



Solutions for IGU producers

LiSEC

best in glass processing

For increased performance and profitability: LiSEC

Facts and figures:

- Founding year: 1961
- 1 strong brand
- 1.200 employees
- 231 million Euros turnover (2015)
- 7 - 8 % of turnover for R&D
- 60 R&D specialists
- 500 software installations worldwide
- 3.500 gas filling presses worldwide
- 20 sites
- 90 % export rate
- 35 % equity ratio
- more than 250 patents

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. Complete System Provider

Only LiSEC can offer you all solutions required for flat glass processing from a single source. Our well-established team of specialists for engineering, automation, machine construction and service develops tailor-made solutions to ensure your competitive edge.

2. Operational know-how

As the only solution provider in the flat glass processing business with more than 50 years of operational know-how, we know from first-hand experience how to handle glass. We can communicate eye to eye because we are familiar with the challenges you face.

3. Service

In order to help our customers quickly on site, we have developed the worldwide largest service network in the flat glass industry. High service availability, start-up support and consulting are the added value of our services.

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 INDUSTRY 4.1

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 could increase our capacity by nearly 15% and have 10-12% less waste now. On the IG lines, the improved organisation allows us to produce in 8 hours the same output that used to take us 12 hours.“

Crystal Units Ltd, England

„Increasing production efficiency through transparency with LiSEC's Industry 4.1. The collection and interpretation of performance data alone allows me to increase machine availability and achieve a higher output.“

Internorm, Austria

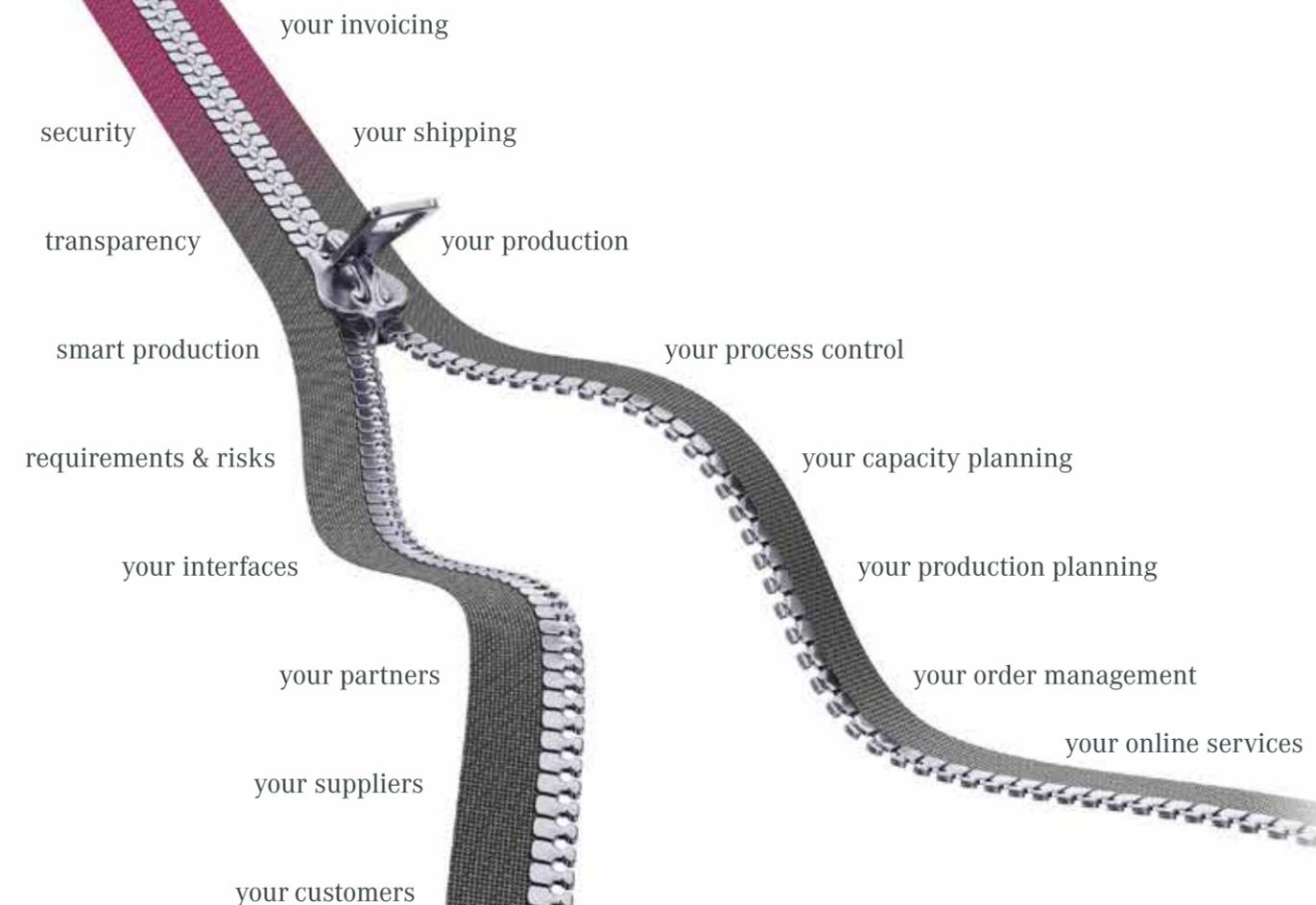
through:

... many proven strategies for improvement

... many intelligent innovations

... best practice solutions

... a successful cooperation with us, your single-source supplier



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LiSEC. best in glass processing

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Automatic bending machine for all conventional, synthetic and composite spacer types
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LINES

base IG | DELETE

Insulating Glass Line for industry start-ups



The base IG | DELETE insulating glass line allows automatic edge deletion and easy assembly for double or triple insulating glass units. The loading zone at the inlet is perfectly designed to easily feed the production line in a timely manner. Using a 4 brushes washer including a drying zone ensures perfect cleanness of the single sheets before frame mounting and insulating glass assembly. Final visual quality checks can be done at the frame mounting station. The press finalizes this automated process before tilting the glass to horizontal for manual take off and secondary sealing.

Highlights

- Automatic edge deletion
- 4 brushes washer
- 0.12 mm brushes
- Inspection zone
- Control cabinet climatisation
- Assembly press
- Choice of running direction

Options

- 3 sided steps
- Tilting table
- 1000l tank



	L (mm)	B (mm)
IG DELETE 25/20	21.620	3.000
IG DELETE 40/27	27.943	3.500

Technical data

	IG DELETE 25/20	40/27
Glass thickness	2.3 - 16 mm (with edge deletion)	
Minimal size	350 x 180 mm	
Maximum size	2,500 x 2,000 mm	4,000 x 2,700 mm
Glass transport height	520 mm (+/- 20mm)	
Max load	150 kg/lm	
Max unit thickness	60 mm	
IG types	double + triple	
Stepped units	3-side stepped unit: BE = 0 mm, LE + RE + UE = 0 - 140 mm	
Output/shift	up to 800 units	
Assembly station	inspection zone, 500 mm recessed back wall, light sources excluded	
Geometries	rectangles and shapes	
Edge deletion for rectangles		

FIT.LINE

Standardized insulating glass lines for fixed spacer frames

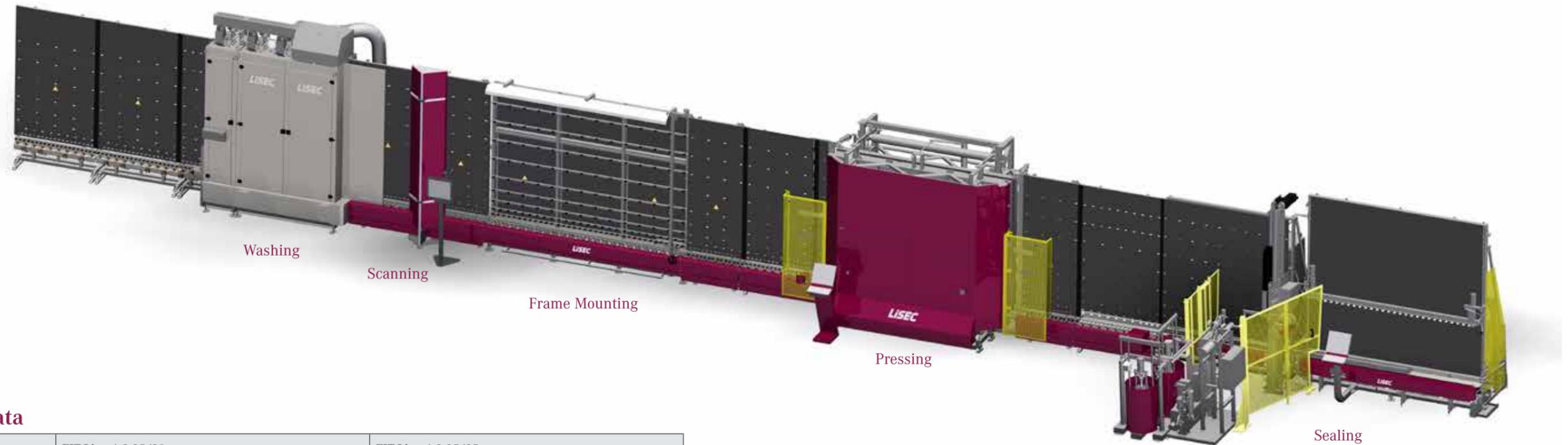
Both the LiSEC FIT.Line basic configuration and its catalog of supplementary options convince with a wide variety of choices for different production requirements. For non-flexible spacer frames three elaborate line configurations are available. The standardized inter-connection of proven individual machines guarantees optimum and reliable quality of the produced insulating glass elements. The secondary sealing can be performed fully automatically or manually, depending on the customer's requirements.

Highlights

- Assembly with gas filling
- 6-brush washing machine including pre-washing zone
- Automatic glass thickness detection
- Inspection zone
- Automatic sealing
- Choice of the running direction

Options

- 3-side steps
- Automatic speed control
- Automatic coating detection
- Glass scanner
- Manual or automatic tilting table



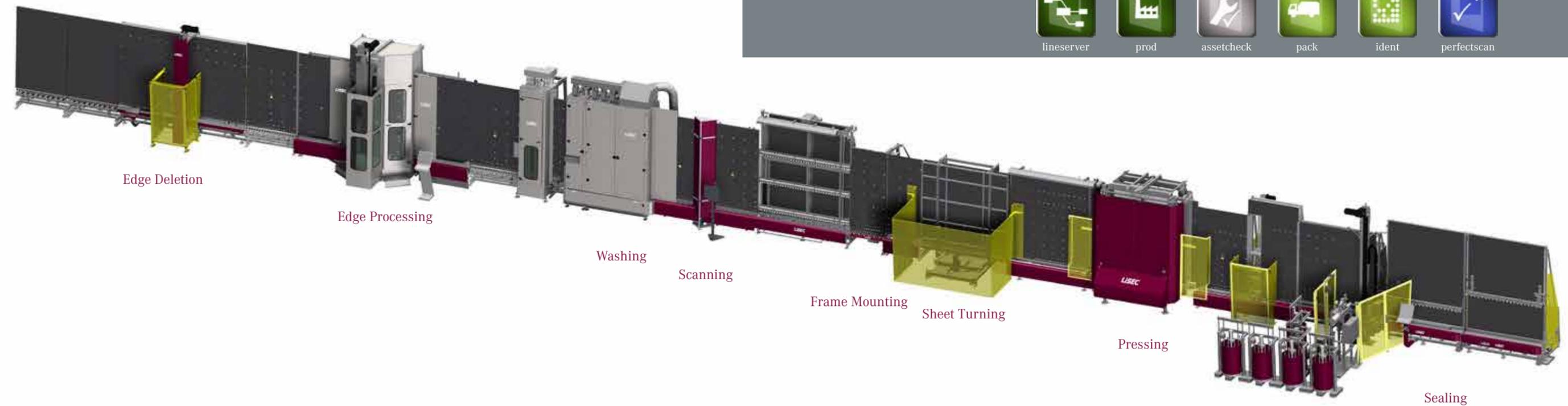
Technical data

	FIT.Line 1-3 25/20	FIT.Line 1-3 35/25
Spacers	Fixed spacer(s)	
Glass thicknesses	2,3 - 16 mm	
Minimal size	350 x 180 mm	
Maximum size	2.500 x 2.000 mm	3.500 x 2.500 mm
Glass transport height	520 mm (+/- 20mm)	
Maximum load from the press on (up to the press)	250 (150) kg/lm	
Max unit thickness	12 - 60 mm	
IG types	2 - 3-fold	
Step unit	3-side steps: UK = 0mm, VK+ HK + OK = 0-140mm	
Frame setting station	Inspection zone, back wall positioned 500 mm to the rear	
Geometries	Rectangles and special forms according to the LiSEC catalog of forms	

INSULATING GLASS LINE

for Rigid Spacer Frames

Proven quality meeting wide-ranging requirements. This insulating glass line is especially equipped for the production of coated insulating glass elements with various kinds of rigid spacers (aluminum, steel, stainless steel, plastic, hybrid). The assembly and gas filling press keeps both gas loss and cycle times low. At the end of the line, the sealing station ensures stability and above all perfect corners.



Highlights

- All common rigid spacer types can be processed
- Included pre-wash zone
- Highest corner quality due to CleanSeal technology
- Expandable due to the modular line construction

Options

- 8 brushes (VHW-D)
- Shapes
- 4-sheet insulating glass
- Element thickness up to 100 mm
- Edge deletion (AKL or AKL-S)
- Steps on 3 or all 4 sides
- Frame mounting & inspection zone
- Turning station before the assembly press
- Scanner (GSL-S)
- Optimized assembly cycle time for 50/27 & 60/33
- Second metering unit for PU/SI/PS
- Automatic application of shims (APKV)
- Turning station before the sealing station
- Seaming (KSR)

Available software



Technical data

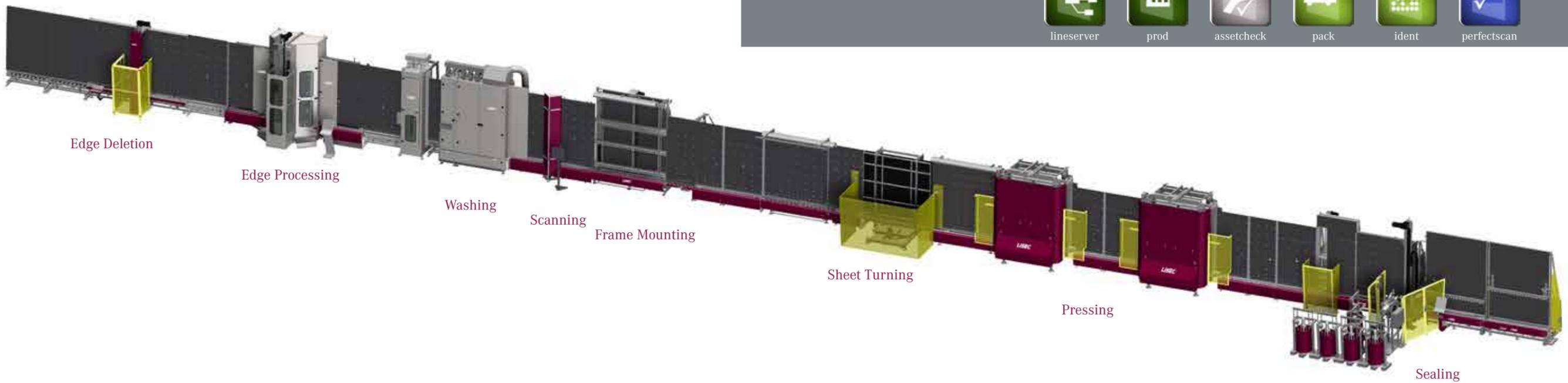
	LiSEC Iso 25/20	LiSEC Iso 35/20	LiSEC Iso 50/27	LiSEC Iso 60/33
Glass thickness	2,3 - 19 mm, optional 2,3 - 32 mm Edge Deletion: 2,3 - 15 mm (AKL), 2,3 - 19 mm (AKL-S) Seaming: 2,3 - 19 mm (KSR)			
Minimal size	350 x 180 mm			
Maximum size	2.500 x 2.000 mm	3.500 x 2.000 mm	5.000 x 2.700 mm	6.000 x 3.300 mm
Glass transport height	520 mm (+/- 20mm)			
Max load	250 kg/lm			
Max unit thickness	16 - 60 mm, optional 16 - 100 mm			
IG types	2 - 3-fold , optional 4-fold			
Geometries	rectangle, optional Shapes according to LiSEC shape catalogue			

	LiSEC Iso 25/20	LiSEC Iso 35/20	LiSEC Iso 50/27	LiSEC Iso 60/33
Basic Line	29180 mm	34568 mm	44420 mm	53554 mm
Edge Deletion (AKL)	8450 mm	7586 mm	11683 mm	13300 mm
Edge Deletion (AKL-S)	8477 mm	10099 mm	12371 mm	13993 mm
Seaming (KSR)	5522 mm	8117 mm	7146 mm	7145 mm
Seaming (KSR + KSV)	6660 mm	9787 mm	8816 mm	8815 mm
Frame setting and inspection zone (RSV-B)	1185 mm	1185 mm	1683 mm	1165 mm
Turning Station before Assembly Press	3922 mm	4922 mm	3780 mm	3529 mm
Turning Station before Sealing station	3922 mm	4922 mm	3780 mm	3529 mm

EXPRESS INSULATING GLASS LINE

for Rigid Spacer Frames

Quality and quantity are the guiding principles of this insulating glass line. It is particularly suited for the fast, high-quality production of coated insulating glass elements, e.g. for window construction. Highest quality insulating glass elements can be produced with various types of rigid spacers (aluminum, steel, stainless steel, plastic, hybrid). The double frame mounting station as well as the assembly and gas filling press reduce cycle times to a minimum. At the end of the line, the sealing station ensures a perfect finish.



