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## SUSTAINABLE AND VERSATILE: KRONE COOL LINER

### World première for the innovative eCool Liner with Celsineo unit

Through three exhibits at IAA Transportation, Krone will be demonstrating the great versatility of the Cool Liner refrigerated semitrailer. The focus is on the all-electric eCool Liner with its own drive train and the Celsineo unit as a particularly sustainable form of innovation. The Cool Liner is also fully electric, operated with Carrier Vector HE 19 E, which is particularly suitable for low-noise, overnight deliveries. The third exhibit from the cooling sector is extremely versatile, showing off the Cool Liner Multitemp, which stands out thanks to its particularly flexible multi-chamber system.

### Krone eCool Liner with Celsineo unit

The focus of the Krone stand, the eCool liner with a fully-electric Celsineo unit, is to underline how sustainably refrigerated transport can be done. The innovative technology is based on the intelligent interplay of crucial units: the eAxis, which enables electric drive support both through a powerful battery and recuperation, as well as the fully electric Celsineo cooling system. The background to this technology is the strategic partnership between Krone and Trailer Dynamics GmbH, with the aim of developing electrified trailers, that significantly reduce diesel and CO<sub>2</sub> emissions from semitrailers and increase the range of BEV semitrailer tractors.

The innovative technology produced by Trailer Dynamics works with closely coordinated components. The core of this is a powerful electric drive train, which supports the drive of the semitrailer tractor and also recovers braking energy through recuperation. The eAxis delivers 360 kW continuously and up to 580 kW at peak. The battery carried in the eCool Liner can cover capacities from 300 kW to 600 kW, depending on customer requirements and the area of application. The 800 V high voltage system not only supplies the fully electric Celsineo cooling system, which has an average power requirement of 15 kW in the freezing area, but it also supplies the electric drive train of the eTrailer.

The large traction battery version of the eCool Liner can guarantee a fully charged uptime of the cooling system, while in the deep freeze mode, of up to 36 hours. This time can also be extended by recuperation. In most cases, however, this long uptime is not required. As with the conventional curtain or box semitrailers, the excess electrical energy is then used for traction support and thus contributes significantly to reducing diesel consumption and CO2 emissions. Michael W. Nimtsch, Co-Founder and Managing Director of Trailer Dynamics, says: "Thanks to eTrailer technology, we are able to significantly reduce the diesel consumption and CO2 emissions of a semitrailer and make a significant step towards being carbon neutral. The cooling system of the Krone eCool Liner can therefore be operated completely without any diesel engine support and the semitrailer tractor consumption can also be reduced."

### **Krone Cool Liner with Carrier Vector eCool – ideal for night-time deliveries**

In order to achieve a high level of sustainability, above all in urban refrigerated transport, Krone is also completely switching the Cool Liner to electrical operation, using the Carrier eCool unit. As part of this technological approach, one trailer axle is equipped with an axle generator, which supplies electric energy to a battery pack mounted beneath the floor. This third-generation energy storage unit, weighing only 320 kg, uses intelligent control electronics to supply power to the Carrier Vector HE 19 E. This means that this Cool Liner version can also go entirely without diesel. A 400 V plug-in contact also enables operation of the refrigeration system as well as the external charging of the battery via mains power. The control unit for this technology is located on the front wall of the cooling superstructure.

In the case of the Cool Liner with the Carrier Vector eCool, the cooling system emits neither CO2 nor fine particle emissions. Another positive impact is the lower noise emissions of the purely electrically run cooling system, which also enables night-time deliveries. Thanks to this sustainable concept, the Cool Liner is particularly suited to urban refrigerated transport, but is not limited to these transports.

A further advantage of this Cool Liner with Carrier Vector eCool is the more uniform weight distribution due to the lightweight bulkhead unit. The positioning of the battery pack below the superstructure reduces the risk of overloading the drive axle of the semitrailer tractor in the event of a partial load. The tare weight of the trailer is similar to that of a vehicle unit equipped with conventional refrigeration technology and thus enables the same payloads in operation.

### **Flexible multi-temperature equipment in the Krone Cool Liner Multitemp**

The Cool Liner Multitemp is designed in such a way to offer as much freedom as possible in the design and handling of multi-chamber systems. One example of this is the new installation technology, which allows the mounting positions of the additional evaporators to be flexibly adapted to the most diverse customer requirements. Space-saving evaporator protection is also available, if desired. Another bonus of Krone's flexible multi-temperature equipment is the reworked, ATP-tested Isowall partition. It can be positioned anywhere over the entire vehicle's length, thanks to the innovative balancer technology, and is also easy to open and close, with little effort required.

