

# 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:**

Email: [sales@fuelcellstore.com](mailto:sales@fuelcellstore.com)

Phone: 979 703-1925

Website: [www.fuelcellstore.com](http://www.fuelcellstore.com)

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## Gas Diffusion Systems (GDS) Technical Data

Property	MB-30	GDS5130	GDS2130	GDS3250	GDS3260	GDS2230	GDS2240	GDS2300	GDS2255	GDS2185	GDS22100
<b>Base Material</b>	EP40	EP55	P75	EP40	EP40	P75	P75	P75	P75	P75	P75
<b>Nominal Thickness</b> (@ 5.0 N/cm <sup>2</sup> )	205	283	265	238	220	270	260	260	276	252	326
(@ 1MPa)	150	185	195	173	165	20	190	190	236	208	255
<b>Nominal Basis Weight (g/m<sup>2</sup>)</b>	55	70	90	77	77	99	100	100	151	154	170
<b>Break Strength (N/m)</b>											
Machine direction	2800	2400	2600	2900	2700	2600	1800	4000	4900	4100	5100
<b>Stiffness (Taber)</b>											
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
<b>Bulk Density (g/cm<sup>3</sup>)</b> (@ 0.69N/cm <sup>2</sup> /1psi)	0.27	0.24	0.34	0.32	0.35	0.37	0.39	0.43	0.59	0.61	0.51
<b>TP Electrical Resistivity (mΩcm<sup>2</sup>)</b> (@ 1MPa)	10	11	11	11	11	10	11	11	20	22	11
<b>Water Vapor Diffusivity (D/D<sub>0</sub>)</b> (D/D <sub>0</sub> )	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 <sup>2</sup>	1.5>x>1A/cm <sup>2</sup>	<1A/cm <sup>2</sup>		
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