topDRILL & topClear Processing Machines & Washing Machines
Schraml Glastechnik GmbH shines with a new sparkle. And with it, the LiSEC group business unit too.

Although Schraml Glastechnik GmbH was taken over by the LiSEC group, it still remains an independent company with the same managing director and the same employees as before. This is passed on to you as a customer in the form of high quality and safety, with a powerful and reliable partner in the background.

In the middle of the 1990s, we started with prototypes for a vertical glass drilling machine and this was brought into serial production in 1997. It was soon clear that we had had a great idea with this and that it could form the basis for a multitude of similar devices.

It is not without good reason that our motto is „first in vertical drilling“. In the meantime we have delivered and installed hundreds of devices in all 5 continents. The topDRILL is currently manufactured in its fourth generation (G4) and we are now very proud to present the fifth generation - which can not only drill but also carry out milling tasks. Never before have topDRILL systems been so powerful and versatile! Never before has this type of complex CNC processing centre been so straightforward and simple to operate!

Lay the foundation stone for advanced glass processing!
Machinery for Flat Glass Processing

Inside Processing

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  p. 32

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  Professional series for thick-glass processing up to 20 mm  
  p. 34

Combination

- **topDRILL M-RX & topCLEAR**  
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  p. 36

Service

- **Services**  
  We offer you worldwide service and the fastest possible supply of spare parts.  
  p. 38
Overview of the processing options

The processing of edges is an important issue for every glass manufacturer. The many and varied requirements on edge quality and the manufacture of internal, edge and border cutaways necessitate the use of a diverse range of processes and production machines.

<table>
<thead>
<tr>
<th>Schraml topDRILL Maschinen</th>
<th>Easy</th>
<th>nc</th>
<th>RX</th>
<th>M-RX</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Internal processing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bore</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Deep-countersinking</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Milling</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>✓</td>
</tr>
<tr>
<td>Grinding</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Polishing</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Water jet</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Machine construction</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Special shapes</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Fully automatic</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Dual-sided processing</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Interface-capable</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Automatic tool changing</td>
<td>-</td>
<td>-</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Quick-change system for tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

✓ Standard, ○ Optional, - Not Available
topDRILL easy
Vertical Double-sided Drilling Machine

The topDRILL easy is a double-sided glass drilling machine with digital display for motorized setting of the drilling height. The manual handwheel allows fine adjustments to 1/10 mm. Marking the drill holes or additional laser markings are no longer necessary. The length adjustment via a double row of foldable, serial limit stops allows rapid processing of glass sheets of the same size. The glass sheet is transported manually. The patented drilling depth adjustment and the operation via central hand lever at the front render any adjustment for the glass thickness unnecessary. The drilling speed can be adjusted continuously, a selector switch activates one-sided drilling.

Configuration options

Extension modules allow an easy extension of the maximum possible processing glass length of the topDRILL to the customer’s requirements. The optional DRITOP CMX quick-change system minimizes the set-up times of the machine. The topDRILL easy offers convincing arguments with its demonstrable, decades-long durability as well as its high precision with easy operation.

### Technical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>topDRILL 130 Easy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass height</td>
<td>Open at the top</td>
</tr>
<tr>
<td>Max. processing height</td>
<td>1,300 mm</td>
</tr>
<tr>
<td>Glass thickness</td>
<td>3 - 30 mm</td>
</tr>
<tr>
<td>Minimum size</td>
<td>200 x 100 mm</td>
</tr>
<tr>
<td>Maximum size</td>
<td>2,500 x 1,500 mm</td>
</tr>
<tr>
<td>Transport height</td>
<td>600 mm</td>
</tr>
<tr>
<td>Angle of inclination</td>
<td>7° (+/- 1°)</td>
</tr>
<tr>
<td>Max. bore diameter</td>
<td>100 mm</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>0 - 5,000 rpm</td>
</tr>
<tr>
<td>Spindle power (rating)</td>
<td>2 x 5.5 kW</td>
</tr>
<tr>
<td>Maximum load</td>
<td>100 kg/fm</td>
</tr>
</tbody>
</table>

