

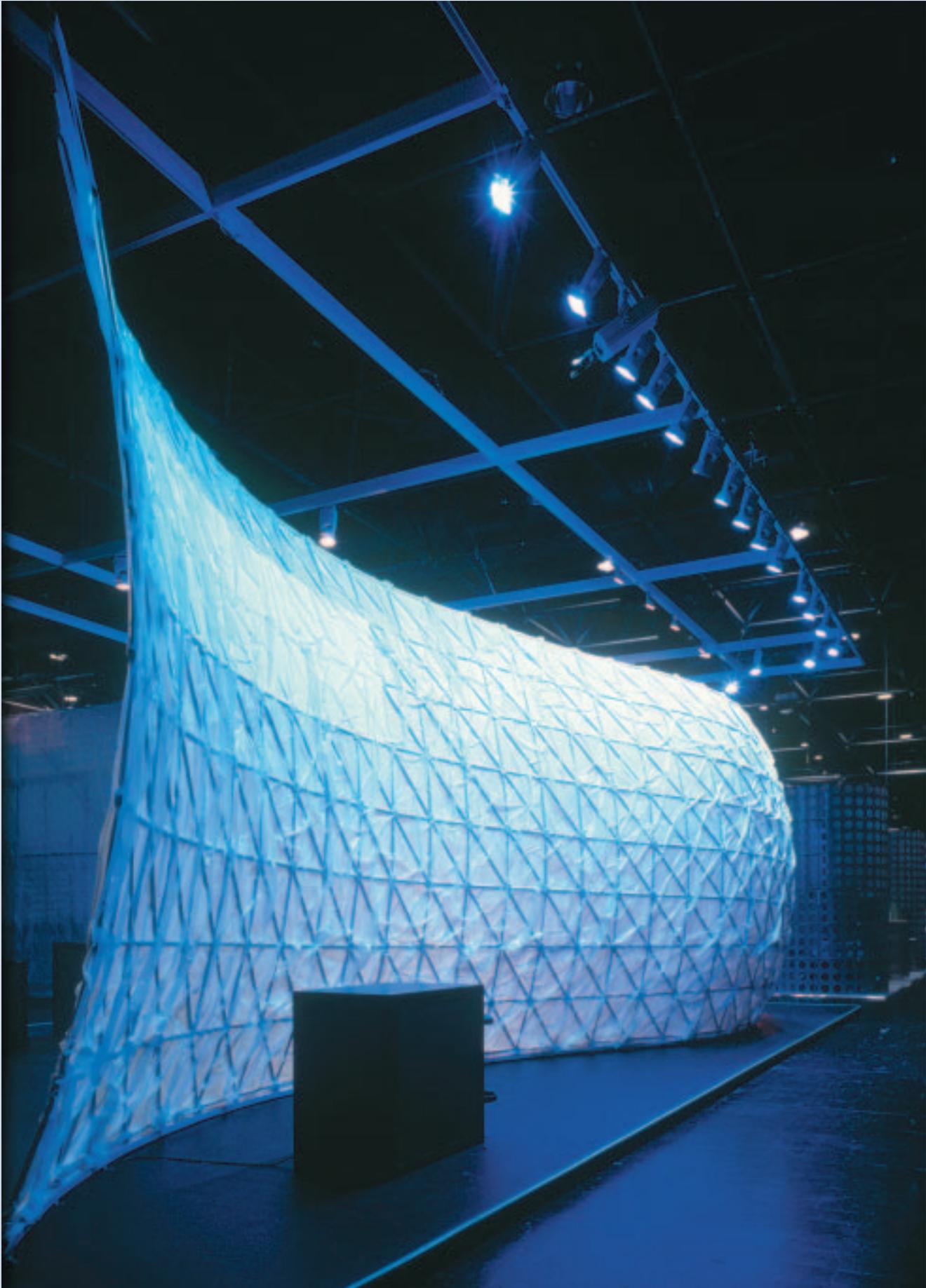
**Biomorphic Visions for the World of Exhibitions**

**M12 System**

'For this development...' – the construction of single layer biomorphic structures, based on the M12 tube/node system – '...the jury appreciates the highest innovation potential, and also acknowledges the complete integration of CAD supported engineering, production, and assembly to create a homogenous, comprehensive system.'