### **Packed with detailed improvements: the Krone Cool Liner**

All the Cool Liners at the Krone trade fair stand in Hanover will be exhibited with their numerous improvements, visible in all the small details, with the latest state-of-the-art technology. One highlight is the optionally available newly designed rebound plate. It has not only been improved in terms of stability, but can also be easily swivelled to the side, which makes vehicle cleaning far easier and is an important factor in refrigerated goods transport.

Furthermore, the lighting concept has been completely reworked. For the internal lighting, Krone is opting for LED lighting that has been specifically put in series production for the Cool Liner, which will

significantly increase illumination in the trailer. The Cool Liner's contour brake lights are fitted during series production at the back on top of the rear frame and have undergone significant improvements. They can be optionally upgraded with contour brake indicator lamps, supplementing the flashing side position lamps. The new, optional ambient lighting at the top rear of the vehicle also ensures maximum user-friendliness and safety. Such generous illumination of the rear area behind the vehicle makes it much easier to handle the vehicle during loading and unloading, especially when operating the tail lift.

The rear doors of the Cool Liner feature an optimised door seal. Not only will it improve the tightness of the superstructure but it will also make it easier to open the doors and offer a lower door handle position. A standard that has been tried and tested thousands of times is the Krone double-deck/lashing rail concept, integrated into the body: combined with both a continuous lashing rail below, as well as split lashing rails between the double-deck guide rails, thus ensuring that the cargo is reliably secured at all times. Another advantage of the double-deck/lashing rail concept is the exemplary ease of cleaning it.

### **Stability and practicality both on the ramp and at sea**

The high stability of the Cool Liner, based on the rugged, full-length chassis fitted with double-T longitudinal beams and additional diagonal reinforcements at the rear. Impact energy that occurs on contact with the ramp is absorbed by the chassis thanks to this design and the structure is protected. The flexible rear ram protection concept also adds to the superstructure protection: the customer can choose a ram protection system optimised to them, from a comprehensive modular range. In addition to a variety of robust rubber buffers, shock-absorbing roll-compression buffers are also available here. If necessary, the vehicle can be retrofitted with individual modifications to the ram protection equipment – without having to adapt the chassis.

Furthermore, the ram protection system can be equipped with an optional rear area monitoring system with integrated, automatic vehicle braking. The equipment package is rounded off by optional screwed ferry rings.

### **Telematics as standard, now also with Smart Capacity Management**

Krone equips all Cool Liner refrigerated vehicles with Krone Telematics KSC ProPlus Cool as standard. The system provides monitoring of the location, the door, the operating data, the cooling temperature, the refrigeration unit, the coupling status and error messages from the braking system. On top of that, Krone Telematics KSC ProPlus Cool handles all the document management: both the dispatcher and the driver can connect to the Krone Telematics Box via WiFi and request the Krone desired data.

If requested, Krone Telematics is also available with a two-way function and/or integrated Krone temperature recorder. It can also be combined with the Krone Smart Tyre Pressure Monitoring System (TPMS), the capacitive tank sensor of the diesel tank and the Smart Capacity Management innovative load compartment monitoring.

### **The perfect choice for various transport situations**

With its comprehensive range of additional equipment, the Cool Liner offers customisation options that can be flexibly adjusted to every transport task. The electronic air suspension, for example, significantly speeds up and simplifies loading and unloading on the ramp. The level control, which can optionally be operated from the superstructure, for example, ensures that the trailer floor and ramp are kept at the same height, regardless of the current loading or unloading situation, or the additional weight of any forklift trucks entering the vehicle.

The Krone DWC (Dynamic Wheel Base Control) system is also an extremely valuable feature; it makes it possible to automatically reduce the wheelbase when cornering by reducing the load on the third axle

of the semitrailer, thus optimising turning. In addition, during partial loading and unloading, which is common in distribution, the load on the trailer's drawbar and thus the tractor's drive axle are noticeably reduced.

### **Visit us at the Krone trade fair stand!**

IAA Transportation 2022 | 20/09/2022 – 25/09/2022 |  
Hanover Fair | Hall 27 | Stand C40 | outdoor area N41, Q41, P43



**If you have any questions, please do not hesitate to contact me.:**

**SIMON RICHENHAGEN**

Phone [+49 5951 209-8216](tel:+4959512098216) · E-mail: [simon.richenhagen@krone.de](mailto:simon.richenhagen@krone.de)