Highlights

- Low cycle times due to doubled frame mounting station and assembly and gas filling press
- All common rigid spacer types can be processed
- Included pre-wash zone
- Highest corner quality due to CleanSeal technology
- Expandable due to the modular line construction

Options

- 8 brushes (VHW-D)
- Shapes
- 4 sheet insulating glass
- Element thickness of up to 100 mm
- Edge deletion (AKL or AKL-S)
- Steps on 3 or all 4 sides
- Frame mounting & inspection zone
- Turning station before the assembly press
- Scanner (GSL-S)
- Optimized assembly cycle times for 50/27 & 60/33
- Second metering unit for PU/SI/PS
- Automatic application of shims (APKV)
- Turning station before the sealing station
- Seaming (KSR)

Available software



Technical data

	LiSEC IsoFast 25/20	LiSEC IsoFast 35/20
Glass thickness	2,3 - 19 mm, optional 2,3 - 32 mm Edge Deletion: 2,3 - 15 mm (AKL), 2,3 - 19 mm (AKL-S) Seaming: 2,3 - 19 mm (KSR)	
Minimal size	350 x 180 mm	
Maximum size	2.500 x 2.000 mm	3.500 x 2.000 mm
Glass transport height	520 mm (+/- 20mm)	
Max load	250 kg/lm	
Max unit thickness	16 - 60 mm, optional 16 - 100 mm	
IG types	2 - 3-fold, optional 4-fold	
Geometries	rectangle, optional Shapes according to LiSEC shape catalogue	

	LiSEC IsoFast 25/20	LiSEC IsoFast 35/20
Basic Line	45798 mm	48420 mm
Edge Deletion (AKL)	8450 mm	8936 mm
Edge Deletion (AKL-S)	8477 mm	10099 mm
Seaming (KSR + KSV)	8328 mm	9300 mm
Frame setting and inspection zone (RSV-B)	1185 mm	1185 mm
Turning Station before Assembly Press	1166 mm	3302 mm
Turning Station before Sealing station	3922 mm	6028 mm

INSULATING GLASS LINE

for Flexible Spacers

Quality and flexibility are the main characteristics of this insulating glass line. Whether the choice is flexible or rigid spacers, warm edges or conventional spacers, with or without steps, coated or uncoated glass – this line lets you process everything. It meets the requirements of both window and facade construction. Rounding off this line are an assembly and gas filling press and a sealing plant with excellent corner quality.

Highlights

- High end product flexibility due rigid and flexible spacer capability
- Included pre-wash zone
- Highest corner quality due to CleanSeal technology
- Expandable due to the modular build-up
- Processing of shapes from the LiSEC Shape Catalog

Options

- 8 brushes (VHW-D)
- Element thickness of up to 100 mm
- Georgian bar mounting indication
- 4-sheet insulating glass
- Edge deletion (AKL or AKL-S)
- Steps on 3 or all 4 sides
- Inspection zone
- Turning station before the assembly press
- Scanner (GSL-S)
- Second metering unit for PU/SI/PS
- Automatic application of shims (APKV)
- Turning station before the sealing station
- Seaming (KSR)
- 4 or 8 slot magazine for flexible spacers
- 2 material feeds for quick spacer changes

Available software



lineserver



prod



assetcheck



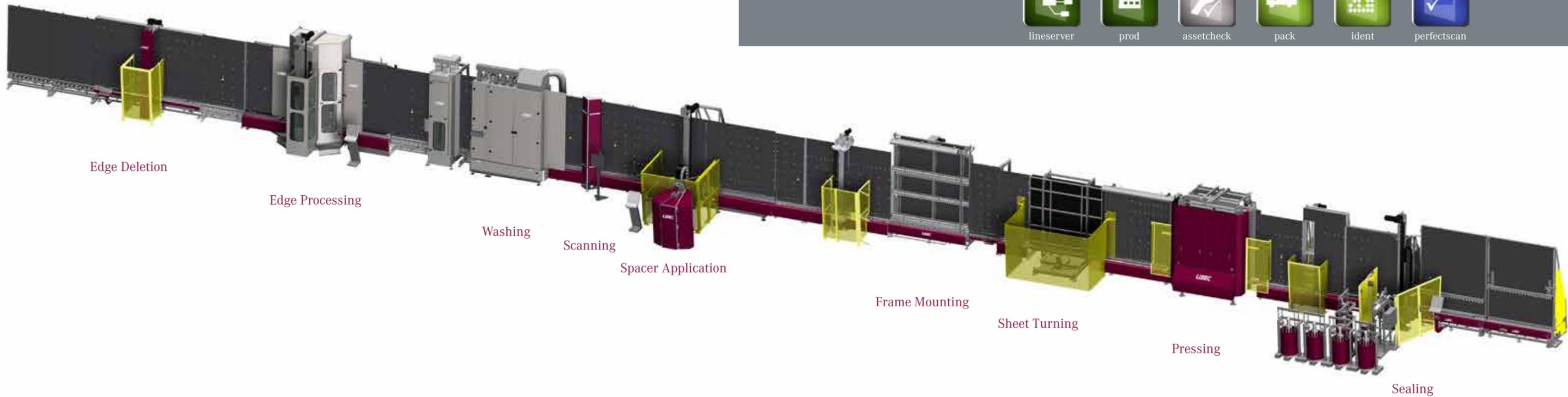
pack



ident



perfectscan



Technical data

	LiSEC IsoFlex 25/20	LiSEC IsoFlex 35/20	LiSEC IsoFlex 50/27	LiSEC IsoFlex 60/33
Glass thickness	2,3 - 19 mm, optional 2,3 - 32 mm Edge Deletion: 2,3 - 15 mm (AKL), 2,3 - 19 mm (AKL-S) Seaming: 2,3 - 19 mm (KSR)			
Minimal size	350 x 180 mm			
Maximum size	2.500 x 2.000 mm	3.500 x 2.000 mm	5.000 x 2.700 mm	6.000 x 3.300 mm
Glass transport height	520 mm (+/- 20mm)			
Max load	250 kg/lm			
Max unit thickness	16 - 60 mm, optional 16 - 100 mm			
IG types	2 - 3-fold, optional 4-fold			
Data line	GPS.lineserver			
Geometries	rectangle and shapes according to LiSEC shape catalogue			

	LiSEC IsoFlex 25/20	LiSEC IsoFlex 35/20	LiSEC IsoFlex 50/27	LiSEC IsoFlex 60/33
Basic Line	38790 mm	45304 mm	58416 mm	68522 mm
Edge Deletion (AKL)	8450 mm	9586 mm	11683 mm	13300 mm
Edge Deletion (AKL-S)	8477 mm	10099 mm	12371 mm	13993 mm
Seaming (KSR)	6659 mm	8117 mm	7146 mm	7145 mm
Seaming (KSR + KSV)	8329 mm	9787 mm	8816 mm	8815 mm
Frame setting and inspection zone (RSV-B)	1185 mm	1185 mm	1683 mm	1165 mm
Turning Station before Assembly Press	3922 mm	4922 mm	3780 mm	3529 mm
Turning Station before Sealing station	3922 mm	4922 mm	3780 mm	3529 mm

EXPRESS INSULATING GLASS LINE

for Flexible Spacers

Quality, quantity and flexibility – this line is a real all-rounder. The continuously growing demand for shorter delivery times with simultaneously increasing individuality makes this line the smart choice for your production. With its two applicator heads it provides highest application performance for flexible spacers. On the other hand, the frame mounting station is able to process all common types of rigid spacers. The two cooperating assembly and gas filling presses perfectly round off this plant configuration. The result is a high output with maximum flexibility and the typical LiSEC quality.

Highlights

- High flexibility of the end products with rigid and flexible spacers
- Included pre-wash zone
- Highest corner quality due to CleanSeal technology
- Expandable due to the modular line construction
- Shapes according to the LiSEC shape catalog

Options

- 8 brushes (VHW-D)
- Element thickness of up to 100 mm
- Georgian bar mounting indication
- 4 sheet insulating glass
- Edge deletion (AKL, AKL-S)
- Steps on 3 or all 4 sides
- Inspection zone
- Turning station before the assembling press
- Scanner (GSL-S)
- Second metering unit for PU/SI/PS
- Automatic application of shims (APKV)
- Turning station before the sealing system
- Seaming (KSR)
- 8 slot magazine for flexible spacers
- Double material feed for fast spacers changes per applicator head

Available software



lineserver



prod



assetcheck



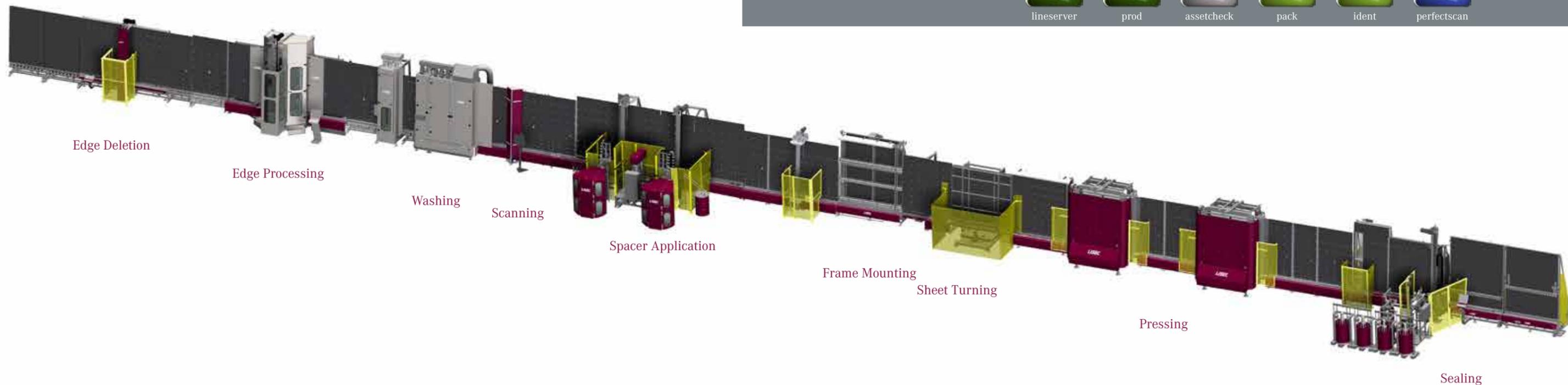
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ident



perfectscan



Technical data

	LiSEC FastFlex 25/20	LiSEC FastFlex 35/20
Glass thickness	2,3 - 19 mm, optional 2,3 - 32 mm Edge Deletion: 2,3 - 15 mm (AKL), 2,3 - 19 mm (AKL-S) Seaming: 2,3 - 19 mm (KSR)	
Minimal size	350 x 180 mm	
Maximum size	2.500 x 2.000 mm	3.500 x 2.000 mm
Glass transport height	520 mm (+/- 20mm)	
Max load	250 kg/lm	
Max unit thickness	16 - 60 mm, optional 16 - 100 mm	
IG types	2 - 3-fold, optional 4-fold	
Data line	GPS.lineserver	
Geometries	rectangle and shapes according to LiSEC shape catalogue	

	LiSEC FastFlex 25/20	LiSEC FastFlex 35/20
Basic Line	53370 mm	58100 mm
Edge Deletion (AKL)	8450 mm	8936 mm
Edge Deletion (AKL-S)	8477 mm	10099 mm
Seaming (KSR + KSV)	8328 mm	9300 mm
Frame setting and inspection zone (RSV-B)	1185 mm	1185 mm
Turning Station before Assembly Press	1166 mm	3302 mm
Turning Station before Sealing station	3922 mm	6028 mm

INSULATING GLASS LINE

for Thermoplastic Spacers (TPA)

This line is the result of consistent advancement under the headings quality and flexibility. As a result, it sets new standards in the processing of thermoplastic spacers. Ensuring absolute gas tightness of the elements while simultaneously observing minimum production tolerances, it is perfectly suited to meet the constantly increasing requirements of insulating glass manufacturers. Moreover, this line allows diverse element thicknesses with shorter lead times. Even rendering production steps redundant (e.g. frame production, logistics and storage for frames etc.), the end result is a fully optimized production.



Highlights

- High process reliability due to a unique continuous closure
- Gas-tight elements with minimum production tolerances
- Different element thicknesses without manual intervention
- High flexibility of the end products due to solid and thermoplastic spacer capability
- Included pre-wash zone
- Highest corner quality due to CleanSeal technology
- Expandable due to the modular line construction

Options

- 8 brushes (VHW-D)
- Edge deletion (AKL or AKL-S)
- Steps on 3 sides
- Inspection zone
- Turning station before the assembling press
- Scanner (GSL-S)
- Automatic application of shims (APKV)
- Turning station before the sealing station
- Seaming (KSR)
- Automatic destacking system (UTS)

Available software



lineserver



prod



assetcheck



pack



ident



perfectscan

Technical data

	LiSEC TPA 25/20	LiSEC TPA 40/27
Glass thickness	2,3 - 19 mm	
Minimal size	350 x 180 mm	
Maximum size	2.500 x 2.000 mm	4.000 x 2.700 mm
Glass transport height	520 mm (+/- 20mm)	
Max load	250 kg/lm	
Max unit thickness	12 - 80 mm (100 mm optional)	
IG types	2 - 3-fold	
Step units	3-sided stepped units: BE = 0 mm, LE + RE + UE = 0 - 140 mm	
Data line	lineserver	
Geometries	rectangle and shapes according to LiSEC shape catalogue	

	LiSEC TPA 25/20	LiSEC TPA 40/27
Basic Line	41606 mm	53551 mm
Edge Deletion (AKL)	8450 mm	9566 mm
Edge Deletion (AKL-S)	8477 mm	10099 mm
Seaming (KSR)	6660 mm	7145 mm
Seaming (KSR + KSV)	8330 mm	8815 mm
Frame setting and inspection zone (RSV-B)	2777 mm	3305 mm
Turning Station before Assembly Press	3922 mm	3780 mm
Turning Station before Sealing station	3922 mm	3780 mm
Automatic unloading system (UTS)	11781 mm	11781 mm

FastLane / INSULATING GLASS LINE

for Thermoplastic Spacers (TPA)

The LiSEC FastLane for TPA processing sets new standards for the production of insulating glass elements. Innovative approaches to glass transport and the possibility to assemble two insulating glass elements in parallel make as of yet unmatched cycle times possible. The spacer material supports a highly flexible, automated production; almost no set-up times are required. Dispensing with external frame manufacturing helps to reduce machine, staff and warehousing costs. With the newly conceived Control Center Concept one single employee can supervise the entire production. End products with maximum precision are guaranteed by a large number of innovations along the line. We regard a permanent and continuous support of the individual glass sheets of the IG element up to the transport rack as a matter of course.