*Eulogy for the 'Innovation prize for architecture and presentation, category: Synthesis - architect in collaboration with industry', awarded by the German magazines 'AIT', 'ABIT' and 'Intelligente Architektur'.*

*The Nautilus was awarded the first prize of the jury.*



Partition wall or sculpture?

The shape of the single-layer biomorphic structure 'Nautilus' acts like a magnet, drawing the visitor into the stand.

Even though the Nautilus forms a dominant boundary to the stand space, the visitor does not feel 'trapped'. The translucent appearance of the structure invites the visitor into the stand space.

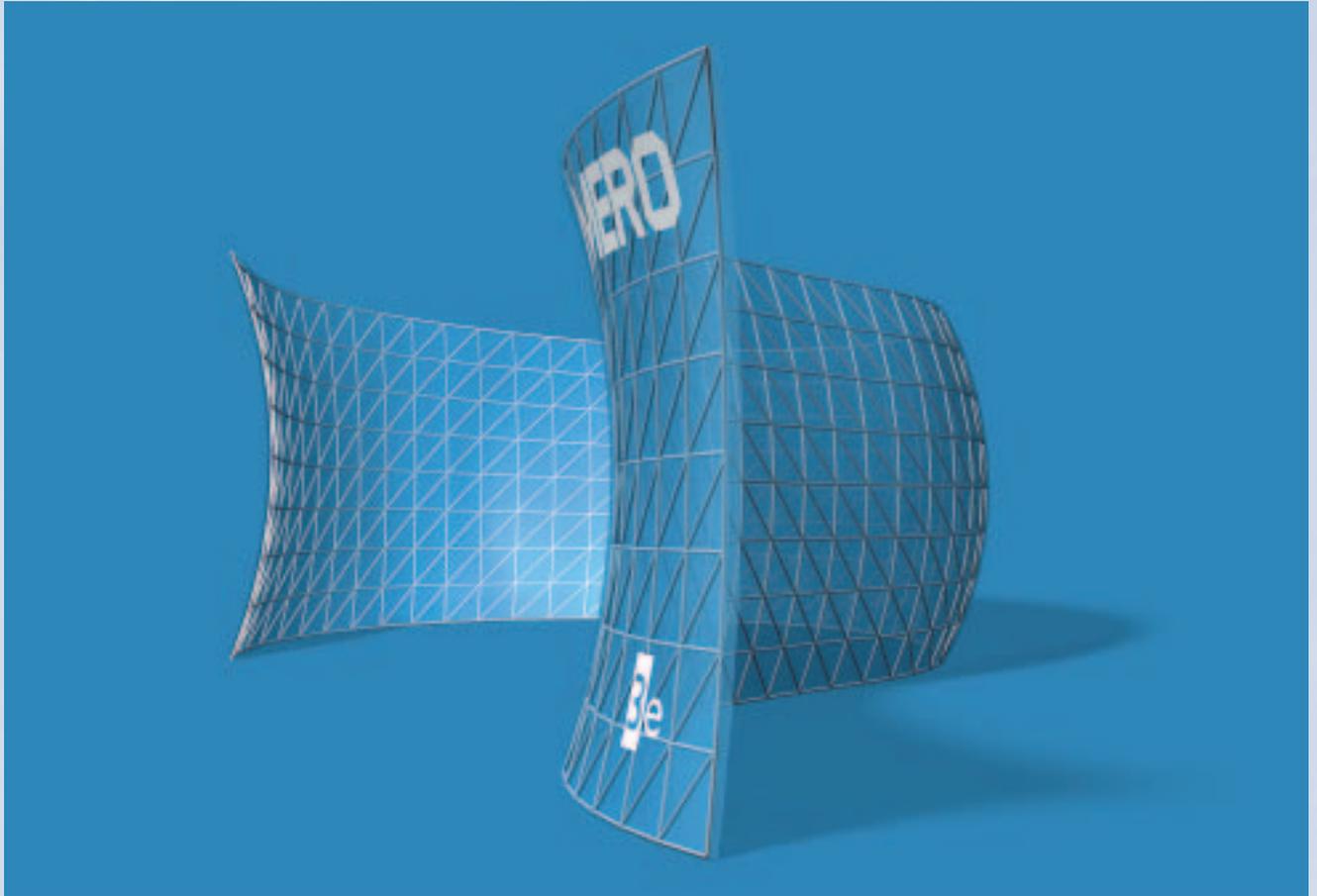




Visitors to MERO's exhibition stand at EuroShop 2002 (Düsseldorf) were attracted by a spiral 'Nautilus' shape, covered by a translucent 'water-blue' membrane.

