

Reliable Solution Provider for H₂ Mobility



KOLON Ecomate[®]-E

High Power & Durable MEA for PEMFC

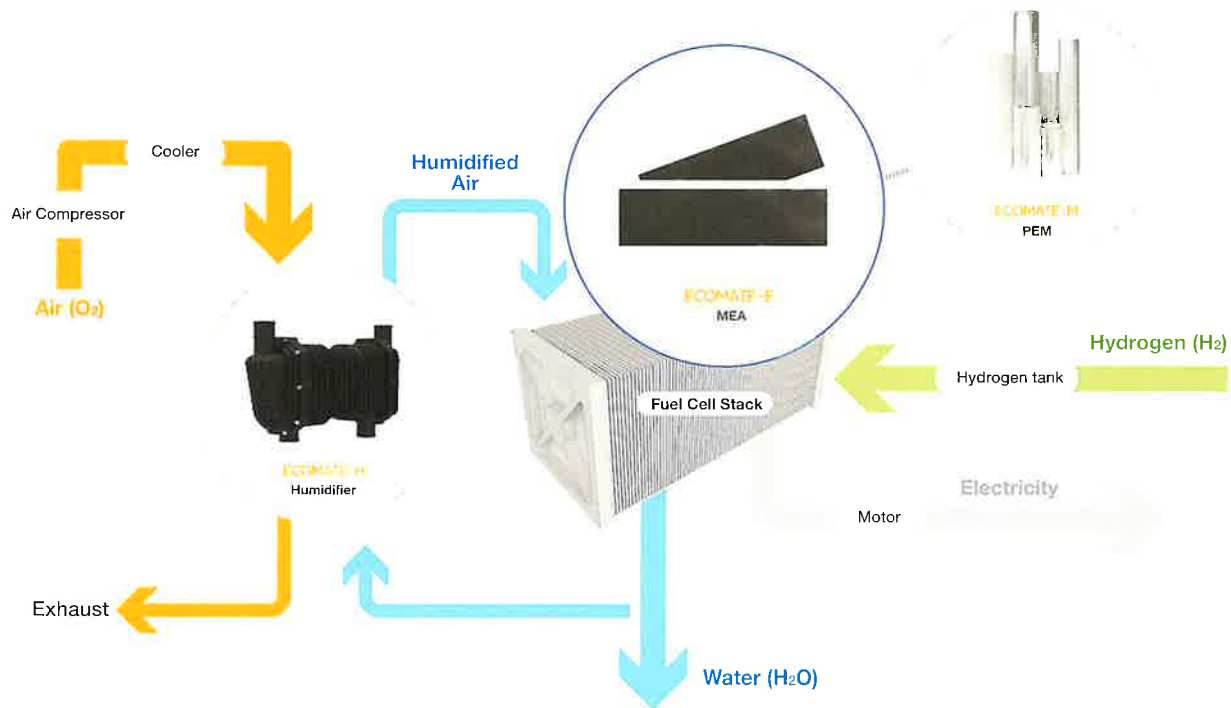


HR2

KOLON MEA for PEMFC

KOLON has developed the membrane-electrode assembly, a key unit of fuel cell since 2014.

Developed MEA is aimed for stationary and transportation applications upon H_2 mobility.



Technology

High Power & Long Durability

Reduced stack volume, Enhanced powertrain life

Operational Flexibility

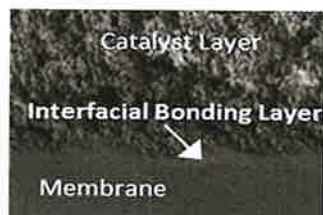
System simplification under low RH and high temperature

Reliable Manufacturing

Robust production capacity for fuel cell system

Cost Competitiveness

Lower content of fuel cell component materials



Highly Active Catalyst Layer

- Catalyst development for low Pt-loaded MEA
- Low/High EW ionomer based electrode design
- Efficient dispersion state & Uniform distribution
- Control of catalyst layer structure

Interface Control

- Improved proton transfer through controlled interfaces
- Strong interfacial adhesion
- Control of compatibility within MEA



