

Decoating logistics with an automatic eddy-current decoating system

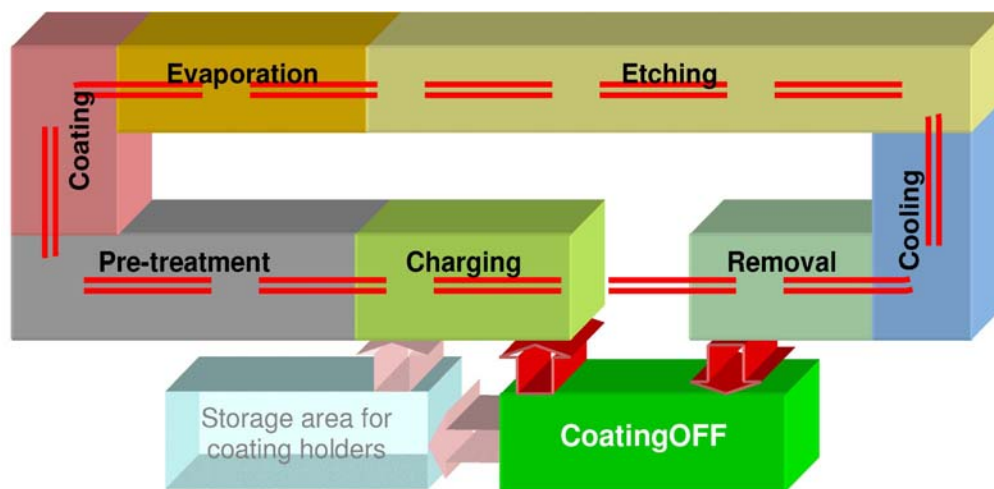
The automatic *CoatingOFF* system is located directly next to the coating system. In the ideal case, the following working procedure can be used:

. • Conveyor > Automatic decoating > Conveyor
and:

. • Conveyor > Automatic decoating > Storage area

. • Storage area > Automatic decoating > Storage area

. • Storage area > Automatic decoating > Conveyor



The online eddy-current decoating system

The online decoating takes place discontinuously in a Power&Free conveyor. The process unit is placed in a subsidiary line parallel to the main conveyor. The parts to be decoated are generally not decoated during every single process run.

The components

The basic unit The basic unit is constructed of aluminium system profiles. It can be lifted and transported with the aid of a trolley-jack. The feet are equipped with setting screws for alignment of the system. The system is enclosed by aluminium panels. The housing is accessible through doors for the purposes of installation and maintenance work. The following assemblies are installed here:

- The main electrical connections
- Controls
- Up to four eddy-current generators
- Multi-stage air filtration unit

The process unit The automatic customer-specific eddy-current decoating takes place in the process unit. The process unit houses the lifting station with the decoater and the powered rotating brushes with coating catchment funnel.



Online process unit parallel to main conveyor

Description of work procedure

The **CoatingOFF OF B16 40** online eddy-current decoating system described below is placed in a subsidiary line parallel to the main conveyor.

The online decoating system consists of a basic unit with 4 eddy-current generators for 4 cylinderdecoaters. It is connected to the process unit on the conveyor by power supply cables.

Each carriage transports 4 vertically hanging rectangular rods.

The carriages are stopped by the conveyor in the process unit.

The rods are fixed at the top.

A carriage on a vertical linear unit travels from bottom to top. The carriage holds 4 cylinderdecoaters next to each other, followed by 16 separately powered rotating brushes, so that the rods are brushed on all 4 sides.

After approx. 350 mm of the hook has been processed, the decoaters switch off, and the carriage with the still-rotating brushes stops after a further 200 mm.

The carriage then travels back down to its starting position.

The brushes continue to rotate as the carriage travels downward.

Once the carriage has reached its starting position, the cleaned hanger is released and fed back into the main conveyor line.

For decoating, the hooks do not need to be removed from the conveyor or replaced manually.

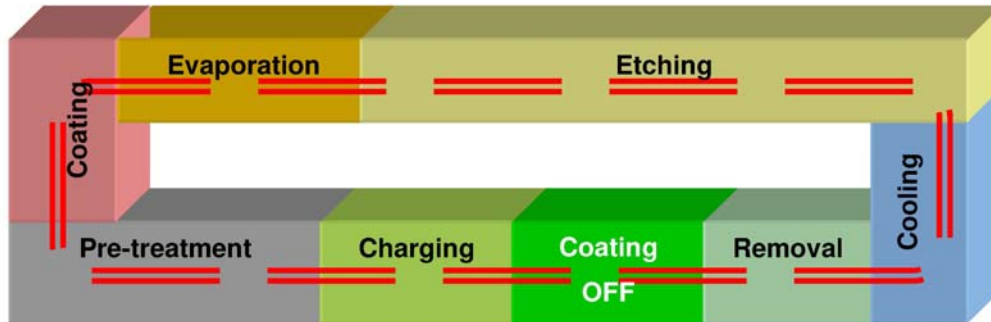
Application example



Rectangular hooked rods

Decoating logistics with an online eddy-current decoating system

The online *CoatingOFF* system is integrated in parallel with the conveyor of the coating system. The coating holders are generally decoated fully automatically after every Xth process, without having to be removed from the conveyor.