Highlights

- Cycle time of up to 35 seconds at a low investment level
- Only one operator required for the entire line
- High process reliability due to a unique continuous closure
- Gas-tight elements with minimum manufacturing tolerances
- Different element thicknesses without manual intervention
- High corner quality due to CleanSeal technology

Optionen

- 8 brushes (VHW-E)
- Inspection zone
- Glass sheet support before the press
- Scanner (GSL-S)
- Automatic application of shims (APKV)
- Seaming (KSR)

Available software



lineserver



prod



assetcheck



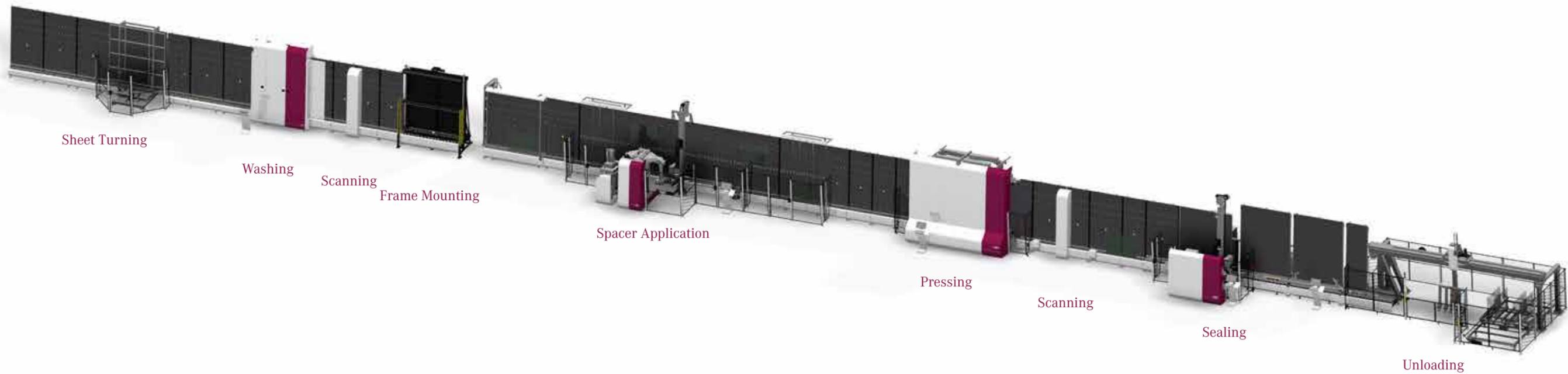
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perfectscan



Technical data

	LiSEC TPA FastLane 40/27
Glass thickness	2-12 mm / 2-8 für VLO
Minimal size	350 x 180 mm / 450 x 250 mm for VLO
Maximum size	4.000 x 2.700 mm / 2.100 x 1.200 mm for VLO
Glass transport height	520 mm (+/- 20mm)
Max load	250 kg/lfm
Max unit thickness	12 - 80 mm (100 mm optional)
IG types	2 - 3-fold
Stepped unit	3-sided stepped units: BE = 0 mm, LE + RE + UE = 0 - 140 mm
Data line	lineserver
Geometries	rectangle and shapes according to LiSEC shape catalogue

FACADE LINE

for Heavy IG Elements of up to 350 kg/lm

How about something a little heavier? Proven quality specially designed for the ambitious facade constructor. This insulating glass line is fully equipped for the production of heavy special elements. All common fixed spacer frames (aluminum, steel, stainless steel, plastic, hybrid) can be processed in top quality. This line's highlight is the assembly and gas filling press, a patented triplicate gas filling system for the optimal distribution of the arising forces. In addition, the system includes a special supporting system for particularly heavy glass sheets.

Highlights

- Heavy elements of up to 350 kg/lm
- Able to process all common rigid spacers
- Included pre-wash zone
- Expandable due to the modular line construction
- Simplified frame mounting due to mounting aid (RSV-MH)
- Processing of shapes from the LiSEC Shape Catalog

Options

- 8 brushes (VHW-D)
- Edge deletion (AKL or AKL-S)
- Steps on 3 sides
- Semi-automatic frame mounting zone (RSVN or RSV-B)
- Frame mounting & inspection zone (RSV-B)
- Turning station before the assembly press
- Scanner (GSL-S)
- Second metering unit for PU/SI/PS
- Automatic application of shims (APKV)
- Turning station before the sealing station
- Seaming (KSR)

Available software



lineserver



prod



assetcheck



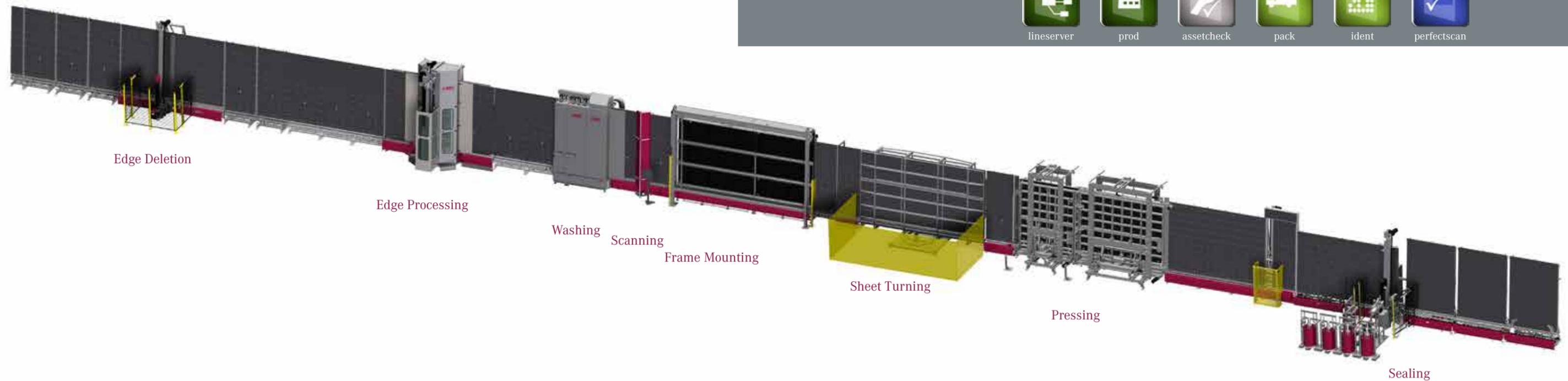
pack



ident



perfectscan



Technical data

	LiSEC XL 60/33
Glass thickness	2,3 - 26 mm
Minimal size	350 x 180 mm
Maximum size	6.000 x 3.300 mm
Glass transport height	520 mm (+/- 20 mm)
Max load	350 kg/lm
Max unit thickness	12 - 100 mm
IG types	2 - 3-fold, optional 4-fold
Geometries	rectangle and shapes according to LiSEC shape catalogue

	LiSEC XL 60/33
Basic Line	55832 mm
Edge Deletion (AKL)	8938 mm
Edge Deletion (AKL-S)	10748 mm
Seaming (KSR)	10369 mm
Frame setting and inspection zone (RSV-B)	7145 mm
Semi-automatic Frame Setting Zone (RSVN)	- 468 mm
Semi-automatic Frame Setting Zone (RSV-B)	1195 mm
Turning Station before Assembly Press	2528 mm
Turning Station before Sealing station	2528 mm

FACADE LINE

for IG Elements of up to 18m Length and 450kg/lm

Longer, heavier, more innovative – the benchmark for oversizes. This line sets new standards when it comes to the production of insulating glass in extreme sizes. Based on our decades of experience, it has been redesigned from the ground up – from the quality control section to the SuperSpacer applicator to the new assembly and gas filling press, the sealing system and the automatic line unloading.

Highlights

- Production of insulating glass in extreme sizes up to 18m length and 450kg/lm
- Inspection station with scissor lifting platform
- Processing of rigid and flexible spacers
- Semi-automatic line unloading system
- Included pre-wash zone
- Expandable due to the modular line construction

Options

- 4-side stepped units
- Scanner (GSL-S)
- Second metering for PU/SI/PS
- Inspection station with scissor lifting platform
- One or two sealing materials interruption-free

Available software



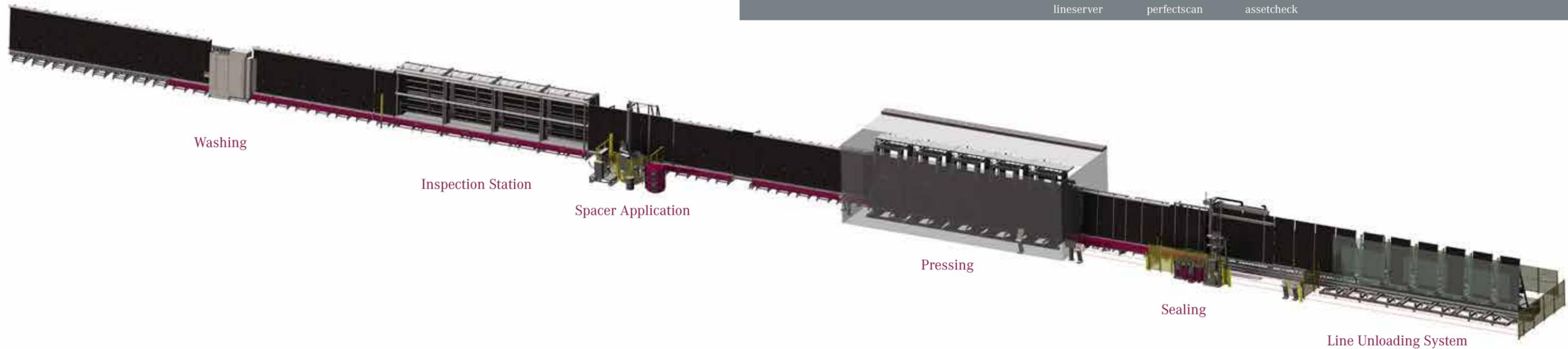
lineserver



perfectscan



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Technical data

	LiSEC XXL 60/33	LiSEC XXL 90/33	LiSEC XXL 120/33	LiSEC XXL 150/33	LiSEC XXL 180/33
Glass thickness	3 - 52 mm				
Minimal size	800 x 500 mm				
Maximum size	6.000 x 3.300 mm	9.000 x 3.300 mm	12.000 x 3.300 mm	15.000 x 3.300 mm	18.000 x 3.300 mm
Glass transport height	720 mm (+/- 20mm)				
Max load	450 kg/lm				
Max unit thickness	20 - 102 mm (2-fold), 32 - 102 mm (3-fold)				
IG types	2 - 3-fold				
Step units	3-sided stepped units: BE = 0 mm, LE + RE + UE = 0 - 300 mm Optional BE = 150 mm, BE = 300 mm				
Data line	GPS.lineserver				
Geometries	rectangle and shapes according to LiSEC shape catalogue				

STAND-ALONE MACHINES



AKL-S

Edge Deletion of Shapes

This vertical edge deletion machine is used with surface-coated glass sheets and has been especially designed for glass shapes. The newly developed model sets a high standard with regard to processing options. The innovative technology used (grinding head can be continuously swivelled 470°) for the first time allows automatic edge deletion of shapes – the only requirement on the glass is a straight bottom edge of at least 350 mm length.

Highlights

- Processing of both rectangles and shapes in one cycle
- Easy integration into insulating glass lines
- Automatic measurement and dressing of grinding wheels
- Grinding wheel widths up to 26 mm

Options

- Line server connection
- Grinding of stepped sheets



Technical data

	AKL-S
Glass height	1,6 m / 2,5 m / 2,7 m / 3,3 m
Glass thickness	2,3 - 19 mm
Minimal size	350 x 180 mm, optional 250 x 180 mm
Maximal size	6.000 x 3.300 mm
Grinding wheel width	10 - 26 mm
Load max.	150 kg/lm

AKL-V

Vertical Edge Deletion System for Coated Glass Sheets

The AKL-V can be fully integrated into an insulating glass line, and is designed to reliably remove the metal coatings from the edge areas of surface-coated glass sheets to ensure the adhesion of the butyl string. The transport unit is equipped with suction cups, which ensure that even small glass sheets can be positioned precisely. The standard grinding width is 10 mm. By selecting the corresponding option the grinding width can be continuously adjusted.

Highlights

- Easy integration into an insulating glass line
- Automatic alignment of the grinding wheel
- Integrated grinding dust extraction device



Technical data

	AKL-V
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3 m / 3,3 m
Glass thickness	2,3 - 15 mm, optional 2,3 - 19 mm
Minimal size	350 x 180 mm, optional 250 x 180 mm
Maximal size	6.000 x 3.300 mm
Grinding width	10 mm, optional: continuously adjustable
Load max.	150 kg/lm

base WASH

Washing line



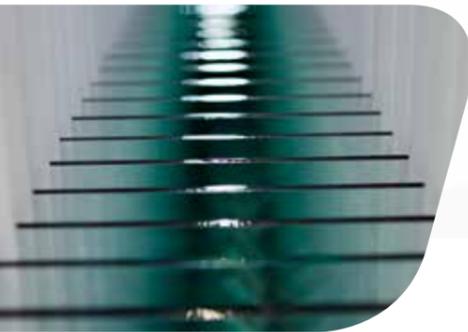
The base WASH line allows easy cleaning of glass sheets. The loading zone at the inlet is perfectly designed to easily feed the washer in a timely manner. Using a 4 brushes washer including a drying zone ensures perfect cleanness of each single sheet.

Highlights

- 4 brushes washer
- 0.12 mm brushes
- Choice of running direction
- Control cabinet climatisation

Options

- 1000l tank



Technical data

	WASH 25/20	40/27
Glass thickness	2,3 - 40 mm	
Minimal size	350 x 180 mm	
Maximum size	2.500 x 2.000 mm	4.000 x 2.700 mm
Glass transport height	520 mm (+/- 20mm)	
Transport speed	3 -12 m/min variable	
Geometries	rectangles and shapes	

WTL

Automatic Washing and Drying System for Flat Glass

The WTL is a low-maintenance, compact and reliable washing and drying system for flat glass. The machine is largely made of chrome steel, making it resistant to corrosion, and consists of a pre-wash, main wash and drying zone. The heating tank, which is integrated in the pre-wash zone, is equipped with a circulation system and an easy-to-change filter pad. The two wash zones are provided with a pair of brushes each in the standard machine version. The brushes rotate at a constant speed.

