

KRUUSE X-lifter

Development of KRUUSE X-lifter



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A unique insight into the intriguing world of product development

We have a very important mission in KRUUSE. We want to do our part to help veterinary health care teams in their daily work, and at the same time, we want to improve the well-being of veterinary patients.

When we identify ways to help the veterinary profession, we act as you have come to expect from KRUUSE – we do our best to help. This is especially true when we are able to help veterinary staff to better working conditions, and we at the same time can improve patient care. We realized that there was an unfilled need. Therefore, we decided to start work on our new KRUUSE X-lifter: A special transport table for smooth and easy movement of patients (up to 80 kg) from the carpark into the veterinary hospital, between locations within the hospital, as well as up and down between floor and tabletops, cages, etc.

We would like to share the development of KRUUSE X-lifter and give you a unique, behind-the-scenes look at the whole process from idea to reality. At the same time, we will describe the most important features of the final product.

How did it all start?

It became clear to KRUUSE that there was a gap to fill in small animal veterinary hospitals when staff were moving patients between locations. Veterinary patients were lifted out of cages and physically carried around the hospital by one or two staff members. This is not an optimal situation – neither for the veterinary health care team nor the patients.

Have you ever thought about, how many lifts are done in a veterinary hospital every week - and how the health care team copes?

Patient lifts are often done in ergonomically unhealthy positions, where staff members risk a strained back or other injuries. You and your staff are the hospital's greatest assets. Have you thought about alternatives to potentially harmful lifts?



Have you considered patient comfort?

Lifting procedures can be uncomfortable for the patient, which could result in increased patient stress. This is not in line with the current move towards low stress patient handling and is not the optimal situation in a veterinary hospital.

What can be done instead? What are the exact requirements when moving patients around the hospital and up and down? The first step KRUUSE had to take, in the development of the KRUUSE X-lifter, was to identify the specific needs of the veterinary profession. Next step was to come up with a suitable design for a transport device. This was followed by testing and evaluation, and after 18 months of hard and dedicated work, the KRUUSE X-lifter, a transport table for veterinary patients became a reality.

The research phase

KRUUSE product managers visited veterinary hospitals in several different countries together with product developers from Design School Kolding and Developa – some of the most creative and innovative people available. It was important for the KRUUSE team, that they right from the start identified the exact needs of health care teams from around the world. To accomplish this, they visited numerous hospitals in several different countries and interviewed many veterinarians and veterinary nurses. Focus areas were very clear:

- **Better for the staff** – staff should no longer be forced to carry out ergonomically unhealthy lifts
 - **Better for the patient** – patient handling should be as smooth and stress-free for the patient as possible
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The design phase

During this phase, factual knowledge gathered during the research phase was converted into a product. This is not as easy as it may sound. To come up with a design, that could meet the specific needs of both health care teams and patients, it was necessary to get inspiration from other fields.

Next step was to develop a feasible design. In the end, the product developers came up with three potential designs which were presented to KRUUSE. Now it was up to the KRUUSE team to decide which design best fulfilled the needs identified in small animal veterinary hospitals. It was important that design, engineering skills and craftsmanship were brought together to result in the best possible transport device for veterinary patients – and the best possible working conditions for veterinary staff.

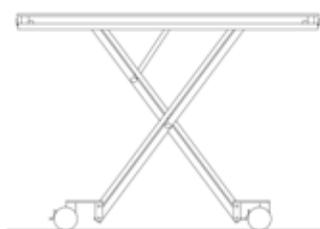
Mechanism Inspiration



Anglepoise lamp mechanism for parallel motion of beams



Bionicle neck mechanism



KRUUSE X-lifter in highest position



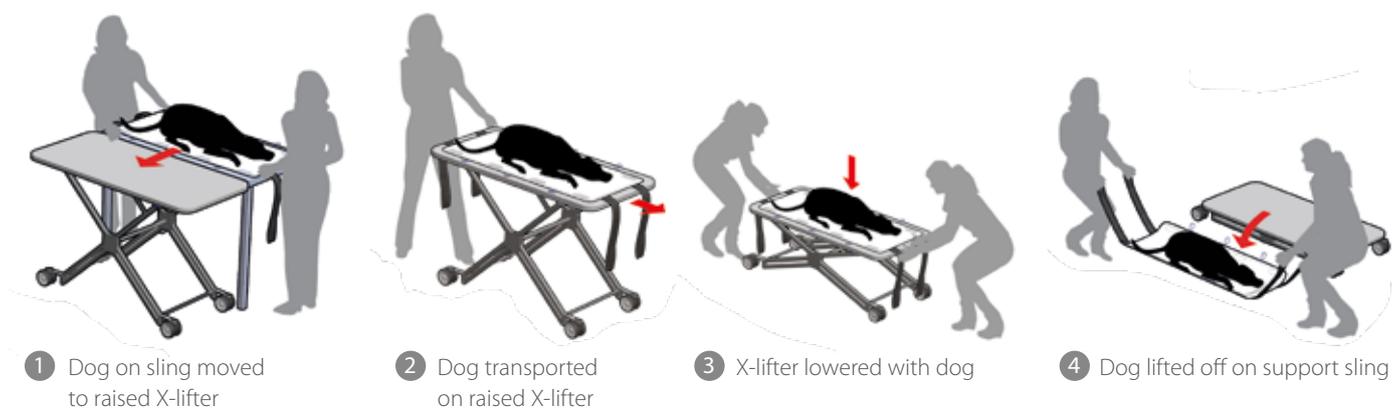
KRUUSE X-lifter in lowest position

The KRUUSE team decided on a unique X-type pet lifter and transporter for quick and easy lifting and transport. They looked at the many benefits of this design, which are important in a veterinary hospital setting:

- Stainless steel construction for stability during transport of patients
- Unique patent pending X-Mechanism centralizing the wheel base and providing stability when lifting and lowering the patient
- Battery operated lift mechanism making it possible for just one person to move a patient, since no physical power is required for vertical movement
- Low collapsed table height (27 cm)
- Moving Velcro straps to optimize individual patient fixation
- All wheel 360° steering for best possible manoeuvring in confined spaces
- Patent pending wheels on wings with extra distance allowing space for the caretakers feet under the table when walking
- Unique pet sling to move recumbent patients to and from the table comfortably and easily



A close collaboration with experienced engineers was established and a prototype of the KRUUSE X-lifter developed.



Testing and evaluation phase

The X-lifter prototype was tested in small animal hospitals in Denmark and the UK in order to confirm functionality - and to identify areas where functionality could be improved.

- The balance of the table was tested. This is a very important feature of the X-mechanism – the weight of the patient is always centered, which means that the table is always in balance.
- The bumper around the edge of the table proved to be a valuable feature to soften impact if the table inadvertently was bumped into walls – or into other staff members. No holes in walls and no bruises to staff members during testing.
- The table top was made wider to accommodate the larger patients.
- The time taken to lift or lower the table was shortened without compromising the smooth up and down movement of the table.
- The accompanying pet sling and Velcro fasteners were optimized to facilitate easy and smooth patient fixation and handling.



Mission accomplished

The KRUUSE X-lifter is now a reality: A special transport table for smooth and easy movement of small animal veterinary patients (up to 80 kg). This is much more than "just a table with wheels" - and we promise that both the veterinary health care team and the patients will be much better off with an X-lifter on the premises. Patent pending.

