This is possible thanks to a comprehensive overview of the production process, even in areas where numerous production stages and material routes would make it complicated. Orders are planned with precision regarding schedule and machine-specific requirements.

**Machine Load and Bottleneck Warning**
prod reports the production progress to the plant management and the sales department in real time. The information tool provides an up-to-date status of the machine utilisation and individual orders. An invaluable advantage for a precisely planned utilisation of the production capacity or short-notice re-scheduling.

**Packing Optimisation**
prod makes it possible to produce glass sheets in optimised packaging sequence and directly onto the delivery racks. This makes time-consuming searching, commissioning and re-packing redundant. The results are reduced order cycle times, reduced costs in the shipping department and fewer glass damages during transport.
Our optimisation solution goes far beyond the functional scope of a glass cutting optimisation. We support easy input of complex insulated glass structures including coatings and steps. Processes and grinding additions can be applied with a few clicks. In addition, a single click starts the automatic optimisation of all materials from multiple orders, which are processed in parallel. The necessary production data is generated directly and provided to the operator.

Extensions and additional products:

- New, intuitive LiSEC order editor and stock plate editor
- Flexible optimisation selection and storage systems
- Latest optimisation algorithms for cutting optimisation
- Compatible with different cutting table types

Highlights

- Order import and editor
- Parallel optimisation
- Stock plate editor
- Production lists, cutting plans, labels
- Pre-defined reports
- Control of LiSEC and non-LiSEC machines

Interfaces:
Bottero, Hegla, Intermac, Bavelloni, Bystronic, etc.

New, Intuitive LiSEC Order Editor and Stock Plate Editor
The graphical preview enables quick and easy input of insulated glass units with coated glass and steps, already in the correct position. If supported by the cutting system, the steps can be de-coated automatically.

Newest Algorithms for Cutting Optimisation
Opt integrates the newest LiSEC algorithms for cutting optimisation to determine the best glass cutting results even faster. This function has enormous potential to save money and material.

Compatibility with diverse interfaces
DXF, CAD, CNC, and other interfaces are standard with Opt. Geometry data is received, processed, optimised via interfaces and exported as CNC code. Opt directly controls cutting and frame bending systems from various manufacturers.
**Functions**
- Processing of catalogue shapes and forms from a CAD-program
- Automated creation of several combinations
- Fully automatic setting of help and relief cuts

**Highlights**
- Remarkable reduction of glass waste
- Automated shape optimisation
- Environment-friendly material efficiency
- Fully automatic help and relief cuts for easy break-out

---

More sheets from less glass? With the tso solution, LiSEC is able to reduce the glass waste by up to 50%. tso nests similar and dissimilar shapes fully automatically and with an adjustable level of complexity, within one surrounding rectangle. Furthermore tso also automatically adds help cuts for easier break-out of the glass. Glass remnants, which have been disposed before, are now used actively.

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**Comparison Functions & Options**

<table>
<thead>
<tr>
<th></th>
<th>prod</th>
<th>opt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi User Compatible</td>
<td>Multi User</td>
<td>Single User</td>
</tr>
<tr>
<td>Planning Pool</td>
<td>✓</td>
<td>partly</td>
</tr>
<tr>
<td>Rack Optimisation</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Shape Optimisation TSO</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Remake Management</td>
<td>✓</td>
<td>manually</td>
</tr>
<tr>
<td>Dynamic Optimisation</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Graphical Capacity Planning</td>
<td>✓</td>
<td></td>
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<tr>
<td>Control of Processing Machines</td>
<td>✓</td>
<td></td>
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<tr>
<td>YSG Production Support</td>
<td>✓</td>
<td></td>
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<tr>
<td>Mobile Device Integration</td>
<td>✓</td>
<td></td>
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<tr>
<td>Control of Bender</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Control of Cutting Tables</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Label Management for Printer</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Flexible Reporting</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Sorted Storage System</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ready Messages</td>
<td>A-Rack, Harp Cars, Sorting Buffer</td>
<td>Harp Cars</td>
</tr>
</tbody>
</table>

