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E-LOC VARIO

The modular Conveyor System for
skidless operation of a Paint Shop




**UMWELT
TECHNIKPREIS**
BADEN-WÜRTTEMBERG 2019

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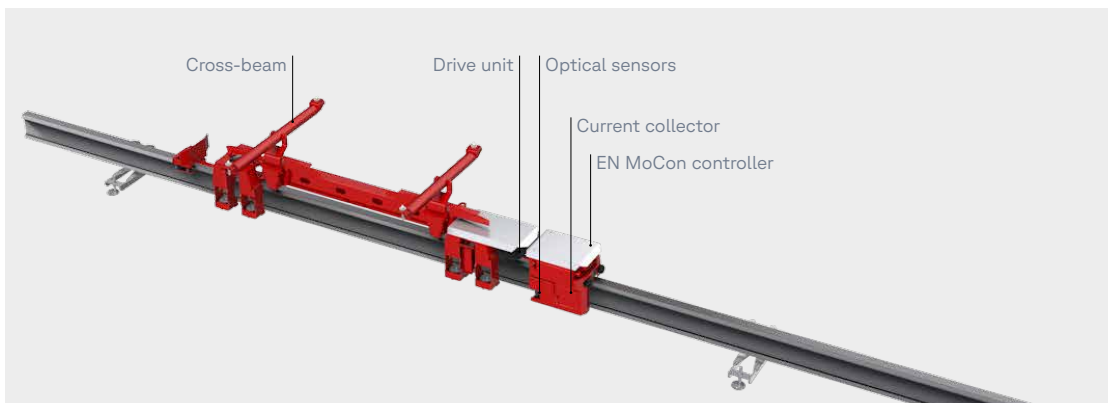
E-LOC VARIO

The modular Conveyor System for skidless operation of a Paint Shop

Skids are the primary method of conveying vehicle bodies through a paint shop. At a throughput of 60 units per hour, this requires 1,660 drives for approximately 1,220 conveyor elements. What is more, each skid weighs around 200 kilograms – two thirds of the load they are carrying, which tips the scales at some 300 kilograms. This means high operating costs, and a lack of flexibility. Against this background, Eisenmann engineers decided to find a radically different solution – eliminating the need for skids entirely.

The technology in detail

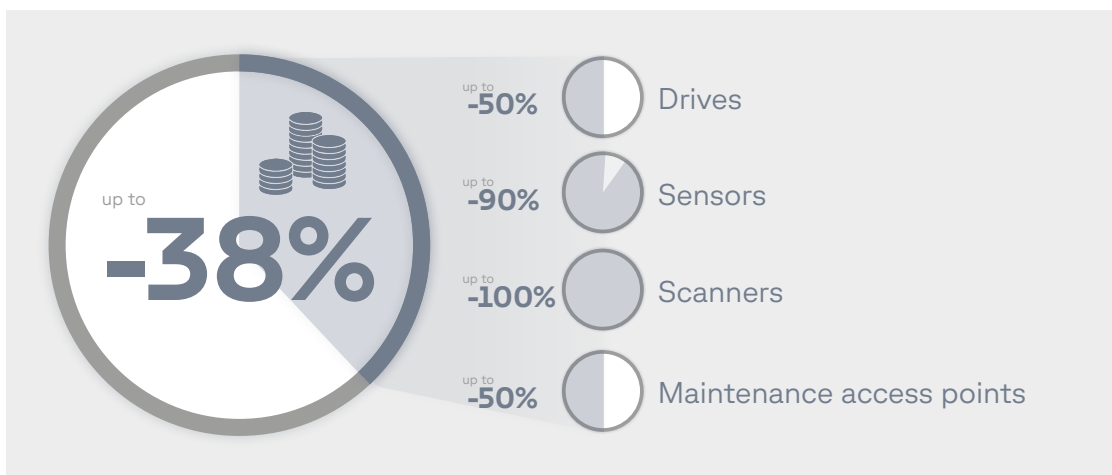
The result E-Loc Vario: an innovative, reliable conveyor system that combines multiple, thoroughly tried-and-trusted technologies. E-Loc Vario travels along a rail in the floor, moving vehicle bodies through the paint shop. E-Loc Vario comprises a cross-beam, optical sensors, a current collector, a control unit, and a drive. The speed of the drive can be varied between zero and 120 meters per minute. As a result, E-Loc Vario can convey its assigned body through the entire paint shop, adjusting its speed in accordance with the relevant process step. Cycle times and throughput can therefore be flexibly managed to obtain optimum results. The modular design allows the solution to be tailored to the specific application, with three versions available: 1D, 2D and 3D. 1D Loc can move forwards and backwards. The two dimensional version can negotiate corners, and 3D Loc can manage both corners and inclines.