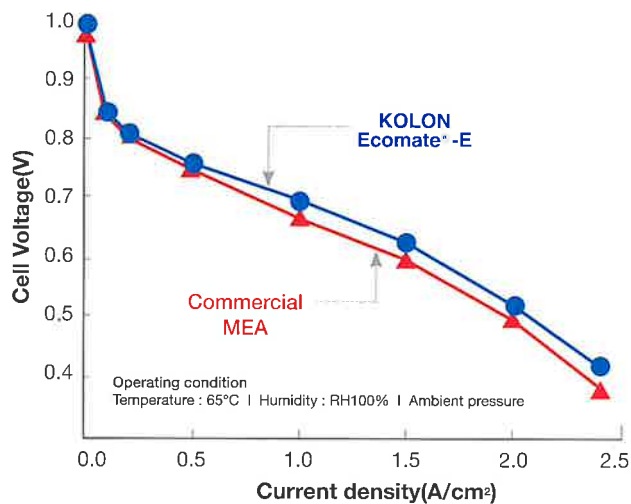
Reliable Manufacturing

- KOLON-designed continuous manufacturing process
- Scale-up product capacity
- Production of 3 - 5 - 7 layered MEA

Reinforced Membrane

- High proton conductivity
- Enhanced OCV & Wet/Dry cycling durability
- RH robustness under dynamic operation

MEA Power Performance

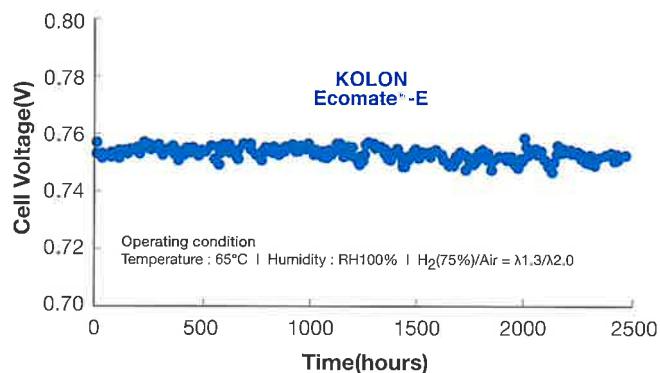


* Evaluated by international FC system maker

Applications	Features
UPS, Forklift, Back-up power	High power output in the wide range of operations
Automotive	High power performance and Longer durability
Power generation	High efficiency operated in the low current density region

