

# MeliDiff® - GDL Gas Diffusion Layer



MeliDiff® is a specially developed metallic expanded metal laminate for use in PEM or alkaline electrolysis systems.

The purely metallic MeliDiff® gas diffusion layers and the proton-conducting membrane (PEM) are the main component of the PEM water electrolysis. The MeliDiff® conducts electricity and water to the membrane and leads the forming gases H<sub>2</sub> and O<sub>2</sub> simultaneously.

The connection of different expanded metals is carried out by a specially developed welding process. The different layers of expanded metal are welded at all points of contact, resulting in a full-surface welded connection.

The MeliDiff® gas diffusion layer are characterised by:

- high strength and minimal thickness tolerances which ensure a uniform surface pressure and electrical power distribution over the whole PEM area
- high porosity which ensures an excellent water supply and high water throughput for an optimal heat and gas dissipation
- a corrosion resistant material selection, **titanium on the oxygen side and stainless steel or nickel on the hydrogen side**
- finest mesh size on the membrane side for best membrane support and wide mesh size on the bipolar side for high water throughput for best heat transmission

MeliCon invented a unique welding procedure which offers the possibility to vary the numbers of mesh layers and the mesh sizes to meet the technical requirements.

This all means that the customer receives GDL components that can be adapted right to his needs, including the geometric conditions which can be fulfilled very precisely by laser cutting, up to dimensions of 1000 x 1000 mm.