### Highlights

- Very compact, modular design
- Single lever operation of the entire drilling process
- Motorized setting of the drilling height with digital display
- Patented system for the adjustment of drilling depth and drill wear

### Options

- CMX Drill Quick-Change System

### Power Consumption

<table>
<thead>
<tr>
<th>Parameter</th>
<th>topDRILL 130 Easy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. power consumption</td>
<td>2 x 5.5 kW</td>
</tr>
<tr>
<td>Operating air pressure</td>
<td>6 - 7 bar</td>
</tr>
<tr>
<td>Operating water pressure</td>
<td>2 - 3 bar</td>
</tr>
<tr>
<td>Water consumption *</td>
<td>0.5 l/min</td>
</tr>
</tbody>
</table>

* Water consumption if used with a water treatment system
** Extension modules
**topDRILL nc**

**Fully Automatic Vertical Double-Sided Drilling Center**

The topDRILL nc is a fully automatic double-sided glass drilling machine with digital drilling heads and an automatic glass transport. All movements are controlled via the 15 inch display, manual adjustments are not required. The drills are automatically measured after every change, the operator only has to mount the glass sheet and start the program. Glass thicknesses of up to 40 mm and drilling diameters of up to 100 mm support a flexible production.

**Freely configurable**

The topDRILL nc can be configured according to the customer’s requirements. The modular extension of the machine length, the choice between two machine heights as well as the freely definable direction of movement give a range of customizing options. Versatile extensions – such as an automatic drill sharpening unit or a data connection to an ERP system – allow adapting the topDRILL nc to the specific requirements of the production.

### Technical Data

<table>
<thead>
<tr>
<th></th>
<th>topDRILL 130 nc</th>
<th>topDRILL 240 nc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. height</td>
<td>Open at the top</td>
<td>2,600 mm</td>
</tr>
<tr>
<td>Max. processing height</td>
<td>1,300 mm</td>
<td>2,400 mm</td>
</tr>
<tr>
<td>Glass thickness</td>
<td>3 - 40 mm</td>
<td>3 - 40 mm</td>
</tr>
<tr>
<td>Minimum size</td>
<td>600 x 150 mm</td>
<td>600 x 150 mm</td>
</tr>
<tr>
<td>Maximum size</td>
<td>ca. 3,200 mm, can be increased up to 8,000 mm with extension modules</td>
<td>600 mm</td>
</tr>
<tr>
<td>Transport height</td>
<td>600 mm</td>
<td>600 mm</td>
</tr>
<tr>
<td>Angle of inclination</td>
<td>7° (+/- 1°)</td>
<td></td>
</tr>
<tr>
<td>Max. bore diameter</td>
<td>100 mm</td>
<td>100 mm</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>0 – 5,000 rpm</td>
<td>0 – 5,000 rpm</td>
</tr>
<tr>
<td>Spindle power (rating)</td>
<td>2 x 5.5 kW</td>
<td>2 x 5.5 kW</td>
</tr>
<tr>
<td>Maximum load</td>
<td>150 kg/m²</td>
<td>150 kg/m²</td>
</tr>
</tbody>
</table>

### Options

- Automatic drill sharpening unit
- Quick-change system for CMX drills
- Software interface and drawing programs
- PC-link

### Highlights

- Very compact construction and modular design
- Automatic drilling length measuring
- All movement axes with serve motors
- Simple operation and programming

