ECKARDT
Lubricating • Cleaning • Preserving

Spray lubricator EQS & Brush cleaner LBE

Make it two: A strong team for the press shop

Two machines – one control unit – maximum efficiency

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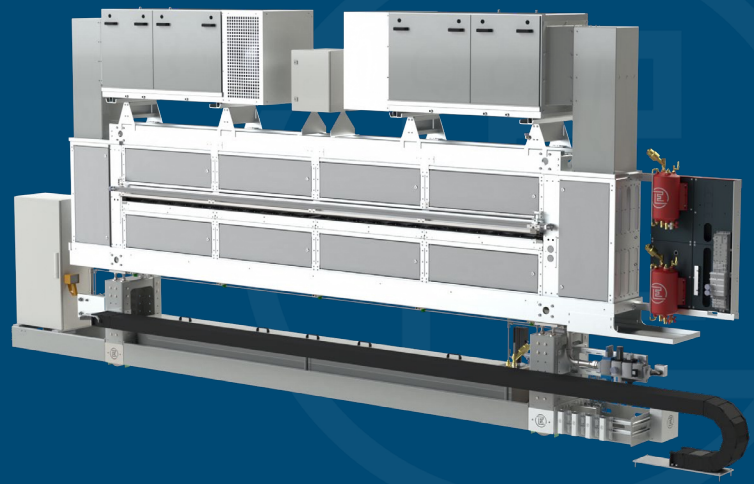
Spray lubricator EQS

Eckardt Quality Spraying: the next generation

Suitable for material widths up to 4.500 mm



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- **Precise integration:** Shortened overall length for uncomplicated integration into existing installation space, ideally suited for retrofit requirements.
- **Improved occupational/environmental protection**: Greatest possible reduction of oil mist in the ambient air, significantly longer filter service life (pre-filtering already in the extraction section, extraction at the bottom/top).
- **Minimal maintenance effort:** Good accessibility to all machine areas, overall longer maintenance intervals due to detail optimization at many points in the design (including flanged nozzles).
- **Flexible control integration:** Integration into many common control systems: Siemens S7, Siemens TIA Portal, Allen Bradley, Beckhoff, Bosch Rexroth...
- **Economically attractive:** After comprehensive training, instruction by us, commissioning, service at the end user are completely in your hands!
- **Fast delivery:** Construction in a modular system ensures attractive delivery times - even with tight lead times and tight supply situation!

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Spray lubricator EQS: Side view

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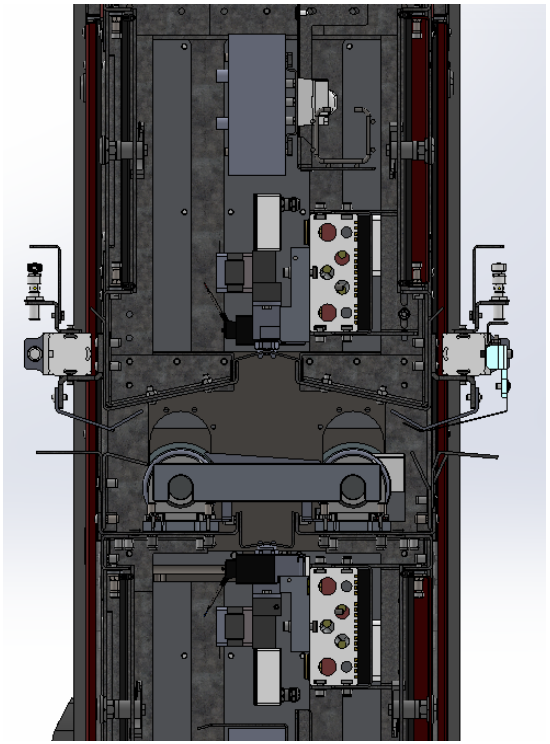

Infeed direction

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Spray lubricator EQS: Drive unit

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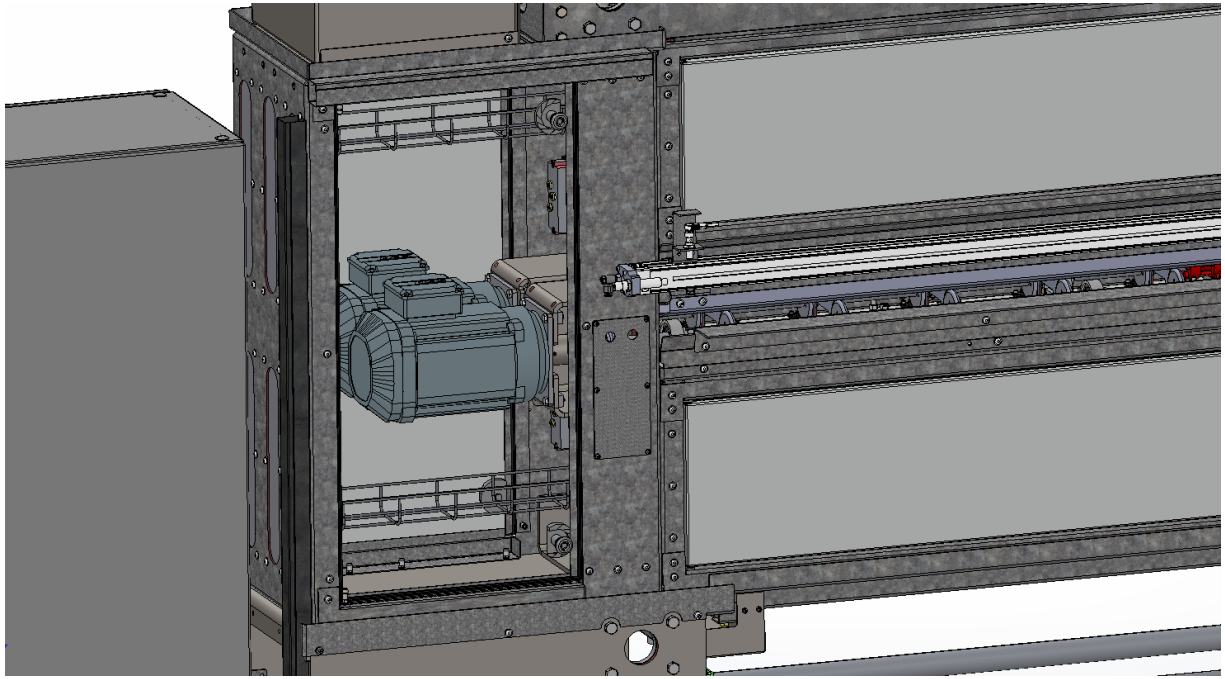

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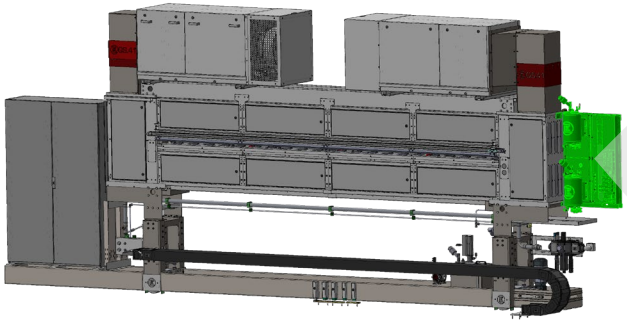
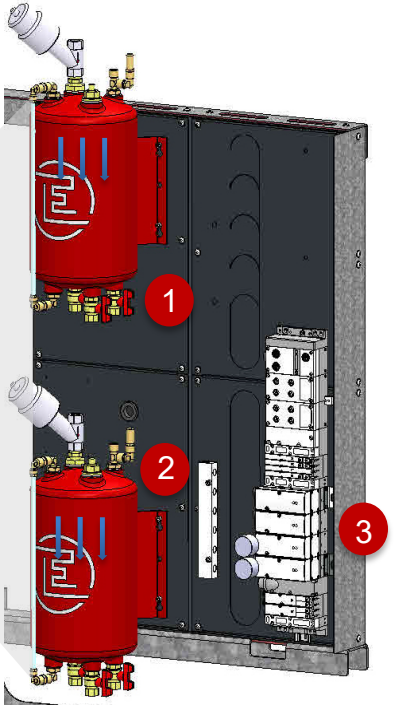
Spray lubricator EQS: Oil supply





- **1** Pressure container for oil supply of upper spray bar
- **2** Pressure container for oil supply of lower spray bar
- **3** Valve terminal

- Compressed air pressure equals oil pressure.
- Changing the preload of compressed air changes the oil pressure accordingly.
- The higher the preload of compressed air, the more oil flows.

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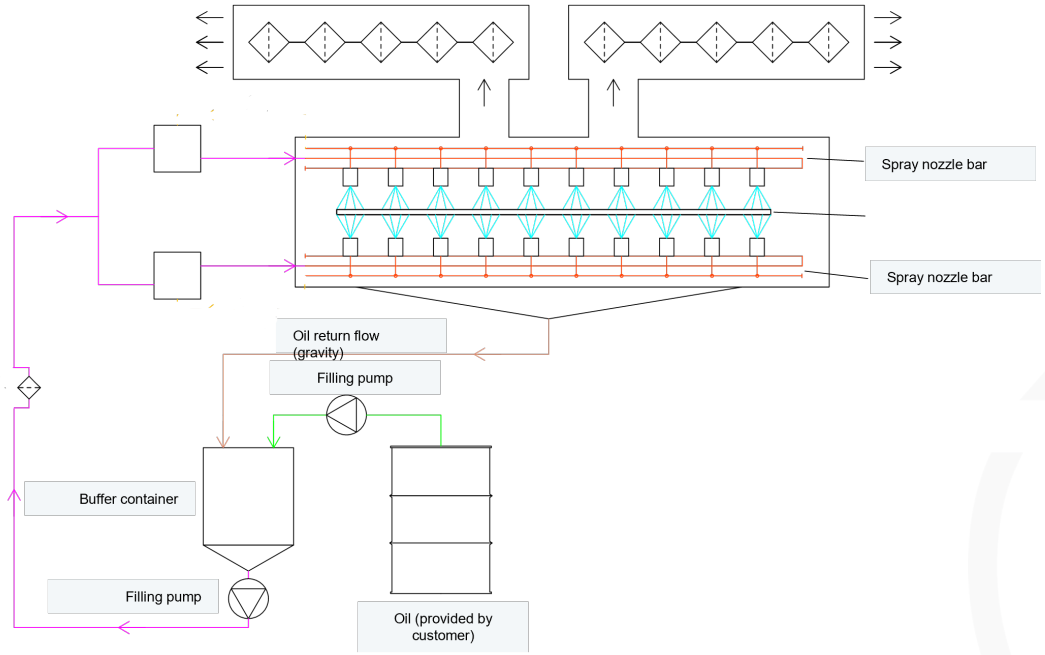
Standard oil circulation – one oil grade



