



MRE's 342 TT electrolyzer with twin compressors and purification inside large enclosure/ storage & dispense in small



SHFA Model 300

Scalable Hydrogen Fueling Appliance

11/3/2022

cost = \$450,000.00 USD

DESCRIPTION

SHFA Model 300

With Certificate of Attestation to CSA Group IR 3-18
4 plugs each at 240 Volt AC single Phase at 60 amp

2 enclosures assembled on site 12 kilogram per day hydrogen production,
24 kilograms storage at 6,000 psi , H35 fixed orifice fueling and J2600 nozzle
J2719 fuel quality

ELECTROLYTE

Alkaline = NaOH Sodium Hydroxide at less than .75% by weight Electrolyte 5.5 ounces NaOH to 5 gallons water

HYDROGEN PRODUCTION

Net Production Rate:

scf/hr @ 70 F
Nm3/hr @ 0 C
SLPM @ 70 F
kg per 24 hours

211 scfm
7.2 Nm3/hr
144 liters/min
12 kg/24hr

If Continuously run at maximum voltage and amperage, output will vary site to site based on available power

H2 stack Delivery Pressure-Nominal:

10.16 barG (150 PSIG) stack

Power Consumed per kilogram of H2 Gas produced by Purity from Stack

48 KWH per Kilogram

48 Kilowatt hours of electricity to

Purity after flowing thru Honey Comb Purifier

99.95%

Third Party Test Performed

Twin dryers w/Silica Gel

99.998%

Oxygen Scrubber

Included

Upgradeability / storage

Included

Power Consumed per kilogram of H2 Gas produced, purified & compressed to 350 bar

yes

63 kwh per kg. optimized



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WATER REQUIREMENT

Rate at Max, Consumption Rate de-ionized, distilled or filtered rain water	.719 Liters/hr or .19 gal/hr. (2.3 gallons/kg.) De-Ionizer and activated charcoal filter included in package
Tanks and stacks total capacity	90 gallons

COOLING SYSTEM

Coolant	Water/Ethylene Glycol
Maximum Coolant Temperature	160F
Average Coolant Temperature	150F
Coolant Flow rate	14 gpm.

ELECTRICAL SPECIFICATIONS 4 separate 240 Volt AC single Phase breakers at 60 amperes

Electrical connection both male and female plug included	60 amp 2 pole 240VAC through a DSN 60 Meltric 60 amp plug with power cut off built in
Automation:	2- TECO PLCs
Average electrolyzer power input each of 3	8,500 watts Varies Based on Site Location Line Voltage and ambient Temp.
Compressor power	1,440 Watts 70% duty cycle

INTERFACE CONNECTIONS

H2 Product Port	9.525 mm (3/8")
H2 Vent Port	9.525 mm (3/8")
Water Port	12.7 mm (1/2 ")
Coolant Supply and Return Ports	12.7 mm (1/2 ")
Drain Port	12.7 mm (1/2 ")
O2 Vent Port	9.525 mm (3/8")



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CONTROL SYSTEMS

Standard Components	Electrolyzer 3 of 114 cells each Purifier twin Compressors Storage Dispenser	Features	Fully automated 12kg/day audible and text alarm system 7/7 feedin 30/50 twin piston electric compr Automatic power shutdown Automatic fault detection	On-board H2 leak & heat detection Battery Backup for PLC E stop 8 kg onboard storage at 6,000 psi 350 bar J2600 fueling Nozzle
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PLATFORM CHARACTERISTICS

multiple components delivered and assembled on site, Model 300 Total Weight both enclosure ship weight	15,000 pounds
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ENVIROMENTAL CONSIDERATIONS

Standard Sitting Location	Indoor ventilated/Sheltered/outdoor
Ambient Temperature fueling Range // operating	2 C to 33 C (35.6 F to 91.4 F) // electrolyzer operations 33 F to 100 F
Ventilation	Proper ventilation must provided for indoor use at a rate in accordance with NFPA 2 10.3.2.2.1.6

SAFETY and REGULATORY CONFORMITY

Maximum On-board H2 Inventory at Full Production	24 kg in separate smaller enclosure
Cabinet Ventilation with Environment	Yes
Oxygen Flashback arrestor	Yes
200 PSIG Pressure Relief Relief Valves	yes
Temperature Control	Yes
Equipment orientation is part of mandatory training built to codes and standards CSA IR 3-18 that include	ISO 22734-1 & 2, NFPA 2, applicable ASME, CSA 4.1

STORAGE

The Model 300 comes standard with twenty four DOT 3 A receivers at 6,000 psi max working pressure manifolded together. 6,000 psi key activated auto solenoid valve separating storage from dispensing expansion port with valve provided to accommodate additional external storage available in six packs of 6 kilograms each

OPTIONS

Increased storage by adding external Storage in 6 kg units up to 24 kg additional
order extra compressor seals in advance and desiccant and water filters