### Power Consumption

<table>
<thead>
<tr>
<th></th>
<th>L1** (mm)</th>
<th>L2** (mm)</th>
<th>L3 (mm)</th>
<th>L4** (mm)</th>
<th>L5** (mm)</th>
<th>B (mm)</th>
<th>H (mm)</th>
<th>Power consumption (kW)</th>
<th>Operating air pressure (bar)</th>
<th>Air consumption (l/min)</th>
<th>Operating water pressure (bar)</th>
<th>Water consumption (l/min) *</th>
</tr>
</thead>
<tbody>
<tr>
<td>topDRILL 130 nc</td>
<td>1,000 or 2,000</td>
<td>1,000 or 2,000</td>
<td>4,034 or 2,000</td>
<td>1,000 or 2,000</td>
<td>1,000 or 2,000</td>
<td>1,095</td>
<td>2,401</td>
<td>12.5 or 10</td>
<td>6.7 or 10</td>
<td>2.3 or 2</td>
<td>0.5 or 0.5</td>
<td></td>
</tr>
<tr>
<td>topDRILL 240 nc</td>
<td>1,000 or 2,000</td>
<td>1,000 or 2,000</td>
<td>4,034 or 2,000</td>
<td>1,000 or 2,000</td>
<td>1,000 or 2,000</td>
<td>1,095</td>
<td>2,401</td>
<td>12.5 or 10</td>
<td>6.7 or 10</td>
<td>2.3 or 2</td>
<td>0.5 or 0.5</td>
<td></td>
</tr>
</tbody>
</table>

* Water consumption if used with a water treatment system
** Extension modules
**topDRILL RX**

Vertical double-sided Drilling Center with Automatic Tool Turret

The topDRILL RX is the first choice for fully automatic drilling and sinking processes. The ingenious tool changer of the smart-5 series can be used very quickly, set up fast, and is absolutely easy to use. The speed-10 tool turret doubles the maximum number of available tools. Countersink holes can be carried out at the front and back without restrictions, regardless of the drilling diameter. The first tool change is already carried out during the drilling process on the opposite side. The high-performance drilling spindles are water-cooled, extremely robust and durable. Maintenance costs are reduced to a minimum.

**Flexible configuration, solid quality**

The topDRILL RX can be configured depending on the customer’s requirements. In addition to the two types of tool changer, the modular extension of the machine length, the choice between two machine heights as well as the freely definable direction of movement give a range of customizing options. All drilling and countersinking operations are precisely produced in one clamping process. The torque control prevents glass breakage during countersink drilling. Standard includes processing of both float and laminated safety glass sheets.

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### Technical Data

<table>
<thead>
<tr>
<th></th>
<th>topDRILL RX 130</th>
<th>topDRILL RX 240</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Glass height</strong></td>
<td>Open at the top 2,600 mm</td>
<td>2,400 mm</td>
</tr>
<tr>
<td>Max. processing height</td>
<td>1,300 mm</td>
<td>2,400 mm</td>
</tr>
<tr>
<td><strong>Glass thickness</strong></td>
<td>3 - 30 mm</td>
<td>3 - 30 mm</td>
</tr>
<tr>
<td>Minimum size</td>
<td>600 x 160 mm</td>
<td>600 x 160 mm</td>
</tr>
<tr>
<td>Maximum size</td>
<td>ca. 3,200 mm, can be increased up to 8,000 mm with extension modules</td>
<td>ca. 3,200 mm, can be increased up to 8,000 mm with extension modules</td>
</tr>
<tr>
<td>Transport height</td>
<td>600 mm</td>
<td>600 mm</td>
</tr>
<tr>
<td>Angle of inclination</td>
<td>7° (+/- 1°)</td>
<td>7° (+/- 1°)</td>
</tr>
<tr>
<td>Max. bore diameter</td>
<td>80 mm</td>
<td>80 mm</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>0 - 5,000 rpm</td>
<td>0 - 5,000 rpm</td>
</tr>
<tr>
<td>Spindle power (rating)</td>
<td>2 x 5.5 kW</td>
<td>2 x 5.5 kW</td>
</tr>
<tr>
<td>Number of tools</td>
<td>5 + 5 in case of smart 5 / 10 + 10 bei speed 10</td>
<td>5 + 5 in case of smart 5 / 10 + 10 bei speed 10</td>
</tr>
<tr>
<td>Maximum load</td>
<td>150 kg/m</td>
<td>150 kg/m</td>
</tr>
</tbody>
</table>

