



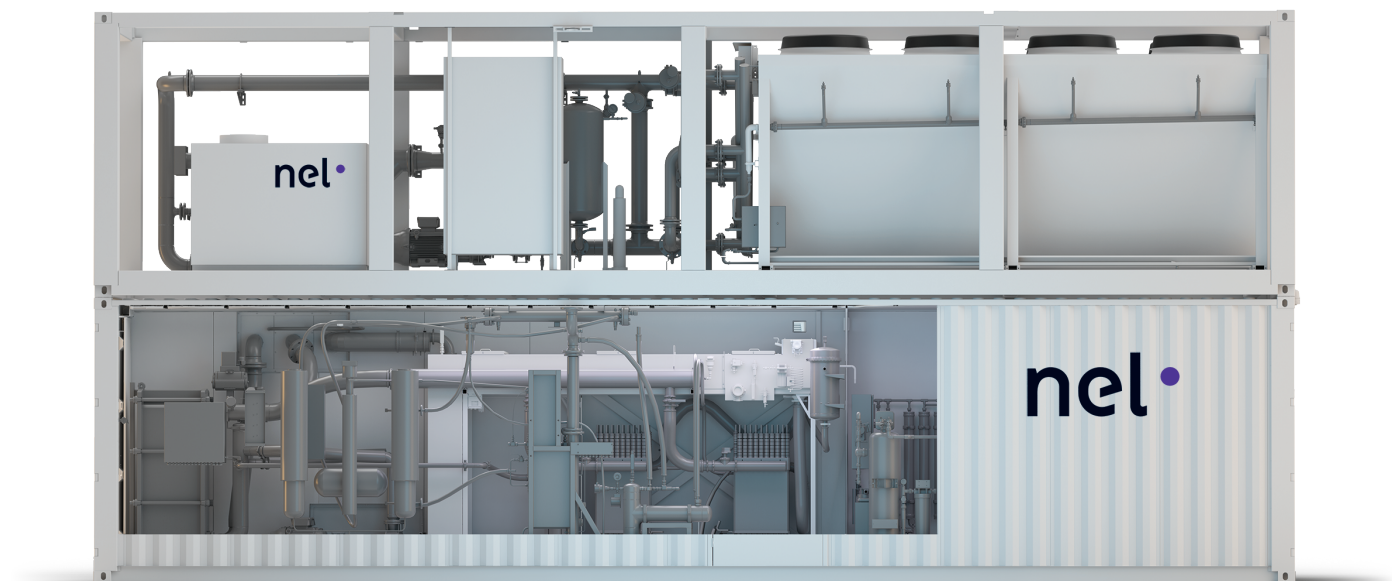
M Series Containerized Proton Exchange Membrane (PEM) Hydrogen Generation Systems



MC250 Power Supply Enclosure, Electrolyser Enclosure
and optional Thermal Control System – installation may vary.

MODEL	MC250	MC500
Class	1.25 MW	2.5 MW
Description	Fully-automated MW-class on-site hydrogen generator utilizing a modular containerized design for ease of installation and integration Tri-mode operation (selectable): <ul style="list-style-type: none">• Command mode allows operation based on customer input current command• Load following mode automatically adjusts output 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 Nm³/h @ 0° C, 1 bar SCF/h @ 70° F, 1 atm kg/24 h	246 Nm³/h 9,352 SCF/h 531 kg/24 h	492 Nm³/h 18,704 SCF/h 1,062 kg/24 h
Delivery Pressure – Nominal	30 barg (435 psig); full differential pressure H ₂ over O ₂	
Average Power Consumption at Stack per Volume of H ₂ Gas Produced ¹	4.5 kWh/Nm³	
Average Power Consumption at Stack per Mass of H ₂ Gas Produced ¹	50.4 kWh/kg	
Purity (concentration of impurities)	99.95% [H ₂ O < 500 ppm, N ₂ < 2 ppm, O ₂ < 1 ppm, all others undetectable]	
Purity (concentration of impurities with optional high purity dryer)	ISO 14687:2019(E) Type I, Type II Grade D and SAE J-2719 Type I Grade L 99.9995% [H ₂ O < 5 ppm, N ₂ < 2 ppm, O ₂ < 1 ppm, all others undetectable]	
Start-up Time (from off state)	< 8 min	
Ramp-up Time (minimum to full load)	< 15 sec	
Ramp Rate (% of full-scale)	≤ 15% per sec	
Production Capacity Dynamic Range	10 to 100%	
POTABLE WATER REQUIREMENTS		
Consumption Rate at Maximum Production	354 l/h (94 gal/h)	708 l/h (187 gal/h)
Temperature	5 to 40°C (41 to 104°F)	
Pressure	3.8 to 4.8 barg	
Input Water Quality	Potable, subject to site water quality analysis	
Water Purification System (included)	Reverse Osmosis/Electrodeionization (RO/EDI)	

MODEL		MC250	MC500
ELECTRICAL SPECIFICATIONS			
Electrical Requirements		Typical installation: 6.6 to 35 kV, three phase 50 Hz/60 Hz Low voltage, three phase required for balance of plant and ancillary equipment Uninterruptible low voltage, three phase required for backup heating for freeze protection	
Power Quality (medium voltage)		Total harmonic distortion: < 5%, power factor: > 0.9 at normal power	
PHYSICAL CHARACTERISTICS			
Dimensions W x D x H	Power Supply Enclosure	6.1 m x 2.5 m x 2.6 m (20 ft x 8 ft x 8.5 ft)	12.2 m x 2.5 m x 3 m (40 ft x 8 ft x 9.9 ft)
	Electrolyser Enclosure ²	12.2 m x 2.5 m x 3 m (40 ft x 8 ft x 9.9 ft)	12.2 m x 2.5 m x 3 m (40 ft x 8 ft x 9.9 ft)
Weight	Power Supply Enclosure	18,000 kg (39,700 lbs)	24,000 kg (53,000 lbs)
	Electrolyser Enclosure	17,300 kg (38,000 lbs)	18,600 kg (41,000 lbs)
ENVIRONMENTAL CONSIDERATIONS – DO NOT FREEZE			
Standard Siting Location		Outdoor, pad mounted Flatness 35/25 per ACI-117-10 Bottom access for AC and DC electrical connections, water and drains	
Storage/Transport Temperature		5 to 60°C (41 to 140°F)	
Ambient Temperature		-20 to 40°C (-4 to 104°F)	
Altitude Range – Sea Level		1,000 m (3,281 ft)	
OPTIONS			
• Medium voltage input 4.16 to 6.6 kV		• Thermal Control System	• High purity hydrogen dryer with dew point meter



Side cutaway view of MC500 Electrolyser Enclosure and optional Thermal Control System – installation may vary.



Specifications are subject to change. Please contact Nel Hydrogen for solutions to best fit your needs.

¹ Dependent on configuration and operating conditions.

² Plus vent, ground mounted HVAC and rooftop equipment, site specific.

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