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

**Facts and figures:**
- 1961 founding year
- 1 strong brand
- 1,300 employees
- 25 sites
- 230 million Euros turnover (2018)
- 95 % export rate
- 7 % of turnover for R&D
- more than 330 patents
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 to 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 Gołembiecki, 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

your invoicing
security
your shipping
your production
your process control
your capacity planning
your production planning
your order management
your online services
your interfaces
your partners
your suppliers
your customers
# Software

## Software for Business Management

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Software

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- Competence Center for research, production and training in the field of flat glass processing
SOFTWARE FOR BUSINESS MANAGEMENT
Order Management Software

order is the office software for professional order management in the glass industry. Processing of quotations and orders is sped up and automated so your full focus can be on your customers.

Extensions & Additional Products:

- Capture complex elements
- Increasing the speed and automation of the order management
- System-supported and automated entry with product configurators
- Customer retention due to automated customer communication and electronic data exchange
- Automatic checks of production and delivery dates at order entry

Highlights

- Increasing the speed and automation of the order management
- System-supported and automated entry with product configurators
- Customer retention due to automated customer communication and electronic data exchange
- Automatic checks of production and delivery dates at 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)

Increasing the speed and automation of the order management

The order basic package contains all functions for a successful processing of orders: product configuration considering all relevant production and overhead costs, automatic profit margin calculation, automatic invoicing, full integration into the accounting system, order transfer to production, delivery administration as well as graphical reporting and statistics.

System-supported and automated entry with product configurators

The high performance order entry system, with automated data entry and price calculation, shows product details graphically. Shapes, special product compositions and all processing details are visualized and checked for plausibility.

Complete cost transparency using the contribution margin calculation

The integrated profit margin calculation draws an item-level comparison of a product’s portion of costs and sales price, thus allowing an automatic check of the profit margin.
**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.
**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

---

**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

---

Create complex CAD drawing files
Business Intelligence & Analytics
Detailed data analysis and business information

The integration to our ERP and production systems provides new insights and views of the business from customer behavior to production and delivery performance. The streamlined data model provides aggregated performance indicators and handles ad-hoc reporting needs with simplicity. Combined with a strong analytics solution this can change the way of steering your company!

Highlights
- Tailored views for CEO/CFO to sales and production manager
- Extendable based on your company needs
- Timeline comparisons over various periods and years instantly available
- View it on PC or mobile devices
- On premise or hosting possibilities

Functions
- Automatic KPI calculation and data aggregation
- Tailored database model
- Integration possibilities to 3rd party reporting tools
- Historical data storage
- Comparison of indicators over various plants and machines
- External data can be integrated

Regional data analysis
SOFTWARE FOR PRODUCTION MANAGEMENT
Prod
Production Planning Software for the Flat Glass Industry

Prod organises 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 optimisation, sequencing and remake management.

Extensions and additional products:

**Highlights**
- Overview of the running production
- Machine load and bottleneck warning
- Packing optimisation
- Stock location management
- Avoiding manual sorting
- Flexible reporting
- Simultaneous optimisation 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 LSEC and foreign machines

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

**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.
Software for Glass Cutting Optimisation

With the software package opt, LiSEC provides a solution which extends far beyond the capabilities of a glass cutting optimization. Entry of complex insulating glass build-ups, even considering coatings and steps, are included in the standard. With a few more clicks grinding additions can be added, even to the edges of complex shapes.

Extensions and additional products:

- Order editor for capturing complex shapes
- Raw glass sheet editor with the latest algorithms for waste optimisation

**Highlights**

- Complex shapes and build-ups possible at order entry
- Optimization of special shapes – TSO
- Compatibility with different interfaces
- Slot assignment on harp racks
- Also suitable for the optimization of patterned glasses

**Functions**

- 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.

---

Single glass optimisation software

The Easy Optimizer Software makes typical optimisation functions available for the preparation of improvements in the office. It is used in an office environment for calculating the glass quantities to be used during the processing/calculation of quotations.