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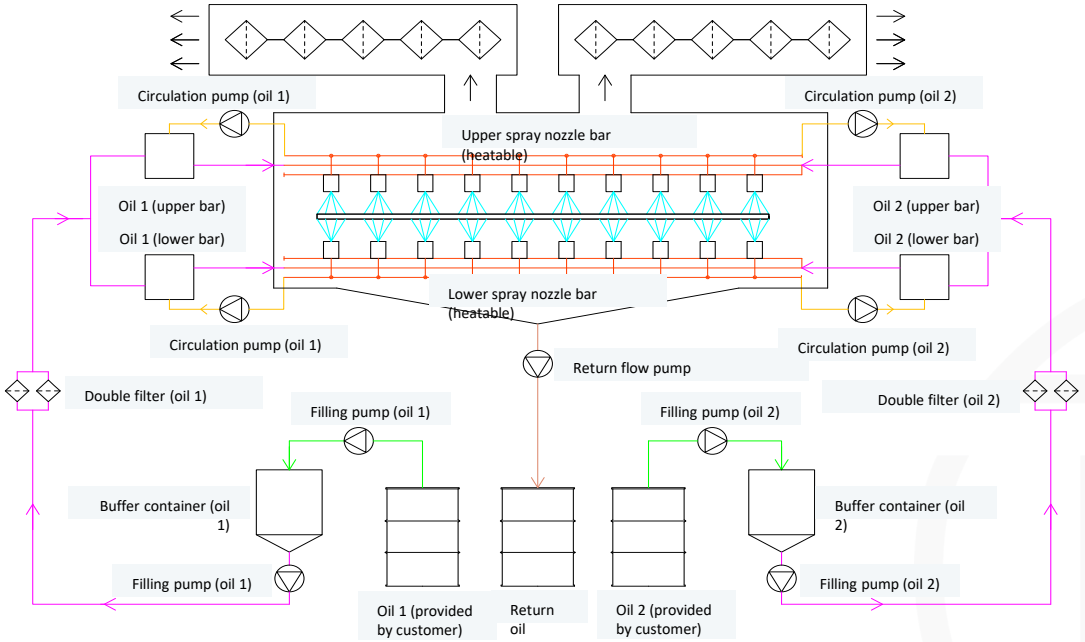
Standard oil circulation – two oil grades



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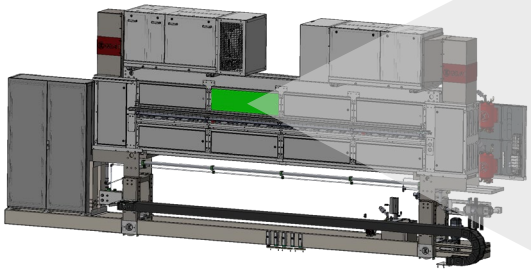
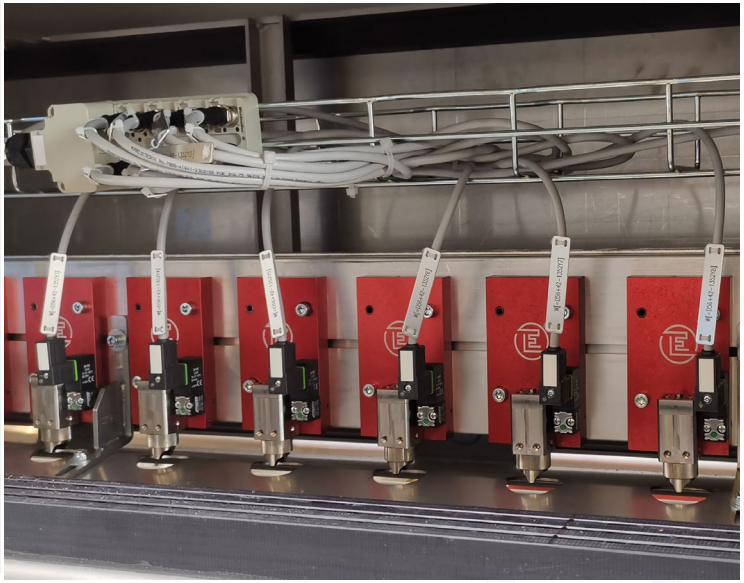
Spray lubricator EQS: Standard spray nozzles





- Spray chamber equipped with spray nozzles SD 25

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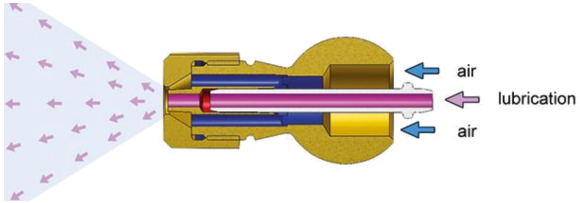
- Configuration for use with one oil grade



- A spray jet is generated from the interplay between control air, material feed pressure and spray air. It can take the form of either an intermittent or continuous spray process. Depending on which air cap is used, the spray output may be flat or round.
- The control air is supplied to the spray valve via a pilot valve. The spray air is supplied directly to the spray valve via a second air line. The integrated spray air control closes the spray air opening in the basic position.
- Once the pilot valve receives the signal, the front section of the needle piston chamber is flooded with air.
- The air valve is then pushed backwards on the needle against the needle guide, opening the spray air supply. Now the needle is pushed back and opens the nozzle.

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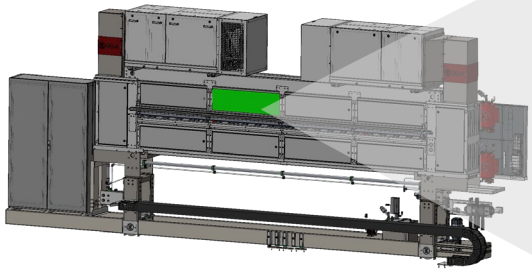
Spray lubricator EQS: Automatic spray nozzles SDA 30



- Spray chamber equipped with automatic spray nozzles SDA 30

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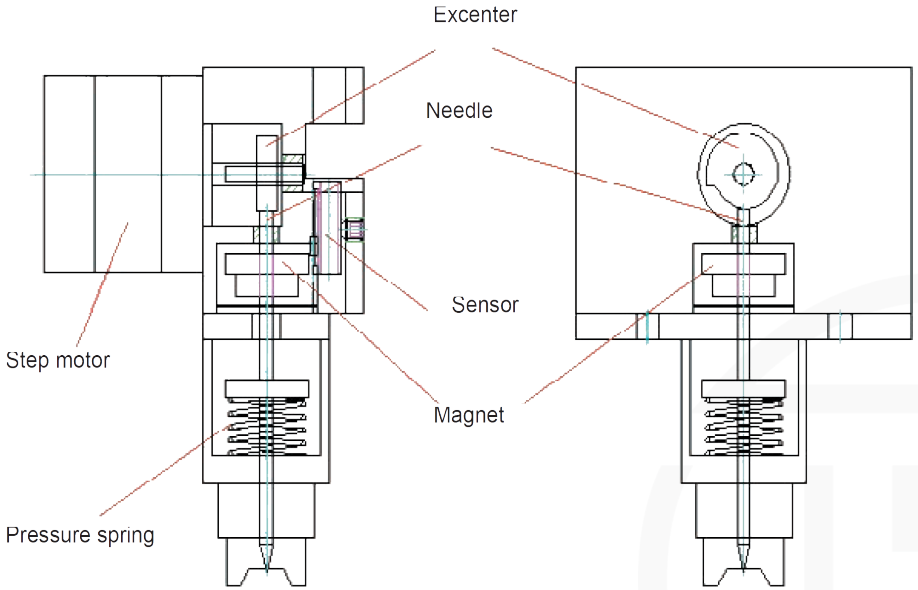
- The nozzle needle of the SDA 30 is connected to a step motor with excenter, making the outflow rate continuously adjustable.
- The nozzle needs approx. 20 ms to change from “locked” to “completely open”. Each position in between is reached faster relative to this time span.
- Together with the pressure of the lubricant this enables the nozzle to apply different lubricant quantities to individual spray areas and to ensure particularly high throughput rates.
- The SDA 30 realizes layer thicknesses from < 1 g/m² up to > 5 g/m².



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Spray lubricator EQS: Transport roller with wiper

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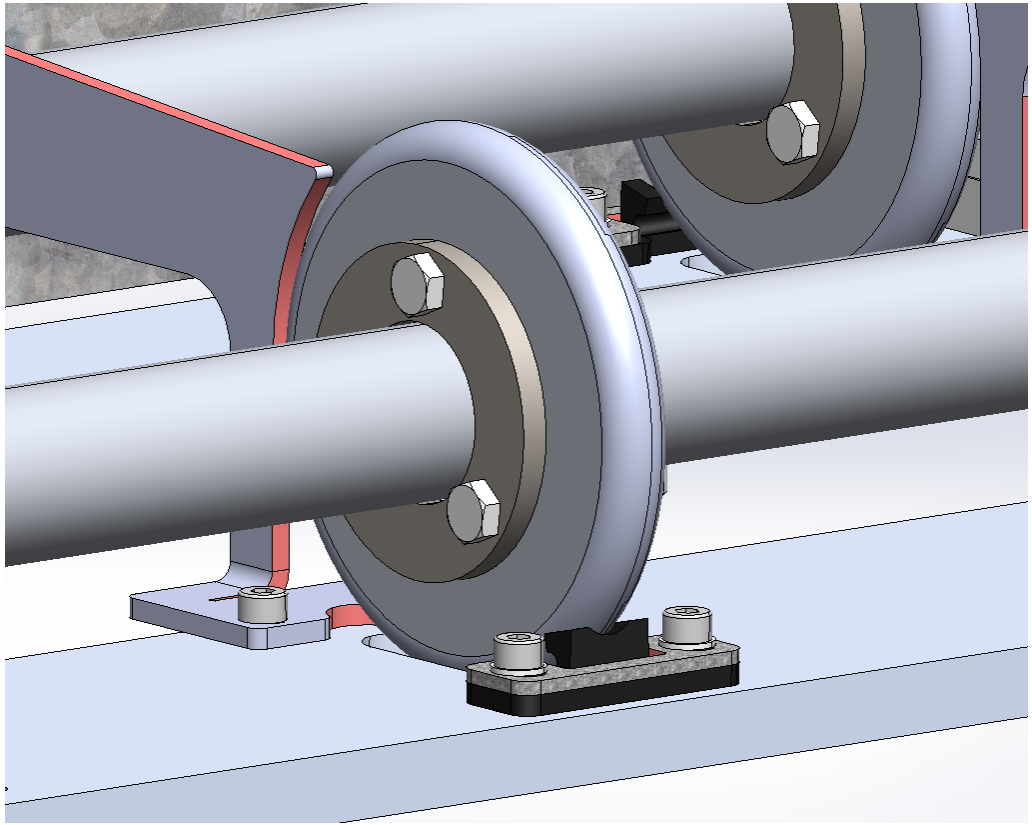

