

The design of a comfortable and reliable stand-alone climb assist system allows FIXATOR to target the world wind energy market

Exolift helps reduce arduous maintenance occupations. The culmination of three years' research, including two year research collaboration with ARTS Carnot Institute, has led to its market uptake.

Supporting Innovation

The climbing of vertical access ladders by workers to reach elevated surfaces, such as pylons or wind turbines, for inspection requires intense muscular efforts. French SME **FIXATOR**, a specialist in the manufacturing of suspended platforms and lifting winch for hoisting and lowering persons and equipment, have underscored the intent of their design around the technician's morphology. While the latter's weight is being taken into account, continued assistance is provided and adjusted based on the technician's speed. The climb assist system taking about 80% off the user weight, he is therefore able to adapt his speed of ascent / descent accordingly without tiredness and in better safety conditions. Indeed, the transportable system's strap is fixed to a rigid part of the ladder. With an autonomy averaging between 8 to 10 return trips over an 80 m-distance, Exolift shows an ascend / descend time divided by 3 and physical effort required divided by 5.



The client needs

Based in the Loire region (Angers, Western France) **FIXATOR** started 90 years ago with the development of permanent / temporary suspended working platform and lifting winch design. The SME's solutions are distributed worldwide through an extensive network of distributors. **FIXATOR** R&D teams took the chance to innovate while meeting burgeoning demands notably for installation activities and maintenance of wind turbines. The argument put forward was that swift action was needed to respond to such demand at international level, as it was outgrowing the French orders. This new idea entailed to work out an adequate and reliable climb assist systems. Its integration into existing installations has been facilitated through new technologies. The great benefits with such system are: autonomy of use, drudgery reduction, cost-efficiency, enhanced productivity.

Assistance by AMVALOR over 2 years, a subsidiary of Arts et Métiers Paris Tech and a part of the ARTS Carnot Institute, has brought forward the development of Exolift.

Partnership

The **ARTS Carnot institute** focus on the design, industrialisation and production of innovative and complex manufactured goods with multiple technologies. To meet **FIXATOR**'s expectations effectively, the Arts et Métiers Paris Tech researchers have worked for optimising the demands on weight, performance and costs. They also designed the measuring chain to control the speed of travel using a dynamometric axis while adjusting the electronic parameter settings of the control system developed with company **SEIA***. The ARTS Carnot Institute's support combined with **FIXATOR**'s associated internal resources were decisive for marketing the system. Exolift is not only a technological breakthrough but also a QWL** strong determinant.

Exolift has received the regional Trophy for Innovation in 2014, before its marketing launch in 2015.

*A French-based SME specialised in industrial electronic repair

**Quality of working life