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**True Shape Optimisation Solution**

Cutting optimisation with tso
The ideal situation for minimal glass cutting effort would be a continuous ribbon of glass, without any remnant glass sheets. dynopt tries to create this ideal situation by merging following optimisations and automatically integrating remakes. Through the seamless integration of glass sheets from the following optimisation resp. remakes, remnant glass sheets are avoided and filled up. This permanent optimisation respects not only remnant glass sheets but also avoids eventually before developed optimisation gaps.

**Functions**

- Avoiding remnant glass sheets
- Automated integration of remakes
- Prioritised treatment of remakes
- Changing of cutting plan possible till stock plate directly before cutting table
- Permanent optimisation
- Avoiding of possible optimisation gaps
- Automatic inclusion of fill-up glass sheets

**Highlights**

- Average glass wastage reduction: 1-2 %
- Best possible optimisation result
- Time saved in the cutting process: 5-10 %
- Avoidance of glass breakages
- User-friendly interface
- Integration of remakes into existing optimisations

**Graphical display of dynopt function**

oad allows you to re-optimise respectively newly arrange the stock plate before cutting in the background to bypass defects within the raw glass. This optimisation puts the priority on shifting the glass sheets on the stock plate until the defect is contained in a waste area, trim cut, or at least the smallest glass sheets of the stock plate. The result is immediately transferred to the cutting line.

**Functions**

- Receive external error coordinates from LiSEC scanner or glassworks

**Highlights**

- Increasing the result from defective raw glass
- Possibility to use lower quality glass

**Comparison of a stock plate display without and with oad**

**Error on stock plate**
prodschedule
Graphical Capacity Scheduling Solution

The graphical support by the prodschedule interface significantly facilitates planning and production. As an extension to the capacity planning, which works day or shift-based, prodschedule enables the detailed production planning of work steps for the individual machines on minutes base.

In addition prodschedule allows the tracking of the production progress for orders and batches. Furthermore you have the full visibility, at what time any order will be completed.

**Highlights**

- Short-term planning adjustments at the office are immediately available at the stations
- Very simple handling through, intuitive design
- Graphical supported tracking of production status
- Production sequence adjustments with drag&drop

**Functions**

- Automatic algorithm for pre-sorting
- Planning/display on machine-, batch- or order level
- Simple moving and redirection of work steps to alternative machines
- Re-routing at machine downtimes
- Filter facility according to different criteria

**Compact Overview of the Current Production Planning**

Graphical display of all planned work steps for the day, including automatically assigned start and end times according to the production sequence and defined priorities. Colour-coded blocks for simple production status tracking.

**Flexible Interaction with the Production Sequence**

Flexible adjustment of the production sequence via drag & drop. Immediate display of any conflicts the rescheduling causes within the production sequence of orders and batches. It is even possible to resolve conflicts automatically. In case of machine downtimes, work steps can be rerouted to other machines under full consideration of their machine restrictions.

**Current Work List for the Production Area, Updated Live**

Display module for the individual production areas and machines to visualise the production sequence and the work list. Automatic display updates make adjustments in the office immediately available online in the production.
The fully graphical user interface of bar supports the construction of Georgian bar grids for insulating glass units. In combination with the order management solution order, relevant IG glass details can be transferred to bar via prod to create Georgian bar units. It is also possible to enter IG units directly in bar, using the program as a stand-alone solution. bar generates files for automated bar saws and prints Georgian bar plans and bills of materials.