Once created, the optimisations can then be imported in production by LiSEC cutting tables or external cutting tables in combination with a converter, or cutting plans can be printed out for manual cutting.

Extensions and additional products:

- Raw glass sheet editor with the latest algorithms for waste optimisation

**Highlights**

- Rapid import of optimisation data from Excel files
- Latest optimisation algorithms for waste optimisation
- New, intuitive raw glass sheet editor

**Functions**

- Import and entry of optimisation data
- Raw glass sheet editor
- Waste optimisation
- Cutting plans & labels
- Dividing and copying optimisation results
- CSV data export in the breaking sequence

**Interfaces:**

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

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

### Functions
- Processing of catalogue shapes and forms from a CAD-program
- Automated creation of several combinations
- Fully automatic setting of help and relief cuts

### True Shape Optimisation Solution

**Comparison Functions & Options**

<table>
<thead>
<tr>
<th></th>
<th>prod</th>
<th>opt</th>
<th>easy opt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi User Compatible</td>
<td>Multi User</td>
<td>Single User</td>
<td>Single User</td>
</tr>
<tr>
<td>Planning Pool</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Rack Optimisation</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Shape Optimisation TSO</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Remake Management</td>
<td>✓</td>
<td>manually</td>
<td>manually</td>
</tr>
<tr>
<td>Dynamic Optimisation</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Grafical Capacity Planning</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Control of Processing Machines</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Y3G Production Support</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mobile Device Integration</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Control of Bender</td>
<td>✓</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td>Control of Cutting Tables</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Label Management for Printer</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Flexible Reporting</td>
<td>✓</td>
<td>Predefined reports</td>
<td>partly</td>
</tr>
<tr>
<td>Sorted Storage System</td>
<td>✓</td>
<td>A-Rack, Harp Cars, Sorting Buffer</td>
<td>Harp Cars</td>
</tr>
<tr>
<td>Ready Messages</td>
<td>✓</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
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 to 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.

Graphical representation of the dynopt functionality

Dynopt
Dynamic Cutting Optimisation

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

Intelligent Cutting Solution to Avoid Defects

oad

Functions
- Receive external error coordinates from LiSEC scanner or glassworks

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

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.

Comparison of a stock plate display without and with oad

Error on stock plate

28 29
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.
**Bar**

Georgian Bar Construction Software

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

---

**Reporter**

Data Analysis and Reporting Solution

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

---

**Sample view of a report**

Georgian bar designer for complex bar patterns
**label**

**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

---

**ident**

**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
- 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

### Highlights
- 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

---

Design and preview of a label
Graphical Display of Packing Sequence

pack displays the storage position of IG-units on the delivery racks correspondingly to the 3D rack optimisation of prod. This eliminates the need for resorting before dispatch. Rack and stack changes are displayed to guarantee the packing sequence required by the production planning.

The rack overview function gives the operator the foresight and control of how many racks are needed for the current batch and provides a quick overview of which racks are complete and ready to be dispatched.

Functions
- Rack information & rack management
- Detailed unit information
- Display of glass stacking onto delivery racks

Highlights
- No additional resorting
- Paperless
- Time savings due to intuitive overview
- Better rack-management
- Quick preview of the current batch content displayed in a list with colour coding.

Production Overview at a Glance

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.

Functions
- Interactive overview of the production status
- Display of breakages/remakes
- Display of the open load of the plant
- Individual adjustment of the displayed plant
- Listing of ready messages
- Time view of ready messages
- User information
- Machine information

Overview of machine load
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.

**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

**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

---

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.

**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)

**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

---

Sample screen of a commission list

Example view of quality reports
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.
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.