E-Loc Vario in detail.

Low CapEx

E-Loc Vario delivers capital expenditure savings of up to 38% in comparison with conventional skid-based technology. For example it halves the number of drives, as far fewer conveyor elements are needed. In addition, E-Loc Vario does not require any scanners, and practically no sensors. The sensors are already integrated into the Loc conveyor, significantly reducing potential sources of faults and downtime. A further contributing factor is the support for offline maintenance work, eliminating the need for access points along the path taken by the conveyor. This considerably reduces expense for platforms, stairways, sprinklers and lighting.



Lower capital expenditure.

Jörg Robbin, Head of Research & Development, Eisenmann GmbH

We want to offer our customers flexible solutions that make their production processes future-proof, and cut operating costs. This inspired our skidless paint shop vision, which has been extremely well received by our customers. Our pioneering, connected and digitized systems make it possible to implement smart paint shops today.



Offline maintenance

All maintenance and repair tasks on Locs are performed exclusively at dedicated workstations away from the painting process. As a result, the shop does not have to cease operation for an extended period. The drive for a Loc that has suffered a failure can be quickly and simply disengaged and then pushed into the maintenance area – either by hand, or with the assistance of the following Loc. This is especially advantageous in the highly sensitive drying zone. With skid technology, a defective dryer means that all vehicle bodies within the zone at the time of failure must be scrapped. With E-Loc Vario, scrappage is slashed by approximately 50%.

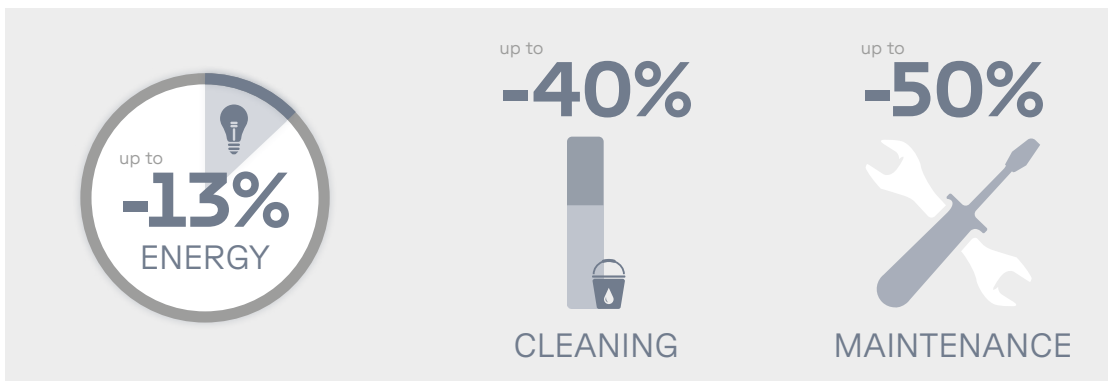




Offline maintenance enables greater paint shop uptime and cuts scrap as a result of dryer downtime by at least half.

