MANUFACTURING DEVELOPMENT OF 12M SPARS FOR THE AMPYX AP3

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Ampyx Power, a leading SME in the emerging Airborne Wind Energy Sector, develops a disruptive next generation wind energy technology that significantly reduces the material use and cost of wind energy. Wind power is converted into electrical power by an autonomous glider flying in repeated cross-wind figure-8 patterns at an altitude of 200-450 meters tethered to a ground-mounted generator. The successful operation of this system has been demonstrated by Ampyx by performing pilot flights in the Noordoostpolder with a scaled model (AP2). Because the glider must have an extremely low construction weight in order to allow the system to operate with sufficient efficiency, the use of high-quality composite materials in the glider is of great importance. Ampyx Power has designed a 12m wingspan version; AP-3. One of the main structural parts of this prototype are the composite wing spars. In the last years the Netherlands Aerospace Centre (NLR) was responsible for research and development of the manufacturing, testing and verification of the composite wing spars of AP-3.