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### Highlights

- Compact, modular design
- Automatic tool change at front and back
- Automatic length measuring of the tools
- Continuous production without loading times
- Easy operation and programming

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### Options

- Automatic drill sharpening unit
- Y-axis ball screw for smart-5 (standard in case of roto-10)
- Software interface and drawing programs
- PC-link

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### Power Consumption

<table>
<thead>
<tr>
<th></th>
<th>L1** (mm)</th>
<th>L2** (mm)</th>
<th>L3 (mm)</th>
<th>L4** (mm)</th>
<th>L5** (mm)</th>
<th>B (mm)</th>
<th>H (mm)</th>
<th>Power consumption (kW)</th>
<th>Operating air pressure (bar)</th>
<th>Air consumption (l/min)</th>
<th>Operating water pressure (bar)</th>
<th>Water consumption (l/min)</th>
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</thead>
<tbody>
<tr>
<td><strong>topDRILL RX 130</strong></td>
<td>1,000</td>
<td>1,000</td>
<td>4,022</td>
<td>1,000</td>
<td>1,000</td>
<td>2,397</td>
<td>2,401</td>
<td>3.5</td>
<td>6 - 7</td>
<td>10</td>
<td>2 - 3</td>
<td>0.5</td>
</tr>
<tr>
<td>smart-5</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
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<td>or 2,000</td>
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<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
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<tr>
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<td>1,000</td>
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<td>1,000</td>
<td>1,000</td>
<td>2,465</td>
<td>3,416</td>
<td>3.5</td>
<td>6 - 7</td>
<td>10</td>
<td>2 - 3</td>
<td>0.5</td>
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<tr>
<td>speed-10</td>
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<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
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<td>or 2,000</td>
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<td>or 2,000</td>
<td>or 2,000</td>
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<tr>
<td>smart-5</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
</tr>
<tr>
<td><strong>topDRILL RX 240</strong></td>
<td>1,000</td>
<td>1,000</td>
<td>4,041</td>
<td>1,000</td>
<td>1,000</td>
<td>2,465</td>
<td>3,416</td>
<td>3.5</td>
<td>6 - 7</td>
<td>10</td>
<td>2 - 3</td>
<td>0.5</td>
</tr>
<tr>
<td>speed-10</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
<td>or 2,000</td>
</tr>
</tbody>
</table>

* Water consumption if used with a water treatment system
** Extension modules
The RX is the ideal solution for all drilling and countersinking processes. All machine configurations allow fast, flexible and high-quality processing.

**Glass sheet**
- Dimensions: 1,000 x 1,000 mm
- 10 drillings standard

Cycle time for the entire processing: 160 seconds

**Glass sheet**
- Dimensions: 1,000 x 1,000 mm
- 4 drillings, countersunk double-sided

Cycle time for the entire processing: 160 seconds

**Single-action door**
- Dimensions: 800 x 2,000 mm
- 6 drillings, all countersink drilling

Cycle time for the entire processing: 320 seconds

**Intelligent and fast cycle**
- Simultaneous drilling from front and back (starting at 6mm) – for faster cycle times
- Simple tool changing during drilling or countersinking – cycle time reduction
- 5 resp. 10 drills or countersinks per side, individually programmable
- Automatic calculation of the drill depth using a stored formula

**Easy operation**
- Fully automated processing, no adjustments on the machine required
- Fully automatic recognition and adjustment of the drill length resp. drilling parameters
- Programming, data import or adjustments also during the operation
- User manual and spare parts list available online on the screen

**Fast glass handling**
- No set-up times for positioning the suction cups
- Different glass sizes, shapes and thicknesses without changeover
- Loading of the next glass sheet during the processing
- Trouble-free combination with previous or following module (e.g. washing machine)
**topDRILL M-RX**

**Vertical double-sided CNC Drilling and Milling Center**

The fully automatic milling and drilling machine topDRILL M-RX makes a convincing argument with its high performance and its easy use. Drilling and countersinking processes are as easily accomplished as complex milling and grinding operations for corner, edge and inner cutouts. The vacuum belt system enables a flexible and continuous production. The drilling and milling center works fully automated and supports a data connection to external systems. The graphical input of the processing program as well as the automatic selection of all parameters for the drilling and milling processes support an easy, error-free operation.