The visual impact of the tube-node skeletal structure was dissolved by the contrast of lights and shadow on the covering membrane. The overall effect creates a tactile, organic appearance. A vacuum between the layers of the membrane, and the resulting fall of folds further intensifies this impression.

Biomorphic structures may be clad in a variety of materials, creating an array of different design effects. Alternatively, a structure without cladding provides an equally attractive solution.

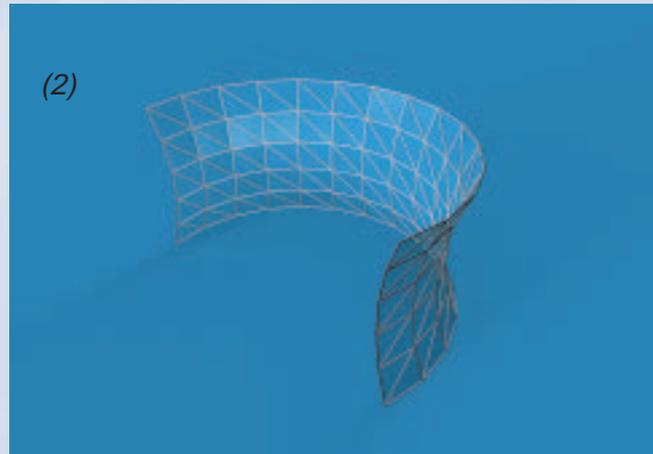
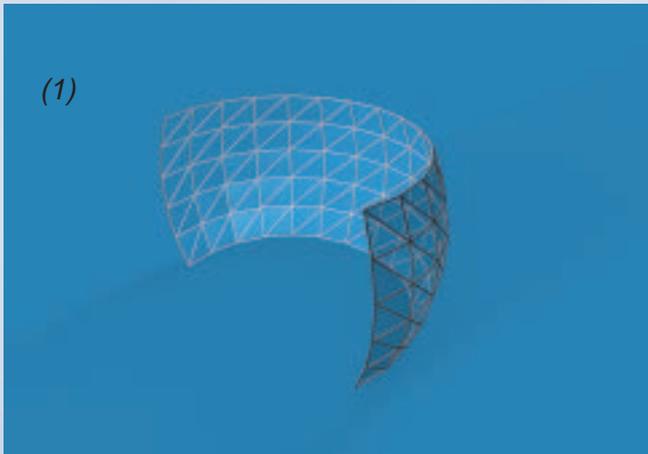
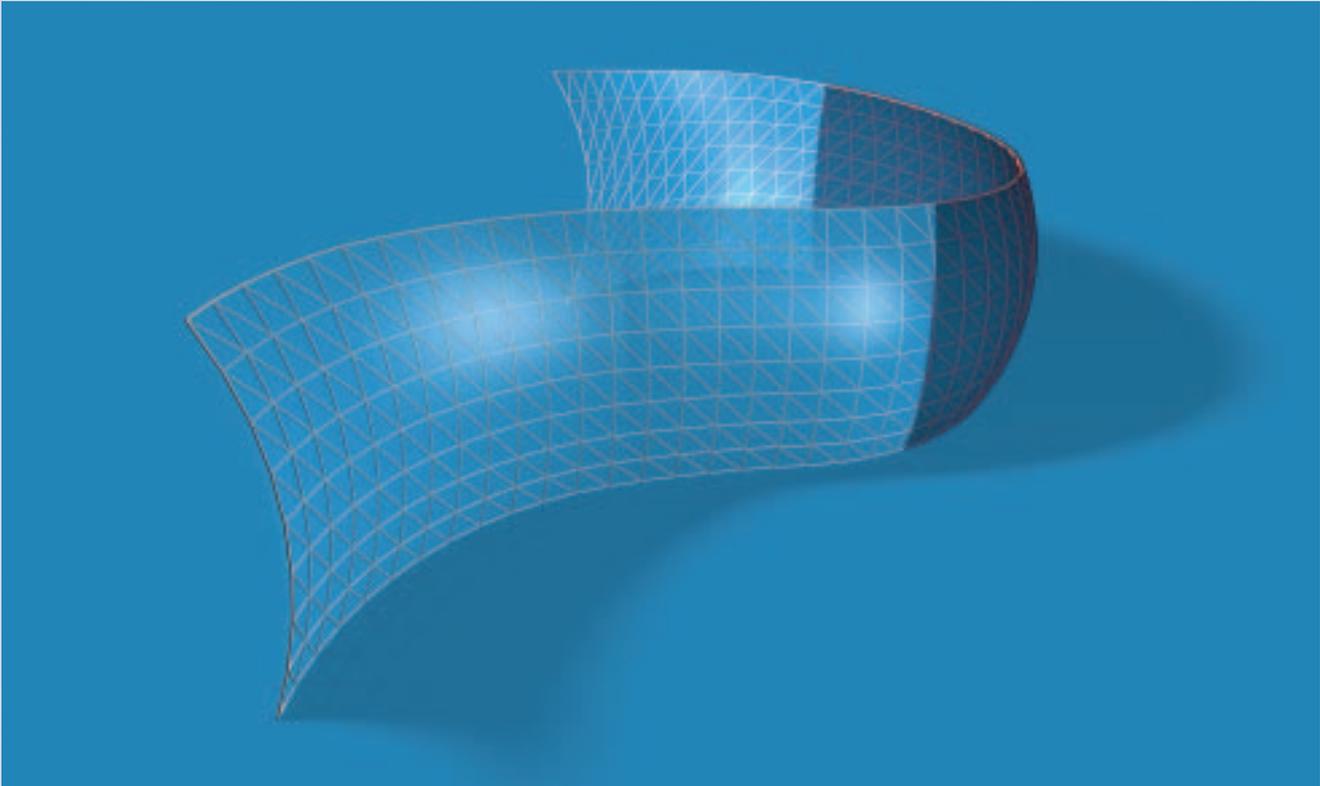