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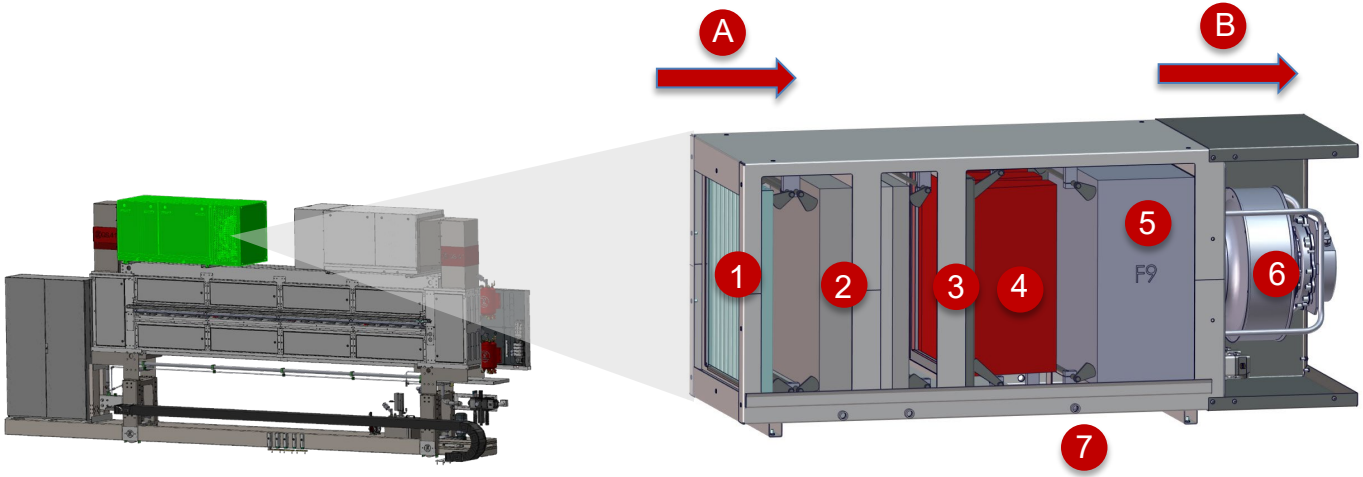

- **1** Filter stage 1: Lamella filter (Cleaning possible)
- **2** Filter stage 2: Wire mesh filter (Cleaning possible)
- **3** Filter stage 3: Wire mesh filter (Cleaning possible)
- **4** Filter stage 4: V-cell filter VF7 (Replacement only)
- **5** Filter stage 5: Final filter F9 / H13 (Replacement only)
- **6** Fan
- **7** Filter locking
- **A** Air intake
- **B** Air outlet

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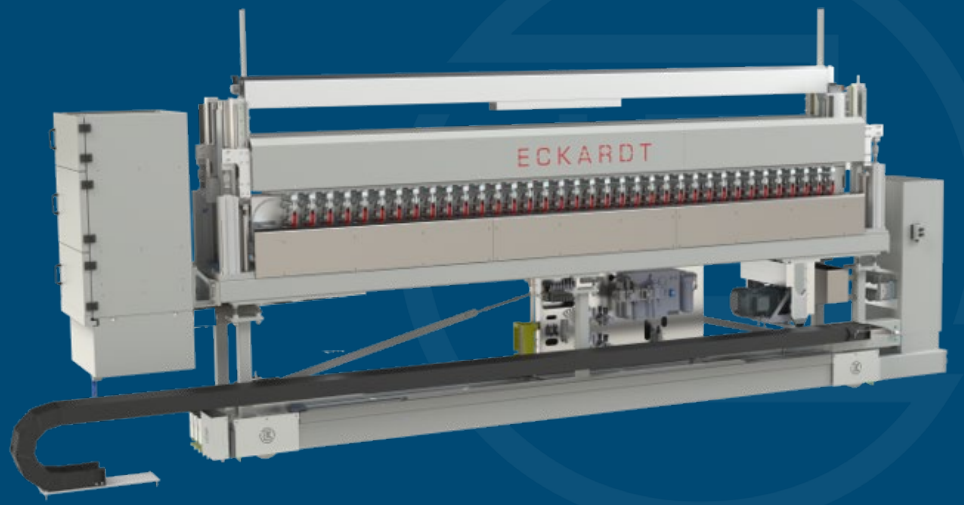
Brush cleaner LBE

Resource-efficient, thorough, low-wear

Suitable for material widths up to 4.500 mm



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Brush cleaner LBE: Transport rollers

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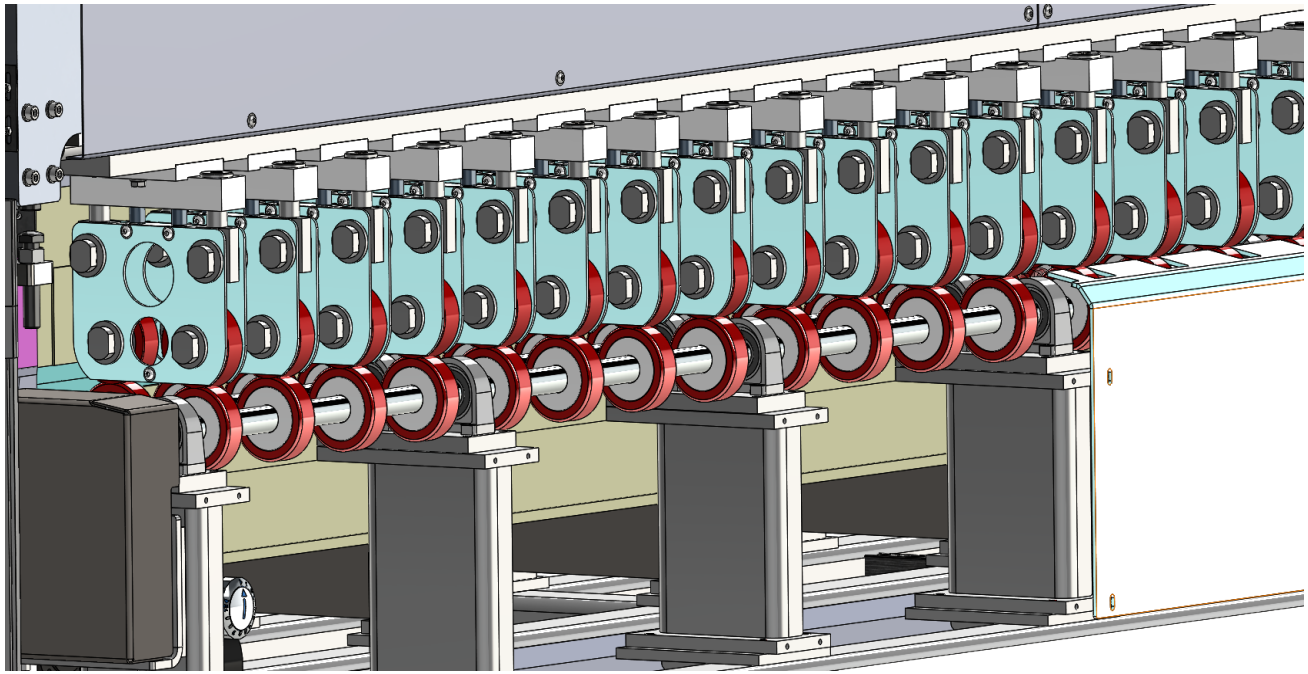

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Brush cleaner LBE: Side view

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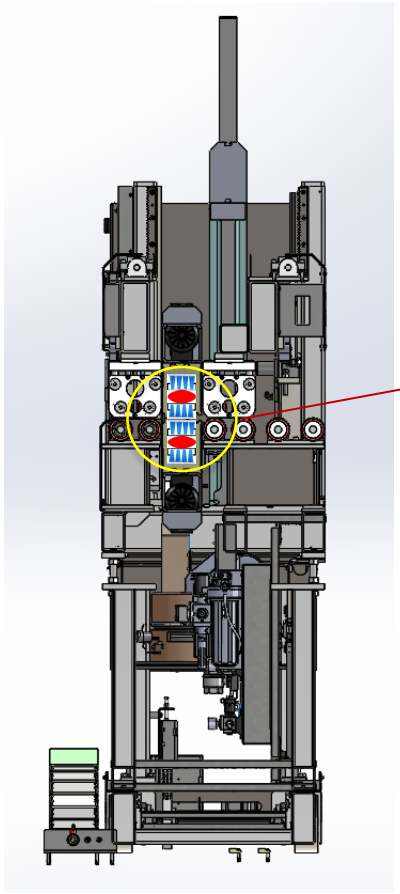
Infeed direction



Insert: Brush with bristle correction system

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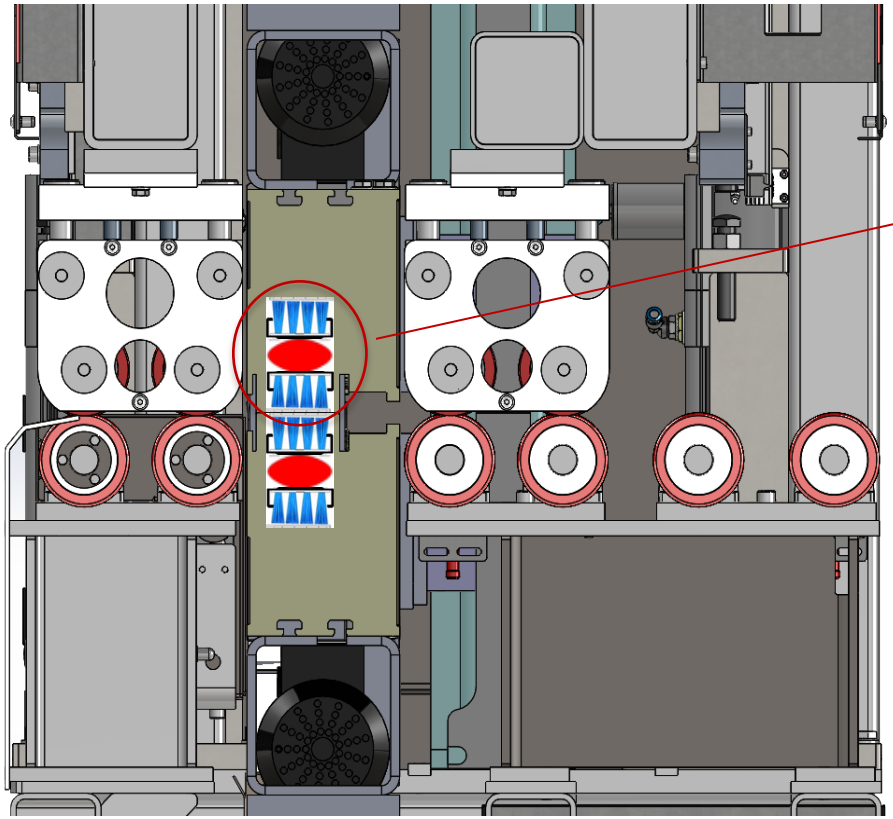
Brush cleaner LBE: Transport rollers



Insert: Brush with bristle correction system (see below)

