

PERFECT GEARS FOR PROFESSIONAL SHEARS



Lightness and strength are two overriding requirements in many of the industrial sectors where today metal is being replaced with alternative materials.

These features are even more important if the product to be manufactured has to be directly transported and used by the operator, especially if it comes to professional battery powered work tools.

This is the case of electromechanical pruning shears that **Campagnola Srl** (www.campagnola.it) has developed using thermoplastic materials also for structural elements traditionally made of steel or sintered metals.

Campagnola Srl, a historical company in the production of professional equipment for facilitated harvesting and pruning stands out for the research and development of reliable as well as ergonomic and functional tools, which are essential aspects especially in harsh environments such as agriculture.

With this in mind, a carbon fiber reinforced compound has been successfully used to mold the gear system for the power transmission from the engine to the blade unit of the new pruning shear.

The selected material is LATILUB 88/50-

20GRT K/10 from LATI Spa (www.lati.com). This grade provides a PEEK matrix in which, in addition to 10% carbon fiber, a PTFE and graphite based self-lubricating system is dispersed.

The technopolymer formulated in this way can meet extreme lubrication and temperature resistance requirements.

Campagnola has made a choice without compromise, since PEEK ensures, in addition to thermal stability up to 260° C, also excellent dry lubrication, i.e. without oils or fats that may give rise to problems of maintenance and cleaning, especially in a demanding application field such as agriculture.

The appropriate compound conversion, which was entrusted to the experience of SICAM Srl, an Emilia-based company specializing in the molding of technical parts and in the construction of molds for small to medium size objects, allowed to make the most of not only mechanical and tribological properties of this compound, but also of the high dimensional stability of PEEK and graphite, which are basic parameters in the development of gear trains.

SICAM Srl (www.sicam.it) is also involved in the construction of the mold for these gears. This operation is of the utmost importance, especially considering both the necessary observance of dimensional tolerances of the parts and the typical conversion conditions of PEEK in terms of temperature management and fitting on the various parts of the mold.

The result is a compact and noiseless gear train without unwanted vibrations, robust and 70% lighter compared to the conventional sintered metal unit. For further information please contact the technical service of **LATI Spa - www.lati.com**.