

C Series

Hydrogen Generation Systems



MODEL	C10	C20	C30
	On-site hydrogen generator in two integrated, automated, site-ready enclosures. Dual-mode Operation (Selectable):		
	<ul style="list-style-type: none"> • Load Following mode automatically adjusts output 0-100% to match demand. • Tank Filling mode operates with power-conservation mode during standby. 		
ELECTROLYTE			
	Proton Exchange Membrane (PEM) - caustic-free		
HYDROGEN PRODUCTION			
Net Production Rate			
Nm ³ /hr @ 0°C, 1 bar	10 Nm ³ /hr	20 Nm ³ /hr	30 Nm ³ /hr
SCF/hr @ 70°F, 1 atm	380 SCF/hr	760 SCF/hr	1140 SCF/hr
SLPM @ 70°F, 1 atm	179 SLPM	359 SLPM	538 SLPM
kg per 24 hours	21.6 kg/24hr	43.3 kg/24hr	65.0 kg/24hr
Delivery Pressure - Nominal	30 barg / 435 psig		
Power Consumed per Volume of H ₂ Gas Produced ¹	6.2 kWh/Nm ³ 16.3 kWh/100 ft ³	6.0 kWh/Nm ³ 15.8 kWh/100 ft ³	5.8 kWh/Nm ³ 15.2 kWh/100 ft ³
Power Consumed per Mass of H ₂ Gas Produced ¹	68.9 kWh/kg	66.7 kWh/kg	64.5 kWh/kg
Purity (Concentration of Impurities) ¹	ISO 14687-1 Type 1 grade C ISO 14687-2 Type 1 grade D 99.9998% Water Vapor < 2 ppm, -72°C (-98°F) Dewpoint, N ₂ < 2 ppm, O ₂ < 1 ppm, All others undetectable		
Turndown Range	0 to 100% Net Product Delivery (Automatic)		
Upgradeability	Field Upgradeable to a maximum of 30 Nm ³ /hr (1140 SCF/hr)		N/A
DI WATER REQUIREMENT			
Rate at Max Consumption Rate	9 L/hr 2.4 gal/hr	17.9 L/hr 4.7 gal/hr	26.9 L/hr 7.1 gal/hr
Temperature	5°C to 40°C / 41°F to 104°F		
Pressure	1.0 to 4.1 barg / 10 to 60 psig		
Input Water Quality	ASTM Type II Deionized Water required, < 1 micro Siemen/cm (> 1 MegOhm-cm) ASTM Type I Deionized Water recommended, < 0.1 micro Siemen/cm (> 10 MegOhm-cm)		
HEAT LOAD AND COOLANT REQUIREMENT*			
Coolant	Liquid Cooled; Non-Fouling ¹		
Max Heat Load	33.5 kW 114,307 BTU/hr (9.6 tons refrigeration)	66.8 kW 227,931 BTU/hr (19.0 tons refrigeration)	100.2 kW 341,897 BTU/hr (28.6 tons refrigeration)
Coolant Temperature	5°C to 40°C / 41°F to 104°F		
Coolant Flowrate	Up to 76 L/min (20 gal/min)	Up to 114 L/min (30 gal/min)	Up to 167 L/min (44 gal/min)
Pressure Drop (at full flow)	Up to ~3.4 barg (~50 psig)	Up to ~3.4 barg (~50 psig)	Up to ~3.4 barg (~50 psig)
ELECTRICAL SPECIFICATIONS			
Maximum Power Required Within Expected System Life	93 kVA	176 kVA	260 kVA
Electrical Specification	380,400,415 VAC, 3 phase, 50 Hz (+/- 10% from nominal voltage) 480VAC, 3 phase, 60 Hz (+/- 10% from nominal voltage)		

