Composites

Échelles Riffaud **Composite aerial ladder**

The first fire truck aerial ladder made from composite material! Échelles Riffaud has achieved a genuine technological breakthrough by opting for this material from the design phase. As a result, the aerial ladder weighs 150 kg less and is 1.5 meters longer.



OUR CLIENT

Corporate name Gimaex

Activity

The Gimaex Group manufactures firefighting, rescue, high-rise work and environmental protection vehicles. It ranks as No. 1 in France and 3rd in Europe for the supply of this type of vehicle. Échelles Riffaud is the division of the Group that designs and manufactures aerial ladders

Workforce More than 450 employees

Question/Answer Service Tel.: +33 (0)3 44 67 36 82 sqr@cetim.fr cetim.fr I nnovating means standing out from the competition. Échelles Riffaud, a subsidiary of the Gimaex Group, did so by choosing a composite material structure to increase the range of its fire truck aerial ladders. This French company increased the range of its ladders by 1.5 meters while reducing its weight by 150 kg by replacing steel with carbon fibre for the first plane of the ladder which has 4 to 5 planes.

"We made the strategic decision to turn to composites whereas our know-how lies in the design and manufacturing of metallic structures, explained Frédéric Lelièvre, Head of the Design Office at Échelles Riffaud. Therefore, we relied on external expertise to help us in this project. During the call for tenders, Cetim offered a competitive price and its experts possess the range of skills required for carrying out this project."

A partnership

Cetim was therefore commissioned to design a 9-meter long part. With consideration to Échelles Riffaud requirements, in particular the adaptation of the first plane of the existing equipment, Cetim experts chose the appropriate composite material and used it to design the structure. This decision was then validated by simulation.



Cetim's asset



necessary range of expertise for the design and simulation

of composite material structures. It also possesses testing equipment to characterise, instrument and perform nondestructive tests on these materials.

Two years after the launch of the project, a prototype was instrumented by Cetim to ensure that the distortions of the materials were in line with the simulation and then nondestructive testing equipment was implemented to identify any faults.

After a few adjustments, the aerial ladder is finally ready. It will be marketed as from 2016. "We are extremely pleased with Cetim's service. Its experts were much attuned to our needs. With their assistance, we were able to familiarise ourselves with the design and assembling methods of composite materials. This aerial ladder is truly the result of this partnership", added Frédéric Lelièvre.

