



## Katsa and Protolab Reference story

Special vehicles and vessels with high-level protection systems

“A natural, domestic choice for us in our partner network” Chairman Jukka Kemppainen from Protolab describes Katsa. “Entrepreneur-driven, domestic machine workshop that will be the first to remember of solid skills and expertise of making gearboxes and winches” states CEO Riku Lehtonen from Protolab.

*Katsa – Geared for You*



Protolab\* is a fully Finnish-owned engineering company founded in 2007. Protolab is specialized in designing, developing and delivering special vehicles and vessels with high-level protection systems. Protolab designs all the components and parts of its vehicles from the beginning and is responsible for the ownership of its product rights (IPR). To support and enhance their knowledge about the component development and expertise Protolab operates with an extensive network of cooperative suppliers.

For Protolab, the share of Finnish origin of their products is extremely important. Protolab wants to preserve and support this specialized expertise in this industry field in Finland because the Finnish origin guarantees e.g. the maintenance certainty for the customers.

"Hence, Katsa was the most natural choice to Protolab as a domestic partner while Katsa was already known as a high-quality gearbox and winch supplier" tells CEO Riku Lehtonen from Protolab. As a result of the collaboration which began in 2011, Katsa and Protolab have developed transfer-cases for the PMPV6x6 armored vehicle, which is also known as 'Misu' for its mine-protection. "Originally, such transfer-case that Protolab was looking for, was not found on the market, which is why Katsa was chosen as a partner while they were able to customize it based on the technical terms and requirement matrix of Protolab" tells Chairman Jukka Kemppainen.

"As a result of the collaboration, the first prototype produced included that kind of transfer-case which transmits the power and torque down to the axles from the power pack at two different speeds. "On a highway, faster speed enables required top speed and lower speed transmits more tractive force to the driving wheels on a slower terrain" explains Jukka Kemppainen.

"Because such transfer-case which would have fit in our vehicle did not exist, Katsa tailored and manufactured a completely new solution for that particular vehicle according to our needs and technical requirements. So, the outcome is Katsa's proposition" continues Kemppainen. Second version of this gearbox has already been made for the currently deliverable PMPV6x6 vehicles.

"There have been made some improvements to the first prototype in terms of gear ratios and cooling and dimensioning" says Riku Lehtonen. "Misu", which is designed for export, has so far been manufactured 4 pieces. The Finnish Defense Forces have been a remarkable support and reference for blasting and other tests. "Our self-confidence is strong, and we believe that we will also sell our vehicles to abroad in the future" continues Lehtonen.

"So far, the service has been extremely flexible and fast and their products of high quality. They are truly service minded, and their personnel is highly educated, and they have an excellent attitude" both Kemppainen and Lehtonen describes Katsa. "Big international companies aren't able to deliver such tailored products, or at least not with these quantities" explains Jukka Kemppainen. "So yes, the domestic existence and the flexibility of customization have been extremely important to us" Kemppainen continues.

"Our collaboration has worked smoothly, and we haven't had any problem areas. So, everything has really worked out amazingly well and the products itself have been functioning perfectly since the beginning" says Kemppainen. "However, quality is an absolute requirement for us. 30 years is at least the lifecycle of this product. Concerning all suppliers, Finnish origin is extremely important to us. At present, the percentage of domestic origin for PMPV6x6 is 75%" continues Kemppainen.

When asked, what could be further developed in Katsa's and Protolab's cooperation, Lehtonen gives a laugh. "Of course, the price could be cheaper. Of all the individual components, this output of our collaboration is the most valuable part of the vehicle" tells Lehtonen.

"The development of a new, suitable winch in collaboration with Katsa could be the next natural step in our partnership. The current one is a Swedish component, so that we would like to change" continues Lehtonen. CTO Juhani Kivimäki also mentions some future development ideas e.g. exploring the potential of Katsa's new remote monitoring system KARE which has been successfully launched and introduced recently.

Protolab's confidence in their skills and expertise is rock solid. "We have strong self-confidence and we want to create something unique and we definitely enjoy the challenges" says CEO Lehtonen while asked how he would describe Protolab as a company. "The spirit of innovation, creative enthusiasm, patience, boyish childishness and of course the love for this business. Those are required in this work while overall, the design and manufacturing of the first prototype took us 7 years. This type of project requires a wide range of expertise for example engineering, designing, project management and steel construction skills. However, getting the funding is the most challenging thing" says Kemppainen in turn.

"It would be great if our grandchildren while being in the army, would be still driving on our vehicles with Katsa's gearboxes in them" ends Jukka Kemppainen. "If you are looking for a gearbox and winch professional and supplier from Finland, you should definitely meet Katsa", ends Lehtonen in turn.



*\*Protolab is a fully Finnish-owned engineering company founded in 2007. Protolab is specialized in design, development and delivery of vehicles with high-level blast and ballistic protection. Protolab strives to integrate domestic, new technologies and components into their products, and prefers to hire young students who are interested in this business area and can be trained and inspired to develop and maintain this special national expertise. Due to these factors, Protolab can support the entire product development cycle from design to testing and manufacturing, considering the individual needs of its customers and hereby ensure the quality of service and reliability of their vehicles.*