**Machine configurations for any requirement**

The topDRILL M-RX can be configured according to customer requirements. The linear-8 tool changer allows a very easy operation, the Roto-10 changers help increase the processing speed. Modular extensions of the machine length, the choice between two machine heights as well as the freely definable direction of movement give a range of customizing options. The intelligent machine design allows mounting the machine directly against a wall.

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**Technical Data**

<table>
<thead>
<tr>
<th>M-RX</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass height</td>
<td>Open at the top (M-RX 130) / 2,600 mm (M-RX 200)</td>
</tr>
<tr>
<td>Max. processing height of tools</td>
<td>1,300 mm (M-RX 130) / 2,000 mm (M-RX 200)</td>
</tr>
<tr>
<td>Glass thickness</td>
<td>6 - 20 mm</td>
</tr>
<tr>
<td>Minimum glass size</td>
<td>600 x 160 mm</td>
</tr>
<tr>
<td>Maximum glass size</td>
<td>approx. 3,200 mm, can be increased with extension modules</td>
</tr>
<tr>
<td>Transport height</td>
<td>600 mm</td>
</tr>
<tr>
<td>Angle of inclination</td>
<td>7° (+/- 1°)</td>
</tr>
<tr>
<td>Max. bore diameter</td>
<td>80 mm</td>
</tr>
<tr>
<td>Spindle speed</td>
<td>0 – 12,000 rpm</td>
</tr>
<tr>
<td>Spindle power (rating)</td>
<td>2 x 5.5 kW</td>
</tr>
<tr>
<td>Number of tools</td>
<td>8 * 8 in case of Linear 8 / 10 * 10 in case of Roto 10</td>
</tr>
<tr>
<td>Max. load</td>
<td>150 kg/m²</td>
</tr>
</tbody>
</table>

---

**Power consumption**

<table>
<thead>
<tr>
<th>M-RX</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>topDRILL M-RX 130 linear-8</td>
<td>6,200</td>
</tr>
<tr>
<td>topDRILL M-RX 130 roto-10</td>
<td>6,200</td>
</tr>
<tr>
<td>topDRILL M-RX 200 linear-8</td>
<td>6,200</td>
</tr>
<tr>
<td>topDRILL M-RX 200 roto-10</td>
<td>6,200</td>
</tr>
</tbody>
</table>

---

**Water consumption if used with a water treatment system**

* Water consumption if used with a water treatment system

---

**Options**

- Automatic drill dressing unit
- Vacuum system
- Air-conditioning unit for the switch cabinet
- Software interface and drawing programs
- PC-Link

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**Highlights**

- Milling and drilling in one work step
- Two types of tool changers available
- Modular design
- Continuous production without loading times
- Flexible product change
- Highly dynamic vacuum system for secure hold
- Easy operation and programming
topDRILL M-RX

Cycle times and scope of processing

The M-RX is the ideal solution for all drilling, sinking and milling processes. All machine configurations support fast, flexible and high-quality processing. The use of the Roto-10 tool changer on both processing spindles optimizes the cycle time when different tools are used on one glass sheet.

