Interplex

Bipolar Plates

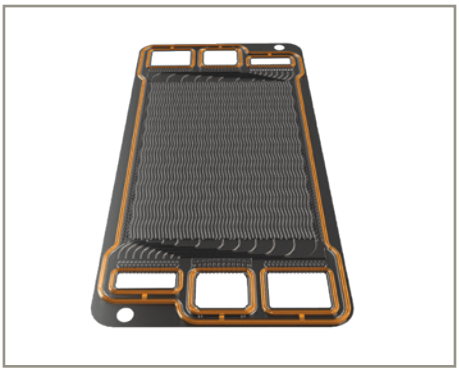
for fuel cells

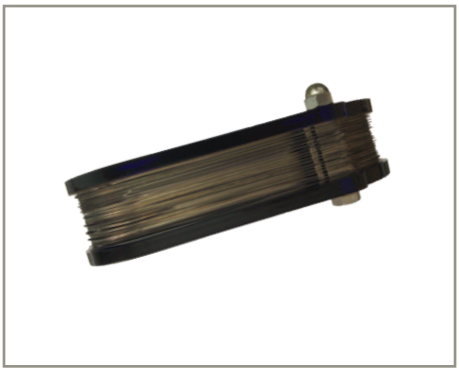
Bipolar Plates (BPPs) for fuel cells are at the heart of Hydrogen conversion into electric power.

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

- Electric Vehicles
- Yachts and ships
- Trains
- Power plants

Industries

Transportation

Cars

Buses

Trucks

Boats

Trains

Energy

H2 Production and H2 Power Plant

PROTON EXCHANGE MEMBRANE FUEL CELL (PEMFC)

Interplex's Bipolar Plates (BPPs) are a key component of the Proton Exchange Membrane fuel cells (PEMFC).

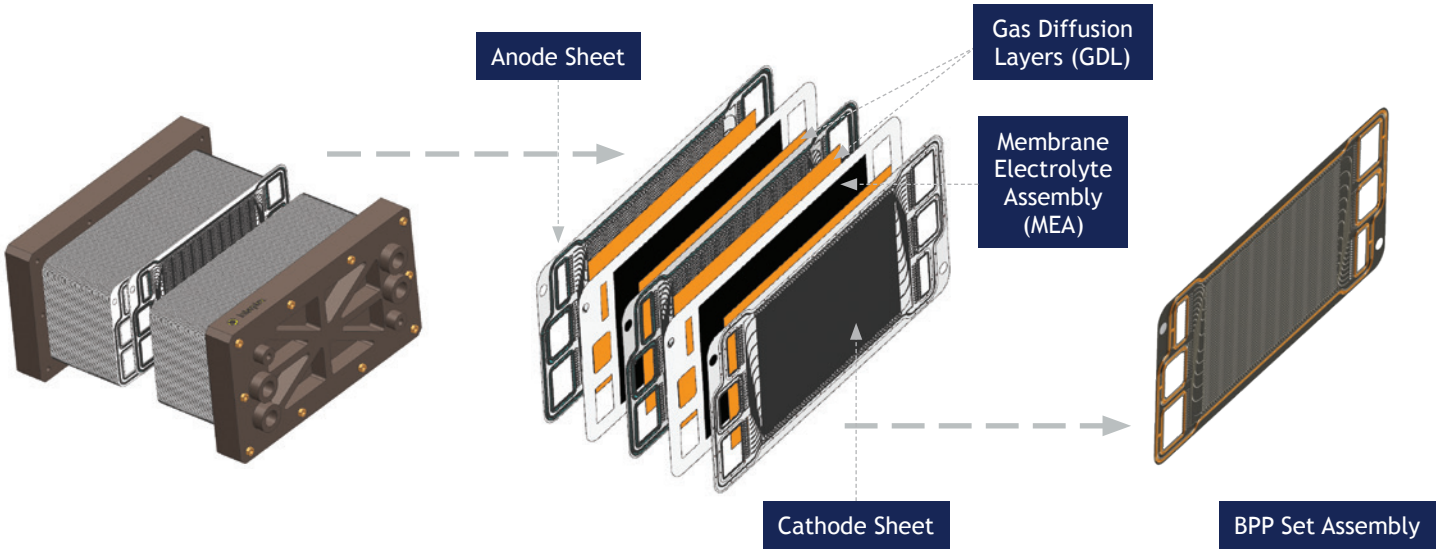
They distribute Hydrogen and air effectively, conduct the electrical current from cell to cell, remove the heat from the active area, without leakage of gases or coolant.