The M12 tube-node system was born from the idea of developing a simple yet versatile modular construction system, modelled on principles occurring in nature.

In contrast to regular geometry space frame structures from the past, engineering advances in recent years have allowed the development of more venturesome structures, even going so far as completely free forms.

Free form 'biomorphic structures' are subject to the same basic frame design principles. Consequently, the proven technology of the M12 tube-node forms the ideal basis for biomorph design.

With our long standing expertise in the design and manufacture of precision space frame solutions, MERO are the recognised experts in this field.



The space sculpture 'Nautilus' is a prototype for a series of 'free form' structures, which regardless of their bespoke nature, still adhere to the fundamental modular system principles of MERO Exhibit Systems:

- ▶ Recyclable
- ▶ Reusable
- ▶ Quick assembly and dismantle

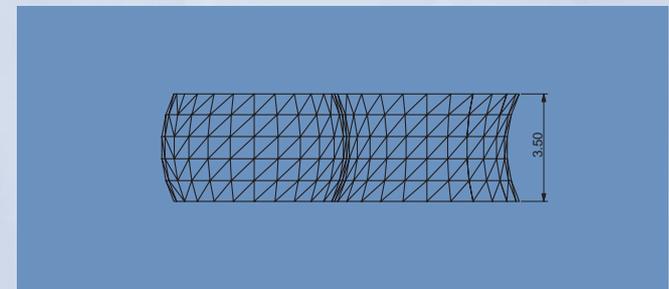
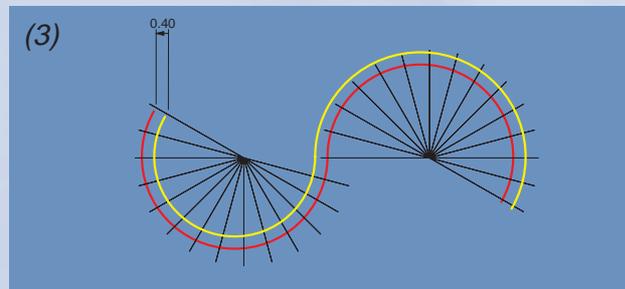
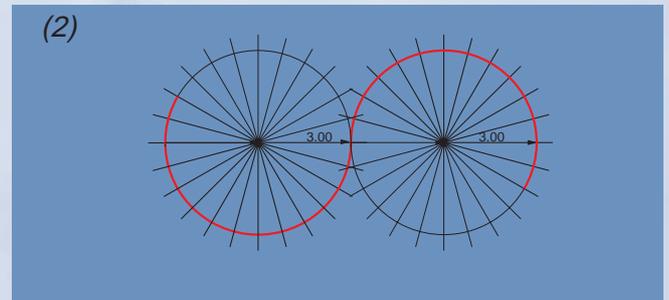
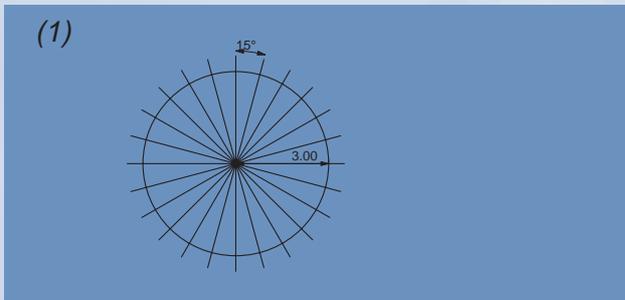
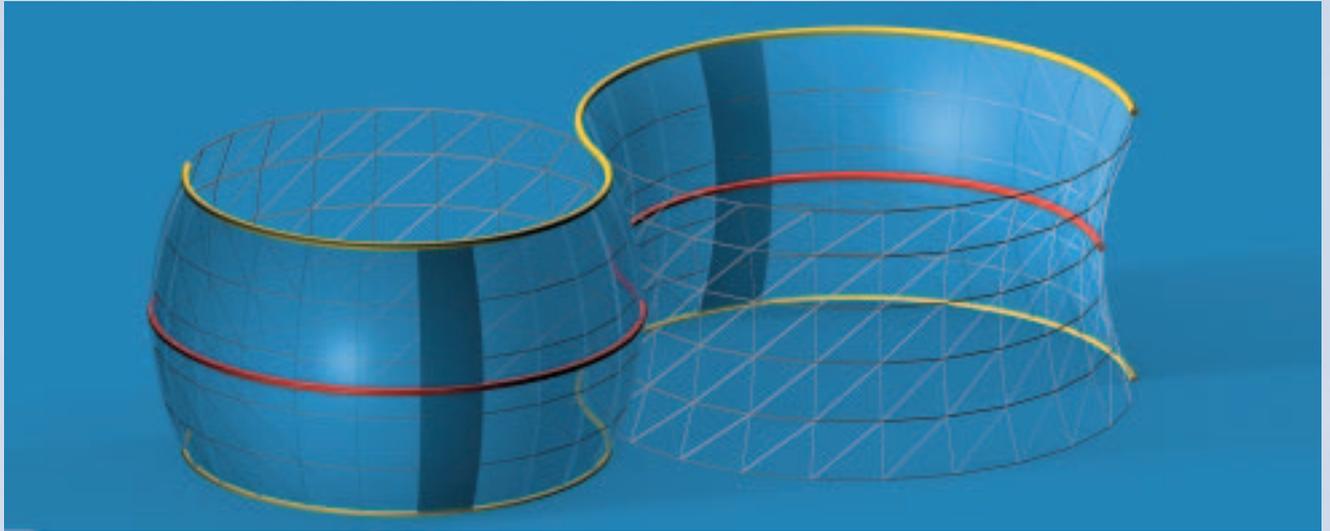
- ▶ Modular construction
- ▶ Re-configurable

'Re-configurable' appears to be in contradiction with the phrase 'free form' architecture.

However, using our 'Nautilus' structure as an example, we have proven the contrary.

Some shapes derived from the 'Nautilus' can be viewed as independent structures. The concave curved 'Arcus' (ill. 1) is representative of a form found within the 'Nautilus'.