**Highlights**
- New release with optimized user interface
- New archiving solution with individual export options
- Optimised scan results via 16bit technology
- New, wizard guided, setting of quality criteria and filters
- Combined with lineserver, order data are connected with scan results
- Flexible application in all areas of your production
- Can be retrofitted on existing machine
- Quality scanner with Georgian bar recognition
- Quality and process improvements through error analyses e.g. for cutting optimisation

**Functions**
- No reflections and no blind spots thanks to telecentric light through scan technology without camera
- Stable recognition of coating defects because of infrared technology
- Screen printing controlling
- Glass type detection
- IG unit build-up recognition
- Dimension recognition (target/actual comparison) at the line
- Detection of overall bending (in combination with glass type sensor)
- Data archiving
- Compact design compared to usual camera based systems
- One contact person for plant and scanner

**Technical Data**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass height</td>
<td>200 - 3,400 mm</td>
</tr>
<tr>
<td>Maximum length</td>
<td>6,000 mm</td>
</tr>
<tr>
<td>Glass thickness</td>
<td>2 - 100 mm</td>
</tr>
<tr>
<td>Transport speed</td>
<td>48 m/min at 200 dpi (no interpolation)</td>
</tr>
<tr>
<td>Scan technology</td>
<td>16 bit Scanmodule (LIS - Linear Image Sensor)</td>
</tr>
<tr>
<td>Light transmission</td>
<td>15 - 99 %</td>
</tr>
</tbody>
</table>

**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.
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.
Line Management
Control and Monitoring of Insulated Glass Production

The LiSEC software solutions line management 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.

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

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

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 line monitor 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.
Break-out display for glass cutting table

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.

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

### Functions
- Cutting plan display
- Display in several modes
- Shape display
- Communication with breaking station
- Communication with foreign software
- Remake message generation
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
- Local integration and therefore close coordination between Machinery and Software 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
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 undersized.
Services

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

Online Support

Telephone support with direct data connection to your LiSEC machinery for the immediate and targeted diagnosis and correction of faults and errors.

Maschinery

Sunday 10:00 p.m. – Friday 09:00 p.m. (CET)
Phone: +43-7477 405-5701
E-Mail: the.service@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

Software

Monday 07:45 a.m. – Friday 09:00 p.m. (CET)
Phone: +43-7477 405-5702
E-Mail: support@lisec.com

Emergency contact for urgent issues outside our working hours:
Phone: +43-7477 405-5702

Hotline

LiSEC attributes great importance to customer efficiency from the very beginning. Preventive check-ups and maintenance ensure high plant availability, keep production output at the desired level and prevent unexpected plant downtimes.

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: the.service@lisec.com
Project management

**COMPETENT.**
Time planning, cost and risk management, communication – a competent project manager is the key to project success. The LiSEC project management team supports you with highly qualified specialists, who are able to draw on years of experience and expertise in the flat glass industry.

LiSEC project management begins during the run-up to the project. The project scope and environment are defined using tried and tested tools and methods. In this way, we enable you to achieve the greatest possible benefit with your resources and our products.

A detailed project schedule forms the basis for the systematic realisation of the project goals. Problems are identified at an early point in time and individual solutions are formulated through continuous risk management.

**RELIABLE.**
As a central point of contact, the project manager coordinates and controls the project, and intervenes quickly and effectively if deviations from planning arise.

Well-considered documentation and information planning together with regular progress reports ensure that all relevant project details are fully available to all parties involved without delay, thereby forming the basis for efficient cooperation.

We use proven tools for project realisation:
- LiSEC CRM for management of the work packages, and for your traceable and transparent progress controlling
- Microsoft® Project for project and resource planning, including milestone management
- Group-wide SAP® project management for project controlling
- Microsoft® SharePoint for internal project coordination and version management
- Comprehensive library of standardised document templates

**INNOVATIVE.**
Our goal is to use technologically leading machinery and systems to realise an optimum economic solution for you, as efficiently and effectively as possible. Following successful completion of the project, LiSEC AfterSales/Service supports the seamless operation of your systems.

Our sales team is constantly available to you for the development of new solutions through which to utilise the growth potential resulting from changes in requirements and framework conditions.
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: 9 million € since 2015
- 15 million Euros turnover
- Approx. 100 customer visits per year
- Glass storage with 96 rack positions
- 2 insulating glass lines
- 3 cutting lines for float, laminated and special glass
- 1 glass processing line „SplitFin”
- 1 laminated glass line
- 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 nine 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.