* Customized KOLON-MEA design
for target applications

MEA Operation Stability



* CC operation @ 0.3 A/cm²

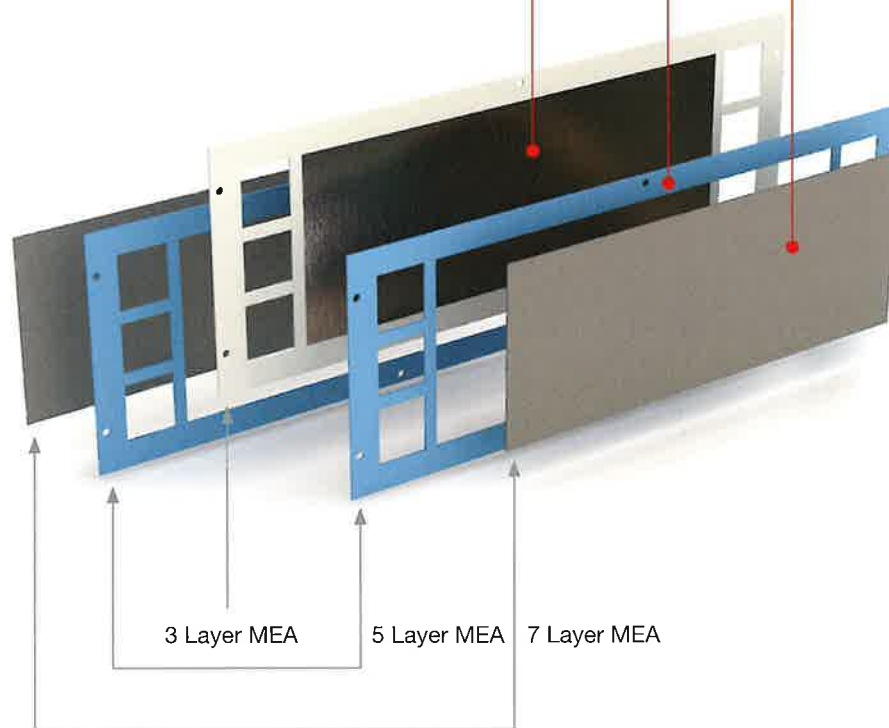


Configuration

Gas Diffusion (GDL)

Edge Protection Layer (EPL)

Catalyst Coated Membrane (CCM)

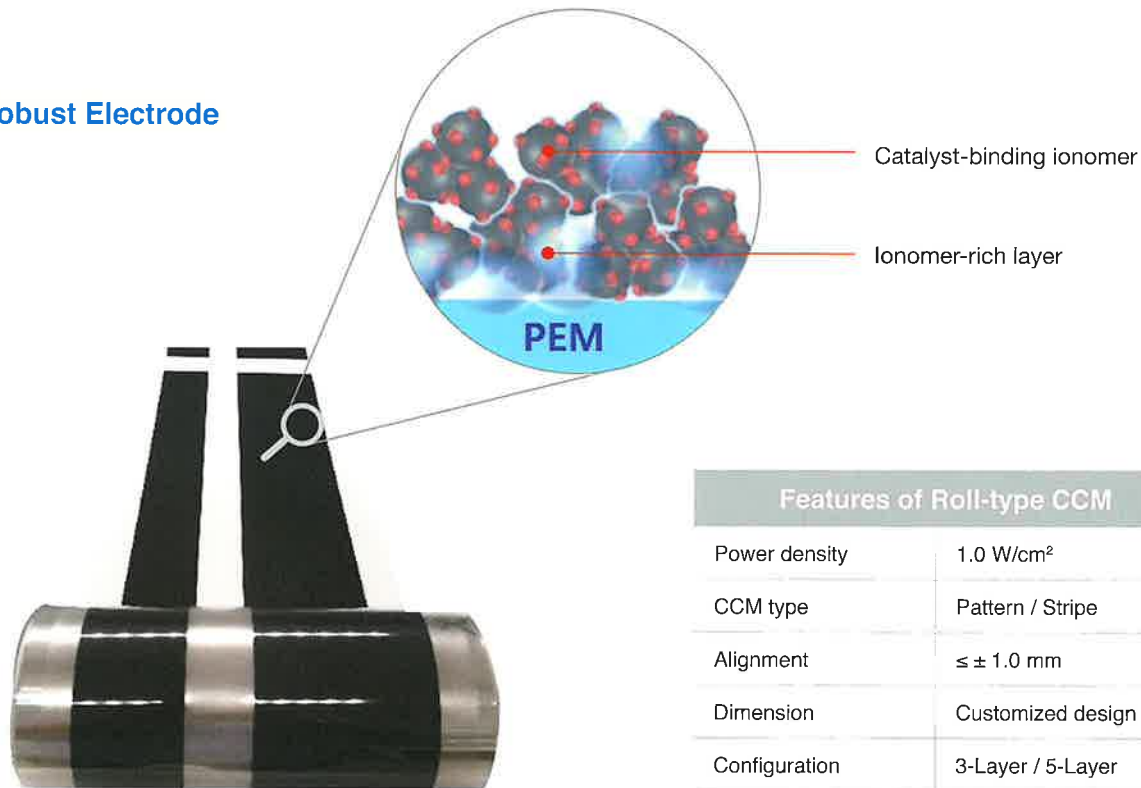


Roll-Type CCM via Roll-To-Roll process

Cost Competitive Manufacturing Process

Ionomer-modulated Catalyst Layer

Robust Electrode



Features of Roll-type CCM

Power density	1.0 W/cm ²
CCM type	Pattern / Stripe
Alignment	$\leq \pm 1.0$ mm
Dimension	Customized design
Configuration	3-Layer / 5-Layer

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