Lower operating costs

With conventional systems, the heavy skids that convey bodies through the drying zone must be repeatedly heated and cooled with each cycle. As each skid weighs some 200 kilograms, this consumes a huge amount of energy. With E-Loc Vario, there is no need for skids, reducing energy demand within the drying zone alone by up to 13%. Moreover, in traditional paint shops, the skids and bodies are moved through the dryer by means of roller conveyors or drag chain conveyors. This necessitates the use of lubricants within the dryer, leading to soiling and additional maintenance effort. E-Loc Varios, by contrast, travel along a rail located beneath the dryer. A lamellar seal separates the dryer atmosphere from the E-Loc Vario, completely eliminating any soiling, and significantly improving paint finish quality. Overall, this approach can cut cleaning costs by as much as 40%.

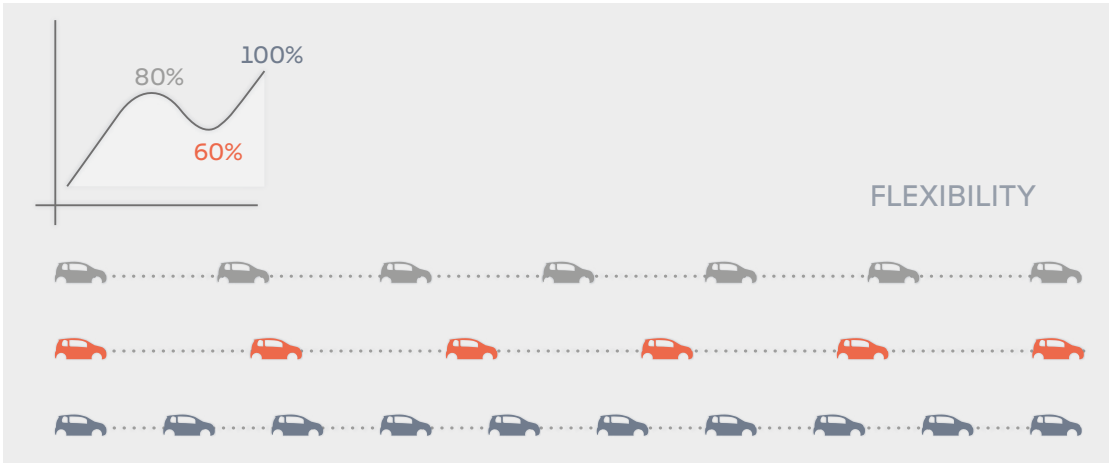


Lower operating costs, broken down by energy, cleaning and maintenance effort.

Flexible capacity management

Today's auto industry production lines must support a huge variety of vehicle body types and designs. Against a backdrop of volatile demand, mounting cost pressures and shifts in the geographical location of core markets, they also require scalability. E-Loc Vario enables the implementation of extremely agile and responsive capacity management. Throughput can be raised without the need for extensive reengineering or equipment upgrades, and Locs can be relocated to a new site. If the manufacturer needs to ramp up capacity at a particular paint shop, they can simply buy additional E-Loc Varios that can be incorporated into ongoing operations without re-commissioning the paint shop in its entirety: all Locs are of exactly the same design, and built using components that are highly standardized. Additionally, they are equipped with versatile "plug-in" body mounting system, enabling the swift and simple conversion to new body types during ongoing production without requiring specially trained staff. There is no need to purchase completely new skids, or to make time-consuming and expensive modifications. Further, E-Loc Vario technology ensures highly effective utilization of capacity over the entire service life: their design allows them to be rapidly deployed wherever demand is greatest. Theoretically, this would support the creation of a pool of Loc conveyors or a leasing model.





Flexible capacity management: scalability without extensive conversion work.

Realizing the smart paint shop vision

E-Loc Vario is already being leveraged to realize the vision of a skidless smart paint shop, playing a central role in its implementation. Other Eisenmann technologies that can be connected and integrated to create an efficient end-to-end Industry 4.0 solution include the E-Shuttle for pretreatment/electrocoating, the resource-efficient E-Cube overspray removal system and the E-Oven Smart.

More information about E-Loc Vario?

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