

Electrochemistry Mesh Features and Benefits



Protecting People, Property and our Planet

1. Bespoke Solutions

KnitMesh Technologies has a world-class team of engineers who work closely with customers to help develop optimised components that meet their unique electrochemical needs. The team strives to provide an enhanced level of service that includes:

- Online or in-person discussions with KnitMesh engineers who can advise on the most effective use of knitted mesh for electrolyser applications.
- Low-cost prototyping where bespoke meshes can be available for testing in as little as 2-3 weeks.
- Stock availability of common electrolyser materials is held to reduce lead times. Standard materials include nickel, titanium, 316L stainless steel, and high nickel alloys (e.g. alloy 601).
- A wide range of compressibility (spring) rates to eliminate contact gaps with controlled pressure.
- A state-of-the-art R&D programme with existing customers and contacts being the first to learn of any new developments.

2. Welding Mesh to Other Components

KnitMesh Technologies has developed mesh welding techniques to join mesh to other components such as bipolar plates. This is unique in the industry and cannot be matched by other suppliers.

KnitMesh Technologies can either supply the welded assembly or customers can free-issue parts to have mesh attached and returned. Welding has the following advantages:

- Improved efficiency by eliminating electrical contact resistance between the mesh and other components.
- Increased rigidity provides easier handling and more efficient installation as the mesh (which has some flexibility) is fixed to other components.
- Variable spring (compression) rate to suit the specific needs of the application.

3. Welding the Internal Mesh Structure

KnitMesh has developed technology to weld the internal wire-to-wire contact points in compressed mesh, to create an homogenous structure with the following advantages:

- Controlled spring rate of the mesh (internal welding makes it stiffer) to match the application.
- Improved Efficiencies from a reduction in the internal electrical resistance of the structure.

4. Coatings Applied to The Mesh

KnitMesh work with its specialist partners to produce best-in-class coatings on a wide range of meshes e.g. titanium mesh can be coated with platinum or iridium. Coatings can be applied at varying thicknesses to both save cost and improve efficiency.

5. Complete Range From Prototype to Full Production

Components can be produced in an infinite range of sizes from laboratory-scale prototypes to large-scale meshes of up to 1.8m diameter for series production. The manufacturing process is overseen, from start to finish by our highly experienced engineering and technical teams.

6. Containment of Cut Edges of Mesh

For some components, having a cut edge of the mesh is unavoidable. Should this feature be undesirable, e.g. for delicate adjacent components, then KnitMesh can use its proprietary technology to control and/or conceal this at the production stage by either welding or folding the inside edges of the mesh, or by attaching a frame to enclose the cut edge.

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