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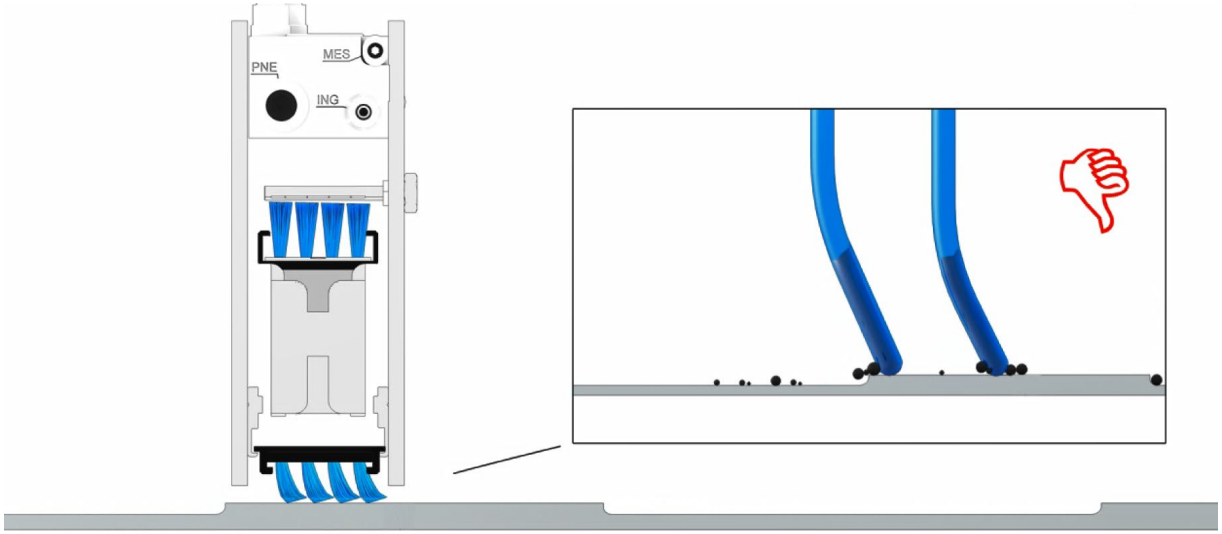

- While processing metal blanks of varying thickness, e.g. tailored blanks, the brush bristles may be pushed out of their upright position enabling dirt particles to slip through.
- As a result, the overall cleaning quality deteriorates and the bristles are likely to wear out prematurely.

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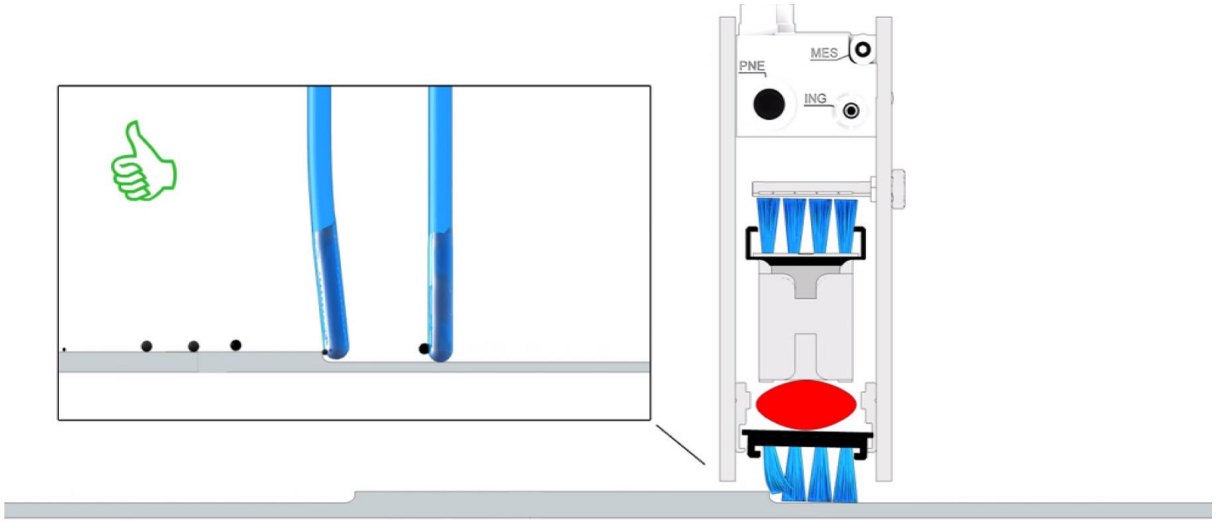
Brush cleaner LBE: Bristle correction system



- This is where the pressure buffer comes into play, which is effectively an air cushion located right underneath the under brush guide.
- By applying a counter pressure on the under brush the buffer keeps the bristles in their upright position, so that dirt particles cannot slip through.
- No electronic brush adjustment or measurement of bristle length is required.

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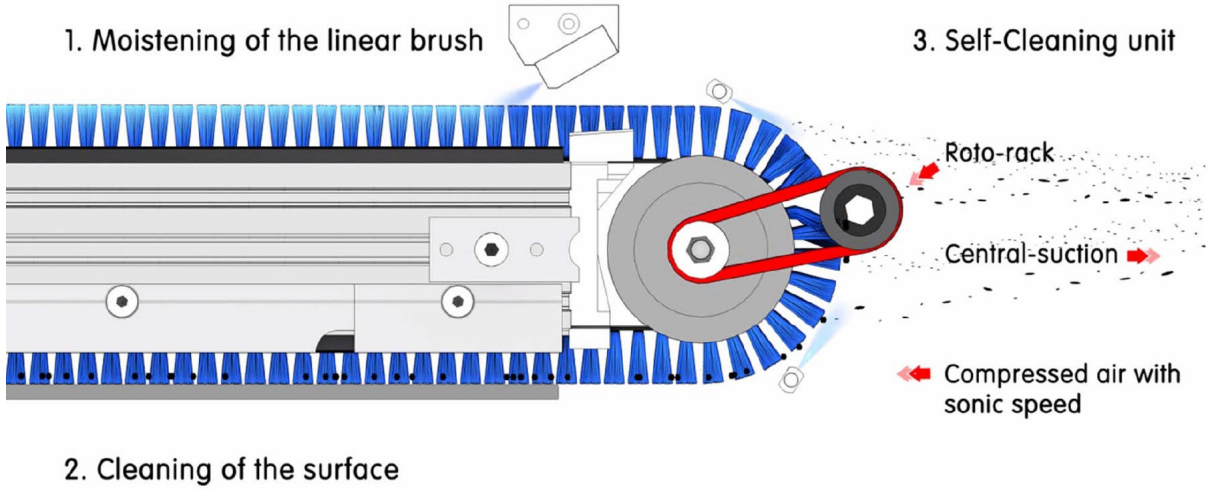
Brush cleaner LBE: Addition of cleaning fluid



- Moistening of the rotating brush filaments with antistatic cleaning fluid for better adhesion of dirt particles
- The particles are thoroughly absorbed from the material surface and conveyed to a suction system.
- The self-cleaning of the circulating sword brush is performed by a rotating rack and compressed air nozzles.
- A suction system then disposes of the detached particles, efficiently preventing them from being discharged into the ambient air.

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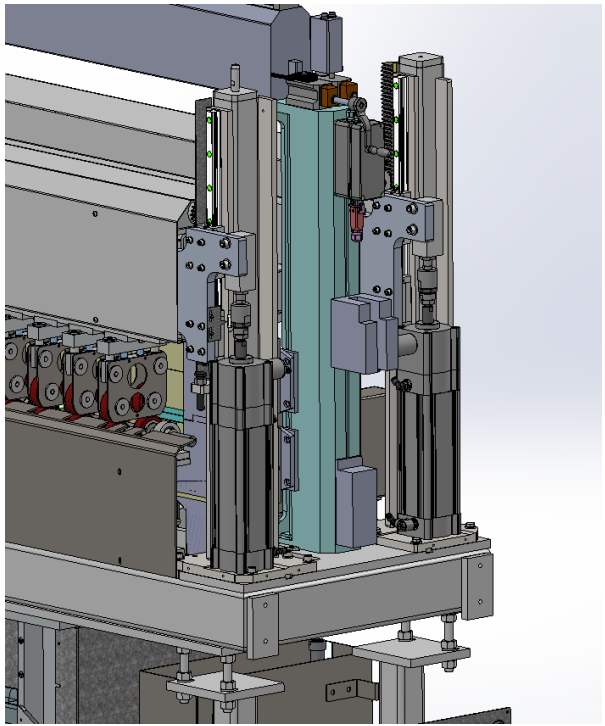
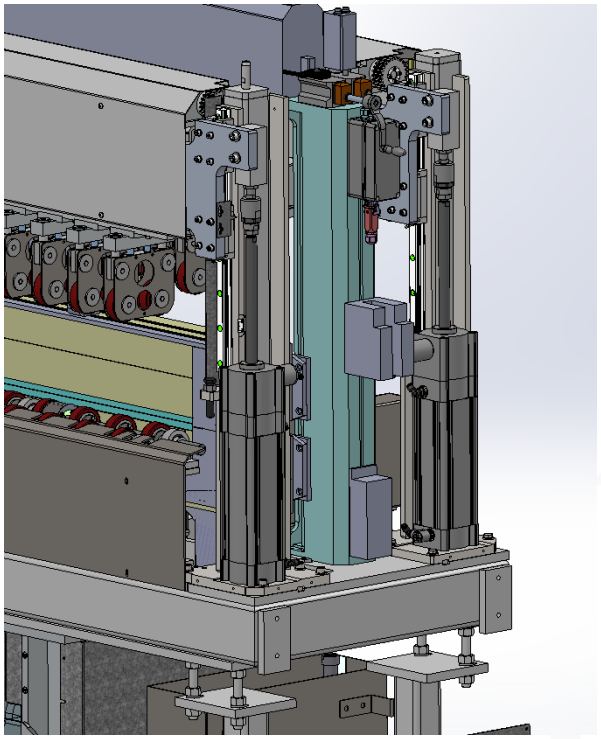
Brush cleaner LBE: Height adjustment





