

Pellenc

# Optimised, high-performance and silent gears

The manufacturer of equipment and tools for winegrowing, fruit growing and garden maintenance asked Cetim to optimise the high-speed gear train of its C35/C45 electric pruning shears.



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## OUR CUSTOMER

**Corporate name**  
Pellenc SAS

**Turnover**  
€ 306 million (2021)

**Workforce**  
1,917 people (2021)

**Business activity**  
Established in 1973, Pellenc designs, produces and markets mechanical solutions that provide daily convenience and improved productivity for professionals in the wine, olive and fruit-growing industries as well as in the landscaping and urban development sectors. This internationally-renowned French group has been awarded the "Industry of the Future showcase" certification.

**P**ellenc designs, produces and markets tools and machines that are both comfortable and safe for users, making their work easier and increasing their productivity. The manufacturer was having problems with the drive chain of its new electric pruning shears and so it contacted Cetim. *"If you want professional pruning shears that are easy to handle and not too burdensome, they should not be too heavy or too bulky; this means smaller reduction gears and motors, explained Samuel Pierre, Technical Manager. In addition, they must be sturdy and withstand a wide range of outside temperature variations."* The preliminary analysis of the parts carried out by Cetim,

based on calculations and simulations, revealed that an interference phenomenon was the cause of critical tooth wear and meshing impacts, resulting in a high level of noise.

## Faster and quieter

The solutions that Cetim proposed to Pellenc involved a new geometry and a new sizing of these high-speed gears (20,000 rpm). Cetim also recommended manufacturing the high-speed gears (20,000 rpm) in a higher accuracy class. The new geometry, which takes into account space requirements has two main advantages: it offers a 5% increase in efficiency while significantly reducing vibrations and noise during operation. The qualification tests on the prototype yielded convincing

results: *"The parts are now made of metal rather than plastic, and the precision of the manufacturing class has been improved by 2 or even 3 grades,"* stated Samuel Pierre. *The transmission is now smoother and quieter and the noise level of the pruning shears has been divided by 4, decreasing from 81 to 74 dB."*

On top of this project, Cetim helped Pellenc's teams to upgrade their skills in the field of mechanical transmission by acquiring the Kisssoft software and the necessary training.

## Cetim's asset

With its extensive experience and expertise in power transmission, Cetim can improve the performance of gear transmission systems by optimising the geometry, the material and its treatment, the manufacturing process and the assembly. It can also provide training to help customers upgrade their skills.