Highlights

- Machine body made of stainless chrome steel for maximum resistance to corrosion
- Minimum water consumption thanks to the circulation system used
- The need for maintenance is extremely low

Options

- An additional pair of brushes in the main wash zone for improved cleaning results
- Extra circulation system in the main wash zone for even lower water consumption

- Shapes according to LISEC FiT.Line shape catalog



Technical data

	WTL
Glass height	2 m / 2,5 m
Glass thickness	2,3 - 15 mm
Minimal size	350 x 180 mm
Heating unit for the washer	1 heating tank
Number of brushes	4 brushes
Load max.	150 kg/lm

VHW-E

Automatic washing and drying plant for flat glass

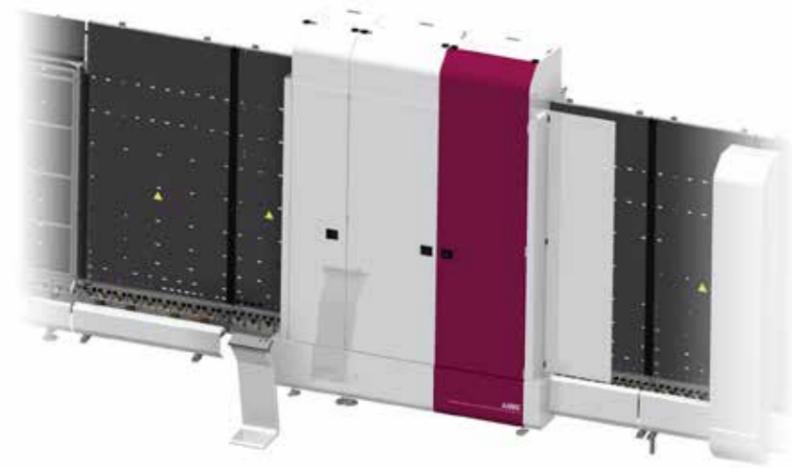
Our newly developed washing and drying plant offers our customers the possibility to start with a washing machine for basic requirements and to gradually (even over years) adjust and upgrade this machine to meet their growing needs. But not only its flexible upgradability, also the extreme revision of the functional and technical facilities of this plant offer significant benefits.

Highlights

- No scratching of glass sheets or coating (infinitely adjustable brushes)
- Faster and more efficient drying process
- More compact construction
- Saving up to 50% energy with hot water generator

Options

- Shapes according to the LiSEC shape catalog
- Speed control for rolling brushes front/rear
- Automatic coating detection
- 1000l tank and sand filter
- Brushes with denser bristles
- Additional pair of brushes for the main washing zone
- Additional heating element for the integrated heating tank
- Water temperature and conductance monitoring



Technical data

	VHW-E
Glass height	2 m / 2,5 m / 2,7 m / 3,3 m
Glass thickness	2 - 60 mm
Minimal size	350 x 180 mm
Heating unit for the washer	Integrated hot water generation
Number of brushes	4 brushes (VHW-D/4), 6 brushes (VHW-D/V6), 8 brushes (VHW-D/V8)
Transport speed	8 m/min (4 brushes), 12 m/min (6 brushes), 15 m/min (8 brushes)
Load max.	250 kg/lm

A1RL

Automated Desiccant Filling Machine for Bent Spacer Frames

Multifunctional system for drilling, filling and closing two holes drilled in two adjacent frame legs. The machine automatically adjusts to the width of the respective spacer frame. The height of the single filling head can be continuously adjusted to different frame sizes. An electronic control device is fitted for reliable and optimal filling. Spacer frames are loaded manually. By simply turning the spacer frame 180 degrees, all four frame legs can be filled with desiccant.

Highlights

- Process-controlled filling with desiccant
- Suitable for steel and aluminum spacers
- Time-controlled filling possible
- Filling of a single frame leg is also possible

Options

- Shapes according to LiSEC shape catalog



Technical data

	A1RL
Profile width	6 - 24 mm
Profile height	6 - 8,5 m
Minimal size	150 x 150 mm
Max. size depending on the aspect ratio of the frame	2.000 x 2.000 mm, 2.500 x 1.500 mm, 3.000 x 1.000 mm
Possible materials	aluminum, optional: steel, stainless steel

A2RL-R

Fully Automated Tandem Desiccant Filling Machine for Bent Spacer Frames

Drilling, filling and closing of two opposite vertical frame legs by means of two multifunctional devices with automatic adjustment to suit the size and width of the spacer frames. The holes are then closed with sealant, and in the next step a butyl string is applied to the frame. An electronic control device is fitted for reliable and optimal filling. Loading and unloading are carried out fully automatically.

Highlights

- Short cycle times due to tandem filling devices
- Process-controlled filling with desiccant
- Manual loading possible
- Can be easily combined with an automatic butyl coating machine for its modular design



Technical data

	A2RL-R
Profile width	6 - 24 mm
Profile height	6 - 8,5 mm
Minimal size	340 x 340 mm
Maximal size	2.500 x 2.500 mm
Profile types	aluminum, optional: steel, stainless steel

A4AL

Desiccant Filling Machine for Profile Bars

The special design of the multiple filling head allows filled profiles to be removed, and empty profiles to be inserted during the filling process while preventing desiccant spills. The spacer support, which is at 45 degrees and has a spring clamp, enables the simultaneous filling of several profile bars of varying widths.

Highlights

- Material supply via gravity-vibration system
- Sight glass to monitor filling volume
- Closed filling system
- Also available with suction supply system that supplies desiccant directly from 200-liter drums



Technical data

	A4AL
Profile width	6 - 24 mm
Profile height	6 - 8,5 mm
Profile length	50 - 2500 mm
Profile types	aluminum, steel, stainless steel, plastic

ARL-45F

Automated Desiccant Filling Machine for Bent Spacer Frames

Machine for drilling, filling and closing (with sealant) two frame legs, with automatic adjustment to suit the width of the spacer frames. By drilling the holes in the back of the profile, different shapes and materials can be processed. An electronic control device is fitted for reliable and optimal filling. The height of the filling head can be continuously adjusted to different frame sizes. By simply turning the spacer frame 180 degrees, all four frame legs can be filled with desiccant.

Highlights

- Easy to use and universally applicable
- Suitable for aluminum, stainless steel and plastic profiles
- Special shapes according to LiSEC shape catalog

Options

- Filling of Swisspacer



Technical data

ARL-45F	
Profile width	6 - 24 mm
Profile height	6 - 8,5 mm
Minimal size	150 x 150 mm
Max. size depending on the aspect ratio of the frame	2.000 x 2.000 mm, 2.500 x 1.500 mm, 3.000 x 1.000 mm
Possible materials	aluminum, optional: steel, stainless steel, plastic

BMS-1

Stationary Drilling Device for Spacer Frames

Stand-alone system designed to drill gas-filling holes into spacer frames which are not yet filled with desiccant. The frames are positioned manually. The double spindle drills the gas-filling holes from the outside into both sides of the profile. The hole on the visible side, which is about 0.5 mm smaller than the other, facilitates the insertion of the plastic plugs, which prevent the desiccant from entering the space between the glass sheets.

Highlights

- Solid, simple, and well-thought-out design

Options

- Automatic frame transport



Technical data

BMS-1	
Profile width	10 - 24 mm
Profile height	6 - 8,5 mm
Minimal size	250 x 180 mm
Possible materials	aluminum, optional: steel

BSV-45NK

Automatic bending machine for all conventional, synthetic and composite spacer types

The BSV-45NK is a fully automatic spacer profile bending machine for processing all conventional, synthetic and composite spacer frames for the production of insulating glass. The system is equipped as a standard for processing aluminium, steel, stainless steel, synthetic and composite profiles. The profile magazine can be equipped with 4, 6, 8 and 15 profile storage slots.

Highlights

- Processing of aluminium, steel, stainless steel, synthetic and composite profiles
- 4, 6, 8 or 15-slot profile magazine
- Shape capability according to the LiSEC shape catalogue
- Easy operation via touchscreen
- Swisspacers can also be processed

Options

- 6, 8 or 15-slot profile storage magazine
- Shapes according to the LiSEC shape catalogue
- Processing of Swisspacer
- Automatic bending for aluminium, plastic und Swisspacer

- Printer control for inkjet printers
- Multiple frame labelling



Technical data

BSV-45NK	
Profile width	6 - 24 mm adjustable in increments (aluminum, steel, stainless steel), 8 - 24 mm adjustable in increments (plastic), optional 8 - 24 mm adjustable in increments (Swisspacer)
Profile height	6 - 8,5 mm
Profile magazine	4-slot
Minimal size	250 x 100 mm
Maximal size	6.600 x 3.300 mm

BSV-45ANK

Automatic bending machine for all conventional, synthetic and composite spacer types

The BSV-45ANK is a fully automatic spacer profile bending machine for processing all conventional, synthetic and composite spacer frames for the production of insulating glass. The measuring and cutting system is arranged parallel to the bending device, so that two operation steps are carried out simultaneously. Measuring, cutting and the endless connection are performed at the same time as the bending process, which substantially reduces the cycle time. The system is equipped as a standard for processing aluminium, steel, stainless steel, synthetic and composite profiles.

Highlights

- Processing of aluminium, steel, stainless steel, synthetic and composite profiles
- Shape capability according to the LiSEC shape catalogue
- 4, 6, 8 or 15-slot profile magazine
- Swisspacers can also be processed
- Automatically adjustable bending die for aluminium, synthetic and Swisspacer profiles

Options

- 6, 8 or 15-slot profile storage magazine
- Shapes according to the LiSEC shape catalogue
- Processing of Swisspacer
- Automatic bending for aluminium, plastic und Swisspacer

- Printer control for inkjet printers
- Multiple frame labelling



Technical data

BSV-45ANK	
Profile width	6 - 24 mm adjustable in increments (aluminum, steel, stainless steel), 8 - 24 mm adjustable in increments (plastic), optional 8 - 24 mm adjustable in increments (Swisspacer)
Profile height	6 - 8,5 mm
Profile magazine	4-slot
Minimal size	250 x 100 mm
Maximal size	6.600 x 3.300 mm

LBH-25V

Automated Butyl Coating Machine for Spacer Frames

Butyl extruder for precision butyl coating on both sides of spacers. Sensor-controlled guide rollers ensure optimal stabilisation of the frame and thus enable even coating. Opening and closing of the coating nozzles for each frame side are controlled automatically. The integrated measurement device for frame widths ensures continuous nozzle adjustment from 6 to 24 mm. The coating speed can be set individually.

Highlights

- Continuously adjustable working height
- Processing of spacer frames with or without georgian bars / muntins
- Round arches and special shapes can be coated without any problem
- Frame widths up to 42 mm are possible



Technical data

LBH-25V	
Profile width	4 - 22 mm, 5 - 23 mm, 6 - 24 mm optional 22 - 40 mm, 23 - 41 mm, 24 - 42 mm
Profile height	6 - 8,5 mm
Minimal size	120 x 120 mm
Working height	540 - 940 mm variable
Butyl nozzle	3 x 2,2 mm, 4,2 x 1,5 mm
Butyl supply	14 l butyl reservoir

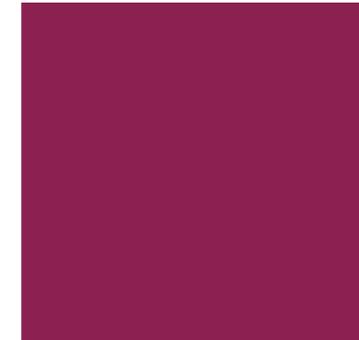
LBH-60M

Semi-Automatic Butyl Coating Machine

The LBH-60M high-precision butyl coating machine is designed to evenly coat both sides of spacer frames with butyl. An integrated measuring device measures the frame widths and ensures that the nozzles are continuously adjusted from 4 to 60 mm.

Highlights

- Even coating on both sides of the frame
- Continuously adjustable working height
- Easy operation
- Processing of spacer frames with Georgian bars / muntins
- Easy coating of round arches and shapes



Technical data

LBH-60M	
Profile width	4 - 60 mm
Profile height	6 - 8,5 mm
Minimum size	120 x 120 mm
Transport height	540 - 940 mm variable
Butyl nozzle	3 x 2.2 mm, 4.2 x 1.5 mm
Butyl supply	14 l butyl reservoir

LBH-ARS

Fully Automatic Butyl Application System

Sensor-controlled guide rollers stabilise the profile and ensure even butyl application. The integrated input and outlet stations at the front and rear of the machine enable the processing of aluminium frames up to a maximum size of 2500 x 2500 mm with the standard version.

Highlights

- Processing of all kinds of spacer frames with and without Georgian bars / muntins
- Integrated lifting fingers support the frames when they are pivoted
- Butyl is evenly distributed on both sides
- Compact design with horizontal material pressing system

Options

- Nozzle block that can be lifted and lowered (for different radii in the corners), especially for processing stainless steel profiles
- Processing of frames up to a size of 3500 x 2500

- mm with and/or without manual help (subject to the profile type and/or the type of lifting finger selected)
- Two additional lifting fingers (for processing larger frames)



Technical data

	LBH-ARS
Profile width	6 - 24 mm
Profile height	6,7 mm
Minimum size	285 x 285 mm
Maximum size	2500 x 2500 mm

RSVN-U

Mounting Station for spacer frames

Vertical station for the manual application of spacer frames on glass sheets. After feeding in the glass sheet to the reference point, the auxiliary frame mounting stops automatically adjust to the bottom and front vertical glass edge. The frame inset can be centrally adjusted from 0 to 30 mm. Glass thickness adjustment is performed automatically.

Highlights

- Easy integration into any LiSEC insulating glass system and non-LiSEC systems
- Electronic control of the drive mechanism
- Available as a storing section for one or two glass sheets

Options

- Shapes according to LiSEC shape catalog
- Inspection station with displaced back panel



Technical data

	RSVN-U
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3 m / 3,3 m
Glass thickness	2,3 - 19 mm
Minimal size	350 x 180 mm optional 230 x 180 mm
Maximal size	6.000 x 3.300 mm
Frame inset	0 - 30 mm, continuously adjustable
Load max.	250 kg/lm

RSV-B

Mounting Station for spacer frames

Vertical station for the manual application of spacer frames on glass sheets. After feeding in the glass sheet to the reference point, the auxiliary frame mounting stops are either adjusted manually by a hand wheel (horizontal and vertical adjustment range 0 - 30 mm), or automatically, depending on the version of the machine.

Highlights

- Electronic control of the drive mechanism
- Easy sheet inspection
- Additional quality control
- If the machine is equipped with shutters (see options), anti-drop safety devices integrated in the horizontal beam will prevent large sheets from tilting forward

Options

- Shutters and anti-drop safety devices for easier cleaning of the sheet's back side
- Installation of additional luminaires for easier inspection and control of the sheets
- Shapes according to LiSEC shape catalog

- Automatic horizontal and vertical stops
- Frame inset measurement horizontal manual / automatic



Technical data

	RSV-B
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3 m / 3,3 m
Glass thickness	2,3 - 19 mm optional 2,3 - 42 mm
Minimal size	350 x 180 mm optional 230 x 180 mm
Maximal size	3.500 x 3.300 mm
Stops	horizontal + vertical, 1 hand wheel
Frame inset	0-30 mm, continuously adjustable
Load max.	150 kg/lm

HMLN

Semi-Automated Frame Mounting and Assembly System

Infeed and positioning of the first glass sheet are carried out fully automatically. After that, the back panel automatically moves out of the way so that the next glass sheet can enter the machine. Infeed of the second glass sheet is carried out by means of a roller drive and a manual guidance system of the upper edge. Next the glass sheets are precisely assembled. Integrated horizontal stops facilitate mounting of the spacer to the first glass sheet. The assembled glass unit is automatically fed out upon pressing the foot pedal.

Highlights

- The perfect solution for medium production capacity with a high percentage of manual manufacturing
- Also available for triple insulating glass units

Options

- Additional vertical frame mounting stop



Technical data

	HMLN
Glass height	1,6 m / 2 m
Unit thickness	12 - 52mm
Minimal size	250 x 180 mm (1,6 m), 350 x 180 mm
Maximal size	2500 x 2000 mm
Unit construction	triple
Frame inset measurement	3 mm fixed / 3,5 mm fixed / 4 mm fixed / 5 mm fixed
Load max.	150 kg/lm

VSA

Fully Automatic System for Applying Flexible Spacers to Glass Sheets

This fully automatic system is designed to apply flexible spacers to glass sheets. The system's patented application technique offers highly accurate application while retaining the spacer's shape, as well as low-friction and smooth feed of the spacer bars in unmatched cycle times.