- Brush position „open“ for easy maintenance access

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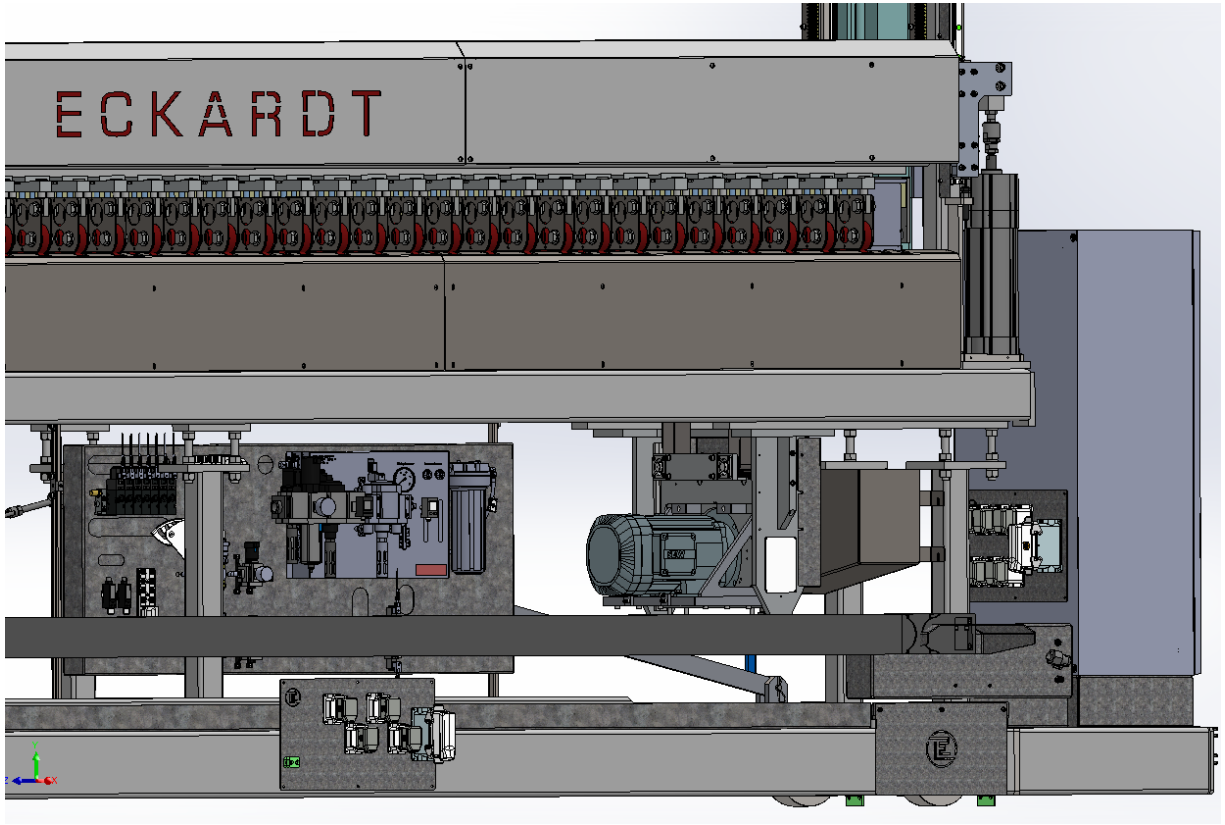
Brush cleaner LBE: Drive and supply unit



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Brush cleaner LBE: Exhaust unit

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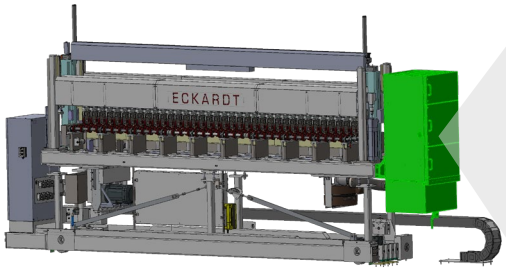

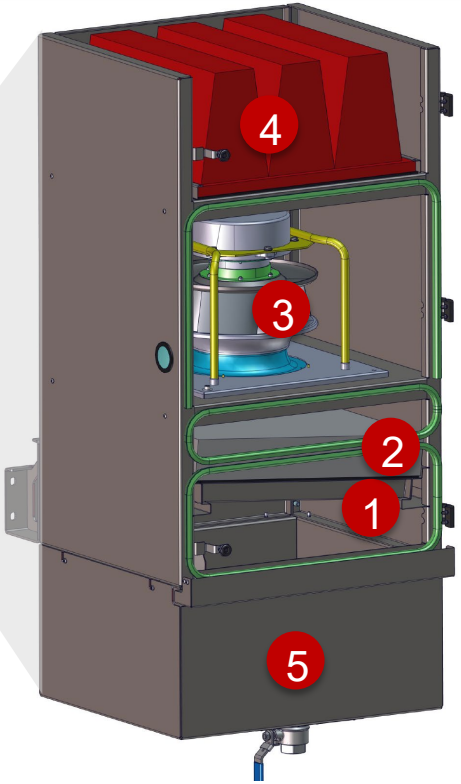

- **1** Lamella filter / pre-filter (Cleaning possible)
- **2** Wire mesh filter (Cleaning possible)
- **3** Radial fan
- **4** Final filter H13 (replacement only)
- **5** Drip tray

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Spray lubricator EQS & Brush cleaner LBE

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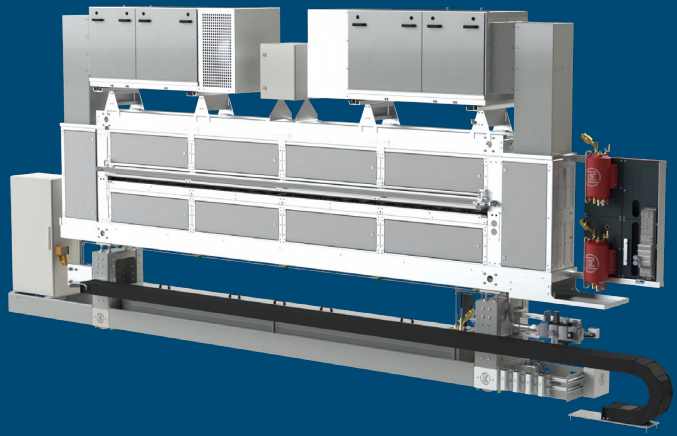
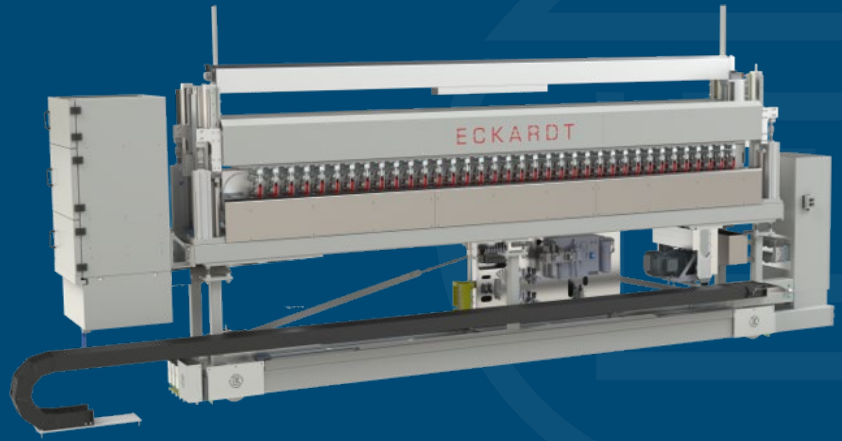
Two machines – One control unit





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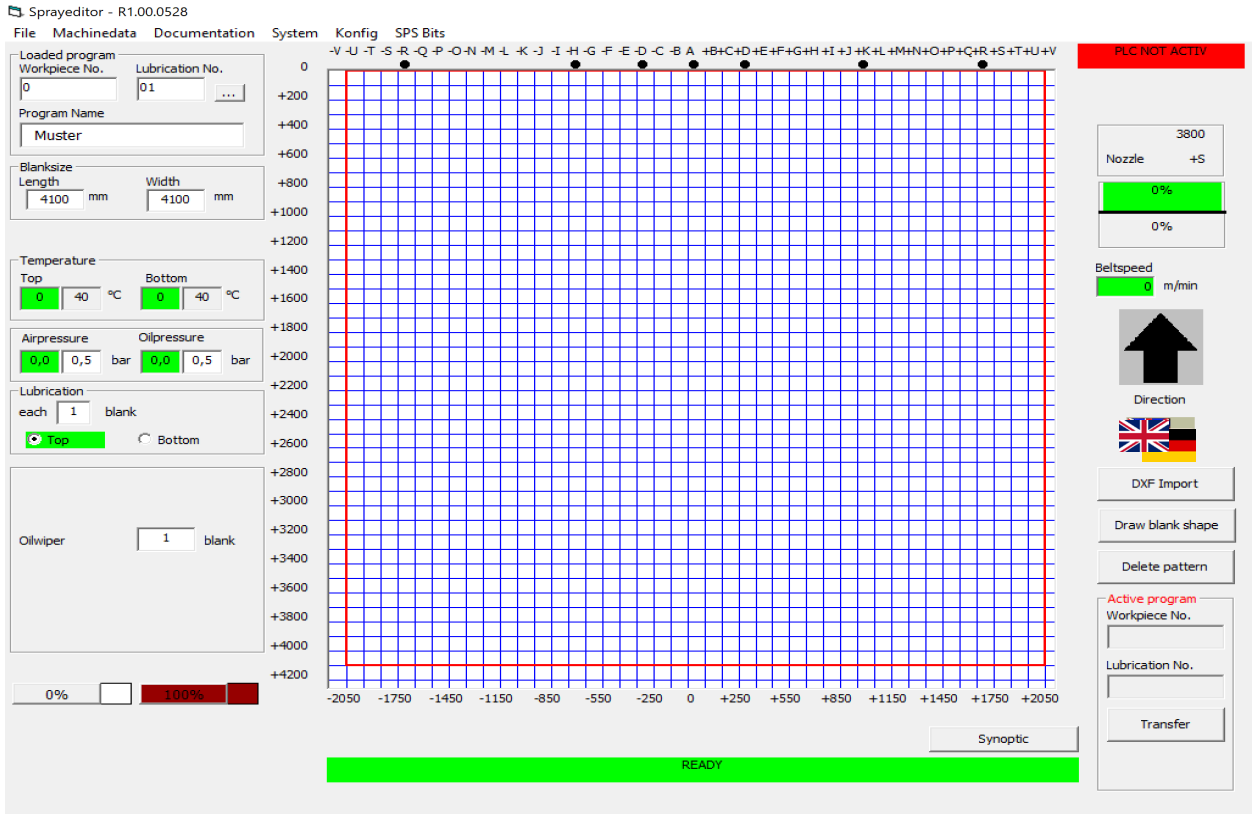
Spray lubricator EQS: Control software - Main screen



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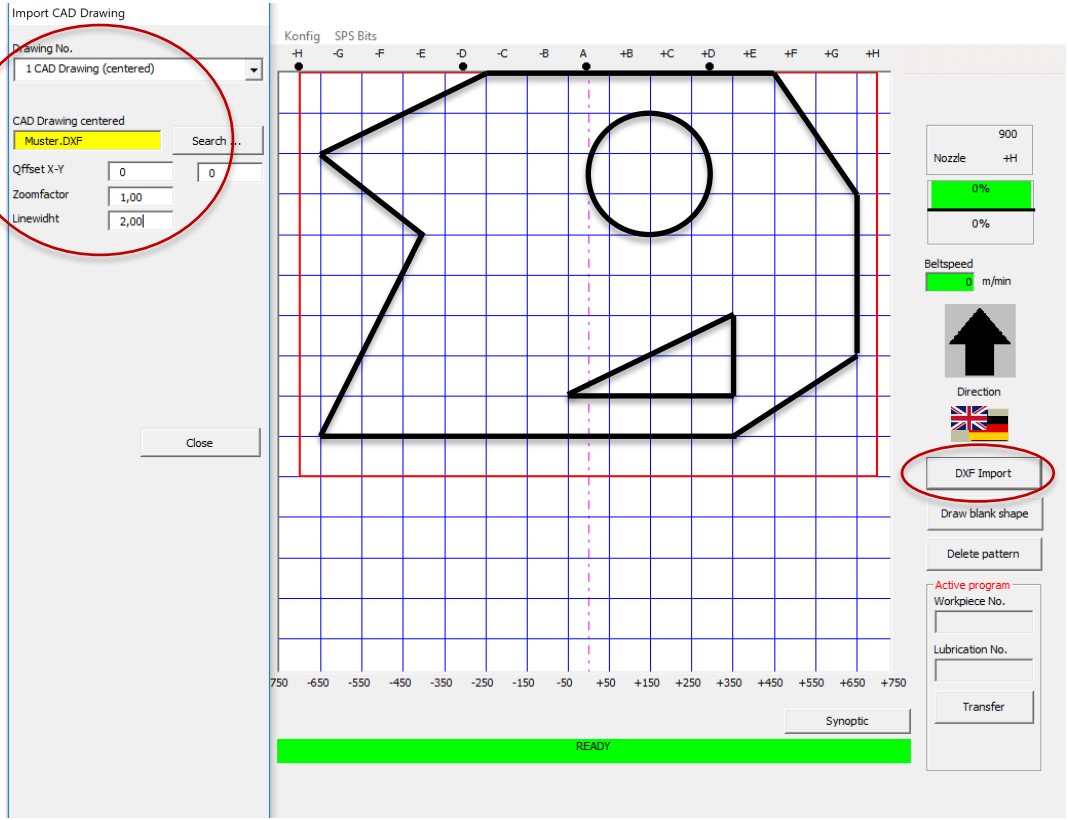
Spray lubricator EQS: Control software – Import of DXF files