**Highlights**
- 2D-CAD interface for Georgian bar construction
- Full compatibility with our other software products
- Administration and printing of Georgian bar plans and bills of materials
- Creation of cutting codes for „Rüttler und Rüdiger“-processing machines

**Functions**
- Integrated order editor for manual order entry
- Creation/administration of Georgian bar plans
- Material consumption overview
- Printing of Georgian bar lists
- Georgian bar designer for complex Georgian bar construction
- Usage of pre-defined Georgian bar models
- Plotter support

---

The ever increasing amount of data makes administration and meaningful analysis a challenge. With reporter LiSEC offers a simple solution to create own analyses and reports. This provides you with an easy and flexible overview of your data, with various options for displaying them graphically.

**Highlights**
- Direct data export to Excel resp. into an Excel-template
- Access to whole database (order and/or prod)
- Thanks to drag&drop and graphical support intuitive reports creation
- Flexible integration into LIS product line

**Functions**
- Creation of your own reports/charts/pivot-tables
- Using of user defined colours for highlighting of data
- Using of user defined columns within data display and reports
- Application of data filters
- Easy favourites handling
- Already pre-defined standard reports which can be easily modified

---

Georgian bar designer for complex bar patterns

Sample view of a report
**Label Management Solution**

Increasing production speed on the machines and changing customer-specific requirements create a need for a fast and flexible solution. With label LiSEC offers not only a quick and easy way to create and adapt labels but also an easy-to-use label management and control.

**Functions**
- Usage of barcode, images, data fields and texts on the label
- Standard labels for easy adaption available
- Creation of your own labels
- Simple printout control
- Usage of filters at printout control
- Display of shapes on the label with real data
- Pdf-creation
- Generation of own barcode numbers

**Highlights**
- Easy label creation
- Automatic selection of assigned label layouts thanks to versatile filter possibilities (e.g. customer, product, ...)
- Central intelligent label generation for printing and application on the line

---

**Information and Ready Messaging Terminal at the Production**

The main function of ident is to inform the user within the production about relevant details resp. to register remakes and ready messages and transfer the information to the ERP system. The program also supplies work step specific information (e.g. shape position) and generates control codes for machines from third-party suppliers.

**Functions**
- Display of production drawings
- Entry of rack number and stock location
- Entry of remakes
- Online connection to processing machines
- Synchronising to other ident
- Material management
- Label printout (switching production / customer label)
- Status display

**Highlights**
- Paperless production list
- Ready messages to release capacities and actualization of the status e.g. for an order
- Remake messages for fast post-production
- Detail display for shapes and processings for error prevention
- Higher flexibility through real time adaptation at production planning

---

Design and preview of a label

---

Display of production drawings

---

Label printout (switching production / customer label)
At the end of the insulating glass line, pack displays the storage position of the units on the delivery rack which before have been created with the 3D rack optimisation. Paperless rack and stack changes are displayed to guaranty the packing sequence required by the production planning.

Based on the capacity planning and the ready messages from the production, the production monitor provides an interactive overview of the production status. The planned daily production volume as well as all ready messages are listed. This information creates a dynamic job list for every machine which is continuously updated with each message. The operator is always aware of the upcoming tasks. For a quick overview, the ready messages can be grouped and the viewing period restricted.
**delivery**

Software Solution for the Dispatch Area

delivery is the central software application in the dispatch area. It supports you at the creation of delivery commissions, at which commission- and rack lists can be printed, which are later on relevant for printing the delivery note. Re-sorting and remake messages are simply adopted into the delivery process via the scanner.

**Highlights**
- Preview of all data on the terminal from the respective scanner
- Manual processing of the scanned data at the terminal
- Saving of time through creating the delivery commissions via the scanner
- Verification of the date through plausibility check
- Direct delivery note

**Functions**
- Several scanners are supported
- Free defineable favourite-buttons
- Remake report
- Creation, processing and printing of commission lists
- Printout of racks
- Data preview and processing of the scan data at the terminal
- Space management

---

**QMS**

Quality Management Software

The LiSEC quality management system qms is an administrative solution for data required by the Construction Products Regulation, such as product build-up and Declaration of Performance. qms integrates itself into order and prod.

qms also supports the quality improvement process during the glass processing in your company and allows the traceability of the used materials.

qms enables the central management of your offline tests, which are necessary for consistent quality checks, required for the CE-Certification.