Highlights

- Application of the most diverse flexible spacer types with a width between 6 and 20 mm
- Continuous application along the perimeter of the glass sheet with a perfect quality in the corners

Options

- Butyl coating of spacers
- Units with Georgian bars / muntins
- Frame labeling
- Shapes according to LiSEC shape catalog



Technical data

	VSA
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3,3 m
Glass thickness	2 - 20 mm
Min. size	350 x 180 mm, optional 250 x 180 mm
Max. size	6.000 x 3.300 mm
Max. processing length	2.500 mm / 3.500 mm / 5.000 mm / 6.000 mm
Spacer widths *	6 - 20 mm (optional 8,2 - 25,4 mm)
Magazine	2-reel, optional: 4-reel
Max. load	150 kg/lm

* According to LiSEC catalog

VSA-D1

Fully Automatic System for Applying Flexible Spacers to Glass Sheets

The VSA-D1 is ideally suited for the manufacture of double or triple insulating glass units. Its full potential can be particularly seen in glass units with air gaps of different widths, as its applicator head can simultaneously feed two different spacer widths and apply them alternately. This ensures continuous production and extremely short cycle times. The time spent on setting up and changing the spacer is therefore no longer relevant.

Highlights

- Application of the most diverse flexible spacer types with a width between 6 and 20 mm
- Continuous application along the perimeter of the glass sheet, with a perfect quality in the corners
- Automatic disposal of punched corner pieces for a clean system and work area

Options

- Butyl coating of spacers
- Units with Georgian bars / muntins
- Frame labeling
- Shapes according to LiSEC shape catalog

- Spacer widths between 20 and 25 mm



Technical data

	VSA-D1/D2
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3,3 m
Glass thickness	2 - 20 mm
Min. size	350 x 180 mm, optional 250 x 180 mm
Max. size	6.000 x 3.300 mm
Max. processing length	2.500 mm / 3.500 mm / 5.000 mm / 6.000 mm
Spacer widths *	6 - 20 mm (optional 8,2 - 25,4 mm)
Magazine	2-reel, optional: 4-reel
Max. load	150 kg/lm

* According to LiSEC catalog

VSA-N1

Fully Automatic System to Apply Flexible Spacers with Plastic Foils or Metal Back Foils

VSA-N1 is a fully automatic application system for attaching flexible spacers from reels onto glass sheets. The machine's double-feed applicator head which is mounted to the vertical axis, allows two different widths of spacers to be processed fully automatically without any interruption. This is especially useful in production runs with continuously changing and asymmetric triple unit set ups. Thus different widths do not require material changes, and the gain in cycle time is significant.

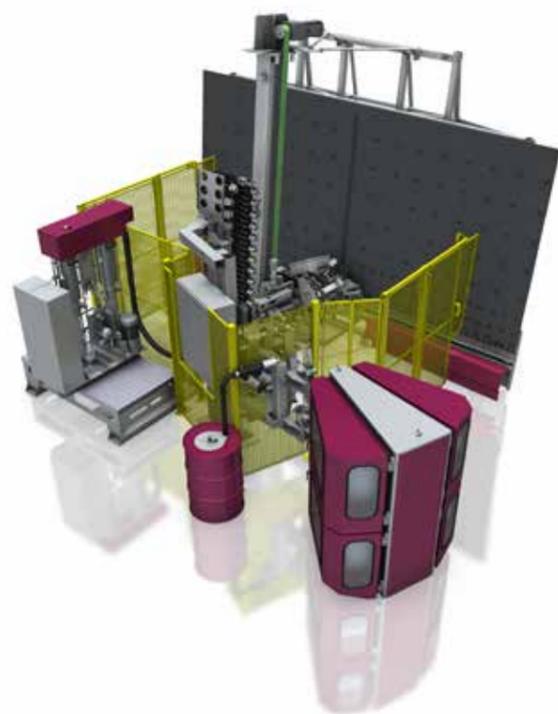
Highlights

- Continuous application with perfect corners
- Automatic disposal of punched corner pieces to ensure a clean machine and working environment
- No visible beginning and end marks of butyl strings

Options

- Shapes according to LiSEC shape catalog
- Automatic punching device for optimal positioning of Georgian bars / muntins
- Processing of flexible spacers with plastic foils or metal back foils

- Transport back panel with air cushion
- Frame labeling



Technical data

VSA-N1	
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3,3 m
Glass thickness	2 - 20 mm
Min. size	350 x 180 mm, optional 250 x 180 mm
Max. size	6.000 x 3.300 mm
Max. processing length	2.500 mm / 3.500 mm / 5.000 mm / 6.000 mm
Spacer widths *	6 - 20 mm (optional 8,2 - 25,4 mm)
Magazine	2-reel, optional: 4-reel
Max. load	150 kg/lm

* According to LiSEC catalog

VSA-N2

Fully Automatic Machine with Two Application Systems to Apply Flexible Spacers with Plastic Foils or Metal Back Foils

VSA-N2 is a fully automatic machine for attaching flexible spacers onto glass sheets. The twin system is equipped with two application systems and one double-feed applicator head per system. Thus four different widths may be applied one after another without requiring changes or set up work. This allows the shortest cycle times reached so far, in particular when processing asymmetric triple insulating glass units.

Highlights

- Two application systems with one double-feed applicator head per system to process four different widths
- Continuous application with perfect corners
- Automatic extraction of protective foils applied to three spacer sides

Options

- Shapes according to LiSEC shape catalog
- Automatic punching device for optimal positioning of Georgian bars / muntins
- Processing of flexible spacers with plastic foils or metal back foils

- Transport back panel with air cushion
- Frame labeling



Technical data

VSA-N2	
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3,3 m
Glass thickness	2 - 20 mm
Min. size	350 x 180 mm, optional 250 x 180 mm
Max. size	6.000 x 3.300 mm
Max. processing length	2.500 mm / 3.500 mm / 5.000 mm / 6.000 mm
Spacer widths *	6 - 20 mm (optional 8,2 - 25,4 mm)
Magazine	2-reel, optional: 4-reel
Max. load	150 kg/lm

* According to LiSEC catalog

VSB

Fully Automatic System for Applying Flexible Spacers to Glass Sheets

The Lisec VSB has been specially developed for non-butyled, standard Super Spacers. The system's patented application technique offers highly accurate application while retaining the spacer's shape, as well as low-friction and smooth feed of the spacer bars in short cycle times. Rectangular shapes are measured automatically, and special shapes, after manual input of their data at the terminal, can be easily processed, too.

Highlights

- Especially for non-butyled types of flexible spacers
- Application of the most diverse flexible spacer types with a width between 6 and 20 mm
- Clean work environment thanks to the new waste removal system

Options

- Units with Georgian bars / muntins
- Frame labeling
- Shapes according to LiSEC shape catalog



Technical data

	VSB
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3,3 m
Glass thickness	2 - 12 mm, optional 2 - 20 mm
Minimal size	350 x 180 mm, optional 250 x 180 mm
Maximal size	6.000 x 3.300 mm
Max. processing length	2.500 mm / 3.500 mm / 5.000 mm / 6.000 mm
Spacer widths *	6 - 20 mm
Magazine	no magazine
Max. load	150 kg/lm

* According to LiSEC catalog

SSV

Automated Corner Tape Application System for Flexible Spacers

System for sealing the final corner of automatically applied flexible spacers using a diffusion-proof, self-adhesive aluminum tape. This robot is fitted on two glass transport sections with split drive. Glass units are transported either on transport rollers or belts, both of which are provided with a wear-resistant cover.

Highlights

- Easy and risk-free transport of glass sheets
- Transport rollers or belts with a wear-resistant cover

Options

- Shapes according to LiSEC shape catalog



Technical data

	SSV
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3,3 m
Glass thickness	2 - 12 mm
Minimal size	250 x 180 mm
Load max.	150 kg/lm

TPA

High-quality processing of thermoplastic spacers

The LiSEC TPA is a fully automatic system for applying thermoplastic spacers directly to the glass sheet. LiSEC has developed a seal that is almost invisible when integrated and that also ensures that the spacer is applied absolutely gas-tight. In order to also perfectly bring this approach into practice, we offer the solution as a line concept.

Highlights

- High process assurance thanks to the pressed seal
- All frame widths are continuously adjustable
- External spacer frame production is no longer necessary

Options

- Support wall with air flotation system
- Shapes according to LiSEC shape catalog
- Printer control for inkjet printers



Technical data

	TPA
Glass height	2 m / 2,5 m / 2,7 m
Glass thickness	2 - 12 mm
Min. size	350 x 180 mm
Max. size	5.000 x 2.700 mm
Max. processing length	2.500 mm / 3.500 mm / 5.000 mm
Spacer height	6,4 mm
Spacer widths	6 - 18 mm
Max. load	150 kg/lm

TPA with VLO (Vertical Lift-Over)

Fast processing of thermoplastic spacers

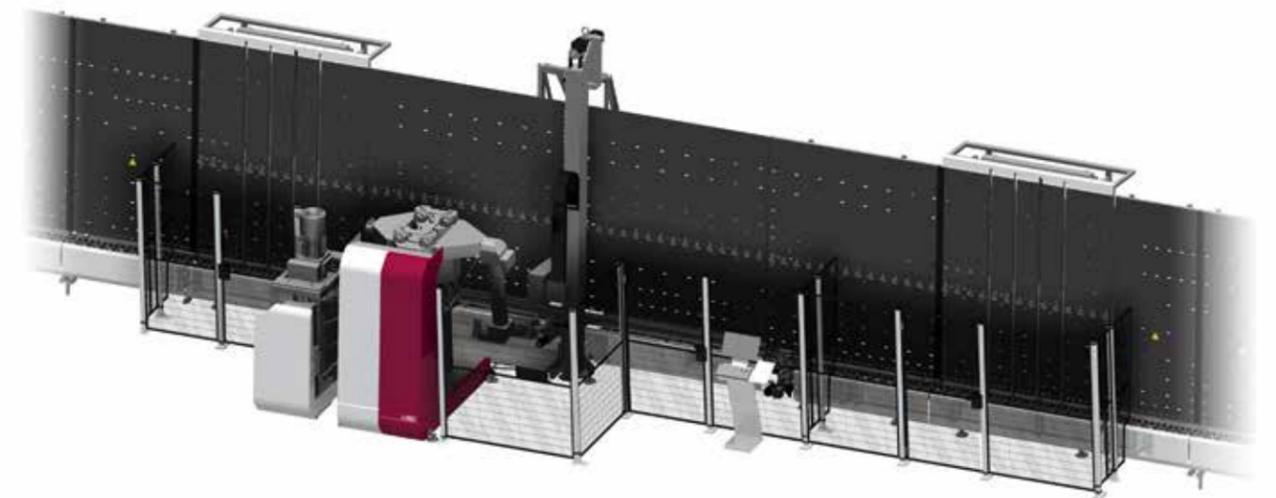
The vertical lift-over (VLO) for the TPA application is the perfect solution for customers with increased cycle time requirements. Glass sheets without TPA application are bypassing the applicator by means of a vertical lifting device - no time consuming transport through the applicator is required. The glass sheets are put at the beginning of the line in the usual order; the VLO automatically sorts them correctly for the paired or tandem operation of the press.

Highlights

- Vertical Lift-Over
- Automatic sorting for paired or tandem operation
- Very short cycle times possible

Optionen

- Shapes according to the LiSEC shape catalog
- TSD-control for inkjet printers



Technical data

	TPA with VLO
Glass height	1.200 mm (with lift-over operation) 2.700 mm (without lift-over operation)
Glass thickness	2 - 8 mm (on the upper transport track) 2 - 12 mm (on the bottom transport track)
Min. size	450 x 250 mm (with lift-over operation) 350 x 180 mm (without lift-over operation)
Max. size	2.100 x 1.200 mm (with lift-over operation) 4.000 x 2.700 mm (without lift-over operation)
Max. load	150 kg/lm

AGP

Gas filling, assembling and surface pressing of insulating glass units

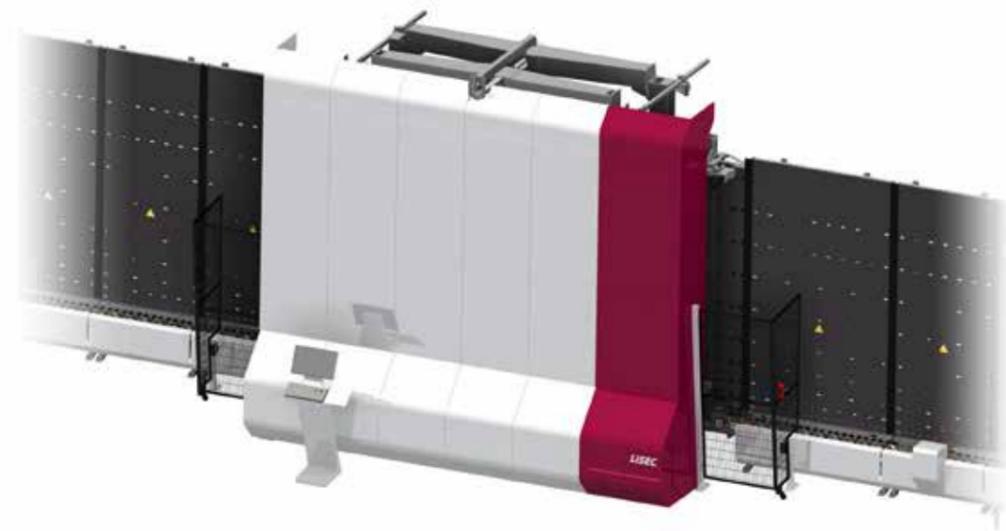
Its permanent support of all glasses of multi-sheet units makes the fully-automatic spindle press the best solution for thermoplastic spacer production. The paired or tandem operation makes it possible to reduce the cycle times even further, while the movable sealing strips combined with a precise volume calculation ensure minimum gas consumption.

Highlights

- Permanent support of all glass sheets (also for bottom edge steps)
- 3 and 4-side stepped units
- Highest dimensional accuracy (+/- 0.5mm)
- Suitable for 4-sheet units
- Paired or tandem operation possible

Options

- Processing of 4-sheet units
- Shapes according to the LiSEC shape catalog
- 4-side stepped units
- Maximum units thickness: 100 mm
- Use of several gas types



Technical data

	AGP
Glass height	2 m / 2,5 m / 2,7 m / 3,3 m
Unit thickness	10 - 80 mm (optional 100 mm)
Minimal size	350 x 180 mm
Maximal size	8.000 x 3.300 mm
Glass thickness	2 - 25 mm
Operating modes	Normal mode, paired operation, tandem operation
Load max.	250 kg/lm (350 kg/lm optional, 450 kg/lm upon request)

FPS-U2

Automated Gas-Filling Machine

This is a fully automated system for gas filling, assembly and pressing of insulating glass units. The tried and tested system of filling the sealed 'chambers' with gas from the bottom up reduces turbulence to zero. Gas consumption is minimized using a system of 'separate chambers' with sealing bars developed by LiSEC.

Highlights

- Unique gas-filling rate
- Gas filling without turbulence
- Cycle time is independent of the glass length (by filling gas from the bottom up)
- Special measuring system allows exact pressing of units with flexible spacers

Options

- Shapes according to LiSEC shape catalog
- 3-side stepped unit
- 4-side stepped unit



Technical data

	FPS-U2
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3 m / 3,3 m
Unit thickness	12 - 60 mm
Minimal size	250 x 180 mm (1,6 m), 350 x 180 mm (2 m / 2,5 m / 2,7 m / 3 m / 3,3 m)
Maximal size	2.500 x 2.500 mm / 3.500 x 3.300 mm as an option, lengths of up to 5.000 mm can be processed
Glass thickness - fixed press plate	2,3 - 19 mm
Glass thickness - movable press plate	2,3 - 15 mm optional 2,3 - 19 mm
Load max.	250 kg/lm

FPS-US

Automated Gas-Filling Machine

This is a fully automated system for gas filling, assembly and pressing of insulating glass units. The tried and tested system of filling the sealed 'chambers' with gas from the bottom up reduces turbulence to zero. A system developed by LiSEC, with 'separate chambers' and sealing bars that adjust to the length of the glass unit, precisely meters the amount of gas needed and minimizes gas consumption.