- The import of DXF (DWG) dimensional drawings facilitates the application of lubricants only where it is really needed.
- Via „Offset X-Y“ and „Zoomfactor“ you can adjust position and size of the drawing in relation to the plate size.
- For better visibility, the line width of the drawing can also be altered.

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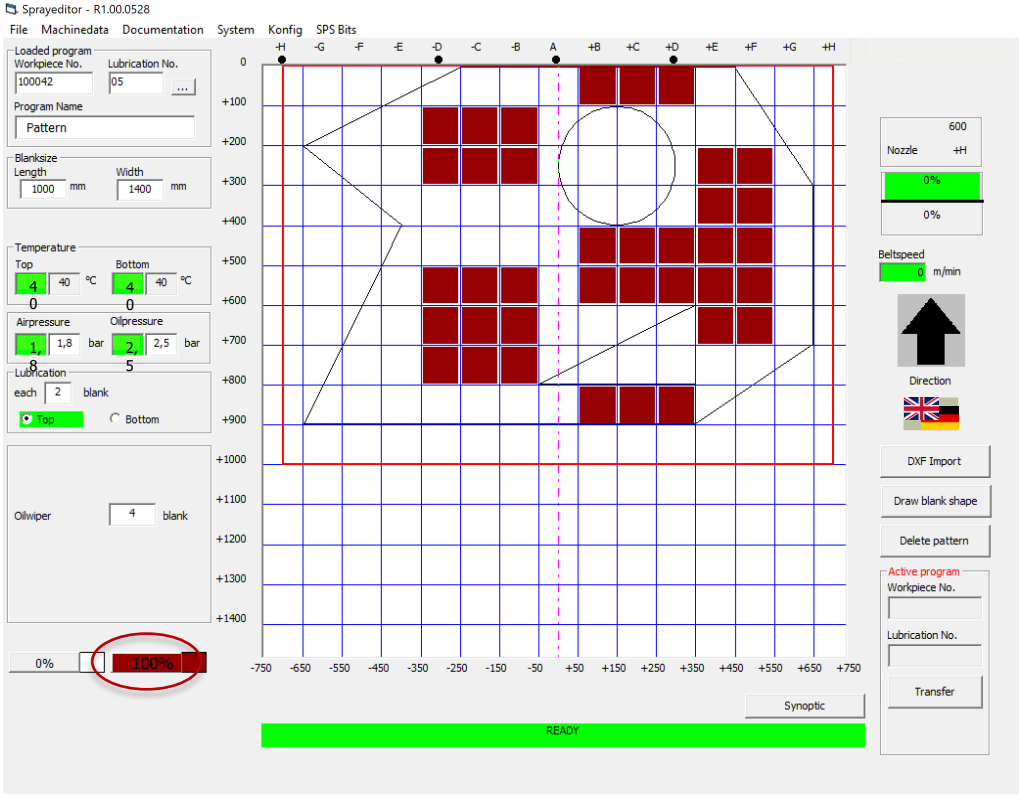
Spray lubricator EQS: Control software – Assign spray patterns



- To activate fields in the grid, click on „100%“
- To set a spray pattern, click on the individual fields or hold down the left mouse button and drag across the grid.

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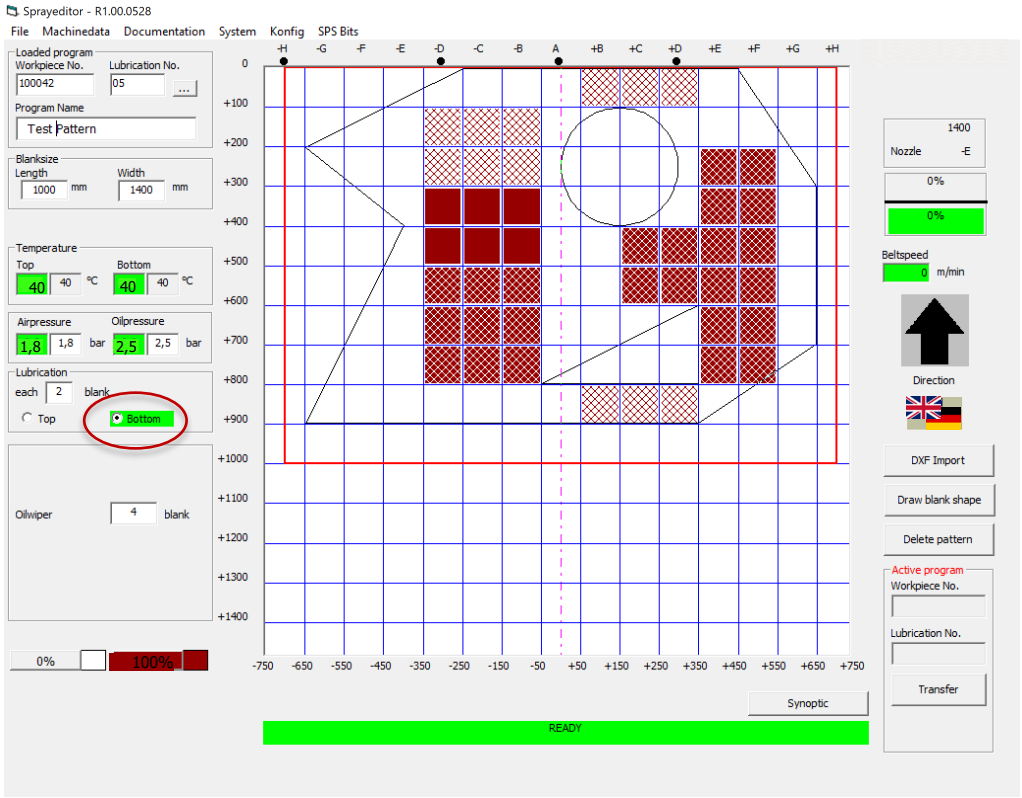

- Spray patterns can be assigned to the top or bottom side of the plate.
- If you select “Bottom”, the spray fields already assigned to the top side are marked with bright criss-cross lines.
- If you select the same spray fields on the bottom side, the criss-cross lines turn dark.
- Spray fields which are only assigned to the bottom side are marked plain-coloured.

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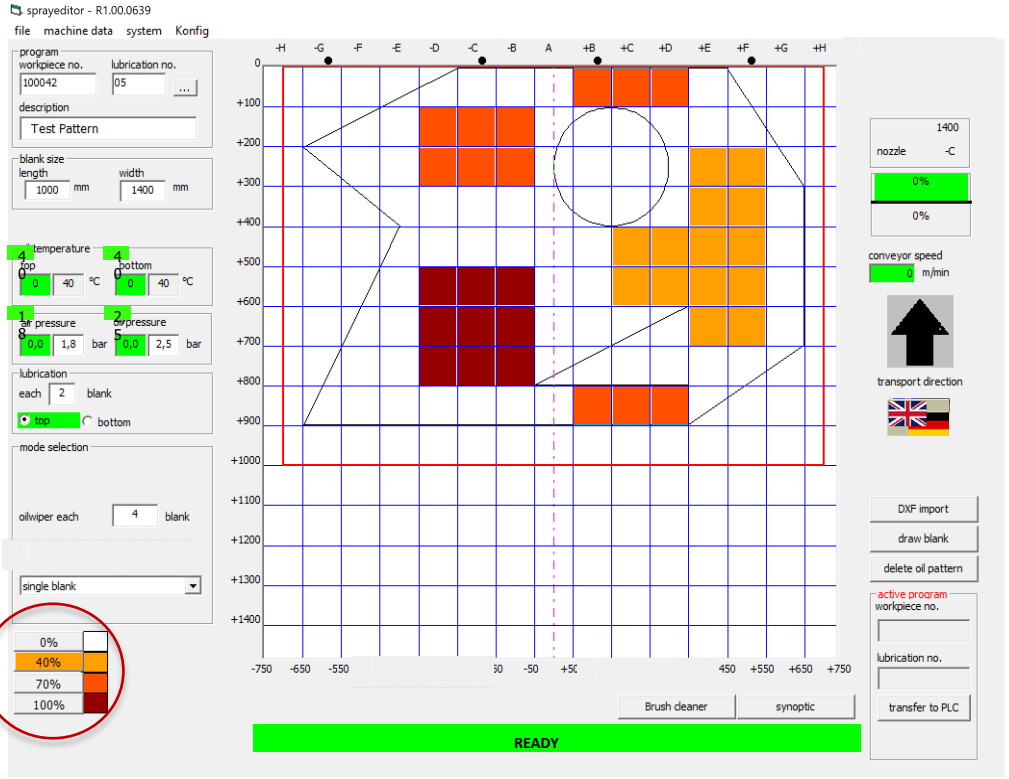
Spray lubricator EQS: Control software – Assign different spray grades



- Additional functionality includes the pre-selection of different spray grades.
- To assign a spray grade you need to activate one of the percentage buttons and click on the respective fields in the grid.
- The example shows the assignment of spray grades relative to the full lubricant quantity for each spray field.