A further development of the geometry is the conversion of the concave 'Arcus' into its convex counterpart (ill. 2).



With the use of a 'transition' module, the two basic 'Arcus' elements can now be combined with each other in almost any configuration. To build the above structure, you need one of each basic 'Arcus' elements (concave and convex), along with one transition module.

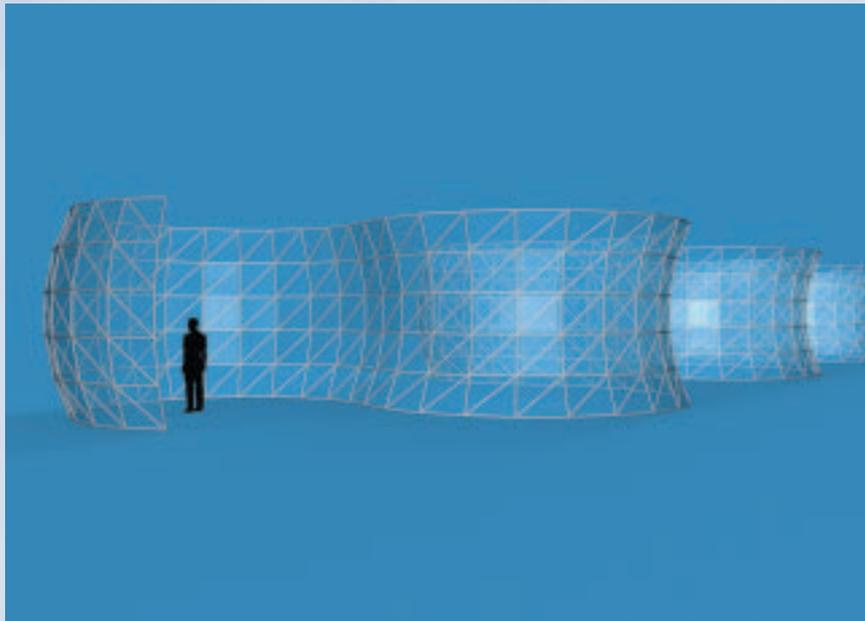
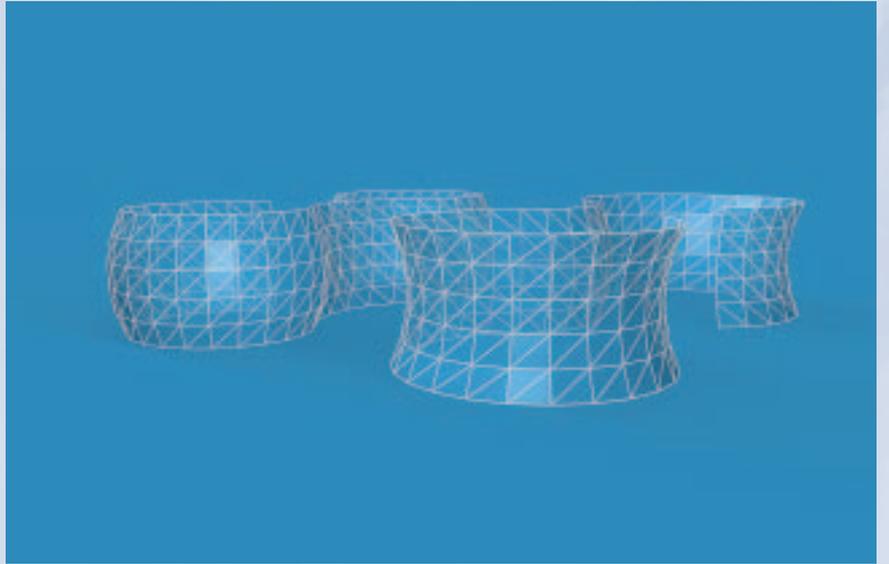
Since this structure consists of only 13 tube lengths and 9 node geometry's,

a quick assembly and dismantle is guaranteed. Furthermore, the basic 'Arcus' elements can be sub-divided into equal sections/ system modules. As a result, limitless variations of geometry can be drawn with minimal design costs:

(1) The single system modules result from dividing a full circle into 24 equal 15° segments.