Highlights

- Suitable for filling argon, xenon and krypton
- Unique gas-filling rate
- Gas filling without turbulence
- Movable sealing bars significantly reduce the loss of gas

Options

- Shapes according to LiSEC shape catalog
- 3-side stepped unit
- 4-side stepped unit



Technical data

FPS-US	
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3 m / 3,3 m
Unit thickness	20 - 52 mm, optional 16 - 40 mm / 24 - 60 mm / 24 - 100 mm
Minimal size	250 x 180 mm (1,6 m), 350 x 180 mm (2 m / 2,5 m / 2,7 m / 3 m / 3,3 m)
Maximal size	2.500 x 2.500 mm / 3.500 x 3.300 mm / 6000 x 3300 mm
Glass thickness - fixed press plate	2,3 - 19mm optional 2,3 - 32 mm / 2,3 - 26 mm (stepped units BE = 0 - 50 mm)
Glass thickness - movable press plate	2,3 - 15 mm optional 2,3 - 19 mm
Load max.	250 kg/lm

HLP

Combined Machine for Assembly and Pressing

Fully automated system for the assembly and pressing of double and triple insulating glass units. The exact positioning stop on the infed side ensures that glass units are assembled in a way that all glass sheets line up exactly with each other. The glass units are pressed plane-parallel through double-acting hydraulic cylinders, by applying uniform pressure across the entire glass surface. Pressing is time- and pressure-controlled. The interior of the press is covered with felt to protect the glass edges during pressing.

Highlights

- Short cycle times
- Easy assembly of triple units

Options

- Shapes according to LiSEC shape catalog
- 3-side stepped unit
- 4-side stepped unit



Technical data

HLP	
Glass height	1,6 m / 2 m / 2,5 m
Unit thickness	10 - 55 mm
Minimal size	350 x 180 mm
Maximal size	2.500 x 2.500 mm, optional: lengths up to max. 3.500 mm
Glass thickness - fixed press plate	2,3 - 19 mm
Glass thickness - movable press plate	2,3 - 12 mm
Load max.	150 kg/lm

PSLN

Automatic Assembly System for Insulating Glass Units

Fully automatic assembly machine with the proven parallel guide system from LiSEC. The first glass sheet with spacer frame is automatically positioned on the outfeed side.

An electronic measuring device for the glass thickness and spacer frame width ensures that the support panel is moved backwards correctly. The automatic height measurement system then adjusts the guide beam to the height of the second sheet without spacer. Next the glass sheets are assembled as the back panel moves forward, and by means of a pressure cylinder mounted on the front side.

Highlights

- Precise assembly through parallel guide system

Options

- Assembly of quadruple units



Technical data

	PSLN
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m
Unit thickness	10,6 - 52mm
Minimal size	230 x 180 mm (PSLN-25/16), 350 x 180 mm
Maximal size	3800 x 2700 mm
Load max.	150 kg/lm

PSLN-VK

Automatic Assembly Machine, Coupled System

There are two separate modes of operation, one for glass sheets up to 3000 mm, and another for sheets up to 6000 mm in length. For sheets up to 3000 mm, the first machine section serves as a frame mounting station, while the second one acts as an assembly station. In the case of sheets of up to 6000 mm, the two sections are coupled and function as a frame mounting as well as an assembly station.

Highlights

- Short cycle time for units of up to 3000 mm in length
- Frame mounting and automated assembly on one single machine

Options

- Assembly of quadruple units



Technical data

	PSLN-VK
Glass height	2 m / 2,5 m / 2,7 m / 3 m / 3,3 m
Unit thickness	10,6 - 52mm
Minimal size	350 x 180 mm
Maximal size	6000 x 3300 mm
Frame inset measurement	0-30mm continuously and centrally adjustable
Applied load max.	150 kg/lm

UKL

Tilting Table

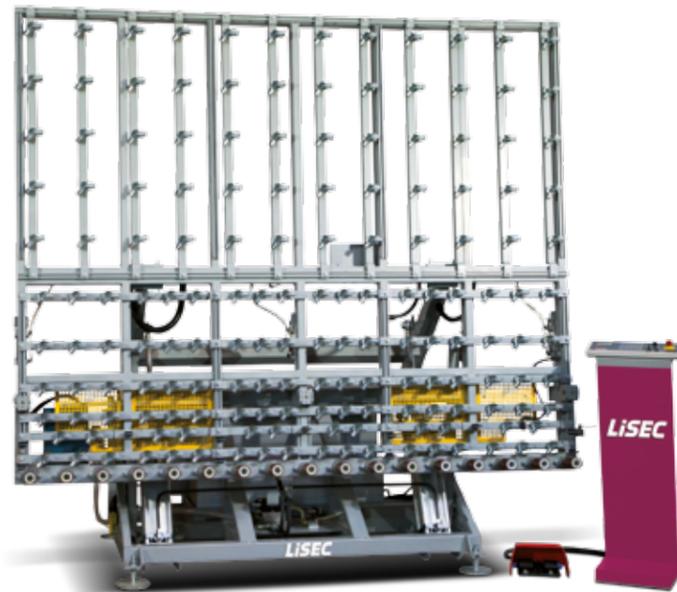
This machine is responsible for fast and safe tilting of glass sheets or insulating glass units. Tilting from the vertical to the horizontal position is carried out by means of a special toggle lever tilt system, which causes the reference edge to be positioned 800 mm ahead of the glass running track. Consequently, insulating glass lines can be installed in a space-saving manner. Counterweights on the support rollers ensure that their linear position is maintained when the table is in a vertical position.

Highlights

- Also available in special design for horizontal transport at a 90-degree angle to the line
- Manual outfeed possible when in horizontal position

Options

- Shapes according to LiSEC shape catalog



Technical data

	UKL-25	UKL-35	UKL-40
Glass height	1,6 m / 2 m / 2,5 m	1,6 m / 2 m / 2,5 m / 2,7m	1,6 m / 2 m / 2,5 m / 2,7m / 3 m / 3,3 m
Glass thickness	2,3 - 19 mm		
Unit thickness	12 - 52 mm		
Minimal size	350 x 180 mm optional 230 x 180 mm		
Maximal size	2500 x 2500 mm	3500 x 2700 mm	4000 x 3300 mm
Load max. (tilt)	450 kg		

CLEANSEAL (VFL-1E)

Sealing machine for the best corner quality

Automatic sealing machine with optimised sealant application, especially around corners. In order to increase the overall quality of the final product, we focused on the machine's degree of soiling when developing the CleanSeal. While the operator's skill plays a major role in determining the volume of material and how it is applied using conventional systems, LiSEC machines employ a highly dynamic, self-regulating and servo-controlled mixing system for this.

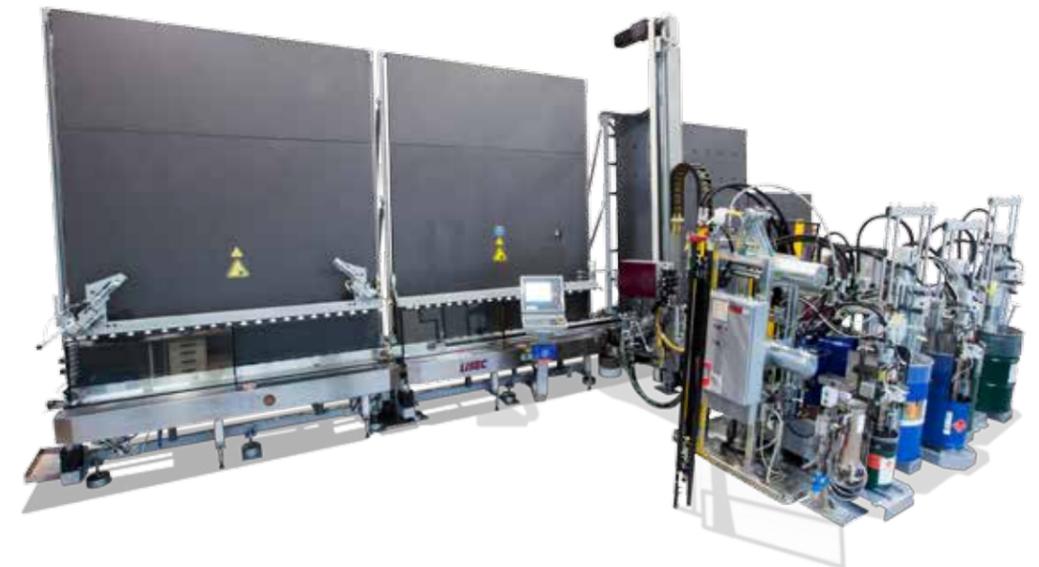
Highlights

- Simplified operation (reduced number of parameters, simplified recipe manager, clear setup procedures)
- Quicker and easier material changeover
- Reduction in material waste during flushing and restarting

Options

- Leaving gas-filling holes unsealed
- Shapes according to LiSEC shape catalog
- 3-sided stepped units
- 4-sided stepped units
- Special nozzles

- 2-part support beam for unloading units with a transport fork
- Manual/Automatic support of triple units by a set of rollers



Technical data

CleanSeal (VFL-1E)	
Glass height	2 m / 2,5 m / 2,7 m / 3,3 m
Unit thickness	12 - 100 mm
Minimal size	250 x 180 mm
Maximal size	6.000 x 3.300 mm
Maximal length	2.500 mm, 3.500 mm, 5.000 mm, 6.000 mm
Transport speed	2 - 60 m/min
Frame inset	0 - 30 mm
Max. load	250 kg/lm

CLEANSEAL (VFL-1ER)

Sealing machine for the best corner quality

Automatic sealing machine with optimised sealant application, especially around corners. In order to increase the overall quality of the final product, we focused on the machine's degree of soiling when developing the CleanSeal. While the operator's skill plays a major role in determining the volume of material and how it is applied using conventional systems, LiSEC machines employ a highly dynamic, self-regulating and servo-controlled mixing system for this.

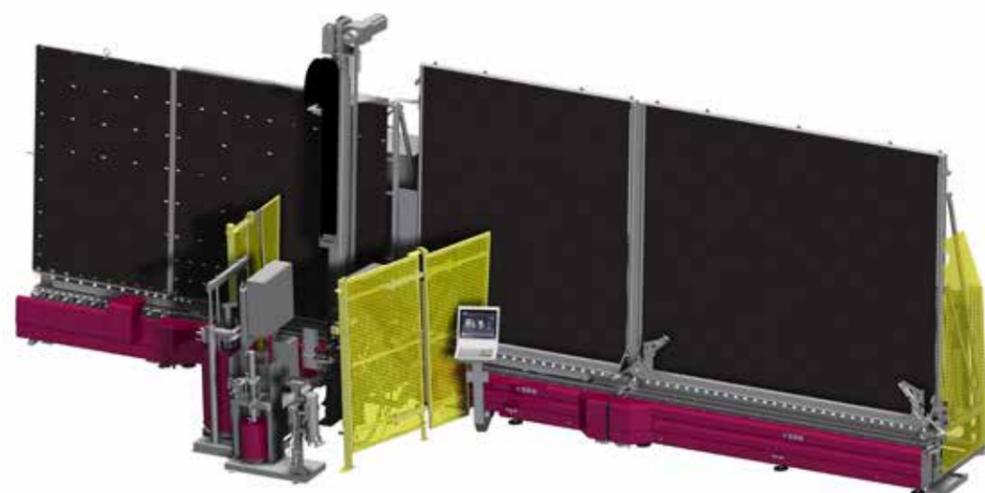
Highlights

- Manual corner corrections are largely avoided thanks to the installed corner forming devices
- Exceptionally low-wear mixing with high-precision application of material, coupled with a very large flow range
- Quicker and easier material changeover

Options

- Shapes according to LiSEC shape catalog
- 3-sided stepped units
- Special nozzles
- 2-part support beam for unloading units with a transport fork

- Leaving gas-filling holes unsealed
- Automatic support of triple units by a set of rollers



Technical data

CleanSeal (VFL-1ER)	
Glass height	2,5 m
Unit thickness	12 - 60 mm
Minimal size	250 x 180 mm
Maximal size	5.000 x 2.500 mm
Maximal length	5.000 mm
Transport speed	2 - 60 m/min
Frame inset	0 - 30 mm
Max. load	250 kg/lm

CLEANSEAL (VFL-1F)

Sealing plant for highest corner quality and heavy weights

The patented Full-Support-Belt transport combined with the CleanSeal technology sets new standards for sealing quality of multi-sheet IG units. Permanent support of each individual sheet while avoiding all contact between the sheet corners and the support jaws makes it possible to produce even thermoplastic spacers with minimum tolerances. The highly dynamic, self-adjusting and servo-controlled dosing system ensures highest corner quality without any rework.

Highlights

- Patented Full-Support-Belt System
- Permanent support of all sheets
- Operator-friendly and easy maintenance
- Optimum corner sealing quality

Options

- Shapes according to the LiSEC shape catalog
- 4-side stepped units
- Gaps for gas filling
- Unit thickness up to 100 mm
- Maximum load 350 kg/lm

- Maximum load 450 kg/lm upon request



Technical data

CLEANSEAL (VFL-1F)	
Glass height	2 m / 2,5 m / 2,7 m / 3,3 m
Unit thickness	10 - 80 mm, optional up to 100 mm
Minimal size	250 x 180 mm
Maximal size	8.000 x 3.300 mm
Maximal length	2.500 mm, 4.000 mm, 5.000 mm, 6.500 mm, 8.000 mm
Frame inset	0 - 30 mm
Max. load	250 kg/lm (350 kg/lm optional, 450 kg/lm upon request)

VL-1N

Compact Automated Sealing System

Space-saving design with proven technology. The VL-1N is a stationary metering unit for one- or two-component sealants. Its electronic speed control ensures perfect sealing even in the corners where the sealing cavities may have varying depths. The sealed glass units are transported by chains in order to avoid contact with the sealant and the edges of the glass sheet. The transport chain has special support points preventing any kind of contamination.

Highlights

- Quantity- and speed-controlled precision metering system
- Homogeneous sealing of corners by means of spatulas or rollers
- Data for shapes can be input manually or transferred online

Options

- Leaving gas-filling holes unsealed
- Shapes according to LiSEC shape catalog
- 3-sided stepped units
- 4-sided stepped units



Technical data

	VL-1N
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3 m
Unit thickness	12 - 80 mm, optional 12 - 60 mm , 12 - 100 mm
Minimal size	250 x 180 mm
Maximal size	5.000 x 3.000 mm
Maximal length	2.500 mm, 3.500 mm, 4.000 mm, 5.000 mm
Frame inset	0 - 15 mm continuously and centrally adjustable optional 0 - 30 mm continuously and centrally adjustable
Max. load	250 kg/lm

APKV

Automatic Cork Pad Applicator

Fully automated application of cork pads to the back side of unsealed insulating glass units, making it easily possible for suction cups to grip the front glass surface and unload the glass units. The vertically movable applicator heads take off the cork pads from the continuous tapes and apply them to the glass. The number of cork pads applied and their distance depends on the sheet's size measured by the automatic program control, or can be individually set.