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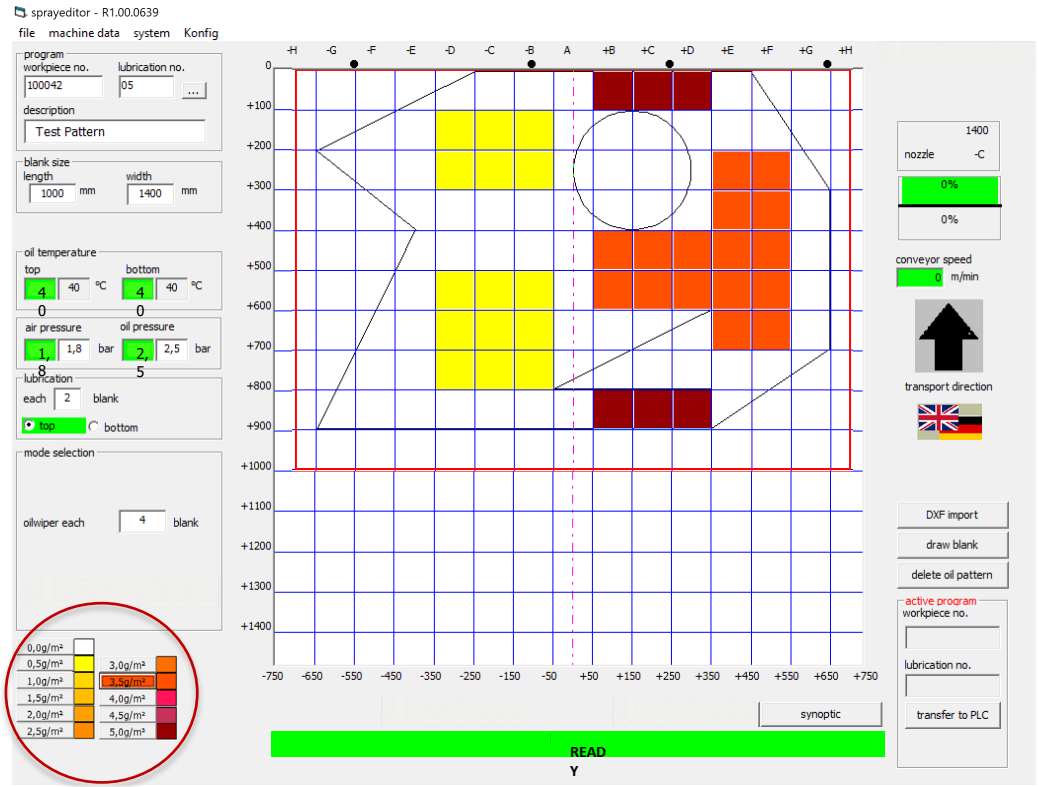
Spray lubricator EQS: Control software – Assign different spray grades



- Option for use with automatic spray nozzles.
- With automatic spray nozzles, finer spray degrees can be assigned to the fields m grid.
- To assign a spray grade, one of the percentage buttons is activated and the corresponding fields in the grid are selected.
- The example shows the assignment of spray degrees based on defined lubricant quantities.

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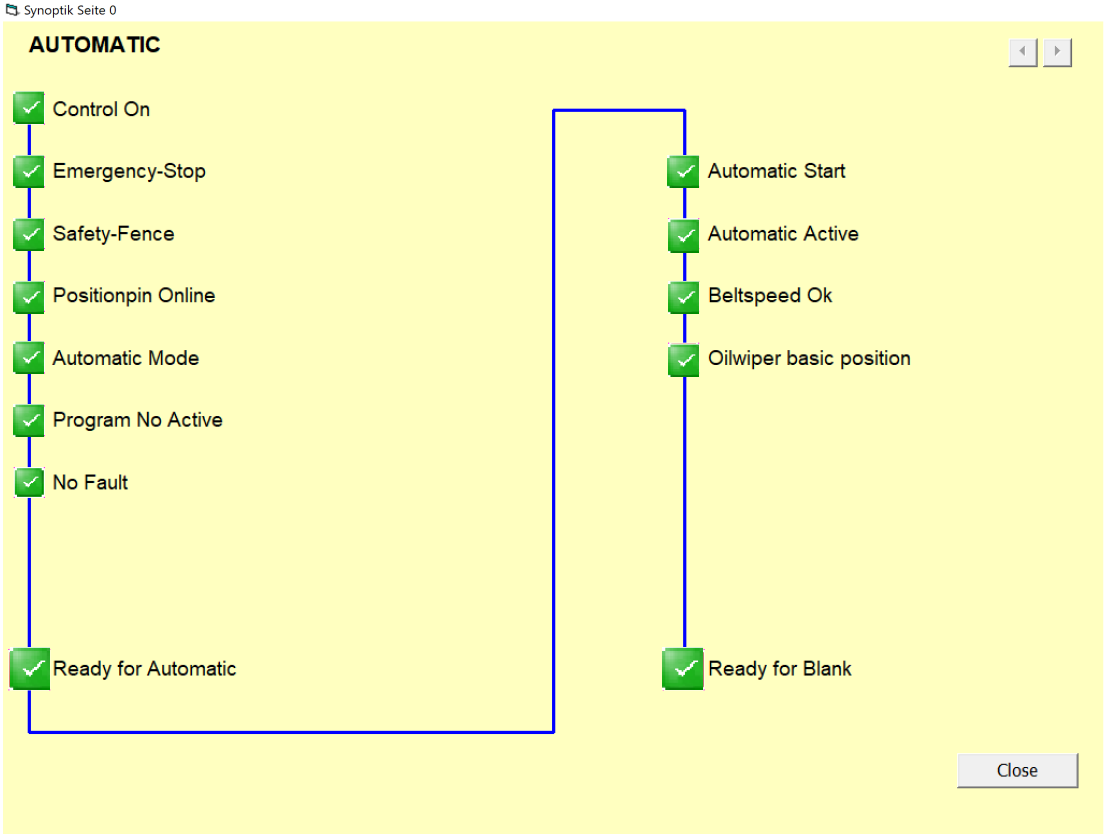
Spray lubricator EQS: Control software – Status indication



- The synoptic information window is used for initial fault localization.
- The conditions required for automatic operation are displayed here.

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Spray lubricator EQS: Control software - Detailed malfunction indication

- Warnings (yellow) are only indicated, malfunction information (red) brings the system to a halt.
- For further information on the malfunction, click on the respective field.

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Spray lubricator EQS: Manual switch

- The manual switch allows you to perform a function check for all spray nozzles.
- Using the thumbwheel switch, you can perform the nozzle test directly on the system.
- If a series of nozzles or all of them are selected, the will be switched on one after another as long as you keep the switch pressed.

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Spray lubricator EQS: Hand panel Simatic HMI, KTP-900

- Start screen

- Abweichungsanalyse Luftdruck und Öltemperatur

- Düsenfunktionstest

- Anzeige Fehlermeldung

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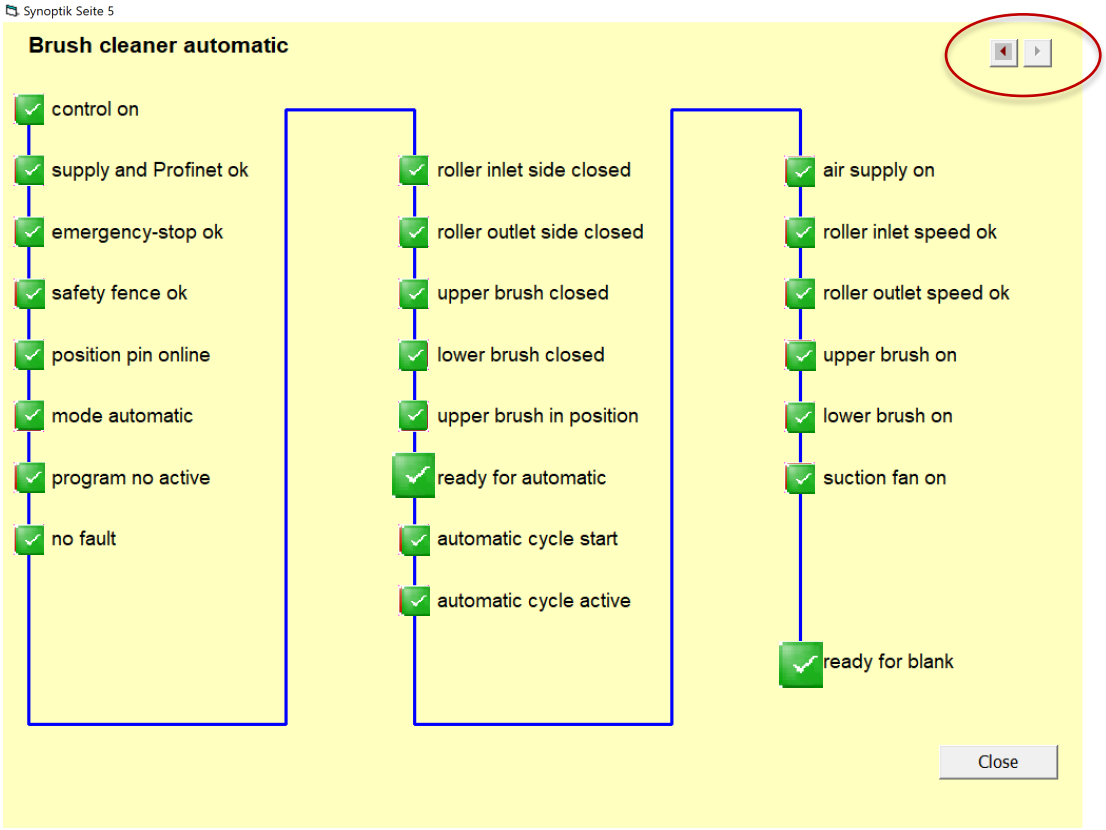
Brush cleaner LBE: Control software - Main screen

© Eckardt Systems GmbH

Brush cleaner LBE: Control software - Status indication



- The synoptic information window is used for initial fault localization.
- The conditions required for automatic operation are displayed here.
- Click on the arrow to change to the reoiler synopsis.

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Spray lubricator EQS & Brush cleaner LBE

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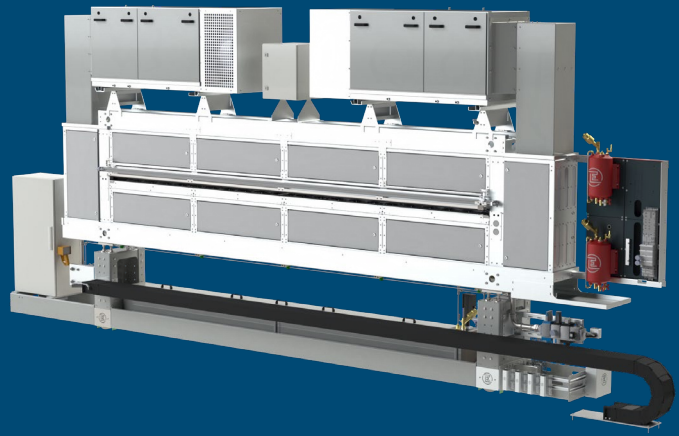
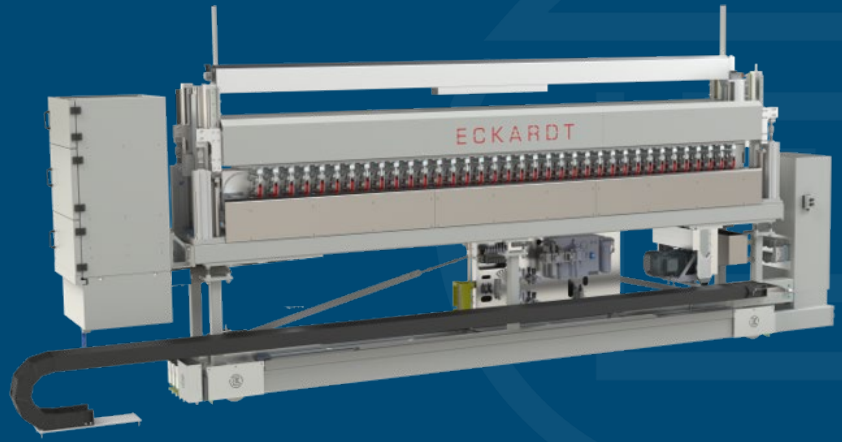
Sample drawings