Shower Door
- Dimensions: 800 x 1,800 mm
- 2 Mickey Mouse edge cutouts
- 1 handle drilling

Cycle time for the entire processing: 210 seconds

Swing Door
- Dimensions: 1,000 x 2,000 mm
- 2 pieces PT fittings
- 2 handle drilling

Cycle time for the entire processing: 240 seconds

Single-action Door
- Dimensions: 800 x 2,000 mm
- 6 drillings, all countersink drilling

Cycle time for the entire processing: 360 seconds

State-of-the-art machine technology
- Control of all movements by servo drives
- Solid ball screw for stroke and drill axes
- Fully automatic central lubrication of all essential machine components
- Network connection resp. remote maintenance option via remote access

Fast and flexible processing
- Dynamic vacuum system without set-up time and also for shapes
- Roto-10 tool magazine directly on the spindle for anticipatory tool changes
- Drilling, (deep) countersinking, milling and grinding finished in one single cycle
- Perfectly adapted milling feed due to automatic parameter data

Fast glass handling
- No set-up times for positioning the suction cups
- Different glass sizes, shapes and thicknesses without changeover
- Loading of the next glass sheet during the processing
- Trouble-free combination with previous or following module (e.g. washing machine)

Fast and simple operation
- Graphical input of all processing operations
- Program generation for the next glass sheet during the processing
- Automatic selection of all processing parameters by the machine
- Autonomous setting of all auxiliary holes and puncture operations
- Program generation at the machine via network or USB
The machine can be operated directly on the large 19" touch screen as standard. The program is very simple and can be operated without CNC programming knowledge. All tool settings and axle movements are pre-configured. Maintenance intervals and service messages are computed and displayed online. Remote maintenance access for programs and parameters is available as standard*.

**Standard scope of delivery**

Operation directly on the machine. Maintenance instructions and spare parts lists available online on the machine. Shapes can be processed if these are listed in the shape catalogue.
- Library selection for cut-outs and fixtures
- Remote maintenance access via TeamViewer*

* The use of the remote services requires the installation of an internet access

**MRX + optional PC link**

Operation directly on the machine, comprehensive library for cut-outs and fixtures. Maintenance instructions and spare parts lists available online on the machine.
- Network connection to external computer, MRX user interface for external parametrising
- Remote maintenance access via TeamViewer*

**MRX + optional ERP interface**

Operation directly on the machine, comprehensive library for cut-outs and fixtures. Maintenance instructions and spare parts lists available online on the machine.
- Network connection to customer’s installed ERP (e.g. A+W, FeneVision, Hanic, LiSEC, etc.)**
- Handshake (data OK) for bidirectional use of the interface
- Scanner for processing barcodes and direct import into the machine
  - Import as finished job (without re-work options, very fast)
  - Import as editable program, confirmation on the machine required
- Remote maintenance access via TeamViewer*

**MRX + optional PC link + optional CAD import**

Operation directly on the machine, comprehensive library for cut-outs and fixtures. Maintenance instructions and spare parts lists available online on the machine.
- Network connection to external computer, MRX user interface for external parametrising
- CAD interface for importing, editing or creating .dxf drawings
- In-house cut-outs or drawings can be saved and added to the library
- Remote maintenance access via TeamViewer*

**Note:**

The use of the ERP interface usually requires a license of the ERP supplier.
topDRILL M-RX

Advantages

You can find an overview of the most important benefits here along with the superb product characteristics of topDRILL M-RX.

RAPID PROCESSING

topDRILL M-RX is optimised for the rapid and flexible processing of individual glass lites – even with small batch sizes:

- No restriction in equipping the drilling/milling head with tools
- Drilling, (deep) countersinking, milling and grinding completed in a single pass
- Optimum milling feed through automated parameter data
- Maximum milling speed through dynamic vacuum checking
- Tool changing carried out during the processing of the opposite side
- Automatic measurement of all tool types

FAST GLASS HANDLING

You will be astonished by the benefits arising in your daily work thanks to our innovative concept and the ingenious vacuum system:

- No maintenance time or equipping time due to the use of suction plates
- The next sheet can be loaded during processing
- Different glass sizes, shapes or thicknesses without changeovers
- The low loading edge enables the system to be loaded manually or with a crane
- Problem-free combination with washing machines or other devices
- Job sorting through continuous automatic tool checking

