



科学材料站
SGI Materials Hub

GAS DIFFUSION SYSTEMS:

FOR PEM FUEL CELL MEAs
(MEMBRANE ELECTRODE ASSEMBLY)



Product Highlights:

- ✓ Optimized fuel cell performance
- ✓ Gas permeability
- ✓ Conductivity
- ✓ Tailored water management
- ✓ Cost effective

PRODUCT OVERVIEW

AvCarb Gas Diffusion Systems (GDS) combine carbon fiber paper, a PTFE treatment and micro-porous layer surface coating, and are optimized for the rigorous demands PEM fuel cell applications.

AvCarb has developed both anode and cathode GDS materials to suit a wide variety of operating conditions (i.e. humidity levels, temperatures, current densities). Fuel cell manufacturers worldwide rely on AvCarb GDS products for consistent fuel cell performance and durability throughout the life of the fuel cell system.

AvCarb has developed a broad range of solution for both mobile and stationary applications.

Contact us for any questions or sales information:

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Gas Diffusion Systems (GDS) Technical Data

| Property | MB-30 | GDS5130 | GDS2130 | GDS3250 | GDS3260 | GDS2230 | GDS2240 | GDS2300 | GDS2255 | GDS2185 | GDS22100 |
|---|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| Base Material | EP40 | EP55 | P75 | EP40 | EP40 | P75 | P75 | P75 | P75 | P75 | P75 |
| Nominal Thickness (@ 5.0 N/cm ²) | 205 | 283 | 265 | 238 | 220 | 270 | 260 | 260 | 276 | 252 | 326 |
| (@ 1MPa) | 150 | 185 | 195 | 173 | 165 | 20 | 190 | 190 | 236 | 208 | 255 |
| Nominal Basis Weight (g/m²) | 55 | 70 | 90 | 77 | 77 | 99 | 100 | 100 | 151 | 154 | 170 |
| Break Strength (N/m) | | | | | | | | | | | |
| Machine direction | 2800 | 2400 | 2600 | 2900 | 2700 | 2600 | 1800 | 4000 | 4900 | 4100 | 5100 |
| Stiffness (Taber) | | | | | | | | | | | |
| Machine direction | 12.5 | 28.0 | 26.0 | 12.0 | 11.5 | 24.0 | 16.0 | 28.0 | 29.0 | 25.0 | 30.5 |
| Cross machine direction | 7.0 | 23.0 | 16.0 | 6.5 | 6.5 | 16.0 | 13.0 | 19.0 | 19.0 | 17.0 | 19.0 |
| Bulk Density (g/cm³) (@ 0.69N/cm ² /1psi) | 0.27 | 0.24 | 0.34 | 0.32 | 0.35 | 0.37 | 0.39 | 0.43 | 0.59 | 0.61 | 0.51 |
| TP Electrical Resistivity (mΩcm²) (@ 1MPa) | 10 | 11 | 11 | 11 | 11 | 10 | 11 | 11 | 20 | 22 | 11 |
| Water Vapor Diffusivity (D/D₀) (D/D ₀) | 0.33 | 0.30 | 0.30 | 0.30 | 0.27 | 0.31 | 0.28 | 0.24 | 0.06 | 0.03 | 0.07 |

Buyer's Selection Guide

| AvCarb GDL | Application | Humidity | | | Current Density | | | For Cathode | For Anode |
|------------|--|-------------------------------------|----------|-----|-----------------------|--------------------------|---------------------|-------------|-----------|
| | | High | Moderate | Dry | >1.5A/cm ² | 1.5>x>1A/cm ² | <1A/cm ² | | |
| MB30 | Automotive High power density | | v | | v | | | v | |
| GDS5130 | | | v | | v | v | | v | |
| GDS2130 | | | v | | v | v | | v | |
| GDS3250 | | | | v | | v | v | v | v |
| GDS3260 | | | | v | | v | v | v | v |
| GDS2230 | | Stationary Moderate steady power | | v | v | | v | | |
| GDS2240 | | | v | v | | v | | | |
| GDS2255 | Air-cooled No external humidification | | | v | | | v | | |
| GDS2185 | | | | v | | | v | | v |
| GDS22100 | | DMFC | | | | | | | v |