**Highlights**
- Simple tracking of used materials
- System supported tests to check the material quality
- qms integration into order for creating the Declaration of Performance
- Interface with Sommer Informatik for automatic calculation of DoP [Declaration of Performance] data

**Functions**
- Creation and administration of the Declaration of Performance
- Management of offline tests
- Material tracking and quality report
- Storage of the Declaration of Performance (10 years)
SOFTWARE FOR SHOPFLOOR MANAGEMENT
assetcheck is an indispensable component of the LiSEC product range. Machine status data are collected in real time directly by the machine’s control system and stored in a central place for displaying and analysing. If required, this information can be provided to the production manager, the quality manager, the board or everyone else, who needs them, everytime and everywhere on mobile devices (e.g. smartphones).

Through continuous determination of your performance data and the outcome awareness, you can promptly influence your production and therefore raise your machine availability and output.

**Highlights**
- Proactive planning of maintenance for reducing downtimes
- Point out and analyse downtimes
- Individually configurable
- Machine data available everywhere and real-time as alarms, cycle time, status, recipes, tool information, consumption data, production figures

**Functions**
- Display of actual machine status
- Generate your own views
- Display of past machine status
- View and analyse of alarm data, exit messages, downtime data, maintenance data
- Generate your own reports
- Pre-defined hit lists
- Reporting / charts / graphics
- Pre-defined reports as cycle time calculation per machine

**Individually configurable**
It is very simple to define different views with varying degrees of detail to meet the requirements of different users. It is possible to zoom in from a global overview down to detailed process parameters.

**Analysis function**
The collected data and messages can be analyzed using pre-defined hit lists as well as freely configurable reports. The creation of reports is supported by the integrated reporter module.

**Current machine status display**
The main indicator necessary for a quick overview of all machines is the machine status. At a glance, it is possible to see whether the machine is in automatic mode or if an error has been reported.
Live production data available on your smartphone
perfectscan makes it possible to check each single glass sheet and insulating glass unit for visual defects. This system allows you to prove the added value of your products, guarantee a higher product quality and significantly reduce customer complaints.

Individual setting options
Based on parameter and filter settings, perfectscan shows only relevant defects for quality assessment. The parameter settings and filter criteria can be adjusted by the operator at any time.

Flexible application in all areas of your production
Whether it is an insulating glass line, a tempering furnace or a laminated glass line, perfectscan can be used in any context and mounted within a very short time. The intelligent construction of the system allows you to ensure quality and efficiency quickly and easily in almost all areas of your production.

**Technical Data**
- **Glass height**: 200 - 3,400 mm
- **Maximum length**: 6,000 mm
- **Glass thickness**: 2 - 100 mm
- **Transport speed**: 48 m/min at 200 dpi (no interpolation)
- **Scan technology**: 16 bit Scanmodule (LIS - Linear Image Sensor)
- **Light transmission**: 15 – 99 %
autofab is the heart of the automatic sorting and/or buffering solution. This solution allows online control of a completely automated glass production process. The system automatically connects to all machines, controls, regulates and supervises the production processes, and reports the current status of e.g. the sorting systems, etc. With the system it is even possible to separate cutting from production sequence. This way, glass waste is minimised and is guaranteed an optimum production sequence on an insulating glass line, a furnace, etc.

**Highlights**
- Individual production sequences per machine
- The operator is informed about the current status
- Traceability over the whole production sequence
- Optimum utilisation of machines, buffers etc.
- Support of different sorting systems

**Functions**
- Optimised sorting based on the working steps
- Automated handling of shapes
- Control of external software and interface of the industry
- Single glass sheets and batches can be unloaded combined
- Batch overview with further details
- Direct embedding of furnace and non LiSEC machines
- Communication with scanner
- Connection to manual and automatic harp car system
- Control of laser applications

**Toughening Bed Load**
Sheets are automatically optimised into a toughening bed, taking the furnace criteria into consideration. The furnace is automatically supplied with the sheets and the recipe data. After the tempering process the scanner and ripple data are automatically evaluated. Depending on the next processing step (delivery/IG), the individual sheets are automatically transported from the toughening bed to the correct position. Diverse tempering furnaces and scanning systems can be integrated.

