Bipolar Plates for fuel cells

Bipolar Plates (BPPs) for fuel cells are at the heart of Hydrogen conversion into electric power. This green technology is now ready at Interplex, based on customized designs. Interplex’s Fuel Cell BPPs are produced in-house including:

- High-precision metal stamping
- Laser welding
- Gasket overmolding
- OEM-approved PVD protection layer
- Leak testing
- 100% quality inspection

Applications

- Fuel cell vehicles (FCVs) - Cars, trains, buses
- Electric taxiing systems for civil aviation aircraft
- Logistics vehicles - Freight trucks, forklifts
- Maritime vessels - Yachts, boats, ships
- Heating systems for buildings
- Stationary power supply & generation - H₂ Production

Industries

- Aerospace
- Automotive
- Energy
- Commercial Transportation
- Industrial
- Maritime
Interplex’s Bipolar Plates (BPPs) are a key component of the Proton Exchange Membrane fuel cells (PEMFC).

They distribute Hydrogen and air effectively, conduct the electrical current from cell to cell, remove the heat from the active area, without leakage of gases or coolant.

**Specifications**
- **Material:** SUS316L Stainless Steel or similar
- **Raw Material Thickness:** 0.075 - 0.1mm

**Production Process**
- High-precision stamping
- Laser welding
- Gasket overmolding
- 100% leak testing
FUEL CELL BPP PRODUCTION AT INTERPLEX

Stamping
- Progressive stamping for mass production
- High-precision CNC for the flow channels tooling
- High-precision feeding system
- Rigid high-precision press

Laser Welding
- One jig for the entire welding process
- Automated loading, clamping and unloading of part
- 100% welding quality leakage test

PVD Coating
* Physical Vapor Deposition
- Creates low electrical contact resistance
- Provides corrosion resistant surface on BPP
- Determines life span of BPP

Gasket Overmolding
- Liquid silicon or EPDM rubber
- High-precision molding
- One-time mold on both anode and cathode sides
- No deformation on the BPP flow channels

Information may be changed or updated without notice.
**FEA Before Design**

- Forming parameters definition
- Material thinning ratio verification
- Overall flatness verification
- Channel height control
- Channel flat area control

**Interplex Fuel Cell BPP Flow Channel Key Parameters**

- Channel height: \( \pm 0.015\text{mm} \)
- Thickness evenness: \( \leq 8\% \) (active area)
- Thickness thinned ratio: \( \leq 25\% \)
- Channel flat width: \( \pm 0.03\text{mm} \)
- Channel pitch down to: 1.0mm

Interplex is trusted by industry leaders around the world for our top-notch customized application solutions. We work closely with our customers to understand their end applications in order to design, engineer and deliver these solutions to their exacting specifications.

**60 YEARS OF INDUSTRY LEADERSHIP**

- **GROUP REVENUE**
  - US$1 Billion

- **STAFF STRENGTH**
  - 13,100

- **FOOTPRINT**
  - HQ in Singapore
  - 30+ manufacturing sites in 13 countries

- **PRODUCT DEVELOPMENT**
  - 9 locations worldwide

- **TECHNOLOGY INNOVATION CENTER**
  - 3 locations worldwide

**QUALITY = CUSTOMER TRUST = BUSINESS**

Numerous quality registrations