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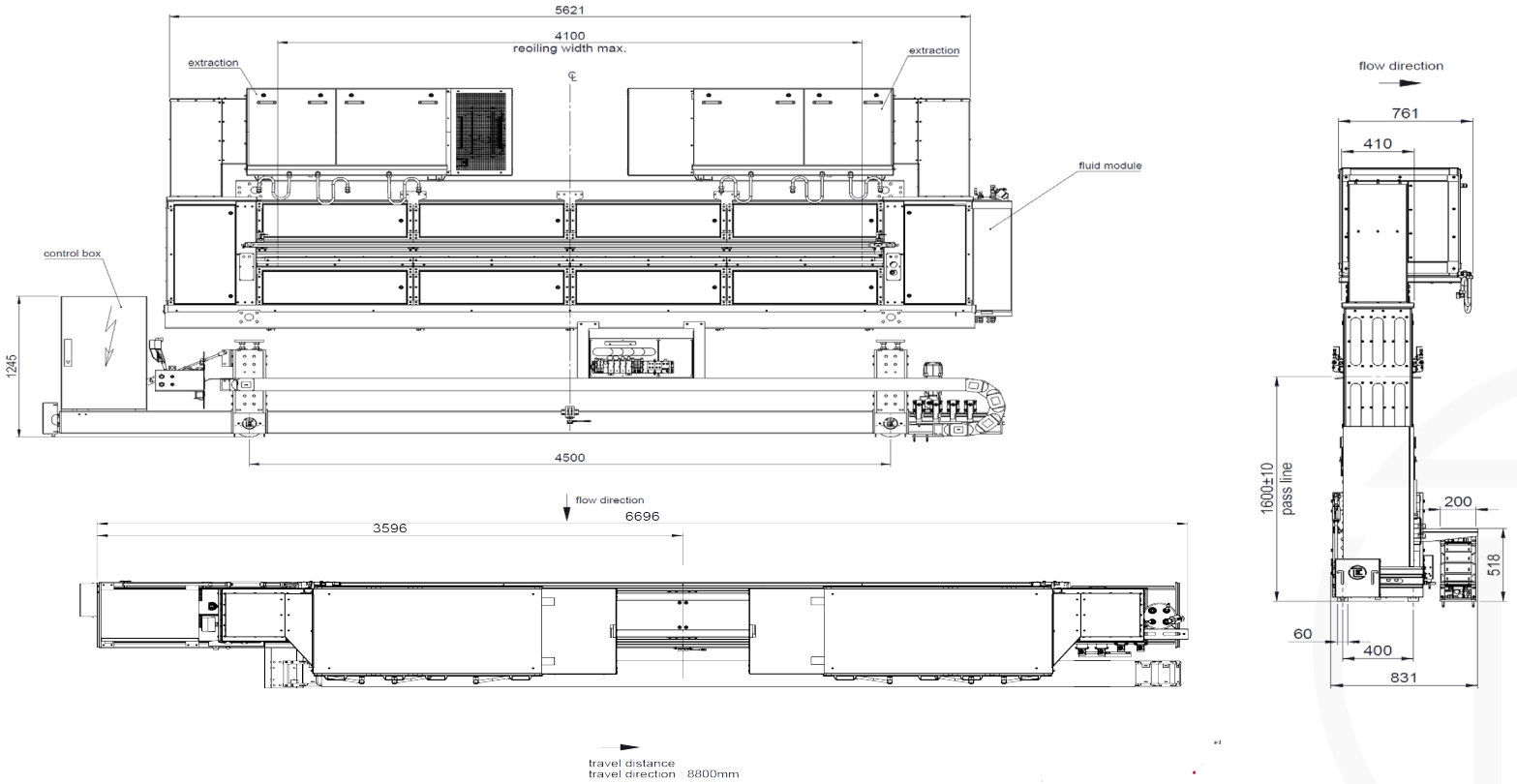
Spray lubricator EQS: Dimensions



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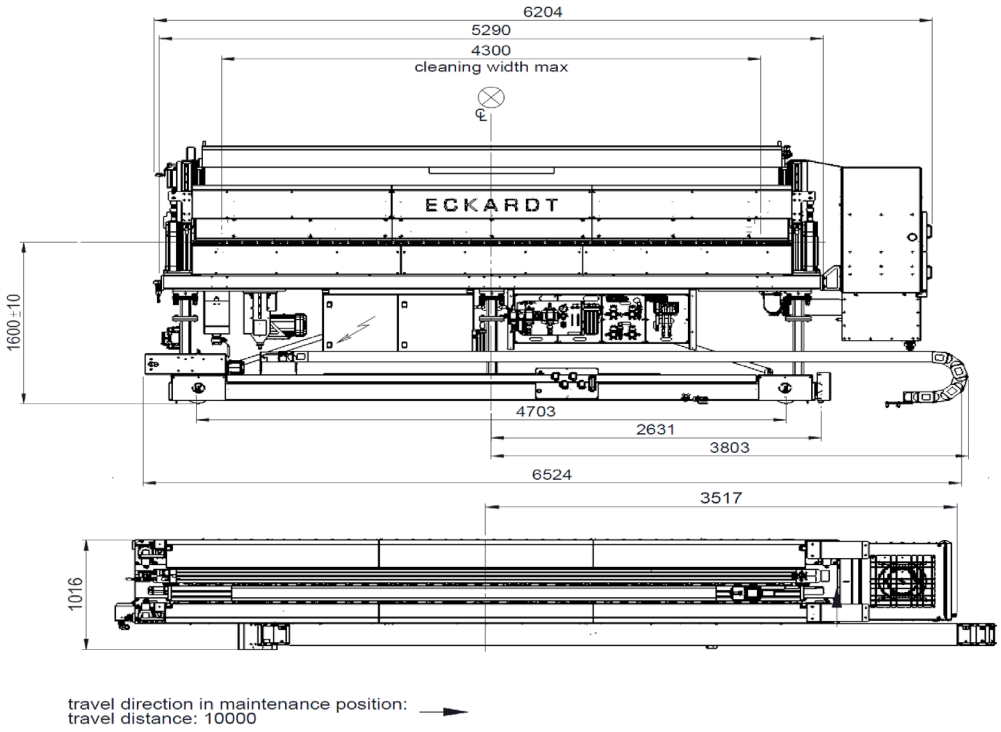
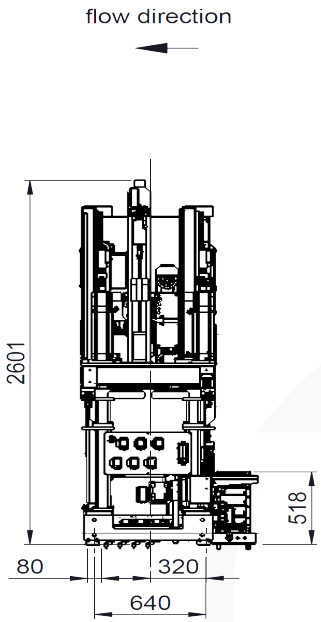
Brush cleaner LBE: Dimensions





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Spray lubricator EQS & Brush cleaner LBE: Dimensions combined

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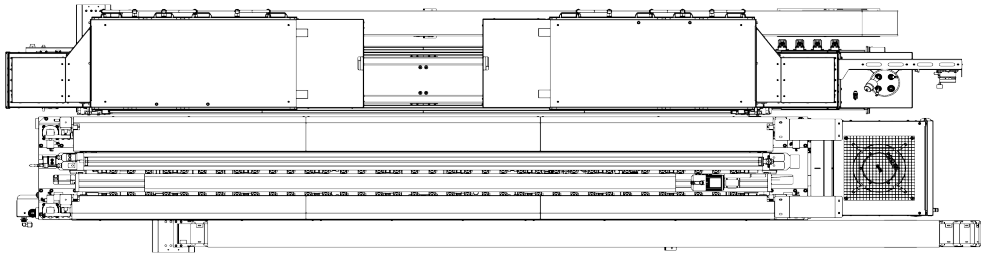

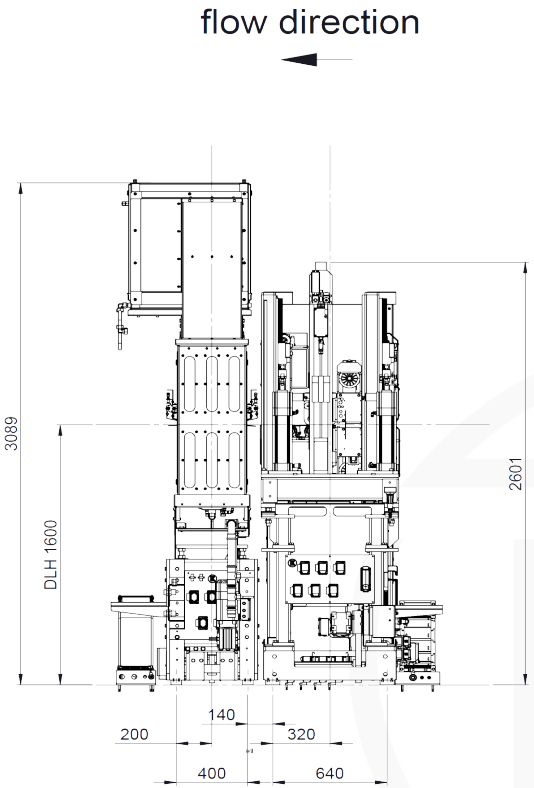

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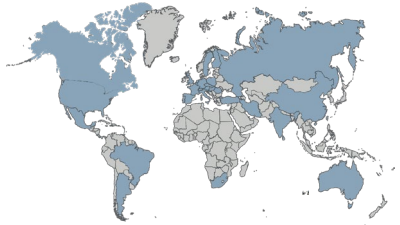
Second generation family-owned business

- 100% family-owned
- ca. 40 staff
- In-house electronics department (development, testing lab)
- In-house service team of electrical engineers
- Worldwide customer base



Eckardt machines in use

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Consulting

- Extensive survey of existing production environments
- Development of solution concepts, integration in existing processes

Engineering

- Individual modifications to our technology based on customer requirements
- Addition of control systems, development of control concepts

Installation & commissioning

- System integration in existing workflows
- Fine adjustments and necessary adaptions to ensure operational readiness

Service & maintenance

- Regular maintenance of our systems carried out by service staff of our own
- Customer-specific spare part bundles and quick, flexible procurement

Retrofitting

- System modernization with respect to all mechanical and electrical parts
- Particular focus on controls with paying attention to all components involved

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Thank you!

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