**Loading Display**
The loading display supports the operator loads the sheets onto the transport into the sorting system. The loading display shows all relevant information to load the sheets in the sorting system specified sequence, with the correct base edge and glass side.

**Traceability Over the Whole Production Sequence**
The fully automated glass production records every glass sheet. Each production step can be retraced.

**Optimum Space Utilisation**
The function „Chaotic Sorting“ allows an optimum use of the harp cars. With fully automatic control the production becomes more efficient and economical.
Sample view of a sorting buffer
The LiSEC software solutions cockpit and lineserver provide the interface between the production planning and the IG line. The combined system at the line automatically receives the data from production planning in the predefined sequence and generates the required production data for each machine. For each insulating glass unit attributes like unit build-up, component information, text, steps and Georgian bar view as well as the current status are visualised. Additionally, individual sheets and batches can be entered by the operator via the order editor directly at the line.

**Highlights**
- Facilitates automatic production of free shapes (DXF)
- Informing all affected stations if a glass sheet breaks
- Production control and monitoring supported by line overview
- Quality assurance through integration of LiSEC quality scanner
- Automatic switch between 2/3/4/5 times IG

**Functions**
- Import of production batches
- Input editor for manual entry of single productions
- Supplying CNC-data for the single plant parts
- Feedback of ready messages and remakes

**Loading Display for Correct Positioning**
The loading display provides the operator an overview of all queued production batches and their current status. Graphic display of the unit build-up supports correct loading during manual positioning.

**Simple Order Entry on the Line**
New standardised LiSEC order editor for quick and simple input of orders, including graphic display of the unit, directly on the line.

**Central Monitoring of Insulating Glass Line (Add-on)**
The linemonitor as a control station supports the operator with a compact graphical display of the line. Both the current sheet positions and the live machine and production values are displayed. Each pane shows the IG-unit it belongs to, which simplifies sheet unloading in case of an error.
mon supports hand by displaying the cutting plans directly at the cutting machine. Widely visible monitors facilitate simultaneous work, unnecessary printouts are avoided. Storage position information like storage position number, resting edge and further information are clearly displayed in a paperless way.

**Functions**
- Cutting plan display
- Display in several modes
- Shape display
- Communication with breaking station
- Communication with foreign software
- Remake message generation

**Highlights**
- Paperless producible
- Cutting plan display for standard cutting tables
- Laminated glass cutting tables
- Furnace bed load
- Loading display
- Label printing

**Break-out display for glass cutting table**
Machines and systems for flat glass processing are in use for many years, sometimes even for decades. Ongoing maintenance and optimisation are essential to keep performance, efficiency and availability at a consistently high level and to ensure high-quality glass products.
Software

Service and Installation

Our LiSEC Software Service team accompanies projects right from the start, together with our Project Management. Experienced technicians begin in time with software integration tests to ensure a smooth installation/start up and customer training. Our service technicians are involved in the planning of the project, in order to consider technical and process-related issues - a key factor for a successful project realization.

After the project acceptance, the customer project is handed over from the installation technician to the IN HOUSE service team with full documentation. High service availability and customer satisfaction are LiSEC’s motivations for continually expanding and improving our range of services.