RAPID PROGRAMMING

A very important part of our development is not noticeable at first sight! The software has been specially developed for this machine:

- No CNC knowledge is required for operation
- There is only ONE programming interface for the whole control system
- A CAD program is integrated but (if preferred) is barely visible
- Auxiliary bores and plunge movements are set automatically
- Program creation on the machine, via network or USB
- Uncomplicated changes can be made to programs that have already been created

LATEST MACHINE TECHNOLOGY

Expect the latest machinery construction and the incorporation of our many years of experience in the construction of vertical processing systems:

- All movements are controlled through servo drives
- Solid recirculating ball spindles for the lifting and drilling axes
- Fully automatic central lubrication of all important components
- Usage-dependent maintenance interval display for important components
- Synchronously controlled waste conveyor for easy removal of glass waste (option)
- Network connection and remote maintenance facility or remote access
**PC-Link**

Additional software for our NC, RX and MRX machines

PC link is modern additional office PC software for our NC, RX and MRX machines with which you can simply program hole drilling without a CAD program.

**Highlights**

- Highly advantageous for processing similar products with changing dimensions (samples)
- Input of drilled holes possible without CAD; program can be sent to the machine with 1 click
- Data export directly to the machine is possible (can be selected as a program or as a job, e.g. with MRX)
- Suitable for creation of programs with rectangular glass, but also with special shapes
- As an option, the CAD-CAM interface can be loaded in the PC link program

**TDI-connect**

Interface program for all popular ERP software solutions

TDI-connect is an interface program for all popular ERP software solutions for the NC and RX (G4 series) drilling machines.

**Highlights**

- Compatible with all popular ERP solutions, such as A+W, Lisec, Hanic, Bitec, FeneTech, AiqPos, etc.
- Permits loading and starting of drill patterns, INCLUDING all important additional information (quantity, user, drilling depth, countersink depth, pulsing, etc.)
- Automatic cycle-controlled data import either to the program level OR directly to the jobs (select parameter)
- Fully-automatic operation can be achieved with labels and a barcode reader (scanner) in combination with your software solution (Scan-and-go)
**CAD drawing and import program**

**Operation of the M-RX machines**

CAD-Import is a modern and comprehensive CAD software solution for operating our M-RX machines. Programs can be created or modified with a clear graphic-driven interface. Of course you can also use this to import (your own or external) dxf customer data directly into the machine.

**Highlights**

- Automatic calculation of inbound and outbound movements for milling work
- Automatic calculation of auxiliary holes for internal cut-outs
- Automatic reference point regulation for cut-outs or for the complete sheet
- Dynamic programming of the customer’s own fixtures or custom processing operations
- Unrestricted dxf import with further processing and CNC conversion

**ERP Interface**

**Without operator intervention**

The ERP interface program is a high-quality and comprehensive technological facility that allows the quick and simple import of your work preparations directly into the job memory of the machine by means of a customer-provided barcode scanner.

All well-known ERP programs are already able to send an interface file for the topDRILL M-RX to pass on all of the important information on the glass sheet and any supplementary conditions. The machine monitors a directory on the server and imports automatically! With this solution, editing programs on the machine is not necessary but is also not possible.

**Highlights**

- Programs are automatically converted and saved WITHOUT operator intervention
- The fastest of all possible variants (just scan the barcode, download and start the machine)
- Automatic data handshake between M-RX and the partner software (bidirectional)
- The interface can also be used in addition to or together with the MRX CAD-CAM
Overview washing machines

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

✓ Standard, ○ Optional, - Not Available

Vertical flat glass washing machines for all requirements

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

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

Extensions and additional modules

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

Combination with other devices

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

topCLEAR ECO is our basic machine for professional glass processing. All parts in contact with water are made from stainless materials. The standard version is already over-equipped with all practical features.
topCLEAR Special
Washing machine for professional cleaning of glass up to 12 mm thickness

topCLEAR Special is the perfect washing machine for industrial glass processing, as long as no extreme glass thicknesses are processed. A particular advantage is the extremely easy access to the machine for user-friendly maintenance. topCLEAR Special can be individually configured to meet the needs of solar production and multi-shift operation.

