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shapewave

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Shapewave: True 3D HD Webbing Inflatable Structures

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Shapewave presents a unique new way of building medium pressure inflatable bodies with shapes hardly hindered by being an inflatable.

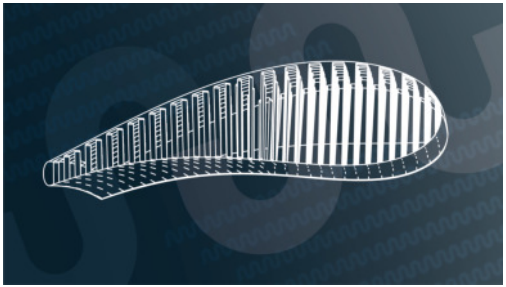
It's probably on a page in every air-foil designers sketch-book: hundreds or even thousands closely pitched threads or webbing, each with an individual length, accurately and reliably bonded between two opposing membranes. Through the years, some have even achieved building such inflatable bodies.

The patented shapewave technology [1] aims at streamlining design, evaluation, calculation and build in an integrated process. After a design is made with the appropriate mix of materials and webbing population, prepared membranes are fed into a shapewave machine, where a bonding robot feeds and bonds a tape between them.

Key starting point for the shapewave project are:

- do not pierce membrane material that is perfectly air-tight to begin with
- link elements continuous from reel
- "pre-glued"
- processed by robot: Rapid Manufacturing

While the technology may look exotic, shapewave is set out to work with proven, low cost materials and existing technologies.



Section of a single chamber inflatable wing showing continuous, internally bonded tapes.

Shapewave parts can be used for hydro- and aero applications like hulls, nacelles, wings, sails, rotor blades and kites, and are, due to the relatively low cost, within reach for recreational and consumer applications.

References:

[1] Enserink, A.R. Process for Manufacturing of Free Form Inflatable Bodies. Patent WO2021190789 (2020)