

Panamerican Enterprises, Inc.

Hydrogen Power Modules Division



Model HPM 4000 NG

Fact Sheet

We are specialists in Hydrogen Generation Plants

HYDROGEN PLANT MODULE

INCLUDED COMPONENTS AND SERVICES

Model HPM 4000 NG
 Reformer with Flue gas stack system for heat recovery
 Shift Converter High Temperature
 Desulfurization System for Feedstock
 Pressure Swing Adsorption Units (Q-PSA)
 PLC Control System
 Electrical Components
 Desuperheater Water System
 Waste Heat Boiler will produce all steam for the plant
 All Components are skid mounted (Except Reformer)
 Documentation
 On site installation Supervision
 Operation, Safety and Maintenance Training
 12 months limited Warranty on all components

OPTIONAL EQUIPMENT

Natural Gas Compressor
 Air Compressor
 Hydrogen Compressor
 Storage System
 Cooling Water System
 Waste gas Flare
 Demineralized System
 ReMote monitoring Software
 Hydrogen Purity Monitoring
 Winterization
 Modular Enclosure

HYDROGEN PRODUCT SPECIFICATION

Hydrogen Flow Rate: 4,000 SCFH (107 NCMH)
 Pressure: 150—210 psig (10.35 –13.70 bar g)
 Temperature: 100°F (34°C)
 Purity: 99.99%
 Up to 99.999% optional

Impurities:

CH ₄	< 10 ppm v.
CO ₂	< 10 ppm v.
CO	< 10 ppm v.
Dew Point	-70°F (-56°C)
Nitrogen	Balance

UTILITY REQUIREMENTS

NATURAL GAS

Type:
 Rate (Normal/Maximum):
 Inlet Pressure: (*See Note)
 Heat Content:
 Discharge Pressure (Normal/Minimum/Maximum):
 Discharge Temperature (Minimum/Maximum):

Natural Gas (gas analysis will be supplied by customer)

2,000 / 2,100 SCFH	54 / 57 NCMH
275 psig	18.9 bar g.
1,050 BTU/SCF (HHV)	1,055 KJ/Nm ³
275 / 260 / 350 psig	18.9 / 17.9 / 24.1 bar g.
60°F / 300°F	16°C / 148 °C

BOILER FEED WATER

Type:
 Rate (Normal/Maximum):
 Inlet Pressure:
 Discharge Pressure (Normal/Minimum/Maximum):
 Temperature (Normal/Minimum):

Demineralized (less than 4 ppm v. Chlorines)

43 / 47 Gal.	162 / 178 Lt
50 psig	3.45 bar g.
300 / 260 / 350 psig	21.0 / 17.9 / 24.1 bar g.
200°F / 180°F	94°C / 82 °C

Note: For Inlet Pressure less than indicated, the Natural Gas compressor will be required.

UTILITY REQUIREMENTS

COOLING WATER

Rate (Normal/Maximum):

2,956 / 3,251 Gal.

11,187 / 12,306 Lt

Inlet Pressure:

50 psig

3.45 bar g.

Inlet Temperature (Normal/Maximum):

75°F / 80°F

24°C / 26 °C

Outlet Temperature (Normal/Maximum):

85°F / 95°F

30°C / 35 °C

ELECTRICITY:

110 / 220V 3 Phases, 60 Hz 240 / 380 3 phases, 50Hz

NITROGEN:

For Testing and purging (Hydrocarbon free, less than 5 ppmv O₂)

Inlet Pressure:

110 psig

7.5 bar g.

Temperature:

Ambient

Ambient

INSTRUMENT AIR:

Pressure:

125 psig

5.6 bar g.

Dew point:

-40°F

-40°C

WEIGHTS AND MEASUREMENTS

EQUIPMENT

Hydrogen Plant Skid

Includes: Waste Heat Boiler, Shift Converter, Desulfurization System, Purification System

PLC Cabinet and Exchangers

Reformer

W

L

H

W

L

H

40 Ft

8 Ft

8 Ft

12.19 m

2.44 m

2.44 m

7.75 Ft

7.75 Ft

25 Ft

2.36 m

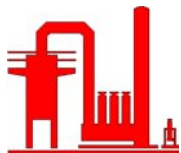
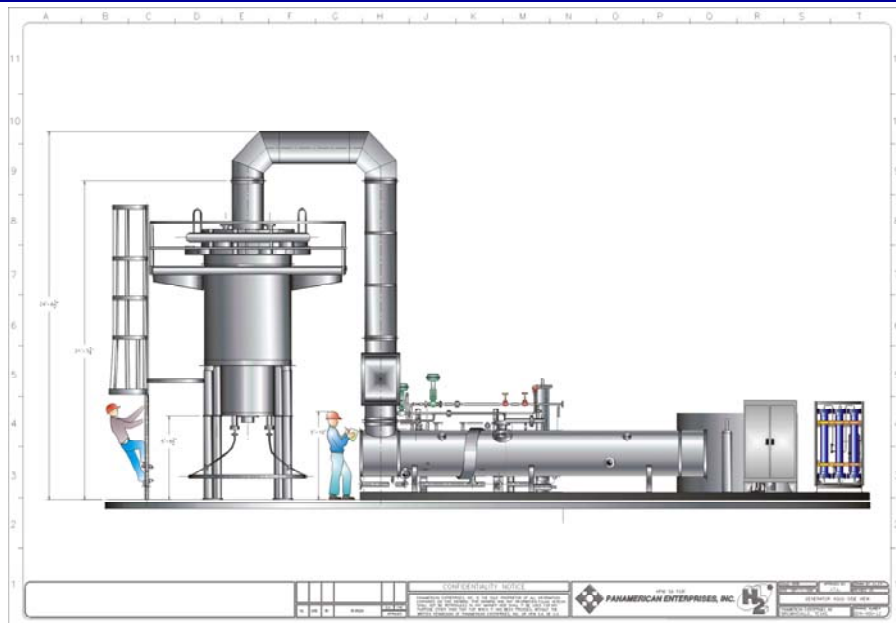
2.36 m

7.62 m

Approximate weight :

Plant can be shipped in two (2) 40' Containers

All information is nominal and subject to modification



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