### Technical Data

<table>
<thead>
<tr>
<th></th>
<th>topCLEAR 13 Special 4/12</th>
<th>topCLEAR 16 Special 4/12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. processing height</td>
<td>1.3 m</td>
<td>1.6 m</td>
</tr>
<tr>
<td>Construction</td>
<td>Open at the top</td>
<td>Open at the top</td>
</tr>
<tr>
<td>Glass thickness</td>
<td>4 - 12 mm / 4 - 20 mm</td>
<td></td>
</tr>
<tr>
<td>Minimum size</td>
<td>270 x 50 mm</td>
<td></td>
</tr>
<tr>
<td>Length of the inlet table</td>
<td>1,400 mm (optional 2,000 mm) - modularly expandable</td>
<td>2,000 mm (optional 2,800 mm) - modularly expandable</td>
</tr>
<tr>
<td>Length of the outlet table</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angle of inclination</td>
<td>7° (+/- 1°)</td>
<td></td>
</tr>
<tr>
<td>Transport height</td>
<td>600 mm (+/- 20 mm) / optional increase</td>
<td></td>
</tr>
<tr>
<td>Number of brushes</td>
<td>4 brushes</td>
<td></td>
</tr>
<tr>
<td>Transport speed</td>
<td>1 - 5 m/min</td>
<td></td>
</tr>
</tbody>
</table>

### Highlights
- All important machine components made from stainless steel
- Doors front- and rearside as maintenance entry
- Guards in polycarbonate behind the doors
- Individual water pump for each pair of brushes

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

### Simple operation
- Ingenious - AutoStart system activates brushes, pump and ventilator only when needed (optional).
topCLEAR Super
Professional series for thick-glass processing up to 20 mm

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

Technical Data

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

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

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

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

Well thought-out drive concept
- Overhead drive for brushes and glass transport
- Individual motor per brush or per pair of brushes (if closed construction)
TopDRILL M-RX & TopCLEAR

Fully automatic vertical double-sided drilling centre

TopDRILL M-RX is a vertical double-sided CNC centre for high-speed drilling/countersinking and milling/grinding tasks in a single operation. In conjunction with the simple-to-operate and fully automatic software, the system enables the rapid processing of glass doors, shower doors, kitchen splashbacks or similar products, even in very small batch sizes. The modern, in-house developed revolver head provides space at the front and back for 10 tools each, with no restrictions. All tools are always ready for use and can be changed on the opposite side even during processing if necessary.

Highlights

- Milling and drilling in a single operation
- Two types of tool changers are available
- Modular construction
- Continuous production without loading times
- Flexible change of products
- Highly dynamic vacuum system for perfect fixing
- Easy operation and programming

Options

- Automatic Drill sharpening unit
- Vacuum system
- Air conditioning unit for control cabinet
- Software interfaces and drawing programs
Services
We offer you worldwide service and the fastest possible supply of spare parts.

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

Facts & figures:

- Worldwide service network – 160 installation technicians & 45 subsidiaries/representatives
- Rapid support in the event of a fault
- High standard of training and quality of our service technicians

Service Products

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

Hotline

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

We will deal with your issues quickly:

Monday - Thursday  08:00 a.m. - 05:00 p.m. (CET)
Friday        08:00 a.m. - 12:00 a.m. (CET)
Phone:        +43-7477 405-5701
E-Mail:       service.schraml@lisec.com

Online Support

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

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

Emergency contact for urgent issues outside our working hours:

Saturday  6:00 a.m. - 10:00 p.m. (CET)
Sunday    6:00 a.m. - 10:00 p.m. (CET)
Phone:        +43-7477 405-5701