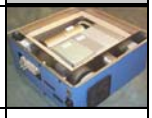
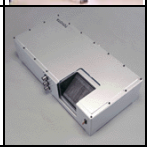
FUEL CELLS 2000
www.fuelcells.org

TRANSPORTATION FUEL CELLS – Technical Info.

Company Name	Product	Types of Fuel Cells Developed	# Of Cells in Stack	Standard Voltage	Current (A)	Power (W)	Efficiency	Size	Weight	Picture
Acumentrics	Super Cell	SOFC				100 kW				
Arotech (formerly Electric Fuel Corp.)	Large-scale zinc-air fuel cell stacks for heavy-duty electric vehicles including transit buses	Zinc/Air	846 cells in transit bus stack	250-350V	To 200A	100W/kg peak	70%	3 to 4 cc/Wh	4 to 5 gm/Wh	
Asia Pacific Fuel Cell Technologies	3 kW stack	PEM	64 cells		75 amps (150 amp. Max.)	3 kW (5.5 kW peak)		25cm high w/ 150 sq. cm active area	9.8 kg	
Asia Pacific Fuel CellsTechnologies	Fuel Cell Powered Scooter	PEM		48 volts	70 amps (max)	5 kW (7 kW max)		2083x812x1321 (mm)	143kg	
Astris Energi, Inc.	Model E6	Alkaline	LC200-30 stacks	48 V, 36 V, or 24 V		1.8 kW		21 x 23 x 17 inches		
Astris Energi, Inc.	Fuel Cell Golf Cart	Alkaline	Astris Model E6 fuel cell (under seat)							
Ballard Power Systems	Mark 902 Fuel Cell Module	PEM	N/A	280 Volts (DC voltage)	300 Amps	85 kW (Rated net output)	N/A	0.805 x 0.375 x 0.250 m (32.0 x 15.0 x 10.0 in)	96 kg (212 lbs.)	
Ballard Power Systems	Xcellsis™ HY-75 Fuel Cell Engine	PEM	N/A	250 to 450 VDC	N/A	68 kW rated @ 250 VDC	N/A	0.95 x 1.77 x 0.3 m (37.4 x 69.7 x 11.8 in)	N/A	
Ballard Power Systems	Xcellsis™ ME-75 Fuel Cell Engine	PEM	N/A	250 to 450 VDC	N/A	58 kW rated @ 250 VDC	N/A	0.95 x 1.77 x 0.3 m (37.4 x 69.7 x 11.8 in)	N/A	
Ballard Power Systems	Xcellsis™ HY-205 Fuel Cell Engine	PEM	N/A	600 to 900 VDC	N/A	205 kW @ 2,100 rpm	N/A	1.6 x 2.5 x 1.33 m (63.0 x 98.5 x 52.0 in)	2,170 kg (4,784 lbs.)	
Delphi Automotive Systems / BMW / Renault	Fuel Cell Auxiliary Power Unit	SOFC					Fuel-to-electric efficiency of > 50%			
Fuel Cell Technologies LTD	Auxiliary Power Unit	SOFC				1 kW				
Fuel Cell Technologies LTD	ALTEX AUV Power module	Al / Air	21 cells	24 VDC		300 W / 80 kWh				

Fuel Cell Technologies LTD	ARCS 4 AUV Power module	Al / Air	44 cells	60 V		2.3 kW				
Fuel Cell Technologies LTD	DH	Al / Air	10 cells	12 V		250 W (1.5 kWh)				
General Motors	GM 2001 Automotive Fuel Cell Stack	PEM (Collaboration with Hydrogenics)	640 Cells			102 kW (129 kW peak)		140 x 820 x 500 mm	82 kg (180 lbs.)	
Manhattan Scientifics, Inc.	NovArs Mid-Range Fuel Cell	PEM								
Manhattan Scientifics, Inc. / Aprilia	Fuel Cell Bicycle	PEM								
Manhattan Scientifics, Inc. / Aprilia	Fuel Cell Scooter	PEM								
Nuvera	PEM fuel cell	PEM				Scalable				
Palcan	PEM fuel cell stack	PEM				Scalable to 300 W to 1 kW				
Palcan	Fuel Cell Bike / Scooter	PEM				1 to 5 kW				
Paul Sherrer Institute (PSI)	PEM stacks	PEM	Stackable			2 – 50 kW stacks				
PowerZinc Electric Inc.	DQFC-24-3000	Zinc/Air	24 Cells	Standard 24 volts; 17.6 – 35 (operating v)	175 amps (peak)	2525 W (peak)		13x [8.5/7.7] x 7.9 in 33 x [21.5/18.5] x 20 cm	36lb (16.4kg)	
PowerZinc Electric Inc.	Scooter prototype	Zinc/Air				Uses fuel cell described above				
Proton Motor GmbH	G-Series	PEM				1 - 5 kW (complete system goes up to 80 kW - in developm ent)				
Proton Motor GmbH	H-Series	PEM				1 - 6 kW (complete system goes up to 100 kW - in developm ent)				
Schatz Energy Research Center (SERC)	Neighborhood vehicle	PEM	96	600 mV/cell		9.0 kW				
Schatz Energy Research Center (SERC)	Golf Cart	PEM	64			4.0 kW			200 lbs. (fuel cell system only)	

Siemens	Fuel Cell Bus System	PEM				120 kW				
Toyota	Fuel cell stack for use in their FCV	PEM				70 kW		65 liters of volume		
UTC Fuel Cells	Fuel Cell APU	PEM				5 kW				
UTC Fuel Cells	Series 300 ambient pressure fuel cell	PEM	200 cells/ stack			75 kW Scalable for buses				
UTC Fuel Cells	Space Program Fuel Cell	Alkaline	96 cells / stack	28 volt		12 kW each	70% stack efficiency	14 x 15 x 45 inches	260 pounds	

Notice: For additional information or comments on Fuel Cells 2000's charts, contact Jennifer Gangi at: jennifer@fuelcells.org.