The LiSEC Software Service Team supports you with
- Questions of all kinds (work processes, requirement clarification)
- Customer trainings
- Problem diagnosis/analysis and solution
- Interface definition for non-LiSEC software and machines

Advantages
- Minimize downtimes with fast 24 x 7 support
- Employee training directly in the company and the local training centre
- Proactive monitoring of your productive servers to minimize downtimes
- Access to the LiSEC service portal „My LiSEC“, from requests for spare parts and trainings to the machine and software product overview and documentation
- Close cooperation with LiSEC Machinery Service
- The largest network of software service technicians worldwide, unique in the glass industry
- Continuous in-house training of the LiSEC service technicians (AT and branch offices) on new applications/functions and workflows

Software Locations

[Map of worldwide locations]

USA
- Minneapolis

Canada
- Toronto

Brazil
- São Paulo

India
- Mumbai

South Africa
- Johannesburg

Australia
- Sydney

UK
- London

Germany
- Munich

France
- Paris

Spain
- Barcelona

Italy
- Milan

Czech Republic
- Pilsen

Poland
- Krakow

Romania
- Bucharest

Russia
- Moscow

Korea
- Seoul

China
- Shanghai

Japan
- Tokyo

Mexico
- Mexico City

Argentina
- Buenos Aires

India
- Bangalore

South America
- Sao Paulo

Middle East
- Dubai

Software Locations

[Map of worldwide locations]
As a customer with a maintenance contract, you have access to the LiSEC Service Portal. Besides the possibility to open service tickets, the LiSEC Service Portal offers access to software and machinery documentation as well as an overview of the currently installed software packages.

Advantages
- Reduction of downtimes
- 24 x 7 automatic monitoring
- Proactive information of our customers in case of alarms
- Alarm analysis and resolution
- Re-adjustment of system parameters
- Ongoing product development to improve diagnoses, analysis, proactivity and prevention

LiSEC Supervisor

Within the scope of the maintenance contract, we offer monitoring of your ERP and productive servers. The LiSEC Supervisor monitors all system-critical processes of your productive server, such as:
- LiSEC product-critical processes & services
- Usage of the individual databases
- Operating system-critical processes
- Hard disk capacity
- CPU usage
- Memory / RAM utilization

Machines and Software Service Portal
- Service Requests
- Ticket tracking and processing
- My documents/ documentation
- Machines/plants product overview
- Overview of software products and maintenance contract
- Spare parts
- News

Overview of all open service tags / tickets
The communication between you as a customer and our specialists in Service, Project Management or Sales can be called up at any time, clearly and chronologically structured.

Overview of all installed software products and their maintenance status

Sample of an alarm message if the hard drive capacity is underrun
A competent project manager is the key to a successful project

Communication, time, cost and risk management - a competent project manager is the key to a successful project. The LiSEC project management team supports you with highly flexible specialists who have years of experience in the flat glass industry and the implementation of software solutions. LiSEC Project Management already starts during the run-up of the project. Well-tested tools and methods are used to define the project scope and environment. Our goal is to enable you to use your resources and our products to get the maximum benefit. We offer professional support of organizational structure and process changes. A detailed project schedule is the basis for the systematic implementation of the project objectives. Through continuous risk management, problems are recognized at an early stage, allowing time for the development of appropriate solutions.

Communication, a condition for success.

As a central contact, the project manager coordinates and monitors the project. Regular progress meetings with you as well as the entire project team keep all stakeholders on the same level of information and enable efficient collaboration.

We use tried and tested tools such as:

- Our LiSEC ticket system for managing work packages, offering you a clear, transparent way to track the progress
- Microsoft® Project for project and resource planning, including milestone management
- Group-wide SAP® Project Management module for project controlling
- Microsoft® SharePoint for internal project coordination and versioning
- Extensive library of standardized document templates

Sustainability increases quality.

After the successful completion of the project, the project manager will remain your first contact for developing new solutions to utilize the growth potential resulting from changes in requirements and framework conditions. We support you with the improvement of processes and product quality, as well as productivity increases.

