M30 | Hydrogen Generator

Fuel cell grade Hydrogen generation

e1 Marine's Hydrogen generation technology produces Hydrogen from Methanol – on land, on board, and on demand. This proven solution is robust and efficient, enabling you to reduce your vessel's greenhouse gas emissions, while safely and economically repowering your fleet for greater range and increased operational flexibility.

e1® Marine

Getting hydrogen to work

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Auxiliary Electrical Requirements	
Auxiliary Supply Requirements	Main Auxiliary AC Supply (Heaters): 400/230VAC, 3-Phase, 4-Wire (3C+N), 50Hz Electrical Heaters (Load Type: PWM / Variable Duty Cycle) Uninterruptible Power Supply (Double Conversion, Online) 200VAC – 240VAC, 1-Phase, 50/60Hz Internal Loads: Control System and Blowers Backup Time Requirements: 5 minutes for emergency shutdown
Cold Startup Mode	≤15 kW: 400-480VAC Supply (Heaters) – Varies on int. temp. <0.1 kW: 200-240VAC UPS Supply (Control Load) – Base <1kW: 200-240VAC Supply (Blowers) – Periodic operation
Hot Standby Mode	≤6 kW: 400-480VAC Supply (Heaters) – Constant duty cycle <0.1 kW: 200-240V UPS Supply (Control Load) – Base <1kW: 200-240V Supply (Blowers) – Periodic operation
H2 Production Mode	0kW: 400-480V Supply (Varies) <0.3 kW: 200-240V UPS Supply (Control Load) – Base
Environment	
Humidity	0 – 95% (non-condensing)
Temperature Range	0°C to 45°C
Feedstock Requirements	
Methanol Specifications	IMPCA Purity Standard / ISO 6583 (Grade A)
De-ionized Water Specifications	≥ 14MΩ-cm (Note if condensed vapor from fuel exhaust will be used, consult with e1 Marine for additional purification requirements)
Methanol/Water DI Blend Ratio	62.5% Methanol +/- 0.5wt% & 37.5% DI Water +/- 0.5wt%
Fuel Consumption and Performance	
Efficiency	≥ 80% (Full output @ 0.7barg buffer tank pressure)
Feedstock Consumption	220L/hr (3.67L/min) average @ 3000sLm
H2 Output Flow Modulation Capability	90% - 100% Rated Output (Buffer Tank pressure manipulation) 50% - 100% Rated Output (Internal feed pressure manipulation)
H2 Output Specifications	
H2 Purity	>99.97% (Dry Basis) with <0.2ppm CO2 (meets ISO 14687 Grade E purity standard)
H2 Buffer Tank Delivery Pressure	0.7 barg – 1.7 barg (H2 production varies with buffer tank pressure)
Rated Capacity	3,000sLM (16.2kg/hr) @ 0.7barg
Physical Characteristics	
Physical Size (W x D x H) in mm	1219 x 2261 x 2350
Weight	2300kg +/- 10%
Startup Time	
From Ambient Temperature	Typically <10 hours @ 25°C Ambient
From Hot Standby	From Hot Standby, time to: Start of Hydrogen Production <3 minutes 50% H2 Output (1500sLm) <12 minutes 80% Output (2800sLm) <31 minutes 100% Output (3000sLm) <48 minutes

**Specifications subject to change*

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