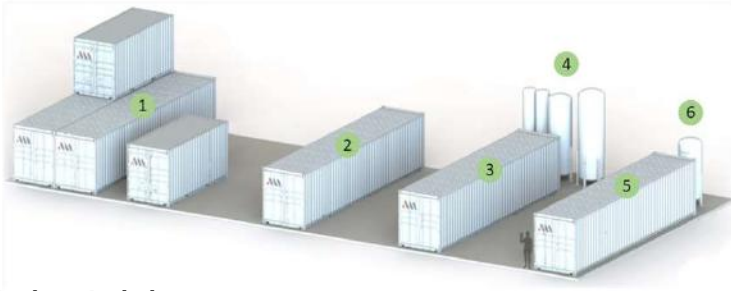




Independent Ammonia Making Machine™

Technical Specifications

Complete Ammonia Synthesis and Electrolyzer Package



Package Includes

- 5 full-size container + 2 half-size container configuration
- Control system with remote monitoring service (12-mo.)
- Installation, training, testing, and commissioning
- 12-mo. warranty

Product Specification

Description	Specification	Units
Ammonia production rate	4 [4.4]	mt/d [US tons/day]
Ammonia pressure	21.7 [300]	bar [psi]
Ammonia purity	>99.9	wt. %
Water in Ammonia	<0.1	wt. %
Oil in Ammonia	<5	ppmw
Load capacity	30~100	%
Ramp rates	10	%/min
Power consumption	10,500	kWh/mt
Deionized water consumption	2070 [487]	liters/mt [gal/US ton]
Container rating	IP45	
Site ambient temperature	-5~50 [23~122]	°C [°F]
Optional product certification	CE marked	Available upon request

Aspect	Standard
Material specifications	ASTM
Petroleum industry code	API
Pressure vessels	ASME VIII
Heat exchangers	TEMA, ASME, STD660
Pumps and compressors	ASME or API
Process piping	ASME
Instruments	API, ISA, ASME, EN, IEC, ISO, ANSI
Electrical code	IEC, IEEE
Safety valve	API
Hazardous area classification	API
Analysis	ASTM

Site Requirements

Description	Specification	Units
Water supply pressure	4 [58]	bar [psi]
Water supply flow rate	21.2 [5.6]	liters/min [gpm]
Water supply temperature	10~32 [50~90]	°C [°F]
Water supply hardness, maximum	342 [20]	ppm [grains/gal]
Water supply TDS, maximum	500	ppm
Water return (drain)	11.7 [3.1]	liters/min [gpm]
Concrete foundation area	465 [5000]	m ² [ft ²]
Concrete foundation thickness	152 [6]	mm [in]

1. Alkaline Electrolyzer

- Uses electricity to break water into hydrogen and oxygen using electrolysis. Process equipment is housed in three containers that are joined together. The rectifier transformer is housed in a separate container.

2. Deionized Water and Cooling Water Systems

- In order to produce high purity hydrogen, the input water must be high quality. Reverse osmosis and electrodeionization (RO/EDI) are used to purify the supply water. It has been designed to accept well water as a source.
- A dual circuit closed-loop cooling water system provides chilled water to the electrolyzer and synloop.

3. Automation Control Room and Air Compressor System

- Control room houses the main electrical panels, PLC, and HMI.
- A central air compressor provides clean, dry air to the nitrogen generator and control devices. A sound insulated partition separates it from the rest of the container.

4. Nitrogen Generator, Receiver Tank, and Flare System

- Using Pressure Swing Adsorption (PSA), high purity nitrogen is generated from compressed air.
- A receiver tank holds the compressed air that is used in the nitrogen generator.
- A flare system safely burns effluent gases during depressurization and continuous venting.

5. Synloop

- Green ammonia is produced using the Haber-Bosch process.
- Equipment includes hydrogen and nitrogen compressors, mass flow controllers, electric start-up heater, heat exchangers, and liquid vapor separators.

6. Reactor

- The reactor is a cold-wall, dual-bed design that incorporates AmmPower's proprietary technology.

Notable features:

- All containers are temperature controlled to maintain proper operating conditions.
- Containers that process hydrogen or ammonia have special safety features, including gas detectors and flame scanners.
- Modular design allows the layout to be easily reconfigured to match the client's location.



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Example Container Layout
Complete Ammonia Synthesis and Electrolyzer Package