(2) From these segments the required form can be created.

(3) The 'foot print' of the structure is produced by an offset parallel line 40cm from the mid-point of the vertical curve. This defines the convex and concave areas of the 'Arcus' i.e. the vertical curvature.



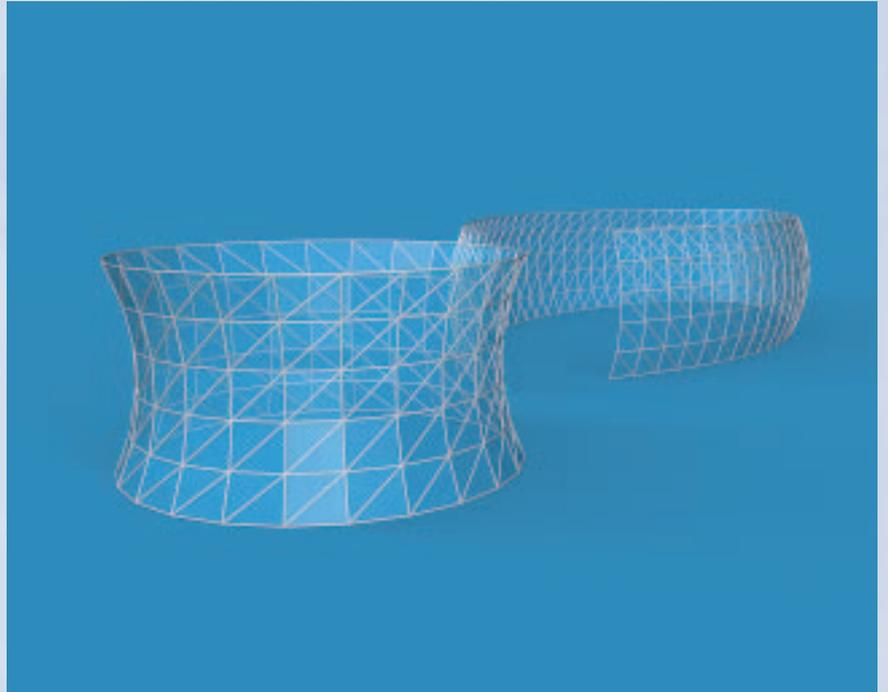
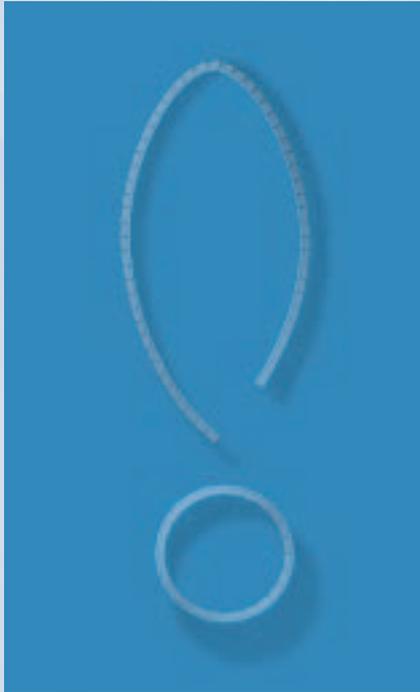
The multiple impressions of the space created from the convex and concave areas, is further varied by viewing from outside or inside the structure. A further benefit of biomorph forms is the 'suction' effect and guiding function created.

Top: The same shape curve with in concave and convex forms. The left structure consists of 6 convex and 40 concave system modules, as well as 2 transition modules. The right structure consists of 6 concave, 40 convex

system modules, and 2 transition modules.

Above and bottom: Geometry from the design example.





From the 'Arcus' system modules you can also produce totally free geometry's. Provide us with your preferred floor plan and cross-section curves, and the MERO team will advise you as regards to feasibility and budget etc.

Same system – different effects: The MERO tube and node structure can serve as a vehicle for an almost infinite amount of design ideas. The structure can be covered with an evacuated projection membrane, (as per the award winning 'Nautilus'). Alternatively, you can

use the space within the membrane for your individual product presentations. That's not all – choose from different fabrics, either tensioned or folded....

... there is no limit to your creativity!



Exhibit Systems

**M12 System**