The inline eddy-current decoating system

The inline eddy-current decoating can take place continually in a continuous conveyor, or, depending on the parts geometry, discontinuously in a Power&Free conveyor. The process unit is placed in the main conveyor. The parts to be decoated are generally decoated during every process, without having to be removed from the conveyor.

The components

The basic unit is constructed of aluminium system profiles. It can be lifted and transported with the aid of a trolley-jack. The feet are equipped with setting screws for alignment of the system. The system is enclosed by aluminium panels. The housing is accessible through doors for the purposes of installation and maintenance work. The following assemblies are installed here:

- The main electrical connections
- Controls
- Up to four eddy-current generators
- Multi-stage air filtration unit

The automatic customer-specific eddy-current decoating takes place in the process unit. The process unit houses the decoater, the powered rotating brushes with coating catchment funnel, and depending on the system type, a lifting station. In the

case of continuous inline decoating, several U-decoaters are usually placed one behind the other. Two counter-rotating brushes are installed behind the decoaters. The decoaters and rotating brushes are started by a light barrier, and switch off again automatically after a few seconds if no further hooks are detected by the light barrier. The decoaters and rotating brushes are switched on continually when the conveyor is running. The decoaters



U-Decoater

Description of work procedure

The holders on the continuous conveyor pass through the fixed U-decoaters, where they are exposed to eddy-current and the coating removed. The holders then pass through the rotating brushes, and are cleaned mechanically down to bright metal. For decoating, the hooks do not need to be removed from the conveyor or replaced manually.

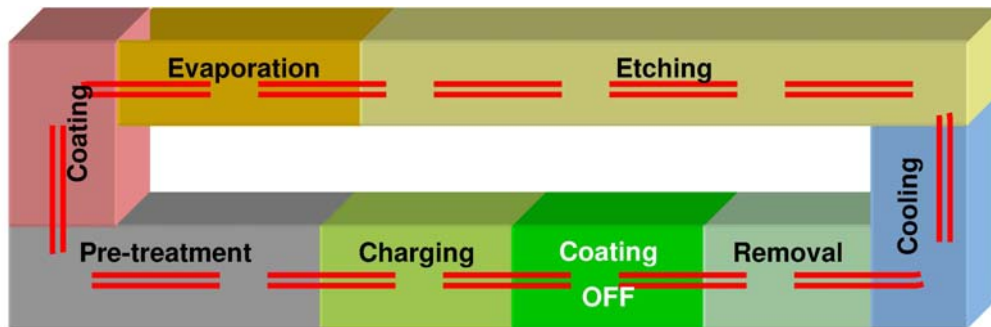
Application example



Partially decoated hooks

Decoating logistics with an inline eddy-current decoating system

The inline *CoatingOFF* system is integrated in the conveyor of the coating system. The coating holders are generally decoated during every process, without having to be removed from the conveyor.



Environmental relief and cost reduction with CoatingOFF

CoatingOFF is much kinder to the environment in comparison to other decoating processes, which is why the **Deutsche Bundesstiftung Umwelt** also took part in its development. Electro-statically unevenly conducting suspended components lead to a faulty build-up of the coating layer during coated which is supported electro-statically. With decreasing electro-static assistance, the overspray increases during wet painting, together with the volume of coating sludge which then has to be disposed of as special waste. However, in order to achieve an adequately thick coating layer on inaccessible surfaces with reduced electro-static assistance, an excessive amount of coating is applied, which means that accessible surfaces receive an unnecessarily thick coating. This also causes unnecessarily high coating consumption. With consistently good electro-static conductivity, an adequate coating thickness can be achieved even on inaccessible surfaces, which means that the components are adequately protected against corrosion, producing high application efficiency and reducing VOC emissions. A more even and therefore lower coating layer thickness requires less energy and time for drying or etching of the coating. The improved efficiency of the application, in combination with the lower coating layer thickness, results in greater economy in both the financial and ecological sense.

Environmental relief during the coating process

by reduction of:

Overspray by 40-75%

Coating consumption by 10-15%

VOC by 9-18%

Rejects by 5-15%

Cost reduction during the coating process

1. Faster conveyor speed and thus higher throughput with the same level of coating application
2. Fewer complaints due to more even coating layer thicknesses
3. Lower coating consumption due to less overspray and more even coating layer thicknesses
4. Higher availability, since less overspray has to be removed from the cabin water and walls
5. Lower energy costs, since the thin, even coating layer can be dried more quickly
6. Lower disposal costs, ->less overspray has to be removed from the cabin water and walls

Environmental relief during decoating

CoatingOFF is ready for use within a few seconds, and therefore requires no energy for heating up. The energy required for breaking the adhesion of the coating is also low and of short duration, since it is applied direct to the contact area. The removed coating is inert, meaning that no coating residue has to be disposed of as special waste. With in-house decoating, the production of a second set of holders can be omitted, reducing truck transport on the roads, which also saves resources.

Cost reduction during decoating

Varies depending on application:

Energy 30-90%

Chemicals 100%

Fresh water 100%

Special waste 95-100%



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