

Concept2 Dynamic Ergo

This is a copy of a post on the Concept2 website

(<http://www.concept2.com/us/company/blog/default.asp?id=677444685>). Posted by Peter Dreissigacker on June 08, 2010.

This blog gives me the opportunity to introduce a new product we plan to have available for the upcoming 2010-11 indoor training season. This will also give you a glimpse into our R&D shop.

A rowing machine that does not require the user to move their body mass has been debated over the years as more closely simulating the physics experienced while rowing a racing shell. In the 1980s, a third party sold wheels for our Model B, which allowed the erg to move back and forth under the user. We then developed the "Slides" for the same function, but to contain the movement (and also to allow ergs to be joined for team rowing). With interest in this area growing among coaches and athletes, we decided to take a second look at this concept.

In June 2009, we retrieved this old 1988 experiment (shown below) from the attic. This machine had been inspired by the sliding rigger days but was never developed further because the sliding rigger was banned from competition. Note that the foot stretcher is a carriage that rolls on the monorail.

The '88 experimental assembly barely worked at half power, so the first step was to construct a unit with new components that we could pull on to see if this approach had merit.

After quickly piecing this together, we were able to work on improvements and solve some of the problems that had stalled the project. The basic idea of the drive system gave a good rowing feel. This also offered the potential of being made into a very compact product. The total length is not more than six feet, even when in use.

The next step was to put a prototype together that was worthy of showing to people for feedback. We made one unit (shown below) and brought it to Boston for the Head of the Charles in October of '09. An enormous amount was learned watching people use it and hearing what they had to say. Very few users were without something to comment on!

Based on reactions from the Boston weekend we made a number of changes to the design and built a "fleet" of three units for field testing over the winter. Two of the three are shown here. These were sent to a small number of rowing sites where they would get a lot of use.

The purpose of the winter "traveling show" was to determine if we were on the right track. We did not want to continue developing this into a product if it did not satisfy what people are looking for in a dynamic erg. The three traveling prototypes were fully functional, but had a long way to go before we could call them a product. For example, it took a day to assemble one, and it shipped in a 300 pound crate.

This past Spring the decision was made to move ahead on the project. The series of prototypes taught us a number of things:

- There are subtle requirements for seat movement to make it feel right.
- It is important to reduce the handle return force to make the experience more like a boat, where there is no such force.
- The total functional length at six feet is an advantage over the erg-on-slides and is more space saving than other "moving-head" designs.
- The mass of the moving parts is not constricted or determined by the portion of machine that is moving back and forth.

Our next step was to make a rough wooden model of how the machine would eventually be configured—similar to the life-sized clay models a car company makes. This allowed us to see how things fit together and what it felt like to walk around it. And we were able to make this in a day and start fine tuning things easily.

Now we have a fully functional prototype of the machine with steel and aluminum parts. Still steps away from production, numerous small changes became apparent as soon as we started putting this one together. We will go through one or two additional rounds of refinement before we tool up to produce these for sale for the upcoming indoor training season.

This will be an additional product. The Model D, Model E and Slides will continue to be manufactured.

View a video of the Prototypes online at You Tube: <http://www.youtube.com/watch?v=JoefeX-D97s>.