Specifications

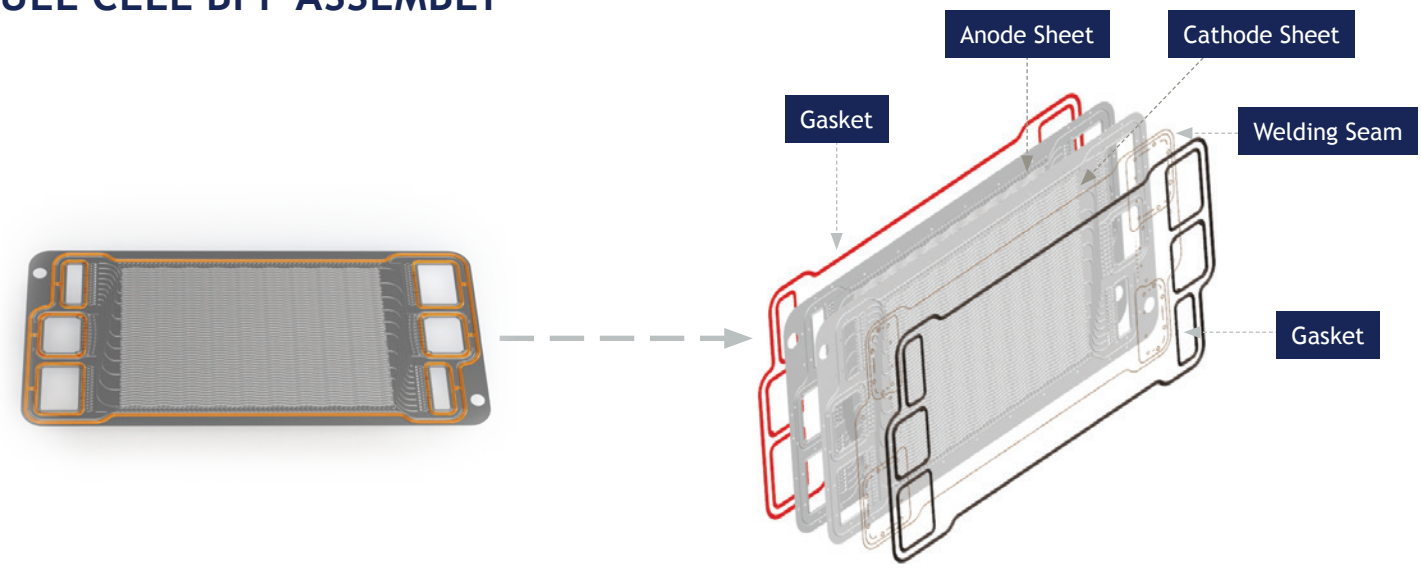
- **Material:** SUS316L Stainless Steel or similar
- **Raw Material Thickness:** 0.075mm to 0.1mm

Production Process

- High precision stamping
- Laser welding
- Gasket overmolding
- 100% leak testing