Your project manager will help you organize and coordinate the implementation of:

- Project definition, taking into account international best practice solutions for the flat glass industry
- System configuration
- System integration
- Internal system and integration tests
- User acceptance tests
- Training and support for the change of the systems to productive operation
- Transfer of user knowhow
Business-Unit Software

Team

With our broad product portfolio we offer our customers a modular set-up, from single-user to complex group solutions with central administration and decentralized sales and production branches.

Our whole team supports the development and service of our products, with the goal of generating the greatest benefit for our customers. Respectful cooperation, openness and solution orientation are our key values!

In total, we are approx. 130 colleagues internationally – about 40 in the branch offices (Australia, Belgium, China, Germany, Italy, Lithuania, Malaysia, Poland, Romania, Russia, Spain, Czech Republic, UK, USA), 25 at the second Development location in Dubai, and 68 in Austria. Together, we unite about 1000 years of relevant industry experience in our business unit!

The „Dubai Internet City“ technology park in Dubai offers us the up-to-date forum for working with competency partners such as Microsoft, Google, Oracle, allowing us to increase the team’s innovation and knowhow. Attending meetings, workshops and other events, we keep in sync with the „technology pulse“ of our time.
Services (Machinery)

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

From machine installations to modernization of existing systems, we offer a wide range of services, and stay on your side as a competent and reliable partner throughout the entire life cycle of your systems. Whether you need a customized training program, detailed machine inspections, online support, spare parts or upgrades - the LiSEC service team will take care of it for you.

Facts & figures:
- 160 service engineers worldwide
- 28 branch offices/representatives
- Service for around 390 different machine types
- Approx. 4,700 customer locations in over 100 countries worldwide
- The largest global service network in the glass industry
- One-of-a-kind in the industry: Competence through operators’ know-how

Service Products
- Online Support
- Hotline
- Service / Maintenance
- Training
- Long Life
- Spare parts
- Installation
- Repairs

Hotline
LiSEC attributes great importance to customer efficiency from the very beginning.

The company is now taking it to a new level of quality.

Monday - Thursday 07:00 a.m. - 04:30 p.m. (CET)
Friday 07:00 a.m. - 12:00 a.m. (CET)
Phone: +43-7477 405-5701
E-Mail: aftersales@lisec.com

Online Support
Preventive check-ups and maintenance ensure high plant availability, keep production output at the desired level and prevent unexpected plant downtimes.

Sunday 10:00 p.m. - Friday 09:00 p.m. (CET)
Phone: +43-7477 405-5701
E-Mail: aftersales@lisec.com

Emergency contact for urgent issues outside our working hours:
Saturday 6:00 a.m. - 10:00 p.m. (CET)
Sunday 6:00 a.m. - 10:00 p.m. (CET)
Phone: +43-7477 405-5701
LiSEC Glass Forum
Competence Center for research, production and training in the field of flat glass processing

Facts and figures:
- Opened October 2015
- Latest LiSEC technologies
- 70 employees
- Investment: 7 million € since 2015
- 15 million Euros turnover
- Approx. 100 customer visits per year
- Glass storage with 96 rack positions
- 3 insulating glass lines
- 3 cutting lines for float, laminated and special glass
- Two AEROFLAT tempering furnaces
- Automatic sorting/shuttle logistics
- Planned ahead maintenance schedule
- Automatic production planning and machine addressing

The new LiSEC Competence Center for research, production and training in the field of flat glass processing was opened in Hausmening at the end of 2015. It aligns completely with the LiSEC claim „Best in Glass Processing“. The Competence Center „Glass Forum“ makes LiSEC the only machine manufacturer on the market who profitably processes flat glass. This operator know-how allows LiSEC to share and therefore fully understand their customers’ problems and challenges. The „Glass Forum“, a LiSEC investment of approximately seven million Euros, accommodates the latest LiSEC technologies for each step of glass processing – from cutting and edge processing to a sophisticated sheet logistics system to the production of insulating glass units and laminated safety glass including tempering. In the Glass Forum, flat glass is processed under real life production conditions. The state-of-the-art plants and software applications are also used for research, testing and training.