

Case Study

AcraDyne's portable high-torque workstation supports multiple applications from a single control center



High Torque Mobility and Versatility

Customized Mobile Cart Provides Seamless Changeover from One Application to Another

A customer in the aerospace industry had a need for a single, mobile workstation that could address multiple and varied high-torque fastening applications for parts assembly.

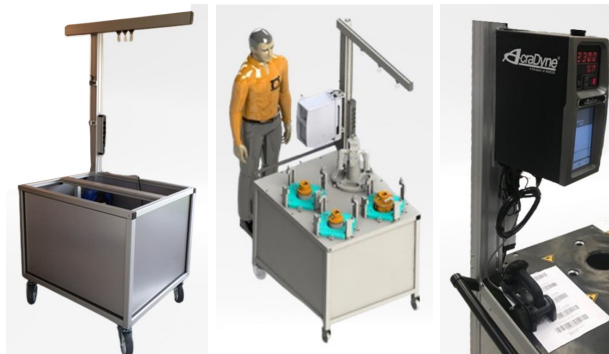
Depending on the application (the bench would be used in the assembly of three different models), the fasteners and tightening parameters would vary. The mobile bench needed to be adaptable and integrate various tools seamlessly. Torque requirements for the three applications were:

- Assembly 1: 2,300 Nm
- Assembly 2: 4,650 Nm
- Assembly 3: 4,800 Nm

Ergonomics, precision, and quality were critical priorities in the development of this solution.

Project Scope

The first step was to design a mobile bench mounted on wheels, capable of integrating a high-torque nutrunner with its controller, as well as the three specific toolings for each type assembly type.



The AcraDyne solution was chosen because of its compact design and because of AcraDyne's recognized expertise in high-torque applications, particularly in the wind power sector.

Program selection is handled via a barcode reader, eliminating any risk of error and ensuring traceability.

Need

A French aerospace manufacturer needed an ergonomic and efficient way to deliver high-torque tightening to multiple applications in mechanical parts assembly

Challenge

The single solution had to adapt to accommodate three different applications, each with its own unique fasteners and tightening parameters

Solution

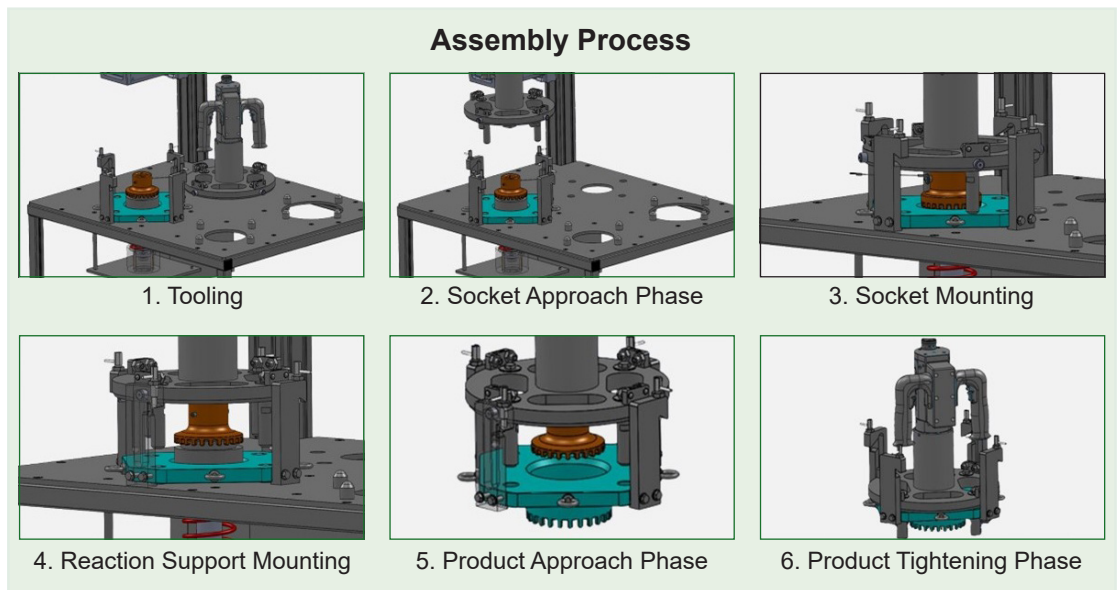
Working closely with the customer and AcraDyne, Miodex, a French partner expert in customized applications, designed a mobile bench on wheels that integrates the AcraDyne Gen IV controller and the high-torque tools required to successfully complete all three applications

Result

The first bench, built in 2018 fully met customer requirements. Subsequently, the customer ordered three additional benches, which are still in use

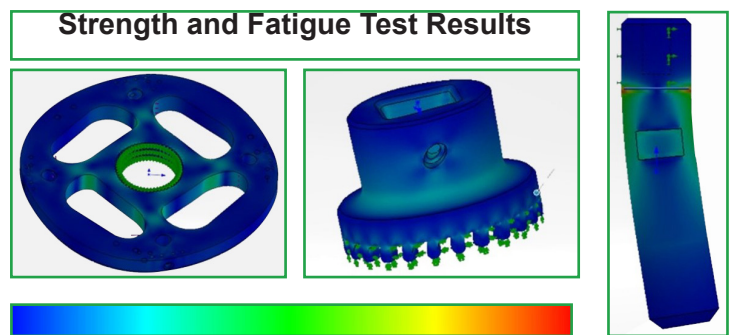
Mobile Assembly Bench Concept

The second stage of the project involved defining the operating procedure and designing the appropriate support to facilitate seamless changeover from one tooling to another. Thanks to an ingenious cam system developed specifically for this application, operations are carried out effortlessly.



Strength and Fatigue Testing

To ensure the quality and durability of this test bench, material strength and fatigue studies were conducted to validate the strength of the parts and determine the appropriate heat treatments.



Measurable Results

Because the first prototype fully met expectations, three additional benches were subsequently ordered. Developed in 2018, these benches are still in use today and continue to meet our customer's requirements perfectly.