FUEL CELL BPP ASSEMBLY



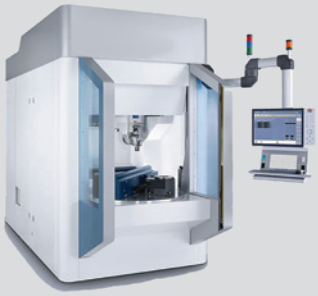
FUEL CELL BPP PRODUCTION AT INTERPLEX

Stamping

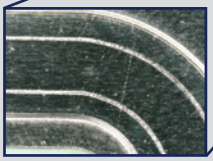
- Progressive stamping for mass production
- High-precision CNC for the flow channels tooling
- High-precision feeding system
- Rigid high-precision press

Anode Sample

Laser Welding



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

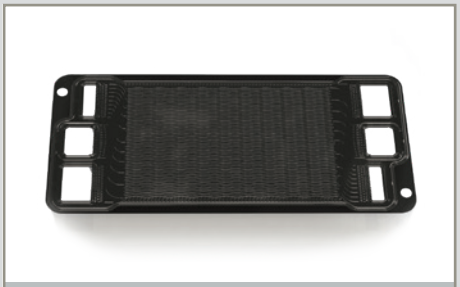


Details of Welding Line

PVD Coating

** Physical Vapor Deposition*

- Provides corrosion resistance for welded BPP sets
- Maintains low electrical contact resistance



PVD Coating on Both Sides

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

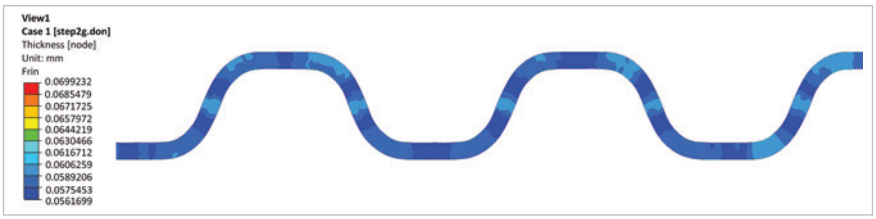
Double-sided Gasket Assembly

FUEL CELL BPP DESIGN AND TEST

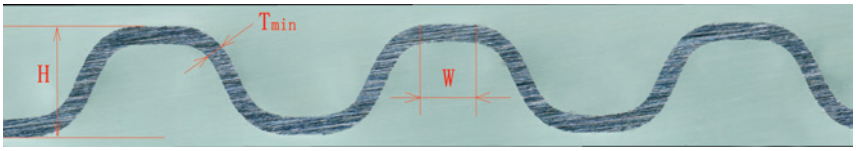
FEA Before Design

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

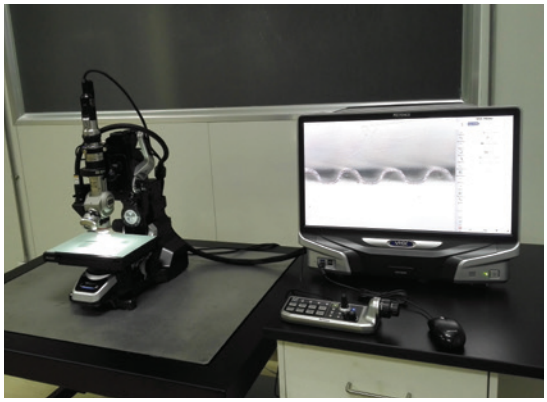
Finite Element Analysis (FEA)



Sample for Measurement



Optical Digital Microscope



Interplex Fuel Cell BPP Flow Channel Key Parameters

- Channel height: ±0.015mm
- Thickness evenness: ≤8% (active area)
- Thickness thinned ratio: ≤25% (existing sample)
- Channel flat width: ±0.03mm
- Channel pitch down to: 1.0mm

Interplex

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

CERTIFIED ISO 9001 CERTIFIED
CERTIFIED ISO 14001 CERTIFIED
CERTIFIED ISO 13485 CERTIFIED
CERTIFIED ISO/TS 16949 CERTIFIED
FDA APPROVED

QUALITY = CUSTOMER TRUST = BUSINESS
Numerous quality registrations

FCBPP-02