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INTERFACE CONNECTIONS - Consult Mechanical Interface Diagram drawing, PD-9900-0018 for details -			
H ₂ Product Port	3/8" Parker CPI™ compression tube fitting, SS		
H ₂ Vent Port	1" Parker CPI™ compression tube fitting, SS		
DI Water Port	1/2" FNPT, SS		
Coolant Supply and Return Ports	Electrolyzer Enclosure: 1-1/2" MNPT, brass (Cell Stack); 1/2" FNPT, brass (Hydrogen Dryer) Power Supply Enclosure 3/4" MNPT, brass (Power Supply Cooling)		
Drain Port	1/2" FNPT, brass		
O ₂ Vent Port	1" Parker CPI™ compression tube fitting, SS		
Electrical	Electrical terminals inside supplied fused power Disconnect Box		
Communications	Ethernet		
CONTROL SYSTEMS			
Standard Features	<ul style="list-style-type: none"> Fully automated E-Stop Automatic fault detection and system depressurization 		<ul style="list-style-type: none"> Remote start/stop On-board H₂ leak detection
Remote Alarm	Form C relay, 5A, 250V, 150W Max. rated switching		
Remote Shutdown	Safety circuit trip		
ENCLOSURE CHARACTERISTICS			
Product Dimensions, W x D x H			
Electrolyzer Enclosure	2521 mm x 1159 mm x 2007 mm / 99.3" x 45.6" x 79"		
Power Supply Enclosure	2044 mm x 1075 mm x 2007 mm / 80.5" x 42.3" x 79"		
Est. Shipping Electrolyzer Enclosure	2693 mm x 1219 mm x 2248 mm / 106" x 48" x 88.5"		
Est. Shipping Power Supply Enclosure	2693 mm x 1219 mm x 2248 mm / 106" x 48" x 88.5"		
Product Weight	2658 kg / 5860 lbs	2976 kg / 6560 lbs	3293 kg / 7260 lbs
Est. Shipping Weight	2862 kg / 6310 lbs	3044 kg / 6710 lbs	3225 kg / 7110 lbs
IP Rating	Overall unit rating of IP56		
ENVIRONMENTAL CONSIDERATIONS - Do Not Freeze -			
Standard Siting Location	Indoor/Sheltered; level ±1°, 0 to 100% RH non-condensing; Non-hazardous/non-classified environment		
Storage/Transport Temperature	5°C to 60°C / 41°F to 140°F		
Ambient Temperature Range	5°C to 40°C / 41°F to 104°F		
Altitude Range - Sea Level	2000 m / 6562 ft		
Ventilation	Proper ventilation must be provided from a non-hazardous area, at a rate in accordance with IEC60079-10, Zone 2 NE		
SAFETY AND REGULATORY CONFORMITY			
Maximum On-board H ₂ Inventory at Full Production	0.10 Nm ³ 4 SCF 0.009 kg	0.14 Nm ³ 5.4 SCF 0.013 kg	0.16 Nm ³ 6 SCF 0.014 kg
Cabinet Ventilation with Environment	Vent fan draws fresh air up to 8.5 Nm ³ /min (300 ft ³ /min)		
Noise dB(A) at 1 Meter	< 75		
Conformity	cTUVus, Tmark (ISO22734-1, UL508A) CE (PED, ATEX, LVD, Mach. Dir., EMC)		
OPTIONS			
<ul style="list-style-type: none"> Factory Matched RO/DI Water System Factory Matched Cooler/Chiller 	<ul style="list-style-type: none"> Low Ambient Temp. Package (-10°C to 40°C) Dew Point Monitoring 	<ul style="list-style-type: none"> High Ambient Temp. Package (5°C to 50°C) Equipment Orientation 	<ul style="list-style-type: none"> Cold Ambient Temp. Package (-20°C to 40°C)

Specifications are subject to change. Please contact Proton OnSite for solutions to best fit your needs.

¹Consult Proton Applications Engineering Department for specific requirements and cooling water temperatures other than 40°C.



PROTON
THE LEADER IN **ON SITE** GAS GENERATION.

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