Highlights

- Easy integration into all automated sealing systems from LiSEC
- Application of cork pads from the back side
- Positioning of cork pads via automatic program control or individual settings
- Up to five rows of cork pads



Technical data

	APKV
Glass height	1,6 m / 2 m / 2,5 m / 2,7 m / 3 m / 3,3 m
Unit thickness	12 - 80 mm optional 12 - 60 mm , 12 - 100 mm
Minimal size	400 x 250 mm

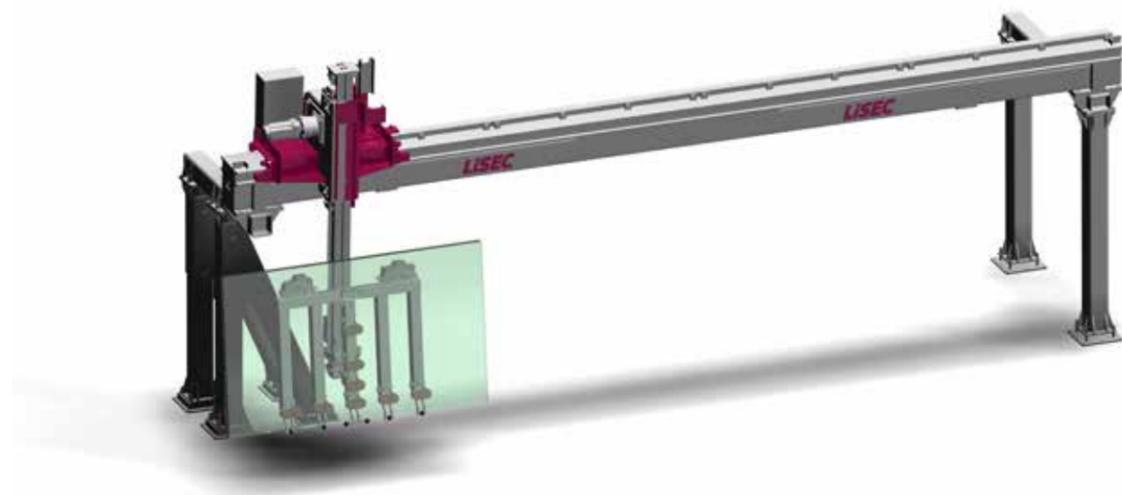
UTS

Automatic portal system for unloading insulating glass units

The LiSEC UTS is an automatic station for unloading freshly sealed insulating glass units from the production line. The sealed unit is placed at the unloading table for the UTS to be picked-up. If required the UTS can transport the unit to an inspection position, where the operator can quality check the insulating glass unit. This system is particularly (although not exclusively) suited for insulating glass units with thermoplastic spacer bars.

Highlights

- Improving the production flow through automatic unloading
- Support fingers that prevent the front and middle sheet from slipping-off
- The physical load to the unit is reduced during unloading, which means no deformation
- Operator-friendly corner-finishing position



Technical data

	UTS
Unit thickness	12 - 60 mm
Minimal size	500 x 250 mm
Maximal size	2.500 x 1.500 mm
Transport height	520 mm
Maximum load	100 kg/lm

ER-140, ER-100

Sealing Table with Integrated Turning Mechanism

A double suction plate firmly grips the glass units during the sealing process. As the sealing table and the conveyors have the same height, glass units can be easily positioned and moved on the sealing table. After sealing, the glass units are automatically lowered to the table level. The sealing table is fitted with four telescopic arms for large-sized insulating glass units.

Highlights

- Rotation can be set to 90°, 180° or 360°
- Potentiometer control for the rotating speed



Technical data

	ER-140	ER-100
Minimal size	500 x 500 mm	230 x 180 mm
Maximal size	1600 x 1600 mm	1600 x 500 mm
Load max.	180 kg	30 kg
Transport height horizontal	865 mm	

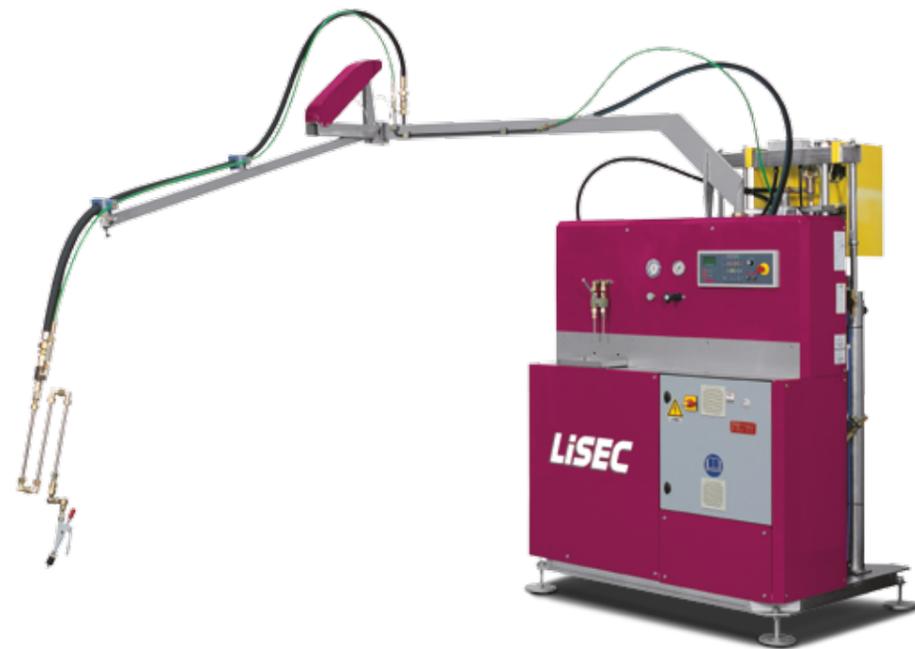
TAL-60N

System for Manual Sealing of I.G. Units Using 1- and 2-Component Sealants

Pump and metering system for the manual application of one- or two-component sealants. Static precision mixers ensure optimal mixing of materials. The system is easy to use thanks to the automatic level control for maintaining the selected working height of the sealing gun. An automatic balance control makes the mixing unit seem almost weightless. The extended sealing bracket enables optimized and smooth sealing also of larger glass units.

Highlights

- Easy placement of sealant drums in the ram press by means of a pallet jack
- Low material loss thanks to small filling volume of the mixers
- Easy to use thanks to almost weightless mixing device
- Automatic metering of sealant volume



Technical data

	TAL-60N
Profile width	6 - 24 mm
Bracket length	4,3 m, optional extension by 1 m
Catalyst drum	Ø 280 mm

TPD-A230

Thermal cleaning of sealant mixers

This semi-automatic flushing device is used to flush and clean sealing mixing sections with thermal cleaning fluids. It can also be used to clean mixing sections, which can no longer be cleaned in the conventional way, without a need for dismantling.

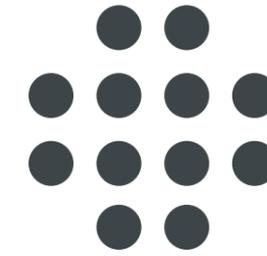
Highlights

- No dismantling of the mixing section is required
- Cleaning of difficult to access sealant exposed areas
- Entire cleaning process is much faster
- Good cleaning results due to precise temperature and high pressure
- Compact design



TEMPERING





LiSEC **AEROFLAT**

Air Cushion Technology since 1996

As the specialists in the field of the processing and refining of flat glass, we set the objective to always go one step further. 20 years ago we revolutionized the tempering of flat glass and since then, we have continuously developed this technology. World-wide, there are already numerous furnaces by means of which flat glass is tempered in an industrial production environment with LiSEC technology.

Trust in the inventor.

Handle with AIR!

High-quality products deserve the best treatment. This is why we only allow trustful heads – and air – to get in touch with glass. With the patented AEROFLAT air-cushion system, the surfaces of the glass sheets are not touched during the tempering process. The result of the innovative technology: top quality flat glass – economic and future-proof.

LiSEC tempering process by means of Air Cushion Technology officially taken up in a standard

The LiSEC tempering process has officially been published in a standard as „Air Cushion Process“. As the first country in the EU, Great Britain has published the BS EN 12150-1:2015 in September 2015. The publication of the German and English version via the Austrian Institute for Standardization was performed in November 2015.

The EN 12150-1 is a harmonized standard to the Construction Products Regulation, i.e. that LiSEC customers are state-of-the-art with the tempering according to the „Air Cushion Process“ and that their products comply with the Construction Products Regulation. Andreas Winter, managing director of the company Glastech Produktions- und Verfahrenstechnik GmbH (Glastech production and process engineering): „If a product does not comply with the Construction Products Regulation, it is subject to extra examination and approval. If the product is modified only slightly this product is required to reexamine the product. If you are within the standard, it is possible to perform any changes that are within the standard limits. From now on, safety glass tempered by means of the LiSEC air cushion process is considered state-of-the-art.“

At the LiSEC Glass Forum, the AEROFLAT technology for tempering is used. For further information on AEROFLAT or our Glass Forum please contact office@glastech.co.at

1

A high competitiveness is the result of the interaction of quality and cost effectiveness/profitability.
COST EFFECTIVENESS by LiSEC

- No waiting time when the types of glass are changed
- Wear-free ceramic components
- Significantly shorter heating time
- No cooling of the heating zone required in case of glass breakage
- Identical cycle time for coated and uncoated glasses
- Operators trained in only five days
- 50% less staff required compared to conventional plants

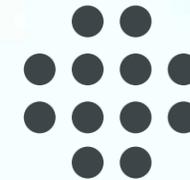
2

Trend-setting technology is the result of forward-looking thinking.
TECHNOLOGY by LiSEC

- LiSEC is the inventor of the patented air-cushion technology
- No touching of the glass surface throughout the entire process
- Tempering of double-sided coated and printed glass sheets is possible
- Tempering of structural glass is possible
- Maximum convection in the circulatory system
- Thermal tempering of glass is possible from 1 to 10 millimeters
- Patented cooling air routing
No SO2 gas required – environmentally friendly & sustainable

One technology, four advantages!

Visions need courage. You need people who push limits and dare to try new things. In 1996, we set new standards in terms of the tempering of flat glass with the revolutionary AEROFLAT air-cushion system. Now we are continuing the story.



LiSEC AEROFLAT
Air Cushion Technology since 1996

4

The future of tempering begins with the best processes.
FUTURE-PROOFNESS by LiSEC

- LiSEC stands for...
- best in glass processing
 - strategic safety
 - thin glass for technologies of the future
 - a dense service network

3

Perfect products are the result of unquestionable quality.
QUALITY by LiSEC

- No roller waves
- No white stripes
- No roller pickups
- Coating-friendly process due to a shorter standing time in the furnace
- Improved anisotropy
- High quality due to stable processes
- More than 95 % plant availability



Perspective with potential.

Flexible, light-weight and robust – thin glass opens up so far unimaginable possibilities in particular in the field of solar applications, in the production of insulating glass or in the interior architecture.



Multiple insulating glass

- The use of tempered thin glass enables significantly lighter modules with significantly better thermal insulation values. This leads to advantages in production but also in the assembly. Thanks to the non-contact transport, LiSEC AEROFLAT is ideally suited for coated glass sheets.

Architecture

- Light, flexible and robust glasses without optical distortions are excellently suited for the use in modern architecture. Tempered thin glass convinces due to its visual attractiveness while the low weight reduces the requirements on the profiles and fittings.

MEM4Win

Buildings are responsible for approx. 40 % of the energy consumption in Europe. A decisive role in the improvement of the energy efficiency play facades and windows. In the future, windows will even produce energy and will, in a smart way, take over other functions, which are decisive for the well-being of the building users – for example shadowing, directing of light, illumination or sound reduction. In the project „MEM4WIN“, sponsored by the EU, the „Window of the future“ is developed in which all functions are integrated. We coordinate this international research project.

Objectives

- By means of innovative quadruple insulating glass units, the heat transition shall be reduced by half (to 0.3 W/m²K) compared to the so far reached U-values.
- The weight of the windows shall be reduced by 50 % by means of the use of tempered thin glass and the windows shall produce energy.
- The sound insulation shall be increased by approx. 20 % by means of the 4-pane window construction.

Profitability

The manufacturing costs shall be reduced by 20 % compared with windows with similar functions.

Research tasks

- Tempered ultra-thin glass membranes
- Anti-reflective coating
- Innovative edge compound for a 4-pane (window) construction, which also allows a frameless openable casement in all-glass facades.
- Sealing for the integration of PV and OLED, which provides for a long-term diffusion-tightness.

Flat glass for the automotive industry

- Tempering compliant with the prevailing standards of the automotive industry.

Functional glasses

- One glass, many possible applications. In the industry and architecture, special functional glasses are in demand as never before. Regardless whether with a high thermal insulation and sound insulation, self-cleaning or as a highly esthetic glazing – tempered flat glass provides numerous variants of application.

Photovoltaics

- New generation frameless photovoltaics modules. The LiSEC casing technology with glass-glass-modules is independent from the used solar cells. Thanks to tempered thin glass and the hermetic sealing, the modules convince with an increased performance and a longer service life. They are diffusion-resistant, more stable and more flexible and can produce faster.

Solarthermics

- Cold bent thin glass for the use in parabolic mirrors: the tempered thin glass may be bent on site and placed into the construction. The unique technology provides for advantages in terms of transport (due to a low weight and the reduction of the transport volume) and therefore a massive saving of costs.



SOFTWARE

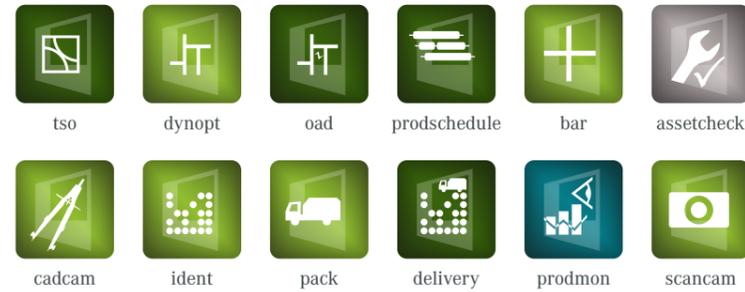


PROD/OPT

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 & Additional Products: the add-ons (for PROD)



Extensions & Additional Products: die add-ons (for OPT)



Functions Comparison PROD/OPT

	PROD	OPT
Multi User Compatible	Multi User	Single User
Planning Pool	✓	✓
Rack Optimisation	✓	-
Shape Optimisation TSO	✓	✓
Remake Management	✓	✓
Dynamic Optimisation	✓	-
Grafical Capacity Planning	✓	-
Control of Processing Machines	✓	-
VSG Production Support	✓	-
Mobile Device Integration	✓	-
Control of Bender	✓	✓
Control of Cutting Tables	✓	✓
Label Management for Printer	✓	✓
Flexible Reporting	✓	✓
Sorted Storage System	A-Rack, Harp Cars, Sorting Buffer	Harp Cars
Ready Messages	✓	✓

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

Funktionen

- Batch overview / Production planning (UF and batch)
- Optimisation (batch group optimisation)
- Furnace optimisation
- TSO (true shape optimiser) / Dynopt (dynamic optimisation)
- Rack optimisation
- Label printing (grafical generator)
- Capacity planning
- Flexible reporting and analyses
- Delivery commissioning / route planning
- Order editor / fillup management
- Asset management (info about machine status)
- QMS management
- Production status
- Control of LiSEC and foreign machines

Available for machines of following product groups



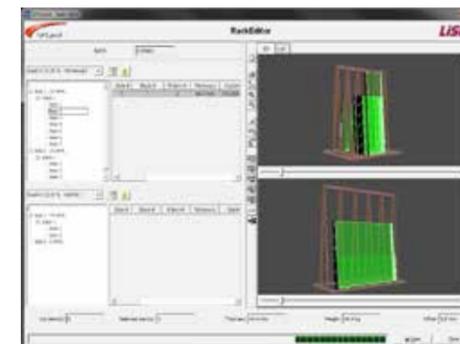
Overview of the Running Production

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.

ASSETCHECK

Machine Status Monitoring Software

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

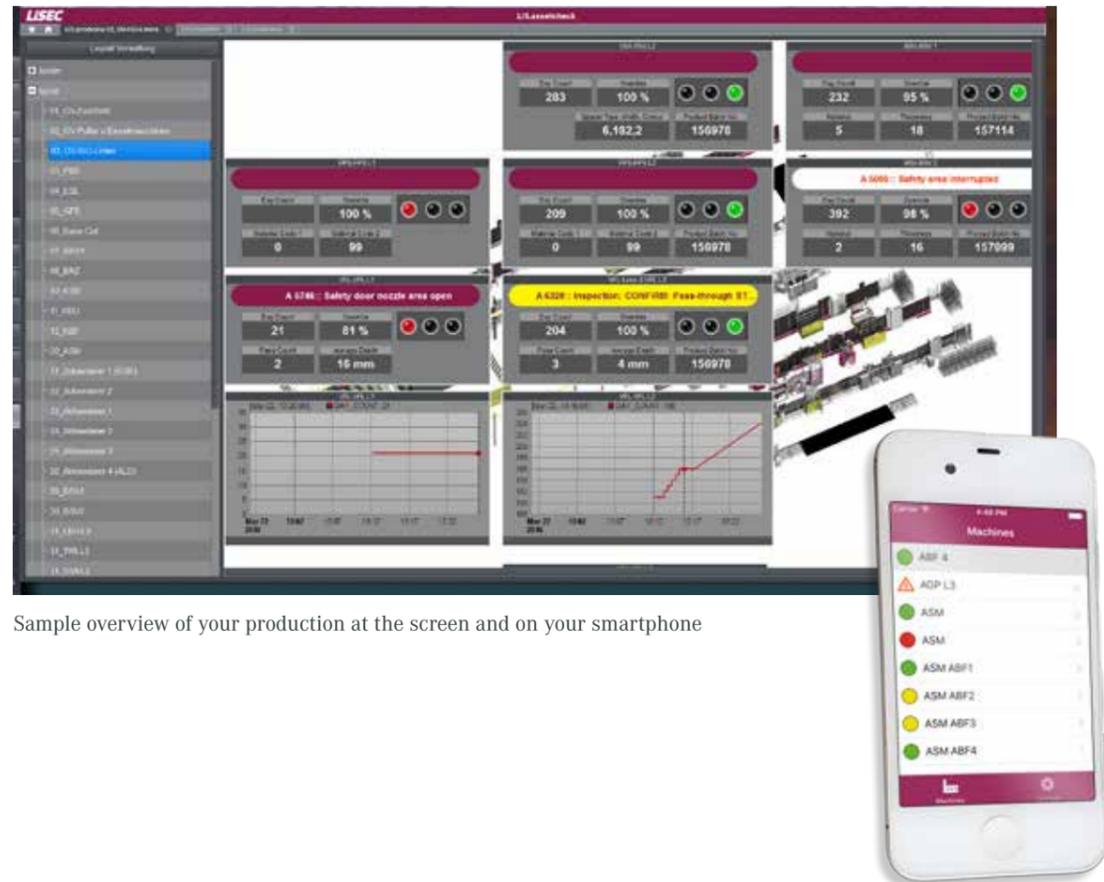
Functions

- 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

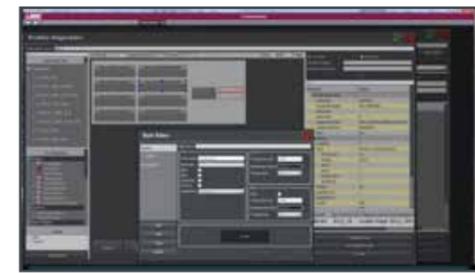
- Reporting / charts / graphics
- Pre-defined reports as cycle time calculation per machine

Available for machines of following product groups

- Glass Cutting
- Insulating Glass
- Flat Glass Processing
- Tempering

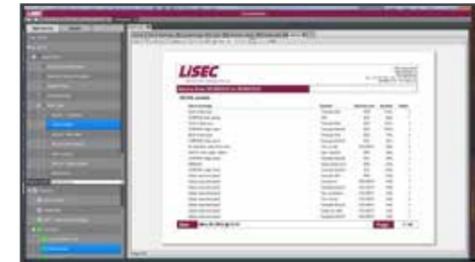


Sample overview of your production at the screen and on your smartphone



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.



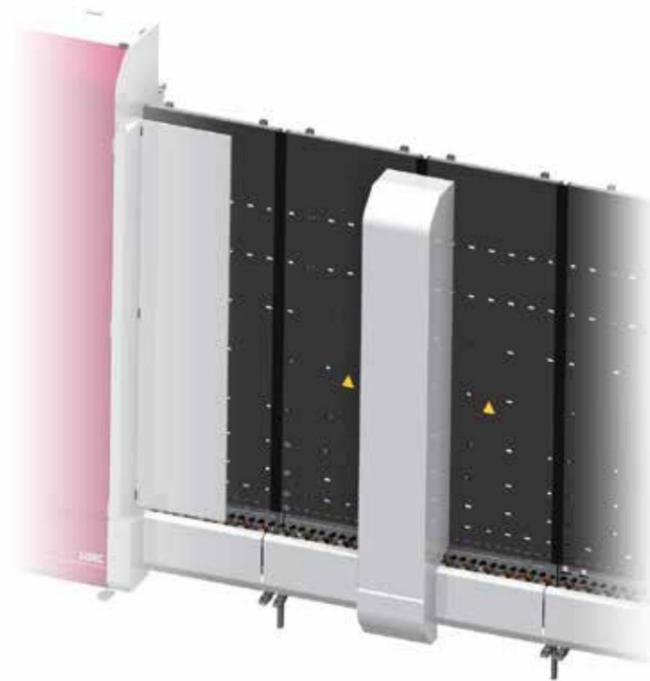
Current machine status display

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

Quality Scanner for Single Sheets and Insulating Glass

perfectscan makes it possible to check each single glass sheet and insulating glass element 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

- 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
- Low maintenance costs
- 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

Available for machines of following product groups



Glass Cutting



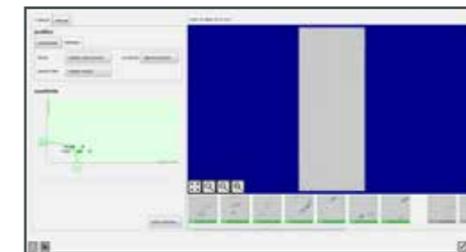
Insulating Glass



Flat Glass Processing



Tempering



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 - 3400 mm
Maximum Length	6000 mm
Glass Thickness	2 - 100 mm
Transportation Speed	48 m/min at 200dpi (no interpolation)
Scan Technologie	16 bit Scan module (LIS - Lightning Imaging Sensor)
Light Transmission	15 - 99 %

PACK

Graphical Display of Packing Sequence add-on to PROD

At the end of the insulating glass line, pack displays the storage position of the elements 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.

Highlights

- Preview of final rack content
- Graphical packing display
- Display of correct storage position sequence

Functions

- Rack information
- Element information
- Record of quality defects

Available for machines of following product groups



Insulating Glass

IDENT

Information and Ready Messaging Terminal at the Production add-on to PROD

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.

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

Functions

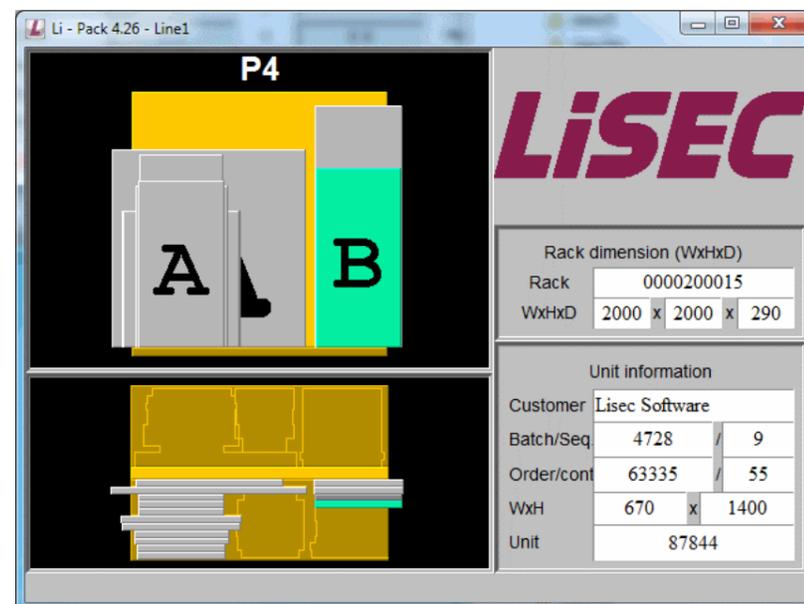
- Display of production drawings
- Entry of rack number and stock location
- Entry of remakes
- Online connection to processing machines
- Synchronising to other ident
- Material management

- Label printout (switching production / customer label)
- Status display

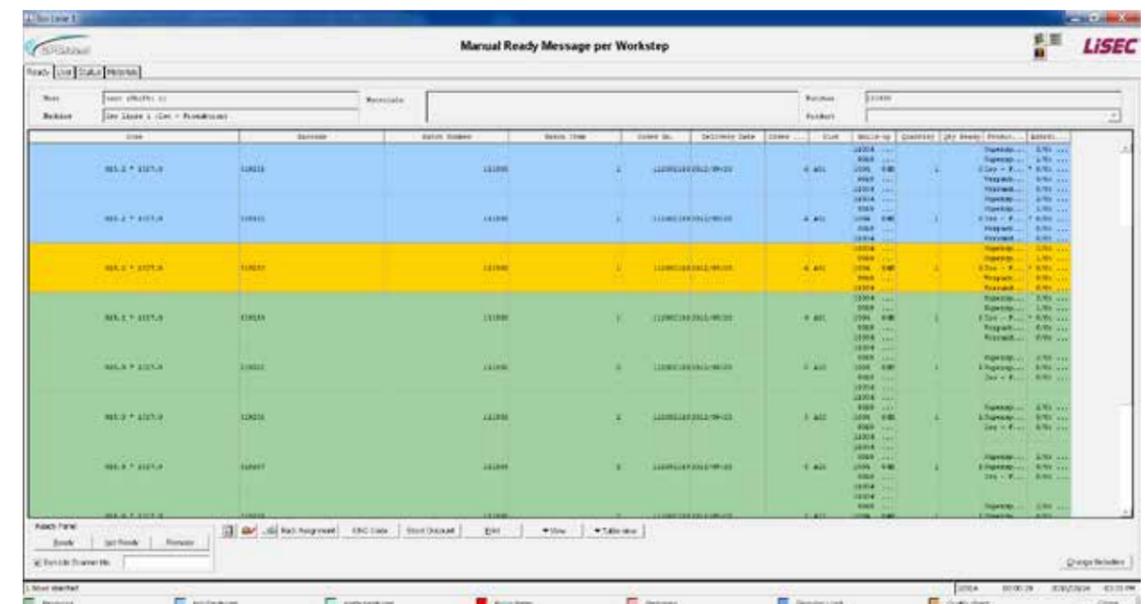
Available for machines of following product groups



Insulating Glass



Visualisation of storage position on rack



List of ready messages per working step

I am Service.

Because we support our customers with the largest service network worldwide.



Advantages:

- Minimal downtime thanks to rapid support
- Guaranteed availability of spare parts or equivalents - for at least ten years
- Worldwide supply with spare parts
- Operator training directly on site or at a local training centre
- Added value throughout the entire lifecycle of your systems



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.

Wherever you are located, LiSEC offers spare parts and extensive support thanks to the largest service network in the flat glass industry. Our specialists are here to help you and provide solutions on site during installation and start-up of the equipment. Training of your personnel on technology as well as operator and maintenance training is provided either at the LiSEC facilities or on site. With online support as well as phone service we are here for you whenever help is needed.

Regardless whether your LiSEC system is 10 weeks, 10 years or even older - we offer you worldwide service and the fastest spare parts supply.

Service portfolio

- Spare parts
- Online support
- Long life
- Hotline
- Installation
- Repairs
- Training
- Maintenance

Facts & figures

The LiSEC service network:

- 160 service engineers worldwide
- 45 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



Hotline

LiSEC attributes great importance to customer efficiency from the very beginning. The company is now taking it to a new level of quality.

We will quickly process your request:

Sunday 22:00 - Friday 21:00 hrs (CET)

Phone: +43-7477 405-5701

Fax: +43-7477 405-89

Email: tbe.service@lisec.com

Standby service for urgent cases outside of office hours:

SAT 06:00 - 22:00 hrs (CET)

SUN 06:00 - 22:00 hrs (CET)

Phone: +43-7477 405-5701

- Economy: within 5 working days (MON - FRI)*
- Express: within 1 working day (MON - FRI)*
- Saturday deliveries and special transport available on request*

Phone: +43-7477 405-5703

Fax: +43-7477 405-89

Email: spares@lisec.com

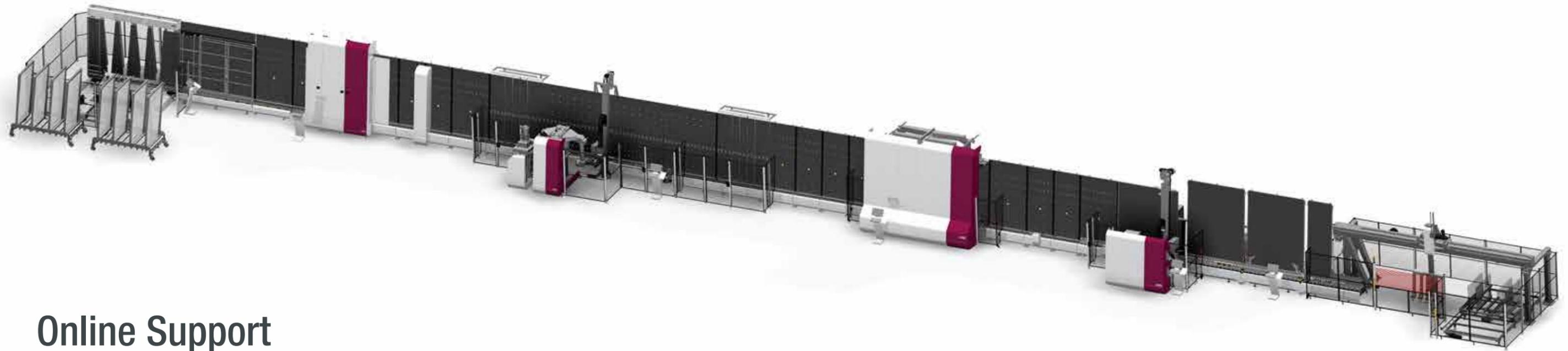
* Warehouse availability required. This does not include items that must be programmed, processed or tested. Valid within the European Union. There may be delays with third countries due to customs procedures.

Long Life

Electrical components generally have a shorter life cycle than mechanical ones. Systematic upgrades can increase the lifetime of many plants. The result is a longer machine life - Longlife. The Longlife department provides modifications beyond the usual spare part range, such as PC upgrades, drive retrofitting and similar modifications.

Replacing outdated components and enhancing the machine with new, modern technology brings existing plants back up to date. The advantage for the plant operator is the lower cost of modernizing an existing plant compared to the purchase of equivalent new equipment. The solid basic components of the machine remain unchanged.

Phone: +43-7477 405-1220
Email: aftersales@lisec.com



Online Support

Services:

- Telephone support with direct data connection to your LiSEC machines for immediate and specific diagnosis and resolution of stoppages and errors
- Access software with multi-level security procedures preinstalled on all connectable new machines

Phone: +43-7477 405-5701
Email: tbe.service@lisec.com

Advantages:

- Immediate help during stoppages saves time and costs
- 24/5 and standby support on weekends and holidays
- Increased system availability
- Full transparency of provided support work
- Better preparation for on-site repairs
- Remote access only with express authorization and supervision by the customer

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 5 million Euros
- 15 million Euros turnover
- Approx. 100 customer visits per year
- Glass storage with 96 rack positions
- 3 insulating glass lines
- 2 cutting lines for float, laminated and special glass
- Automatic sorting/shuttle logistics
- Planned ahead maintenance schedule
- Automatic production planning and machine addressing
- Bidirectional office – machine communication in real-time

The new LiSEC Competence Center for research, production and training in the field of flat glass processing was opened in Hausmehring 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 five million Euros, accommodates the latest LiSEC technologies for each step of glass processing – from cutting and edge processing to a sophisticated glass 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.



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